2010 CALIFORNIA REGIONAL PROGRESS REPORT

ONE STATE
MANY REGIONS
OUR FUTURE

tracking Progress

toward Sustainability

PREPARED FOR The California Department of Transportation & The California Strategic Growth Council

BY Applied Development Economics, Inc.

AND Collaborative Economics, Inc.

WITH Information Center for the Environment at UC Davis & CALCOG Member Agencies

Project Sponsors

California Strategic Growth Council

The Strategic Growth Council (SGC) is a cabinet level committee proposed by Governor Arnold Schwarzenegger in his 2008 Strategic Growth Plan. That same year, Senate Bill (SB) 732 (Steinberg) established the SGC in statute. The SGC is tasked with coordinating state agencies' activities in meeting statewide goals to:

- Improve air and water quality
- Protect natural resource and agricultural lands
- Increase the availability of affordable housing
- Improve infrastructure systems
- Promote public health
- Assist state and local entities in the planning of sustainable communities and meeting AB 32 goals

The SGC is charged with supporting local and regional sustainability activities and providing relevant and timely data and information to state, regional, and local partners to assist in planning for and developing sustainable communities. The SGC developed and manages four grant programs with Proposition 84 funding from the 2006 Infrastructure Bonds:

- Sustainable Communities Planning Grants and Incentives
- Urban Greening Planning for Sustainable Communities
- Urban Greening Projects for Sustainable Communities
- Modeling Development and Data Gathering (related to the implementation of Senate Bill 375—see page 81 for information on the bill)

The SGC is coordinating with the new federal Interagency Partnership for Sustainable Communities, a multi-agency initiative which is providing resources for sustainable communities planning and investment. See www.sgc.ca.gov.

California Department of Transportation (Caltrans), California Regional Blueprints

The California Regional Blueprints program is an award-winning Caltrans transportation planning program. In partnership with multiple State agencies and departments, the program awards grants and provides support services to the State's federally designated Metropolitan Planning Organizations (MPOs) and rural Regional Transportation Planning Agencies (RTPAs) for conducting Regional Blueprints. Since 2005, Caltrans has devoted approximately $25 million in federal transportation planning funds to support Regional Blueprints.

Regional Blueprints are collaborative planning processes that engage residents in articulating a vision for the long-term growth of their region. The Blueprint process develops a new growth scenario for the region based on residents' values and priorities, and informed by advanced GIS modeling and visualization tools that demonstrate the impacts of growth and planning decisions. The resulting preferred growth scenario can then inform regional and local land use and transportation decisions and investments. Regional Blueprints are a means for regional agencies, local governments, residents, and business and civic leaders to address the challenges of balancing growth and quality of life by coordinating long-range plans for transportation investments, housing, air quality, land use and other areas.

Blueprints are ongoing in 17 urban and 15 rural regions—covering more than 98 percent of the State's population. Many MPOs are building on the preferred plans and strategies from their Blueprints to develop the Sustainable Communities Strategy required by Senate Bill 375.

For more on Regional Blueprints, visit http://calblueprint.dot.ca.gov/

Strategic Growth Council Members:

California Natural Resources Agency

Business, Transportation and Housing Agency

CHHS California Health & Human Services Agency

Governor's Office of Planning and Research

California Environmental Protection Agency

Project Funded by:

Caltrans

Foreword

The Strategic Growth Council (SGC) is pleased to support the 2010 California Regional Progress Report. This report reflects California's evolving focus on sustainability as the method to reach our shared goals for future prosperity and high quality of life. The 2010 Progress Report is guided by the SGC's mission to coordinate state activities and resources in support of the planning and development of sustainable communities and regions throughout California. The SGC's focus on integrated, collaborative planning across sectors is supported by the 2010 Progress Report's focus on the complex interconnections across indicators that drive outcomes. These interconnections point to the partnerships and collaborative policies necessary for meaningful progress toward sustainability on issues that cut across policy areas, sectors, and levels of government.

The 2010 Progress Report offers a picture of California's progress forward at this critical time for our state. Even as we confront many daunting circumstances that challenge our economy, our environment and our quality of life, we must prepare for a population that is projected to approach 55 million by 2040. How and where will we grow? How will we plan for and invest in our future? How will we become better stewards of our natural resources? How we respond to these complex and interrelated challenges will determine the long-term economic prosperity, quality of life, and the health of our communities, natural systems, and our families.

When we talk about building a more sustainable state, we are talking about fulfilling that common vision we all have for California. We all want a state that continues to thrive far into the future. We want opportunities for our children. We want a clean, healthy environment. We want to be stewards of our natural resources so they continue to support our economy and we want to preserve the iconic beauty of California that has inspired so many throughout the world. We achieve these goals of sustainability by balancing the demands of economic vitality, environmental quality, and social equity.

Today's decisions will influence how well we prepare for and address our future. As a state, we need to have a clear vision for how we want to grow and invest in our future. By presenting an initial framework for defining and measuring the State's progress toward the goal of a better California, this report can be a catalyst for this larger discussion.

Cynthia Bryant
Chair
Strategic Growth Council

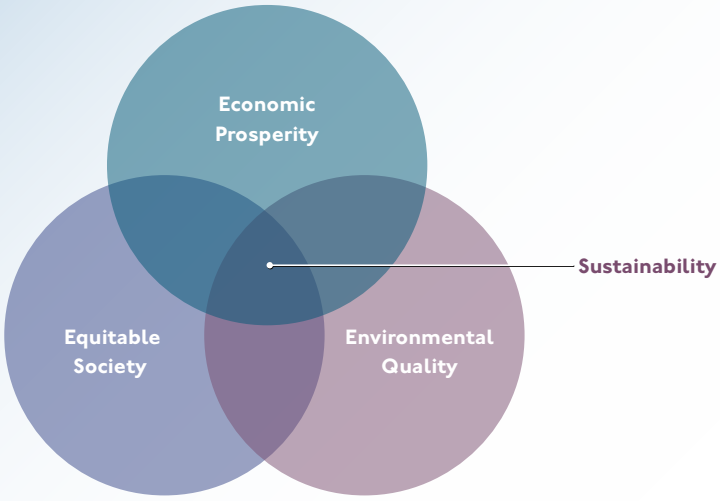
November 2010

How and where will we grow? How will we plan for and invest in our future? How will we become better stewards of our natural resources? How we respond to these complex and interrelated challenges will determine the long-term economic prosperity, quality of life, and the health of our communities, our natural systems, and our families.

Users Guide to the 2010 California Regional Progress Report

WHAT IS THE 2010 CALIFORNIA REGIONAL PROGRESS REPORT?

This is a report on the state of California's diverse regions, the building blocks for a healthy and prosperous state. It presents twenty integrated, place-based quality-of-life indicators that benchmark and measure the progress of the regions in moving toward sustainability. Sustainability is defined as the Three E's–a prosperous economy, a healthy environment, and social and physical quality of life for all residents and communities (equity). The indicators reflect the mission and objectives of the Strategic Growth Council to support the planning and development of sustainable communities throughout the state, to steward our natural resources, and to promote the health and well-being of all Californians.



WHAT IS THE PURPOSE AND VALUE OF INDICATORS REPORTS?

Good decision-making requires good information. Indicators reports provide data and information about important issues and trends that affect the future vitality of a community, region, or state from a holistic and outcomes-oriented perspective. They are most effective when used to inform decision-making and engage policy makers, managers, planners, and residents in taking action to improve outcomes. This includes guiding investment of scarce resources, especially to address disparities and accelerate progress, and fostering collaborative solutions. Sustainability indicators reports also help to educate stakeholders about what sustainability means and what is important to measure and act upon for the benefit of current and future generations.

What gets measures gets managed. Many governments, communities, and organizations use indicators reports as a good governance tool, to measure and report on progress over time, guide decision making, and hold partners accountable for improving outcomes.

WHO SHOULD USE THE 2010 CALIFORNIA REGIONAL PROGRESS REPORT?

The Strategic Growth Council and Caltrans have sponsored this report to provide an information, planning, and action resource for themselves and for decision-makers, civic leaders, managers, and planners at all levels of the public and private sectors; residents; and all those working to improve our communities, economy, environment, and overall quality of life. It has been developed to facilitate a dialogue between state and regional leaders about regional progress, challenges, and outcomes, and between regional and local partners about the state of their regions.

As such it is intended to help all Californians understand the complex interrelationships between policies, decisions, choices, and investments, and how they simultaneously impact the progress of our regions toward sustainability.

UNDERSTANDING INDICATOR SCALE

Indicators reports focus on different levels of geographical scale, which often require distinct sets of indicators to best depict trends and outcomes. Data availability plays a role in selecting appropriate indicators.

- Community indicators reports look at trends within the community, and may look at differences by neighborhood or census block (Ex: *Santa Monica Sustainable City Progress Report*).
- Regional indicators reports (Ex: the Southern California Association of Governments' *State of the Region* report) look at trends within a region, and may look at differences between communities in a region (sub-regional differences), and/or may compare themselves across regions.
- Statewide indicators reports look at statewide trends and sometimes show the differences across regions (Ex: *California Regional Progress Report*).

FOCUS ON THE REGIONS

For this report, the state's overall progress in each indicator is shown as a composite of the regions' progress. It also shows each region's progress within the time period measured. Regional indicator data is usually collected at the county level, which is aggregated for multi-county regions. Sub-regional variation (at the neighborhood or local levels) is not reported except where specific examples of local-level indicators are provided to illustrate the need for multiple scales of indicators (and data challenges).

WHAT DOES "PROGRESS" MEAN?

The state does not have numerical targets for most of the areas measured by this report, although the issues addressed by the indicators are guided by multiple state goals and objectives. Accordingly, "progress" is not toward attaining a set target (quantifiable progress); instead, progress is measured by whether or not a region is moving in the right direction (directional progress) in achieving a desired outcome.

ABOUT THE 2007 CALIFORNIA REGIONAL PROGRESS REPORT

As part of the Regional Blueprints program, Caltrans, along with CALCOG members and other partners, sponsored the *2007 California Regional Progress Report* (2007 Report). This was the State's first region-based quality of life indicators report. It demonstrated how regional systems such as the economy, transportation, housing, labor markets, and natural resources must interconnect for competitiveness in the 21st century global economy and to ensure a high quality of life. The 2007 Report identified areas of progress and challenge across a range of place-based indicators linked to the Three E's within the framework of the Blueprint goals.

PROGRESS REPORT TRANSITION: 2007 TO 2010

The 2010 Progress Report is a bridge from a specific focus on Regional Blueprints to a broader platform for state and regional sustainability. It carries forward several indicators from the 2007 Report, while introducing new indicators that reflect recent challenges and policy imperatives such as those related to health, infrastructure, green jobs, sustainable planning, and greenhouse gas emissions. The 2010 Progress Report is intended to provide a basis from which a comprehensive, statewide sustainability framework can be developed to guide the state's many sustainability-related efforts.

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California's Regions

For the purposes of this report, regions are defined according to the boundaries of California's Metropolitan Planning Organizations (MPOs).

The California part of the bi-state Tahoe Regional Planning Agency (TRPA) is included in the SACOG region due to data limitations. The overall TRPA region, under the aegis of the Tahoe Metropolitan Planning Organization (TMPO), is addressed separately as a case study.

For the rural areas in the State not within the boundaries of an MPO, multi-county groupings are based primarily on a common economy or geography.

In the future, groupings could change as regional partnerships form or regions self-define. Since data for the Progress Report is available electronically at the county level, users can create their own regional definitions as they see fit.

Regions and Their Counties

Bay Area
Alalmeda
Contra Costa
Marin
Napa
San Francisco
San Mateo
Santa Clara
Solano

Butte
Butte

Central/ Southeast Sierra
Alpine
*Amador
*Calaveras
*Inyo
Mariposa
*Mono
*Tuolomne

Monterey Bay
Monterey
San Benito
Santa Cruz

North Coast
*Del Norte
*Humboldt
*Lake
*Mendocino
*Trinity

Northeast Sierra
*Lassen
*Modoc
Nevada
Plumas
Sierra
Siskiyou

Northern Sacramento Valley
*Colusa
*Glenn
*Tehama

Sacramento Area
El Dorado
Placer
Sacramento
Sutter
Yolo
Yuba

San Diego
San Diego

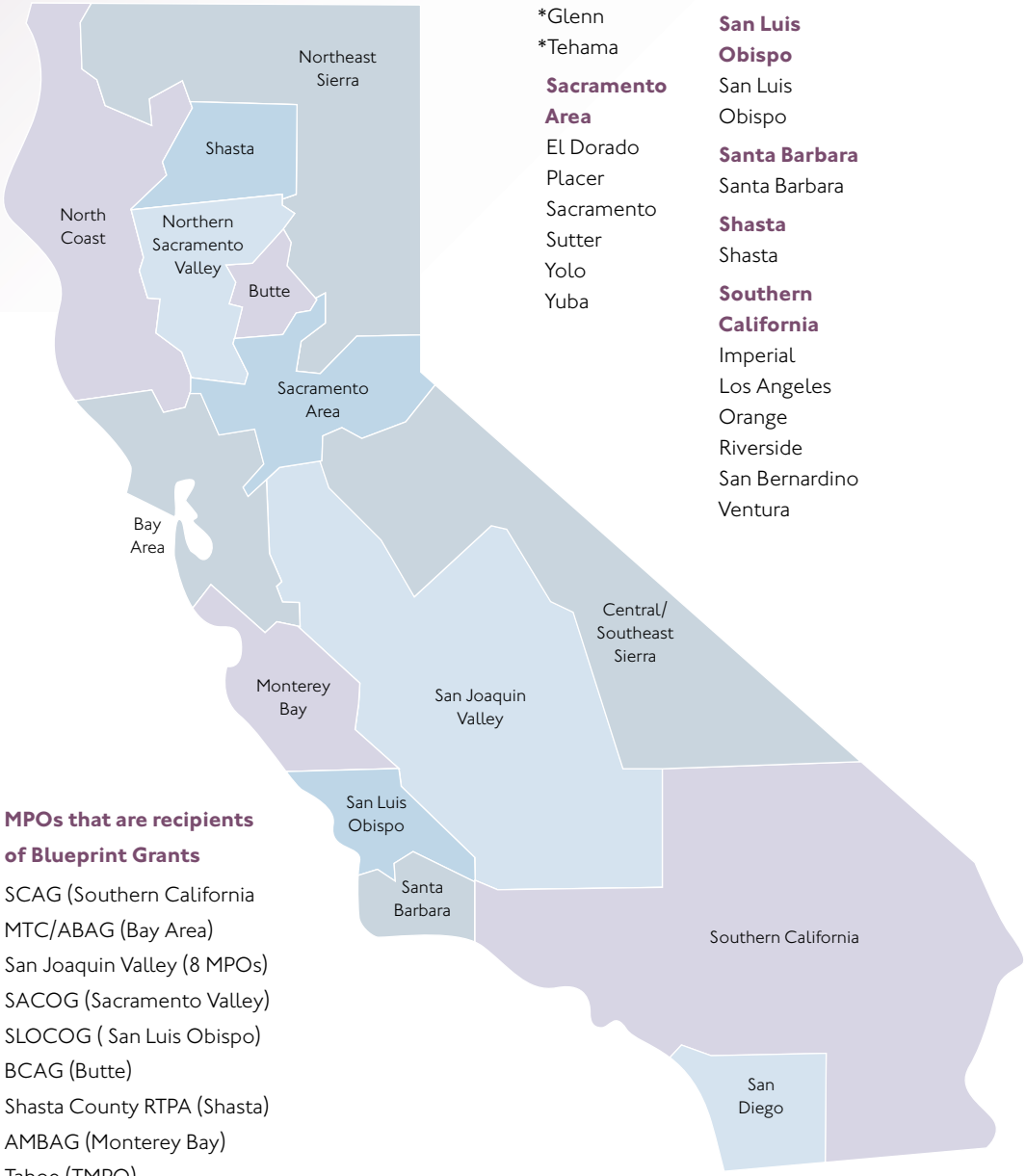
San Joaquin Valley
Fresno
Kern
Kings
Madera
Merced
San Joaquin
Stanislaus
Tulare

San Luis Obispo
San Luis Obispo

Santa Barbara
Santa Barbara

Shasta
Shasta

Southern California
Imperial
Los Angeles
Orange
Riverside
San Bernardino
Ventura



MPOs that are recipients of Blueprint Grants

SCAG (Southern California
MTC/ABAG (Bay Area)
San Joaquin Valley (8 MPOs)
SACOG (Sacramento Valley)
SLOCOG (San Luis Obispo)
BCAG (Butte)
Shasta County RTPA (Shasta)
AMBAG (Monterey Bay)
Tahoe (TMPO)
SANDAG (San Diego)

* Recipients of Rural Regional Blueprints grants
Map: Information Center for the Environment, UC Davis

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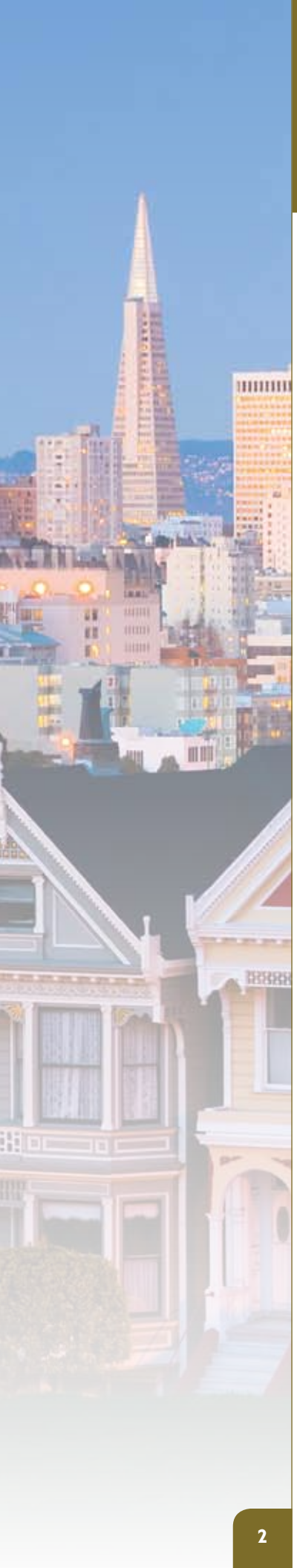
"The gift of California, for those who have not just dreamed of it, but dared to stake everything in those dreams, is to look far beyond the everyday, and in the general direction of the stars."

Pico Iyer, "My California," p. 15.



The California Story Today

As the 8th largest economy in the world, California is a dynamic, eclectic, diverse and complex state. It is home to renowned innovators, world class cities that are magnets for talent and creativity, and iconic natural resources. It is on the forefront of the demographic, social, economic, environmental, and cultural changes and challenges that the rest of the nation will eventually confront.

The complexity of California's economy, population, geography, and governance is mirrored by the complexity of the challenges it faces. In the past decade, California's population grew by 14 percent. Population growth will continue to be a driving force throughout much of the state, with California as a whole projected to increase from 38 million people in 2010 to almost 50 million in 2030, and close to 60 million by 2050. At the same time, California has been profoundly impacted by the current recession and housing crises, and faces major infrastructure and environmental challenges which are growing increasingly urgent.

Global trends of changing markets, environmental challenges, and high speed transportation and communications infrastructure are reshaping our business, social, government, and physical environments. Within this context, California must plan for a future that will be profoundly different than in the past. We all must take the time to ask–are the decisions taken every day, at all levels of the public and private sectors, moving us in the right direction? How do we work together to balance today's challenges while meeting our shared aspirations for a better future?

The 2010 Progress Report is part of an ongoing state effort to understand the intersection between land use, mobility, housing, infrastructure and natural resources preservation as they relate to a region's economic vitality, quality of life, and environmental quality. In 2007, the first California Regional Progress Report introduced regional quality of life indicators based on Regional Blueprint Planning goals. The 2010 Report builds on the foundation laid in 2007, but expands upon it to help meet the state's need for coordinated sustainability planning and assessment.

Many local, regional, and state agencies, as well as businesses and institutions, are already planning for new trends and a sustainable future. Building on the legacy of the Regional Blueprints and many other initiatives, the Strategic Growth Council is now poised to support these home-grown sustainability efforts. The *2010 California Regional Progress Report* provides a platform for a statewide perspective on the overall outcomes of the many decisions made in the context of varied challenges and circumstances. The sustainability framework presented in this report is an important first step in articulating and measuring what sustainability means for California.

Summary of Regional Progress

California is a state of immense economic, social, and environmental diversity. Looking at the complexity and variation in outcomes across all the regions tells the story of how well the state as a whole is improving its quality of life, increasing its competitiveness, and making progress toward sustainability. The Summary of Regional Progress table (Figure 1 on page 5) shows 1) Areas of Improvement, 2) Areas of No Improvement, 3) Marginal Change, or 4) Lack of Data for each region over selected time frames. This progress summary is meant to generate discussion about regional outcomes and what is needed to move all regions toward a shared foundation of prosperity and high quality of life.

The indicators shown in the Summary of Regional Progress were selected through a lengthy scoping process and with the guidance of our Project Advisory Team (Team members are included in the list of report contributors in the back inside cover). These indicators were selected to reflect the place-based focus of the Regional Blueprints and the Strategic Growth Council. More information on the indicator selection process is provided on page 16.

For many of the indicators, the most current data is from 2007 or 2008. These indicators conclude prior to the most damaging aspects of the recession, including the housing and financial market fallouts and years of state budget deficits that deepened as a consequence of the global recession. These data provides important context for interpreting pre-recession trends. The report contains a discussion of more recent as well as long-standing challenges facing the regions to provide additional context.

According to several indicators, California's regions made progress over the decade (or earlier, depending on the baseline year). In some cases, "progress" is a relative term. Improvements may have resulted from decreased economic activity or resource limitations, making it difficult to discern the outcomes based on strategic policy and planning decisions or investments. For example, Vehicles Miles Traveled (VMT) is correlated with economic activity. The economic recession started in late 2007, so gains in reducing VMT in most regions through 2008 may be partly due to decreased economic activity. Other indicators such as job growth were positive in the period studied but have since lost ground due to the recession. These factors underscore the need to consistently monitor the indicators over time.

Even with data limitations, some clear patterns do emerge across the base years of comparison, including disparities across the regions and shared trends.

Looking at the complexity and variation across all the regions tells the story of how well the state as a whole is improving its quality of life, increasing its competitiveness, and making progress toward sustainability.

FINDINGS

Efficient Transportation and Land Use

In the majority of regions, individuals were driving less and consuming less fuel, yet overall driving and fuel use were increasing due to population growth. These overall increases may impair efforts to reduce greenhouse gas emissions. All regions continued to convert agricultural land to urban and other uses.

- Californians in most regions were driving less and consuming less fuel, but statewide, Vehicle Miles Traveled (VMT) and fuel consumption continued to grow due to population increases. VMT per capita dropped five percent and fuel consumption per capita fell by nearly three percent.

- All regions converted agricultural land to urban and other uses, although some regions showed progress in slowing rates of conversion. Regions with the most converted acres of agricultural lands also showed among the highest rates of overall land conversion.

Economic Competitiveness and Opportunity

While job growth slowed through 2008, new green jobs and businesses were emerging and flourishing. Housing affordability was a continuing challenge.

- Job growth remained positive in nearly all regions from 2002–2008, although it slowed compared to the 1996-2002 period. Total jobs in California increased 15 percent from 1996 to 2002, but only four percent from 2002 through 2008.

- Wages increased in all regions between 1996 and 2008, although with large regional disparities, and gains were modest when adjusted for inflation.

- Green employment grew faster than overall employment, increasing in 12 of 14 regions.

- Statewide, the lack of affordable housing was a burden for more than half of all renters and nearly 45 percent of all owners (burden as defined by spending 30 percent or more of household income on housing). Among renters, the percent of households facing this financial burden decreased or remained steady in six regions. For homeowners, households facing the burden increased in nearly every region.

Environmental Health

Although air quality was improving, asthma and obesity were worsening health problems in many regions.

- California's multi-faceted air quality program reduced the levels of all major air pollutants in all areas of the State. Over 45 percent of Californians live in areas that meet air quality standards today, compared to 20 percent in the early 1990s. Emissions from all forms of transportation are now the largest source of air pollution in most regions, and remain the largest obstacle to clean air statewide.

- Excluding the effects of many years of higher-than-average fire seasons, all regions would have experienced reductions in particulate matter (PM 2.5) pollution.

FIGURE 1: **Summary of Regional Progress**

		Bay Area	Butte	Central/S.E. Sierra	Monterey Bay Region	N. Sacramento Valley	North Coast	Northeast Sierra	Sacramento Area	San Diego	San Joaquin Valley	San Luis Obispo	Santa Barbara	Shasta	Southern California	CALIFORNIA
EFFFICIENT TRANSPORTATION AND LAND USE																
Vehicle Miles Traveled	per Capita, 2001-2008															
	Total, 2001-2008*															
Vehicle Fuel Consumption	per Capita, 2000-2007*															
	Total, 2000-2007															
Conversion of Agricultural lands to Urban & Built-up Uses	1996-1998 to 2004-2006															
Urban Greening*	per Capita, 2010															
ECONOMIC COMPETITIVENESS AND OPPORTUNITY																
Job Growth	2002-2008															
Wage Growth*	1996-2008															
Green Employmment & Establishments*	Employment, 1995-2008															
	Business Establishments, 1995-2008															
Housing Affordability	Renters, 2005-2008															
	Owners. 2005-2008															
ENVIRONMENTAL HEALTH																
Air Quality*	Particulate Matter 2.5, 2000-2004 to 2005-2009															
Asthma	2001-2007															
Overweight & Obesity	2001-2007															
RESOURCE EFFICIENCY AND CONSERVATION																
Energy Use per Capita	Non-Residential Electricity Consumption, 2001-2008															
	Residential Electricity Consumption, 2001-2008															
	Non-Residential Natural Gas Consumption, 2001-2008															
	Residential Natural Gas Consumption, 2001-2008															
Urban Water Use*	per Capita, 1995-2005															

* Denotes that the measure and/or indicator is new for this report and was not included in the 2007 California Regional Progress Report.

The region experienced an improvement over the designated time period (three years or longer). An improvement could mean decreased or increased values or rates, depending on the indicator.

The region has not made progress on the indicator; yellow signals caution

There was a small gain, but may not reflect a measurable change due to lack of precise data.

Reflects where data are not available, especially for rural or smaller regions.

Summary of Regional Progress

- Although air quality improved in most regions, the proportion of the population diagnosed with asthma has been growing. Despite the success of some regions in slowing or reversing the share of the population with asthma, many regions are doing worse.

- Obesity was on the rise in almost all regions and is a continuing health problem. In 2007, 52 percent of Californians were overweight or obese, an increase of 1.6 percent since 2000.

Resource Efficiency and Conservation

Californians were using less water per capita and statewide, but more electricity per capita.

- Progress toward more efficient use of energy resources was mixed. Residential electricity use per capita increased in all regions and total electricity consumption per capita increased four percent. Several regions reduced non-residential electricity.

- Total natural gas consumption per capita declined in California by 13 percent, dropping in both residential and non-residential uses, although progress was mixed across the regions.

- Californians made significant improvements in urban water efficiency; water use per capita fell in every region between 1995 and 2005, resulting in a net reduction of 18 percent statewide.

PROGRESS SINCE 2007

It is possible to look at the regions' progress since the 2007 Report for the twelve indicators that remained the same (three with slight variations) for the 2010 and 2007 Progress Reports. Below is a general summary of progress across the 14 identified California regions since the 2007 Report. Both reports used 2000 as the baseline year when possible. Differences in overall trends can be seen for the two periods.

FIGURE 2: **Regional Progress in 2007 versus 2010**

INDICATOR	REGIONS IMPROVING IN 2007 REPORT	REGIONS IMPROVING IN 2010 REPORT
Vehicle Miles Traveled	7 (per household)	11 (per capita)
Vehicle Fuel Consumption (per capita)	1	8
Conversion of Agricultural Lands	5	6
Non-Residential Electricity Consumption	0	5
Residential Electricity Consumption	1	0
Non-Residential Natural Gas Consumption	1	6
Residential Natural Gas Consumption	14	5
Asthma	1	3
Obesity	3	2
Job Growth	14	11
Housing Affordability Renters	0 (35% burden)	6 (30% burden)
Housing Affordability Owners	0 (35% burden)	0 (30% burden)

Statewide Challenges and Opportunities

California is globally recognized as a leader in economic and environmental entrepreneurship and innovation. These attributes place California at the forefront of global efforts to develop green technology that supports sustainable development and healthy lifestyles. California must now turn this creativity to designing and developing more sustainable communities. To accomplish this, we must meet the challenges of long-standing issues such as unmet and changing infrastructure needs; environmental quality and health challenges; growing natural resource scarcities; and increases in climate related hazards such as drought, wildfires, flooding, extreme heat, and threatened eco-systems. These challenges are made more complicated by the deeply felt recession, housing crises, and chronic budget deficits.

California is a mosaic of extremely diverse regions. For example, the state's rural regions account for over a third of its land area. These sparsely populated areas, with few or no incorporated cities, have some of the most famous, varied, and visited natural landscapes in the world, including: the giant redwoods, Yosemite, Death Valley, the Sierra Nevada Mountains, Big Sur and the spectacular jagged coastline of the North Coast. California is also home to rapidly growing new and developing metropolitan regions such as the San Joaquin Valley and the Inland Empire, as well as some of the largest metropolitan areas in the nation. The Southern California Association of Governments (SCAG) region is the largest in California, with 189 cities and 19 million people, nearly half of the State's population.

Given this diversity, each region faces different challenges in making progress towards sustainability. There are also shared challenges that cross jurisdictional boundaries, such as housing, water, transportation, and air quality, that can best be addressed through proven integrated and collaborative approaches involving local, regional, state, and federal partners across all sectors–public, private, and civic. Solutions to these challenges must be sensitive to regional differences, but must also address the combined impact on overall state sustainability. A long-term planning horizon with a broad focus is needed to address the complexity of these challenges.

California's strengths lie in its abundance of natural, man-made, and human capital resources. The ability to leverage these resources for statewide benefit has established California as one of the world's economic powerhouses. Each of California's regions has unique resources that in concert form the state's strong economic base. The depletion of any one of these resources threatens the stability of the whole. The challenge is to find that balance between revitalizing the state's economy and modernizing the built infrastructure; conserving and managing California's natural treasures; and caring for and advancing the state's human capital – another expression of the Three E's of sustainability.

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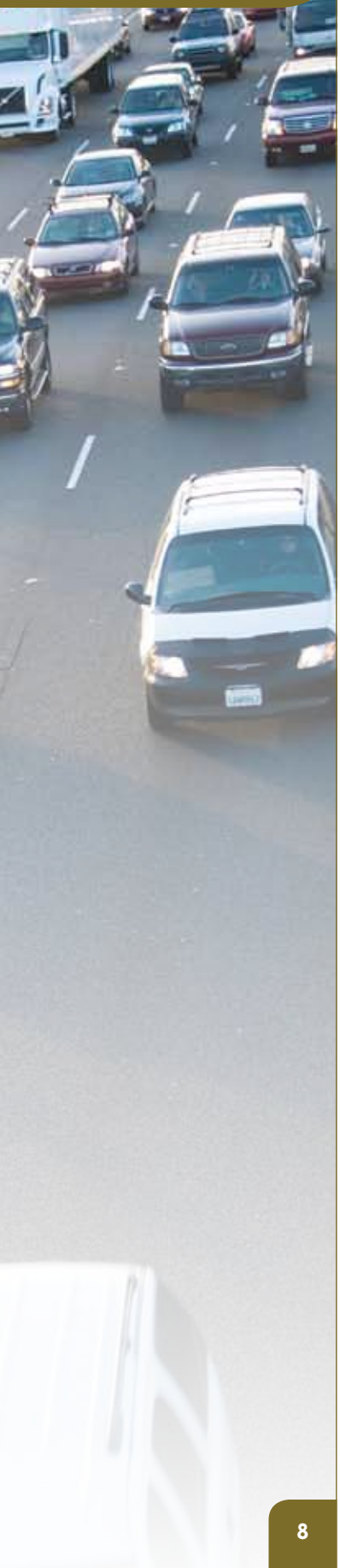
CHALLENGES

Key place-based challenges facing California's regions are summarized as follows. These challenges influenced the development of the Report's Indicator Sustainability Framework and provide context for the discussion and interpretation of the indicators in the following sections of the Report. They also illustrate the interconnectedness of the issues.

This section starts with an overview of California's demographic and economic trends. The economy and demographics are primary drivers for the performance of many indicators in the Report, and are important background for understanding the state's trends.



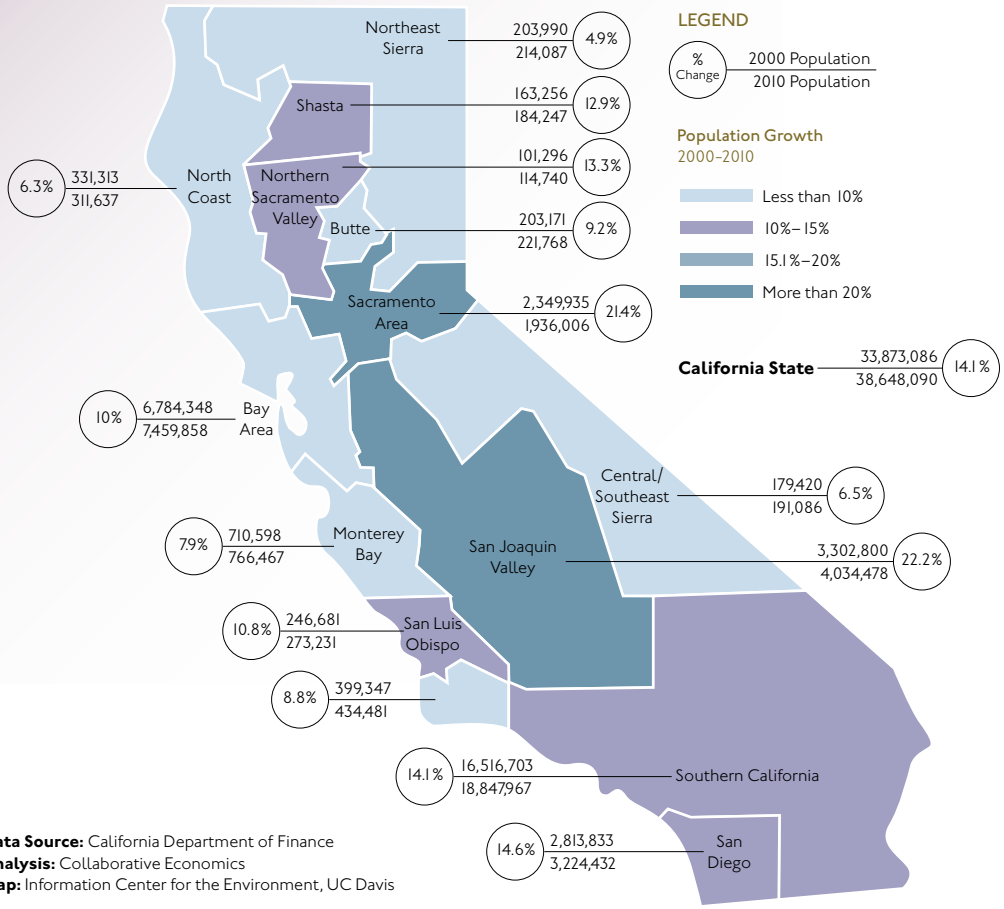
Statewide Challenges and Opportunities

DEMOGRAPHIC TRENDS

Population: California's population grew by 14 percent over the past decade, even with two economic downturns during this time. Population growth will continue to be a driving force throughout much of the state, with California as a whole projected to increase from 38 million people in 2010 to 50 million in 2030, and close to 60 million by 2050. The San Joaquin Valley and the Sacramento Area experienced increases in population of more than 20 percent since 2000. The Inland Empire (a sub-region of Southern California composed of Riverside and San Bernardino counties) had the highest rate of growth in the state, at 29 percent. These high growth areas contain significant agricultural and resource lands and are all located in inland areas of the state. Much of the development that has occurred in these regions has been residential, and many inland residents commute long distances to and from existing job centers in the coastal regions.

Without a serious effort to address the issues of regional jobs-to-housing balances and low housing affordability within the urban areas that spur inland growth, this pattern will continue to drive up per capita Vehicle Miles Traveled (VMT). This increase in driving strains transportation and other infrastructure systems, while continuing the pressure for rapid conversion of agricultural and other resource lands to urban uses.

FIGURE 3: **Regional Population**
2000–2010



Data Source: California Department of Finance
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis

An emerging trend for some of California's counties within rural regions that are geographically beyond urban "commute sheds" has become loss of population. Many rural areas are experiencing aging populations and workers, fewer new workers and young families, and the loss of or inability to grow or attract jobs. These trends have serious implications for the economic viability of California's rural regions, especially with the limited replacements for retiring baby boomer workers with critical job skills in key economic sectors.

Aging Population: While most evident in rural California, the aging of the population is rapidly changing the future of the entire state. Many of the baby boomers, born between 1946 and 1964, have already begun retiring in large numbers. In 2008, many of those born in 1946 would have been eligible for early or reduced Social Security benefits.

In 2007-2008, 26 percent of the population was under 18, while 10.7 percent of the population was 65 and older. In 2030, the population 65 years of age and older is projected to be 18 percent. Of those, almost five percent (about 2.3 million residents) will be 80 years or older. The state needs to plan for the housing, transportation, and service needs of these older cohorts, and educate and train a young workforce to replace these highly skilled workers.

Growing Diversity: In 2007, almost two thirds of those 65 years of age and older were white, while 47 percent of those under the age of 18 were Latino, with whites comprising 34 percent of this age group. The New California is increasingly racially mixed, with Latinos as the new majority. It is increasingly young, mobile, and connected by social media technologies, with preferences for urban, walkable, and amenity-rich environments–neighborhood types different than traditional suburban development. These new lifestyle preferences will change market demand. In order to attract and keep an educated young workforce and concurrently meet the needs of an aging population, California will have to plan differently than it did 50 years ago for housing, mobility, recreation, and access to a wide range of services.

ECONOMIC TRENDS

Unemployment: California has been hard hit by the global recession, with some of the highest job losses and unemployment rates in the nation. Job growth declined in 2008 by 1.3 percent and fell again in 2009 by a massive 6 percent. In 2010, employment growth will be slightly positive at best. In July 2010, California's unemployment rate hit 12.3 percent, nearly three percent higher than the national rate. Inland California's unemployment rates were far higher. For example, Imperial County had 30.3 percent unemployment, Yuba County was at 19.6 percent, and Stanislaus County was at 17.6 percent. One reason that California's unemployment rate is so much higher than the national average is because of the collapse of construction activity.

The impacts of the recession and unemployment have ripple effects on many other areas, including many of those represented by indicators in this report. This may manifest as an apparent reversal or slowing in some trends in areas such as fuel consumption or vehicle miles traveled, but may be a temporary dip in otherwise steady trends of growth.

Poverty: Households with income lower than the federally-determined amount necessary to buy basics such as food, shelter, clothing, and other essentials are classified as living in poverty. Poverty thresholds are set annually by the U.S. Office of Management and Budget (OMB) and vary by family size. In 2008, the poverty threshold for an individual under the age of 65 was $11,201.

Generational shifts may be changing attitudes towards cars

The 80 million Gen Yers represent the biggest generation in U.S. history and are a large potential market for cars and housing. Surveys show that this generation focuses on technology-related consumption, and many believe that cars are damaging to the environment. Gen Yers show a higher preference for riding transit and using car sharing services than previous generations. According to Kiplinger Magazine, research indicates that motorists aged 21 to 30 years of age now account for 14% of miles driven, down from 21% in 1995. In terms of Boomers, the next largest generation, millions will begin turning 65 next year, an age at which car purchases drop off sharply.

Source: "Generation Y Giving Cars a Pass," by Jim Ostroff, Kiplinger Online, 2010.

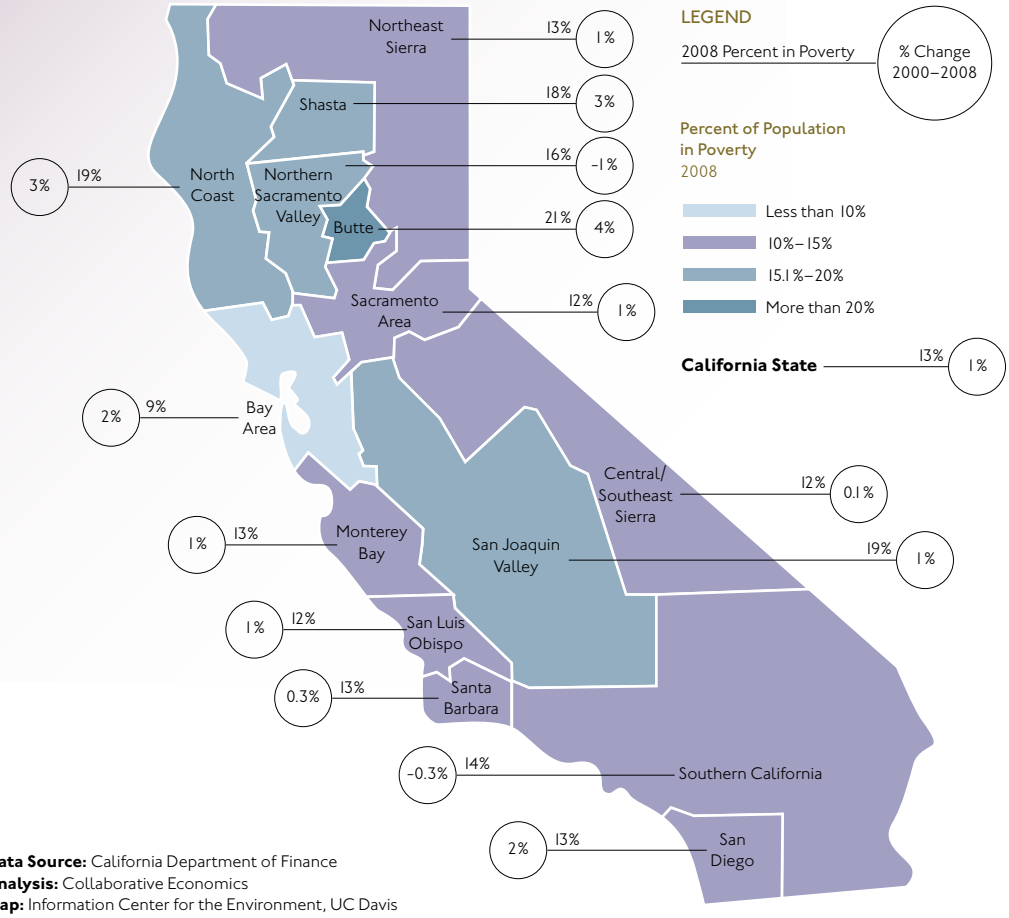
Statewide Challenges and Opportunities

Roughly 14.5 percent of Californians were living in poverty in 2008 and this rate increased to 15.3 percent in 2009, consistent with national trends. Many regions had poverty rates that were much higher in 2008 than the state average: Butte (21 percent), San Joaquin Valley (19 percent), North Coast (19 percent), and Shasta (18 percent).

Although no age, race, or ethnic group escaped the rise in poverty from 2008 to 2009, almost 24 percent of the state's Hispanics fell below the poverty line during 2009, and 20.5 percent of African Americans fell below the poverty line. Approximately 20 percent of those under the poverty line (two million) were children.[1]

California's higher cost of living, especially housing costs, in relation to other states further exacerbates the difficulties for Californians who are living in poverty. Pervasive and increasing poverty inhibits progress toward sustainability, although this connection is difficult to measure across specific issue areas at the regional scale due to data limitations.

FIGURE 4: **Regional Poverty**
2000–2008



Data Source: California Department of Finance
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis

[1] "Poverty Strengthens Foothold in California," by Phillip Reese, The Sacramento Bee, September 17, 2010.

California Challenges

The following summarizes some of the key challenges that the regions and the State must address in their planning and investing for long–term prosperity and quality of life:

Housing Crisis

The 2008–10 housing market downturn has had the short term impact of driving home prices down, and consequently driving housing affordability up in many once-inflated markets. Together with federal and state homebuyer tax credits (now expired), this allowed new households to purchase homes. Simultaneously, the deep recession, high unemployment, and mortgage crisis triggered a record number of defaults and foreclosures, and an increase in the housing mortgage cost burden for owners. Although mortgage defaults have dropped since the middle of 2009, long-term mortgage delinquencies continue to grow in 2010, adding to the pipeline of distressed housing sales. As a result, home prices are expected to decline for the fourth year since peaking in 2006, and may not stabilize until 2011 or later. Even after home price corrections, the persistently high housing costs in some of California's major urban areas may still be spurring the "drive till you qualify" market. The foreclosure crisis has exacerbated the need for affordable rental housing, as an estimated quarter of all foreclosed units were rentals.

The phenomenon of cheaper workforce housing far from urban centers continues to pose major repercussions. Research from the Center for Neighborhood Technology and other studies have shown that transportation costs increase substantially in suburban and other areas farther from urban centers, with incremental travel costs wiping out the savings offered by cheaper housing about 10 miles from the urban centers (see page 54 for further discussion). Housing and transportation costs in these areas can combine to consume averages of 60 percent of household income, contributing to higher percentages of defaults, particularly when gas prices are high.

High housing costs, including for rentals, are especially devastating for lower income workers, young families, seniors, and the disabled, for whom housing costs may represent as much as two-thirds of total income. Even with improved affordability, for the homeless, families at risk of homelessness, veterans, and those with physical and mental disabilities, housing is not affordable and lacks the supportive services needed to promote stability.

As huge numbers of existing homes change hands, some properties, especially foreclosures, are purchased by real estate investors and speculators. With homebuyer tax credits expired, investors are re-entering the market in a major way. There will continue to be impacts on housing and land use for years to come in ways that are presently not well-understood.

Congestion

Building our way out of congestion is no longer a tenable solution for financial, environmental, and quality of life reasons. Local and county governments as well as regional and state agencies' budgets fall far short of the funds needed for basic maintenance of the current roadway system. Current patterns of land use

"Livability is about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safe streets."

U.S. Federal Highway Administration, www.fhwa.dot.gov/livability.

Statewide Challenges and Opportunities

and infrastructure development, often called sprawl because of the distance between destinations, have resulted in overall increases in VMT that will continue to increase congestion and maintenance costs over time. Efficient goods movement, air quality, population health, economic viability and quality of life are threatened by this trend. Viable transportation alternatives to traditional single-occupant motor vehicle trips are needed to provide the land use efficiencies that can reduce the need for and distance of vehicle trips, and offer more choices in housing and transportation.

Pressure on Agricultural Lands, Open Space, and Ecosystems

Despite the temporary reprieve in development pressure on California's agricultural and natural lands resulting from the current housing and economic downturns, there is a great need to establish priorities and policies for designating appropriate land uses and key areas to conserve. Some of the richest agricultural lands in the country are in the path of the fastest population growth. Water shortages and Williamson Act funds reductions are among the factors contributing to mounting financial pressures that increase the likelihood of farmers and landowners selling or converting their lands for housing or other development. It is more important than ever to maintain the viability of our agricultural sector to ensure food security, reduce dependency on transporting food long distances (food miles) with increasing energy and environmental costs, support regional economies, and provide local access to healthy foods, especially for underserved communities.

There is also growing recognition of the need to preserve critical ecosystems and corridors to allow for migration of plant and animal species, especially in response to climate change. Loss of habitat, water management conflicts, invasive species, and now climate change are crucial factors affecting the long-term survival of California's unique endemic species.

Water

Total demand on water supplies continues to rise because of population, economic activity, environmental and water quality needs, and regulatory demands. At the same time, many regions face diminishing supplies from their imported water sources and local surface, groundwater, and reclaimed water sources. Longstanding concerns over the availability, quality and distribution of water are growing, as water managers must deal with increasingly complicated issues.

These challenges include: greater drought impacts, increasing flood risk, declining ecosystems including problems of watershed health, impaired water bodies, and aging infrastructure. Water resources vary from year to year and location to location. The Sacramento-San Joaquin Delta—the water supply for 25 million Californians—"faces serious ecosystem problems and substantial seismic risk that threaten water supply and reliability."[2] Many other groundwater basins suffer from overdraft and pollution. "The Colorado River, an important source of water for Southern California, has suffered an historic drought… Throughout California, flood risk grows as levees age and more people live and work in flood plains. Changing weather patterns resulting from changing climate will affect the level and timing of water flows."[3]

[2] "Managing an Uncertain Future, Climate Change Adaptation Strategies for California's Water," Department of Water Resources, the Resources Agency, October 2008, p. 3.
[3] ibid.

Air Quality	California's multi-faceted air pollution control program has resulted in significantly cleaner air throughout the State. The proportion of California residents breathing clean air has more than doubled, from 20 percent in the early 1990s to 45 percent today, even while the State's population has increased by over 30 percent during the same time. Despite this progress, pollution levels in inland areas such as the San Joaquin Valley, increasingly stringent federal air quality standards, and the ever-increasing number of vehicles being used to move people and goods requires the development of more innovative ways to reduce emissions. The associated health care costs of poor air quality are enormous.
Energy	Reliance on fossil fuels contributes significantly to regional air pollution and global climate change and has resulted in adverse impacts on human health, many ecological systems, and the economy. Dependence on foreign sources of energy—nearly two-thirds of our energy sources—greatly reduces the reliability and security of this vital resource and subjects consumers to external price and supply shocks. The Congressional Budget Office projects that an increase in energy prices over the next ten years will reduce the U.S. standard of living as people spend more of their income on energy and less on other goods and services.[4]
Climate Change	In addition to some of the impacts of climate change cited above, there are additional issues the state is addressing: 1) Changes in the seasonal availability of water will lead to a reduction in the State's hydropower resources, which accounted for 14.5 percent of the California's total system power in 2007. 2) Transportation infrastructure including port facilities is at risk if sea levels rise. 3) Real estate assets will be affected by increases in the frequency and severity of wildfires, projected to increase by 12-53 percent; by sea level rise and erosion; and by increased frequency and severity of Pacific storms. 4) Extreme events such as heat waves and floods will pose significant challenges to agriculture, forests and fisheries, and to public health. 5) Heat waves and wildfires will increase air pollution and increase the risk of heat-induced health problems.[5]
State Budget Crisis	State operations, infrastructure investments, natural resources management, and employment are all being affected at the community, county, and regional levels. Services that have been severely reduced—such as transit operations and redevelopment funds for economically distressed areas—are also those services critical to achieving sustainable communities goals.

Climate change is already affecting California's water resources. "Warmer temperatures, altered patterns of precipitation and runoff, and rising sea levels are increasingly compromising the ability to effectively manage water supplies, floods and other natural resources. Adapting California's water management systems in response to climate change presents one of the most significant challenges of this century."

Source: "California Climate Risk and Response," Executive Summary, November, 2008, David Roland-Holst and Fredrich Kahrl, for Next Ten, p. 2.

[4] "The Climate Prosperity Handbook," International Economic Development Council, July 2009, p. 4.
[5] "California Climate Risk and Response," Executive Summary, November, 2008, David Roland-Holst and Fredrich Kahrl, for Next Ten

Statewide Challenges and Opportunities

OPPORTUNITIES

The short and long-term challenges facing California's regions are indeed daunting. The impacts of the global economic recession are far-reaching and profound. Many economists and business leaders are characterizing this crisis as the "Great Reset," which will fundamentally transform the way we live, work, use technology, plan our communities, invest in infrastructure, and manage our natural resources, while opening the opportunities to restructure these things in more sustainable ways.

California has many resources and assets it is bringing to these challenges, not the least of which are intellectual capital and technology and policy innovations applied to problem solving. California has a long tradition of innovation and leadership in areas as diverse as information technology, biotechnology, agriculture, entertainment, and energy. According to the *Green Innovation Index 2009*, "In each of these areas, the State has helped drive waves of innovation, with each wave providing the basis and momentum for successive periods of innovation. California has consistently benefited from breakthroughs that have improved our quality of life and economic vitality."[6] The Index found that California is entering a new wave of innovation in energy efficiency and clean energy. This wave provides a foundation for California's progress on sustainability.

California's assets and resources include: a high share of national venture capital that is being directed into California's clean tech and clean energy innovations; new technologies being developed throughout California's regions that address local and regional sustainability needs; state and federal infrastructure funds that are aligned with Regional Blueprints and other efforts to develop or redevelop in more resource-efficient and leveraged ways; new partnerships as evidenced by the Strategic Growth Council and the federal Interagency Partnership for Sustainable Communities; and new planning resources such as the SGC's Sustainable Communities grants and the Department of Housing and Community Development's Catalyst Projects for California Sustainable Strategies Pilot Program. California's many policy drivers are providing a foundation for the next wave of innovation around sustainability, including initiatives around "smart mobility," green building, integrated resource management, the Smart Grid, and reduction of greenhouse gas emissions. (See Appendix page 81 for a summary of these policy drivers).

The "Great Reset" is shaping the context for state and regional policy and planning. As noted in the summary of key challenges, there will continue to be impacts on transportation, housing, land use, natural resources, and environmental and public health for years to come in ways that are presently not well-understood. Planning for sustainability will be critical to shaping the post-Reset environment.

While the State can provide technical and policy support and grants for the development of sustainable communities, progress ultimately will be determined by local and regional land use and infrastructure decisions. These many localized decisions collectively determine the outcomes, impacts, and progress of the regions and the state. Collaboration between local, regional, and state entities, along with the private and non-profit sectors, is essential to achieve progress at any level. The Progress Report is a resource to see how well we are collaborating to meet the challenges before us and mobilizing our assets for this new future.

[6] California Green Innovation Index 2009, Next Ten, prepared by Collaborative Economics, p. 6, 2009.

New Resources: Federal Interagency Partnership for Sustainable Communities

In 2009, U.S. EPA joined with the U.S. Department of Housing and Urban Development (HUD) and the U. S. Department of Transportation (DOT) in a new partnership to help communities nationwide. Through a set of livability principles that will guide the agencies' efforts, this partnership will coordinate federal housing, transportation, and other infrastructure investments to promote equitable development, protect the environment, help to address the challenges of climate change, and enhance the economy. Funding for sustainable communities will be guided by these **Livability Principles**:

Provide more transportation choices. Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

Promote equitable, affordable housing. Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and ethnicities to increase mobility and lower the combined cost of housing and transportation.

Enhance economic competitiveness. Improve economic competitiveness through reliable and timely access to employment centers, educational opportunities, services and other basic needs by workers, as well as expanded business access to markets.

Support existing communities. Target federal funding toward existing communities—through strategies like transit oriented, mixed-use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.

Coordinate and leverage federal policies and investment. Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan for future growth, including making smart energy choices such as locally generated renewable energy.

Value communities and neighborhoods. Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

See http://www.epa.gov/smartgrowth/partnership/.

"More and more people around the world are expressing an interest in learning how to make their local assets into destinations within their cities that work as catalysts of economic growth. As a result, quality-of-life factors such as vibrant public spaces and more livable cities increasingly could become major economic drivers in attracting and retaining that capital."

Source: "The Upside of a Down Economy: Going Local," by Fred Kent, Urban Land Institute Magazine, May 2009, p. 38.

Progress Report Indicators and Framework

The 2010 California Regional Progress Report's focus on emerging issues and alignment with the objectives of the Strategic Growth Council required a new conceptual framework to guide the indicator selection. This section contains the process for selecting the indicators, the Matrix of Sustainability Objectives developed to guide indicator selection and alignment, the conceptual framework for the 2010 Progress Report, and recommendations for future refinement of the framework.*

PROGRESS REPORT INDICATORS

Scoping the 2010 Report

The preparation of the 2010 Progress Report began in 2009 with an extensive scoping process. The original 2007 Progress Report Advisory Team of state agencies, CALCOG and regional transportation planning agency members, U.C. Davis, and other Blueprint stakeholders was expanded to include new public and civic/non-profit partners to guide the development of the 2010 report (see inside back cover). Early in the scoping process, the Advisory Team identified recommendations for the evolution and focus of the California Regional Progress Report going forward, noting that the Report should:

- Tell a compelling story of California's progress toward a sustainable future;
- Keep a core set of indicators to compare over time and a dynamic set of indicators to capture emerging areas of importance;
- Address the priority information and data needs of policymakers, rather than just reporting on what is available;
- Improve indicators related to vehicle miles traveled (VMT), infill development, jobs/housing balance, housing affordability, and natural resources;
- Develop indicators for important new policy areas, especially water efficiency/conservation, greenhouse gas emissions targets, use of renewable energies, and public health;
- Invest in filling critical information and data gaps at the local and regional levels where good data does not exist (such as for infill development) but is foundational for tracking progress toward sustainable growth patterns; and continuing gaps for rural areas.

Where possible, the 2010 Progress Report incorporates these recommendations. Where a longer time frame and dedicated resources are required to address specific recommendations, these are noted as areas for future work and improvement. Based on the scoping process recommendations, the Progress Report Project Team, with the Advisory Team, selected draft indicators to initiate data availability and constraint assessment.

Matrix of Sustainability Objectives

The scoping process also identified a need to establish a statewide set of consistent integrated measures and indicators across all state agencies. State agencies may measure different aspects of a larger issue based on their distinct missions, but there is no mechanism to develop a composite picture for the state as a whole. Additionally, agencies may measure the same indicator using different methodologies or data. This was identified as an area that could benefit from

State agencies may measure different aspects of a larger issue based on their distinct missions, but there is no mechanism to develop a composite picture for the state as a whole.

coordination and an overarching framework for measurement. The Strategic Growth Council's objectives and coordinating role (see inside front cover) provided a logical platform for advancing the Report's framework beyond the Regional Blueprint Planning goals.

As an initial step toward coordinating State sustainability measurement, the Project Team worked with SGC staff to develop a Matrix of Sustainability Objectives (Matrix) based on the policy areas with related sustainability objectives currently being pursued by the SGC, its member agencies and departments, and other related state efforts. The Matrix is a collection and fusion of many state sustainability efforts, and includes a list of potential progress measures and indicators that could be used to track progress toward sustainability for each of these major policy areas (see next page).

Using the Matrix and the recommendations of the Advisory Team, the Project Team consulted with SGC staff and the multi-agency Climate Change, Land Use and Infrastructure (CCLU-In) policy and work group of the State's Climate Action Team to develop a potential suite of priority indicators for the 2010 Progress Report.

Indicator Selection

The final number of indicators selected for inclusion in the 2010 Progress Report was limited by a significantly smaller budget than in 2007. This is due to fiscal constraints affecting the 2007 Report contributors. Even with a somewhat reduced number of indicators, the Team was able to identify many potential indicators fitting the CCLU-In and Advisory Team's recommendations that, when woven together, could tell an updated story of regional progress. These candidate indicators underwent a final screening using the indicator criteria developed for the 2007 Report: 1) alignment across the regions; 2) ability to be measured with credible, reliable data; 3) outcome-based (rather than inputs); 4) clear, understandable, and easily communicated; and 5) available for as many regions as possible.

The scoping process reconfirmed that progress in certain priority policy areas is difficult to measure due to the lack of readily available data. One of the highest priority indicators, the establishment of a baseline for tracking greenhouse gas emissions reductions in the 18 MPO regions, will be developed now that the California Air Resources Board has set reduction targets, and can be included in future Progress Reports. For another priority area–tracking progress on more efficient land use through infill development, increased density, and improved access to jobs and transit–data are not presently available across all regions. Instead, prototype indicators from selected regions are included in this Report which could be replicated across all the regions for future tracking.

The 2010 Progress Report contains 20 interrelated indicators across 13 of the Matrix's Policy Areas. Nine indicators from the 2007 Report are the same, three are slightly modified versions of previous indicators, and eight are new indicators which better represent important emerging issues or add broad overall yardsticks. The new indicators are noted on the Summary of Progress Chart on page 5. Indicator prototypes are included to illustrate new opportunities for future data collection efforts.

* See http://calblueprint.dot.ca.gov for the Scoping Process Report and more detailed description of the process to develop the Report's conceptual framework and selection of indicators.

The Matrix of Sustainability Objectives is a work in progress. It is intended to help identify what additional measures and indicators could be added in the future to help define what sustainability means for California and measure the State's progress toward meeting its sustainability goals. The indicators selected by the Project Team, Advisory Team, and State partners are highlighted on the Matrix. Data are not yet available for all the indicators listed.

Matrix of Sustainability Objectives, State Planning Priorities and Potential Measures and Indicators of Regional Progress

POLICY AREA	SUSTAINABILITY OBJECTIVES AND PLANNING PRIORITIES	POTENTIAL REGIONAL PROGRESS MEASURES AND INDICATORS*
Greenhouse Gas Emissions	Meet State Goals for greenhouse gas emissions reductions	Reduced Greenhouse Gas Emissions; **reduced vehicle miles traveled (VMT)**; improvements in meeting regional targets; emissions reduced from use of broadband technologies
Air	Improve Air Quality	Emissions reductions; decrease in days exceeding 8 hour ozone standard; **decrease in PM2.5**
Transportation	Reduce Need for Automobile Use, Improve Options	**Reduced vehicle miles traveled (VMT**); more efficient movement of people and goods; decreased daily vehicle hours of delay; increased transit ridership; increased transit service miles; increased transit-oriented development; increased transportation choices (bike, transit, pedestrian); increased bike lanes; VMT reductions from use of broadband technologies
Energy (transportation)	Reduce Vehicle Fuel Consumption	**Decreased fuel consumption**; increased alternative fuels; increased alternative energy vehicles; increased transportation choices; increased transit ridership
Energy (buildings, water conveyance, etc.)	Improve Energy Efficiency and Conservation	Increased renewable energy resources; **increased energy conservation**; increased energy efficient buildings (LEED certified); increased solar panel installations
Land Use and Housing	Encourage Sustainable Land Use/Efficient Development Patterns, Ensure Adequate Supply of Housing and Land for Housing	**Increased infill and compact development**; increased availability of affordable housing; increased adequate supply of appropriate housing types; increased transit-oriented development; **reduced housing burden for renters and home owners** (e.g. costs greater than 30% of income); increased development of "complete communities"; increase in number of green housing units; improvements in housing and transportation affordability index, increased commercial development near transit
Natural Resources	Encourage Sustainable Land Use/Efficient Development Patterns, Protect Natural Resources	**Decreased conversion of agricultural lands to built-up uses**, increased lands in protected status, including protected agricultural lands, habitat, wildlife corridors, and open space; increased conservation easements; increased defensible space for wildfire protection

Water	Improve Water Conservation, Quality and Reuse	Increased water use efficiency; **increased water conservation**; increased surface and ground water storage; decreased number of impaired water segments; improved water planning to support more efficient development patterns; increased sustainable water supplies
Health	Improve Environmental Health Impacts	**Decreased share of population with asthma**; decreased visits to emergency room or hospitalizations associated with air pollution; **decreased share of overweight and obese population**; increased access to health care services, including through telemedicine; increased access to healthy foods; improved public safety; improved access to recreation and green space; **improved urban greening**, improved mental health
Equity	Revitalize urban and community centers	Increased investment in existing communities, including rehabilitated infrastructure systems; **increased infill development**; increased availability of affordable housing; **increased job growth**; improved public safety; **increased urban greening**; improvements in housing and transportation affordability index
Equity	Promote Equity	Increased housing affordability; **reduced housing burden for renters and home owners**; **increased access to transit**, jobs, health services, good schools, good schools, healthy foods (healthy food access index), parks and recreation, regional services and amenities; improved community environmental health
Infrastructure	Improve infrastructure systems	Increased resource and land use efficiencies; increased use of green building materials; increased building energy efficiencies; increased investment in existing communities; increased wireline and wireless broadband infrastructure
Urban Greening	Increase green amenities in the urbanized areas	**Increased parks, urban open space** and other green amenities; increased tree canopy and urban forest health; improved health of waterways, wetlands and other ecological resources; decreased storm water runoff
Economy	Strengthen the economy	Increased regional economic competitiveness; **increased job growth**; increased living wage job growth; **increased wage growth**; increased competitive advantage in the green economy; **increased number of green jobs and establishments**; reduced unemployment
Waste	Increase Waste Reduction and Recycling	Increased diversion of waste from landfills; increased recycling of electronic waste; increased recycling of food waste and conversion to compost; increased recycling of building materials

Sources: California Sustainable Communities Matrix for Sustainability Elements and State/Regional/Local Programs, Ca. Dept. of Conservation and Strategic Growth Council, Sustainable Communities Planning Grant and Incentives Program Guidelines
* **Note** – Data are not yet available for all indicators
Legend: **blue** indicators are in the 2010 Progress Report; **teal** are prototype indicators in the 2010 Progress Report

The Matrix of Sustainability Objectives identifies additional measures and indicators that could help define what sustainability means for California.

PROGRESS REPORT FRAMEWORK

FRAMEWORK FOR THE 2010 REPORT

The page opposite depicts the 2010 Progress Report's Regional Sustainability Framework. The new conceptual framework for the 2010 Progress Report builds on the existing state planning priorities set forth in AB 857 (2002), the Strategic Growth Council (SGC) Objectives, and the 2009 Regional Blueprint program goals. Based on the Scoping Process Advisory Team recommendations, Matrix of Sustainability Objectives, and the final indicator selection process, the result is a set of integrated measures of progress toward sustainability. The twenty chosen indicators create a bridge from the foundation of the 2007 baseline to a more complete portrayal of our progress toward a sustainable future.

These twenty indicators have been organized into four interrelated groupings, with the Three E's interwoven across all groupings through the indicators' linkages, context, and contributing factors. The four groupings that represent the range of indicators in the 2010 Report are:

- **Efficient Transportation and Land Use**
- **Economic Competitiveness and Opportunity**
- **Environmental Health**
- **Resource Efficiency and Conservation**

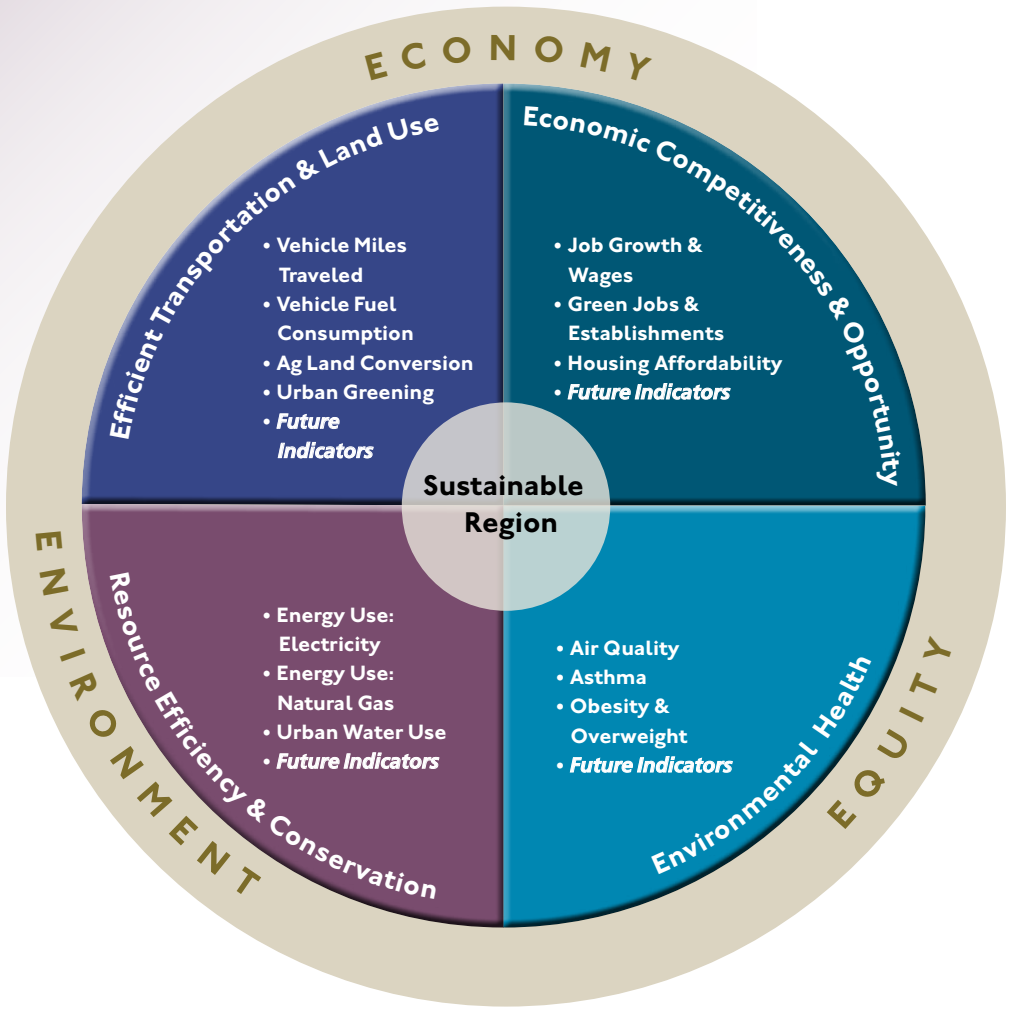
FRAMEWORK EVOLUTION

In 2007, the inaugural California Regional Progress Report set a baseline for measuring regional progress statewide across a range of integrated quality of life indicators. The 2010 Progress Report establishes a new baseline for measuring progress, building on the 2007 Report and providing a transition to a more comprehensive sustainability framework in the future.

Recognizing that there are more elements to sustainability than those included in the 2010 Report, the Framework is an evolving work in progress that can be adapted to include new priority issues and indicators. As the State adopts new sustainability goals and sustainability measurement is coordinated, the framework groupings can be expanded and reorganized. The Strategic Growth Council has committed funds for the California Regional Progress Report Project to advance the analytic process over the next two years, working in collaboration with other data collections efforts including those being supported by the SGC. This process should help organize the State's approach to defining and measuring sustainability, and provide direction for the next iteration of this Framework for Sustainability. The last section of the Report outlines recommendations to assist in this effort.

California is continuing a long history of innovation and collaboration in the field of measuring regional progress toward sustainability and quality of life, and the Progress Report will continue to learn from and contribute to these efforts.

Regional Sustainability Framework



In 2007, the inaugural California Regional Progress Report set a baseline for measuring regional progress statewide across a range of integrated quality of life indicators. The 2010 Progress Report establishes a new baseline for measuring progress, building on the 2007 Report and providing a transition to a more comprehensive sustainability framework in the future.

Efficient Transportation and Land Use

Vehicle Miles Traveled

Vehicle Fuel Consumption

Conversion of Agricultural Lands

Urban Greening

Silicon Valley's Land Use Survey: A Prototype for Other Regions

Prototype Indicator: Residential Density: Infill and New Housing Units on Smaller Lots

Prototype Indicator: Access to Transit: New Housing Units Built Near Transit

Prototype Indicator: New Commercial Development near Transit

WHY ARE THESE INDICATORS IMPORTANT?

Taken together, how we use our land and how we move from place to place have perhaps the largest impacts on the health, economic vitality, and sustainability of our communities and regions. New challenges, demographics and market demands today require expanding available land use, housing, and transportation choices beyond the automobile-centered and low density land use patterns that comprised much of the development in the last half-century.

Expanding the range of options will require different decisions from policy makers, planners, developers, lenders and others–decisions that allow for choices that alter the impacts we produce and create more sustainable and livable communities and regions.

The decision matrix that follows illustrates some of the relationships between our decisions, resulting range of choices, and the possible impacts those choices have on our quality of life, livability, and sustainability.

As illustrated in the decision matrix, the land use and transportation system decisions made by all levels of government, the private sector, institutions and households determine the range and limits of our choices and opportunities for how far and by what means we have to travel for our daily activities. The land use and transportation choices we make have many unintended and unanticipated consequences on our lives–how far we live from our work; our housing and transportation costs; the safety of our communities and streets; the economic vitality of our downtowns, suburbs, and rural areas that make up our regions; the loss of our unique and defining agricultural, open space, and natural lands; and the health impacts of air pollution and inactive lifestyles on our children and the general population.

Land use and transportation decisions have impacts across all four of our categories of indicators, which are interrelated. Moving California's regions towards sustainability requires evaluating the impacts of and connections between all of our decisions and choices, across issue areas and levels of government. It also means looking at how 21st century telecommunications infrastructure (Broadband–high speed Internet) and technology applications such as intelligent transportation systems, telecommuting, and online access to health care, education and other reources can help reduce vehicle miles traveled.

The indicators in this section highlight important regional trends in land use, development, and transportation usage.

Decision Matrix

Decisions at every level	An individual looking for a job, a home and good schools, A developer planning projects, A city or countyadopting a general plan or approving a project, A school or hospital locating a facility A regional transportation agency determining transportation investments, A state agency creating policies, removing barriers or providing resources or incentives
Which shape our range of	
Choices	Where we work, live, play, and pursue our daily activities and needs What or who we focus on moving — cars or people
Which create	
Impacts	Whether it is convenient and safe to travel without cars, How segregated our land uses are, The distances between our destinations, How much we drive, create congestion and air pollution, How connected, cohesive, and healthy our communities are, How much agricultural, open space and natural lands remain How much we spend on housing and transportation
That affect our	
Quality of Life and Sustainability	

"Integrating transportation planning with community development and expanding transportation options will not only improve connectivity and influence how people choose to travel, but also lower transportation costs, reduce dependence on foreign oil and decrease emissions."

Ray LaHood, Secretary, US Department of Transportation. Statement to the Committee on Banking, Housing, and Urban Affairs. June 16, 2009. http://www.epa.gov/smartgrowth/pdf/2009_0616_rl.pdf.

Vehicle Miles Traveled

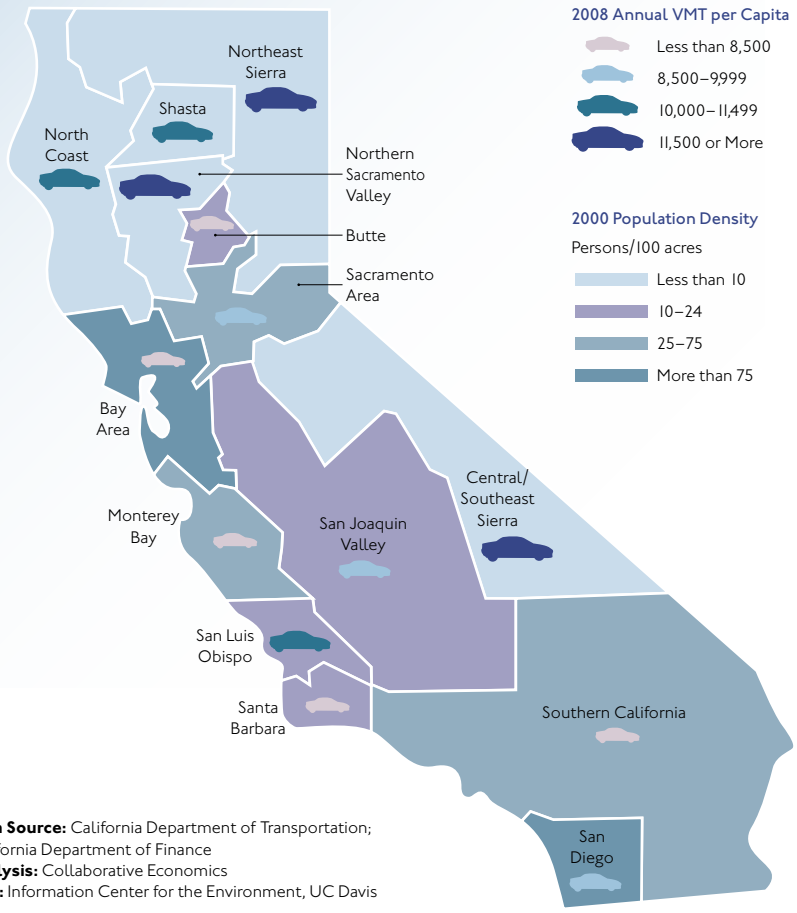
WHAT IS THE INDICATOR?

Vehicle miles traveled (VMT) measures the number of miles driven in a given region over the space of a year, either as a regional total or as a per-person average, generated by trips originating within and outside of the region. Vehicle miles traveled per capita is calculated by dividing regional VMT by regional population. This indicator captures interregional travel, including commuting, goods movement and business and tourism-related travel, which can inflate the per capita VMT numbers for low population rural areas and major goods movement corridors.

WHY IS THIS INDICATOR IMPORTANT?

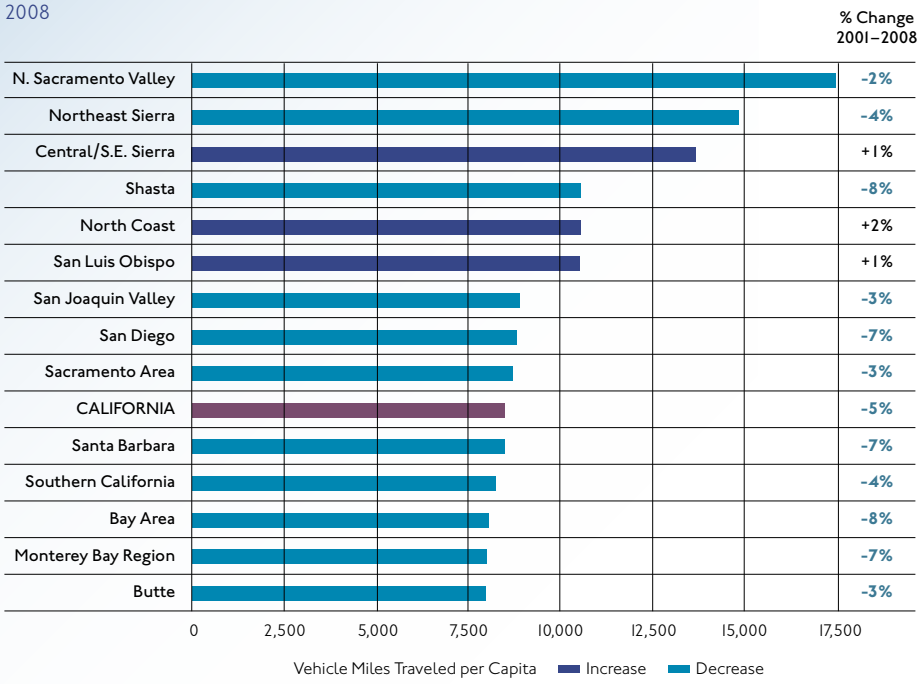
VMT is an important indicator of how our development patterns impact the way we travel and the distances we drive to go to work; take children to school; and shop, run errands, and conduct our daily and special activities. Increasing VMT over time, particularly on a per-person basis, suggests that: 1) concentrations of jobs, housing, schools, shopping, and other amenities and services are farther from one another, or 2) that other factors such as neighborhood design, parking policies, or safety either encourage the use of automobiles or discourage the use of alternative options for getting from place to place.

FIGURE 5: **Vehicle Miles Traveled (VMT) per Capita**
2008



Data Source: California Department of Transportation; California Department of Finance
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis

FIGURE 6: **Vehicle Miles Traveled (VMT) per Capita**
2008



Data Source: California Department of Transportation; California Department of Finance
Analysis: Collaborative Economics

Gas prices and economic conditions have strong short-term influence on how much people drive. Models indicate that VMT tracks strongly with income and economic conditions. Reliance on automobiles to travel increasing distances renders people's mobility vulnerable to spikes in gas prices while inhibiting more active forms of transportation such as walking and biking that can improve health. The *2007 Integrated Energy Policy Report* also noted that to reduce greenhouse gas emissions, California must begin reversing the (then) two percent annual growth rate of VMT.

Longer-term trends have proven links to land use and transportation system options. Reducing growth in the rates of vehicle miles traveled in the long term would indicate progress towards land use and transportation efficiency and help achieve AB 32 goals, including improved air quality.

WHAT PROGRESS ARE REGIONS MAKING?

Densely populated regions such as the Bay Area and Southern California had some of the lowest VMT per capita in the state. Conversely, VMT per capita was highest in regions with lower population density such as Northern Sacramento Valley, North Coast, Northeast Sierra, Southeast Sierra, Shasta, and San Luis Obispo (see Figure 5).

In the majority of regions, Californians were driving less. Between 2001 and 2008, VMT per capita dropped by an average of five percent across the state (see Figure 6). Since 2001, 11 regions showed a reduction in VMT per capita. Falling by eight percent from 2001 to 2008, Shasta and the Bay Area showed the greatest decline in VMT per capita, followed by Santa Barbara, San Diego, and Monterey Bay which each had a decrease of seven percent over the same period.

Three regions–Central/Southeast Sierra, the North Coast and San Luis Obispo, had small increases in VMT per capita. A likely contributor to San Luis Obispo's VMT growth was the region's high job growth, since it had the state's

Gas prices and economic conditions have strong short-term influence on how much people drive. Models indicate that VMT tracks strongly with income and economic conditions.

highest growth rate in jobs between 1994 and 2002. Much of San Luis Obispo's VMT growth occurred between 2001 and 2003 and then remained relatively constant between 2003 and 2008.

VMT varies within regions. Even though the Bay Area and Southern California were among the regions with the lowest VMT per capita, within these regions, figures varied greatly by county. People in the most urbanized counties tended to drive the least, and those in the less urban counties drove more (see Figure 7).

For example, in the Bay Area, San Francisco residents drove roughly 4,000 miles per year, while VMT per capita in Marin was 2.7 times higher. With 7,550 miles driven per person per year, Los Angeles County had the lowest VMT per capita in Southern California, compared with roughly 10,600 in Imperial County.

It is difficult to know how much VMT changes are due to behavioral changes associated with land use, transportation and housing policies and investments, and how much are attributable to decreased economic activity and increased gasoline prices. New research being funded by the Strategic Growth Council, Caltrans, and the MPOs, such as advanced modeling efforts and the California Household Travel Survey, will contribute to an increased understanding of the factors contributing to VMT changes.

More total miles were driven in California. While California's VMT declined on a per capita basis over this timeframe, statewide population growth led to an increase in total VMT since 1995, associated with increased total fuel use, congestion, air pollution, and greenhouse gas emissions (see Figure 8). VMT climbed by five percent in California from 2001 to 2008 and 18 percent since 1995. Although total VMT increased in the majority of regions, four regions–including the Monterey Bay Region, the Bay Area, Santa Barbara, and Northeast Sierra–showed a decrease in total VMT (see Figure 9). However, VMT has leveled off since 2004 and declined 1.4 percent from 2007 to 2008.

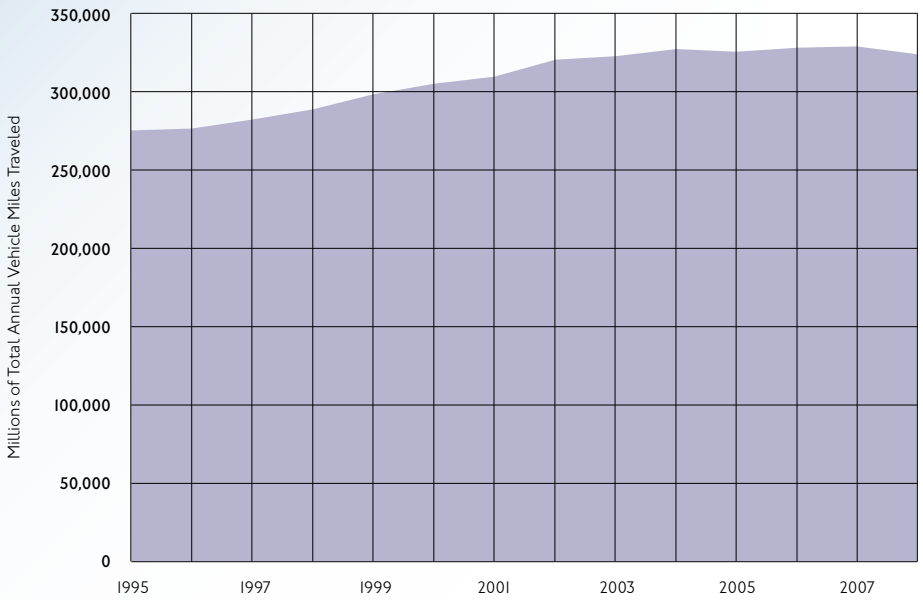
"Nearly 26 million vehicles, most of which are powered by fossil fuels, along with a high rate of vehicle miles traveled, contribute significantly to California's GHG emissions and climate change issues."

Source: 2009 Integrated Energy Policy Report, California Energy Commission, p. 39.

FIGURE 7: **VMT per Capita by County**
Bay Area and Southern California
2008

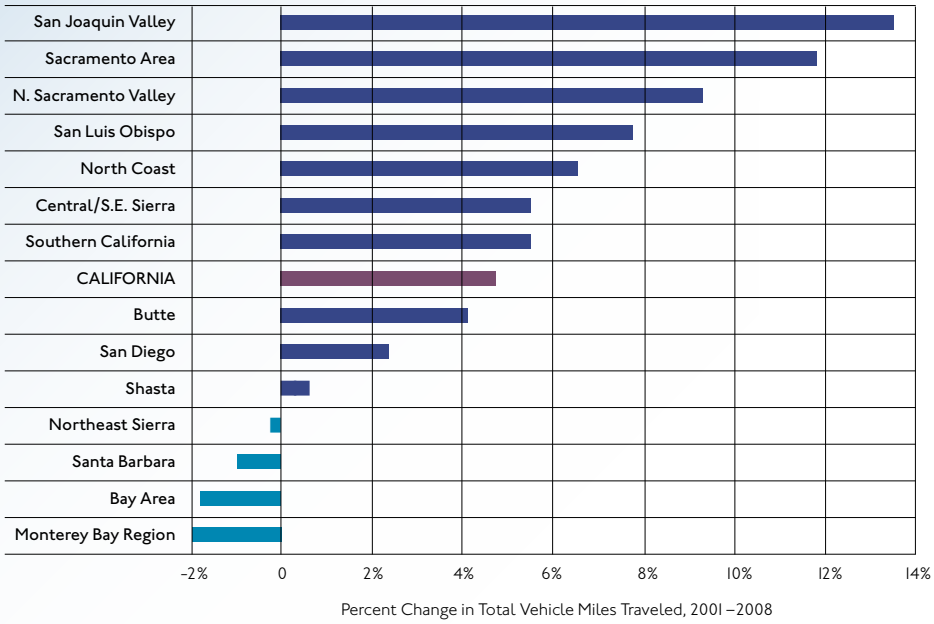
REGION	COUNTY	VMT PER CAPITA
Bay Area	San Francisco	4,012
	Contra Costa	7,725
	BAY AREA AVERAGE	8,075
	Santa Clara	8,088
	Sonoma	8,239
	Napa	8.484
	San Mateo	8,721
	Alameda	9,005
	Solano	10,400
	Marin	10,882
So. California	Los Angeles	7,550
	Ventura	8,161
	SO. CALIFORNIA AVERAGE	8,280
	Orange	8,557
	Riverside	9,424
	San Bernardino	10,219
	Imperial	10,634

FIGURE 8: **Total Vehicle Miles Traveled in California (VMT)**
Millions of Total Annual VMT
1995–2008



Data Source: California Department of Transportation; California Department of Finance
Analysis: Collaborative Economics

FIGURE 9: **Total Vehicle Miles Traveled (VMT)**
Percent Change 2001 –2008



Data Source: California Department of Transportation; California Department of Finance
Analysis: Collaborative Economics

Factors Correlated with Reduced VMT

An investigation of trip and parking generation rates for smart growth development throughout the SANDAG region accounts for the fact that smart growth may contain different degrees and combinations of several elements, whether situated in a metropolitan center, urban center, town center, community center, transit corridor, specialty use center or rural community. These "smart growth Ds": development density, diversity of uses, design and walkability, destination (jobs) accessibility, distance from transit, demographics, development scale, and demand management—are useful for modeling changes in driving behavior and VMT associated with land use.

Source: Fehr and Peers Transportation Consultants, http://www.fehrandpeers.com/san-diego-smart-growth-trip-generation/.

Vehicle Fuel Consumption: Diesel & Gasoline

WHAT IS THE INDICATOR?

This indicator measures the percent change in each region's total combined diesel and gasoline fuel consumption between 2000 and 2007, as well as the average number of gallons of diesel and gasoline fuel consumed per capita by region and the percent that amount changed between 2000 and 2007.

WHY IS THIS INDICATOR IMPORTANT?

The vehicle fuel consumption of gasoline and diesel undergirds today's transportation system and economy, while generating financial costs for industry and households and producing greenhouse gas and air pollutant emissions. As we look to curb our use of fossil fuels and reduce our reliance on foreign oil, carefully tracking and reducing our vehicle fuel consumption is key. Additionally, as international demand for oil grows and energy prices rise, efficient use of fuel and long-term resource planning are crucial to our future economic security. Decreasing vehicle fuel consumption through alternative fuels, increased vehicle efficiency, and reduced VMT indicates progress toward achieving our greenhouse gas emission reduction targets, while increasing both energy sustainability and independence, and creating cost savings. Tracking use of alternative fuels and alternative-energy vehicles would allow a more complete depiction of the transition in vehicle fuel use and add significance to trends in gasoline and diesel consumption.

WHAT PROGRESS ARE REGIONS MAKING?

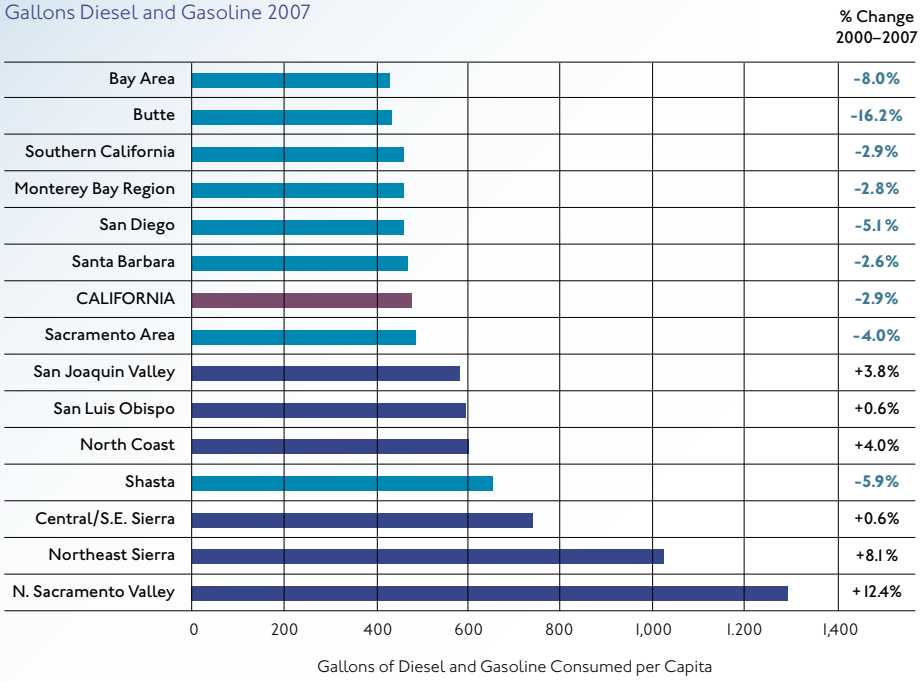
Most Californians individually were consuming less fuel, but California still consumed more fuel overall.

New Approaches to Reducing Fuel Consumption

Research has shown that if parking areas are shaded 50 percent, fuel consumption and volatilization go down due to reduced gas tank internal temperature.

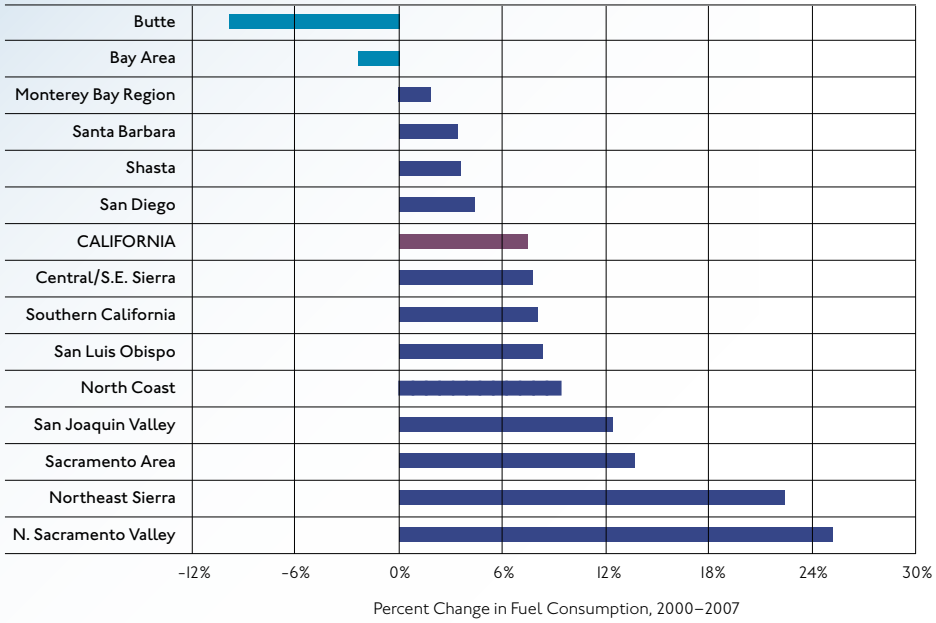
Source: "Where are all the Cool Parking Lots?" E. G. McPherson et al, June 2004, Center for Urban Forest Research.

FIGURE 10: **Vehicle Fuel Consumption per Capita**
Gallons Diesel and Gasoline 2007



Data Source: Caltrans, 2009 California Motor Vehicle Stock, Travel and Fuel Forecast; California Department of Finance
Analysis: Collaborative Economics

FIGURE 11: **Percent Change in Total Vehicle Fuel Consumption**
Diesel and Gasoline 2000–2007



Data Source: Caltrans, 2009 California Motor Vehicle Stock, Travel and Fuel Forecast
Analysis: Collaborative Economics

California's fuel consumption per capita decreased nearly three percent from 2000 to 2007, with eight of the fourteen regions experiencing declines (see Figure 10).

The more rural regions of the State had the highest levels of consumption per capita and highest levels of VMT, reflecting the long distances people must travel for jobs, services, school, health care, and recreation. Some of these patterns may be improved by policies and community plans with land use designations allowing for more jobs, mixed uses, and shopping closer to housing. Improvements in rural Broadband infrastructure and adoption of information technology providing access to these resources can also reduce VMT and fuel consumption.

Several regions also are substantial goods movement corridors; generally, these regions experience a larger volume of intrastate and interstate commerce trucking, which can have a significant upward effect on fuel consumption.

However, despite progress in decreasing per capita vehicle miles traveled and per capita fuel consumption, overall vehicle fuel consumption in California increased by 7.5 percent since the year 2000. This increase in total fuel consumption was the result of increases in overall population and market demand for less fuel efficient vehicles earlier in the decade (see Figure 11).

California Shifts to Higher Efficiency Vehicles and Lower Emissions Fuels

Nationally, California is the top-ranking state in alternative fuel vehicle registrations, which include hybrid and electric vehicles, and vehicles that run on natural gas. From 2007 to 2008, registrations of alternative fuel vehicles grew by 36 percent, surpassing 100,000 vehicles for the first time in 2007. As a share of total registrations alternative fuel vehicles exceed two percent in California.

Source: California Green Innovation Index, 2009, p. 45, and California Green Innovation Index 2010, p. 28.

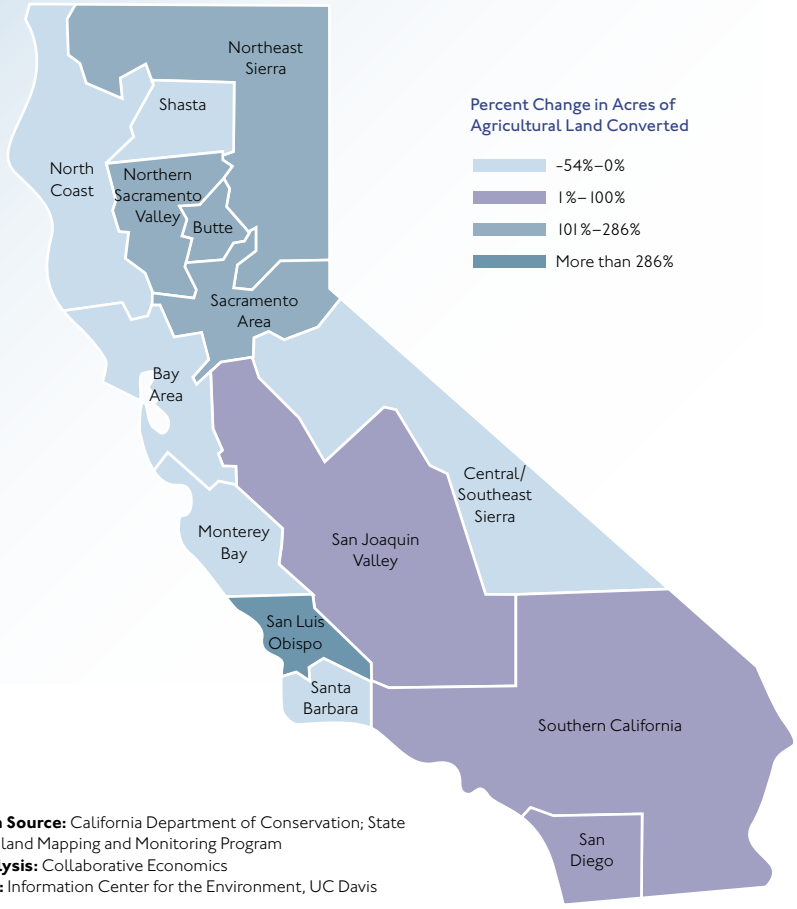
Conversion of Agricultural Lands

WHAT IS THIS INDICATOR?
This indicator measures the percent change in number of acres of agricultural land converted to urban or built up uses, using data from the California Department of Conservation's State Farmland Mapping and Monitoring Program. The Program defines "the urban and built up" category of land use to include land occupied by structures with at least 1 unit per 1.5 acres for residential, commercial, industrial, public infrastructure, and many other developed uses. Conversion to lower density rural development is not captured here because it is grouped in a general "other" land category that includes several other non-residential uses.

WHY IS THIS INDICATOR IMPORTANT?
Agricultural land conversion is an indicator of how a region is managing population and economic growth. The conversion of agricultural land to urban and other built-up uses, including lower density suburban development, reflects a reliance on expanding into new lands rather than filling in or reusing land in existing urban areas that already have the infrastructure needed to support development.

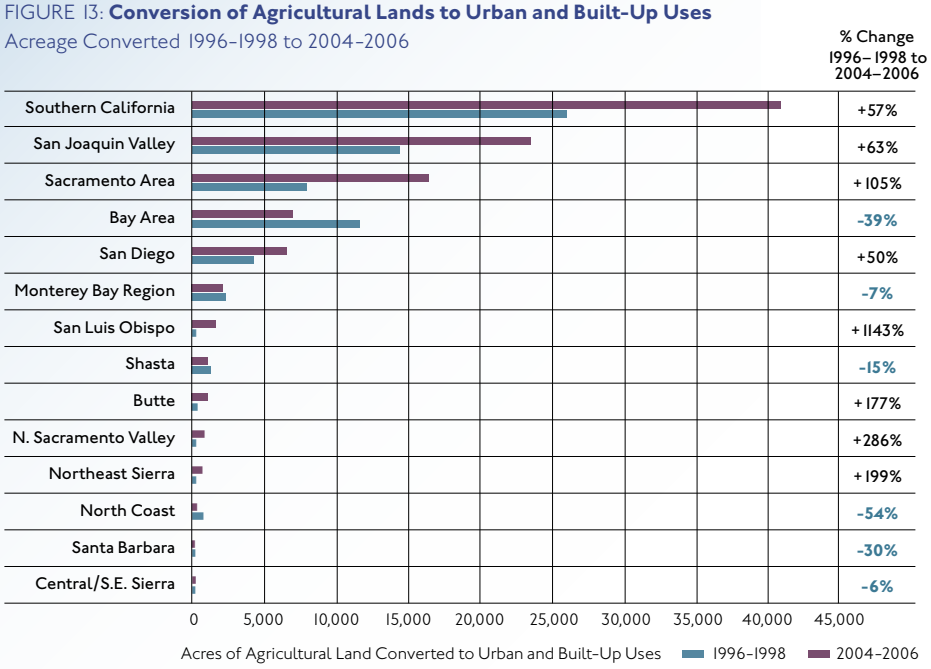
Agriculture is one of California's major economic drivers. Agricultural land is a unique and limited resource for most regions, offering multiple

FIGURE 12: **Conversion of Agricultural Lands to Urban and Built-Up Uses**
1996–1998 to 2004–2006



Data Source: California Department of Conservation; State Farmland Mapping and Monitoring Program
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis

FIGURE 13: **Conversion of Agricultural Lands to Urban and Built-Up Uses**
Acreage Converted 1996-1998 to 2004-2006



Data Source: California Department of Conservation; State Farmland Mapping and Monitoring Program
Analysis: Collaborative Economics

benefits including food production, exports, habitat, natural landscapes, and heritage, and more recently, the potential to help meet regional greenhouse gas emissions reductions targets. Yet, a combination of competitive pressures, economic opportunity, and public policy choices makes agricultural land susceptible to development. Slowing the rate of conversion indicates progress towards more efficient land use, infrastructure efficiencies and preservation of agricultural economies.

WHAT PROGRESS ARE REGIONS MAKING?

Large amounts of agricultural lands were converted to urban and built-up uses in all regions throughout the State. Roughly 102,000 acres of agricultural land were converted to urban and built-up uses across the state from 2004-2006, compared to nearly 70,000 acres from 1996-1998. This was an increase of 46 percent in total acres converted comparing each of the two time periods.

Four of the five regions with the most acreage of agricultural land conversion in 1996-1998 continued to experienced high rates of conversion in 2004-2006 (see Figures 12 and 13). These areas are in the path of both population growth and urbanization. They include Southern California, converting more than 40,000 acres, a 57 percent increase from 1996-1998; the San Joaquin Valley, converting almost 25,000 acres, a 63 percent increase from 1996 to 1998; the Sacramento region, converting more than 15,000 acres, a 105 percent increase from 1996 to 1998; and San Diego, with a conversion of more than 5,000 acres, a 50 percent increase over the earlier period. The Bay Area was the notable exception, with a nearly 40 percent decline in agricultural land conversion, although still among the highest with total acres converted.

Trends in Newly Urbanized Lands

"Housing Developments were the most frequent and largest category of newly urbanized land. Most of the increase was associated with single family homes located at the periphery of existing cities, and to a lesser degree condominium and apartment complexes. Individual subdivisions ranged up to 300 acres in size. In some areas, increased structural density or other infill projects prompted reclassification from Other Land to Urban and Built Up Land."

Source: California Farmland Conversion Report 2004-2006, p. 12, California Dept. of Conservation.

Conversion of Agricultural Lands

The four regions with the highest rates of increased conversion but small absolute numbers of acres converted were mostly rural regions with small base numbers for agricultural land conversion, including much of inland Northern California. San Luis Obispo was anomalous, with an unusually low number of acres converted in 1996-1998 resulting in its drastically high rate of change. If the prior two year period was used for San Luis Obispo, which is closer to the region's average over 14 years, the increase would be 51 percent instead of 1143 percent.

Due to lags in the availability of data, information on overall land conversion patterns from 2006 through 2008 is limited. Data that is available for selected high conversion counties shows the rate of agricultural land conversion slowing (see Figure 14). Within the Sacramento, San Joaquin, and Southern California regions, all counties except for one showed a substantial decrease in the number of acres converted.

During this time period, several of the regional Blueprints elevated the conservation of important farmlands as a planning priority. At the same time, the early impacts of the burgeoning recession and housing crisis may have begun to influence land development and conversion patterns.

These factors have temporarily lessened some of the current pressure for farmland conversion, but many regions are concerned about what will happen once the economy recovers and the existing housing stock is absorbed. Other factors which may influence the conversion of agricultural lands to other uses include diminished state funding for the California Land Conservation Act of 1965, known as the Williamson Act, and ongoing challenges related to water availability. The Williamson Act is the primary state-funded program to conserve farmlands; it provides support to farmers and ranchers who enter into contracts to keep the land in production. The Williamson Act also provides state funds to counties which compensate them for the lower property taxes they receive from keeping lands in agricultural production. The state's longstanding water challenges, compounded by the recent drought and environmental pumping restrictions, have led to agricultural lands being taken out of production, especially in the San Joaquin Valley.

FIGURE 14: **Conversion of Agricultural Lands to Urban and Built-Up Uses**
Regions with Highest Acreage of Conversion
Top Two Counties with Highest Acreage of Land Converted per Region

		ACREAGE OF LAND CONVERSION		% CHANGE IN ACREAGE OF LAND CONVERSION	
REGION	COUNTY	2004-2006	2006-2008	1996-1998 to 2004-2006	2004-2006 to 2006-2008
Sacramento Area	Placer	3,589	2,853	+38%	-21%
	Sacramento	9,893	2,391	+160%	-76%
San Joaquin Valley	Fresno	4,465	2,296	+11%	-49%
	Kern	7,512	9,356	+73%	+25%
Southern California	Riverside	23,268	15,139	+161%	-35%
	San Bernardino	9,419	7,005	+296%	-26%

Source: California Department of Conservation, State Farmland Mapping and Monitoring Program
Analysis: Collaborative Economics

Sacramento Region food system collaborative

The Sacramento Region: Focus on Regional Food Systems

Increasingly, regions are focusing on regional food systems as an economic development and health improvement strategy. The six-county Sacramento area is one such region. The economic value of the region's agricultural industry is estimated at more than $3 billion. In spite of being one of the richest agricultural regions in the world, almost all of the region's food production is exported while almost all of the food locally consumed is imported. Many communities and neighborhoods throughout the region lack access to fresh and healthy foods. Research shows that these areas typically have populations with lower health metrics.

The region's rapid growth over the past two decades has led to high levels of farmland conversion. Residents, jurisdictions and civic leaders have recognized the economic, cultural and environmental importance of agriculture, as well as the region's rural heritage and communities. The region has two complementary efforts to support the viability of local farmers, improve community access to healthy foods, improve food security, and preserve important farmlands. As part of its Blueprint effort, the Sacramento Area Council of Governments (SACOG) is conducting the Rural and Urban Connections Strategy (RUCS), which focuses on the region's growth and sustainability from a rural perspective. Valley Vision, SACOG's civic engagement partner, is facilitating the Sacramento Region Food System Collaborative, to inform and influence policy initiatives relevant to the regional food system in the region.

A healthy and viable agricultural economy also has the potential to help meet regional greenhouse gas emissions reductions goals. A recent Ag Land Conversion Analysis by SACOG estimated that a conversion of farmlands to developed uses would likely increase emissions significantly on the land, with more emissions for developed uses in one day than for an entire year for agricultural production.

	ASSUMES 20,000 ACRES DEVELOPED (CONVERTED)	
	@ 1 DWELLING UNIT/ACRE	@ 5 DWELLING UNITS/ACRE
Household Shift onto Williamson Act Lands	18,906	94,532
Population	51,047	255,237
Incremental Vehicle Emissions (Tons of CO_2/**DAY**)	**509**	**2,544**
Ag Production (with half in pasture) Vehicle Emissions (Tons of CO_2/**YEAR**)	**455**	
Ag Production (assumes no pasture) Vehicle Emissions (Tons of CO_2/**YEAR**	**2,300**	

For every 10 acres, agriculture is estimated to produce 0.5-1.0 tons of vehicle CO_2 emissions per YEAR, compared to development which would produce an equivilent amount per DAY.

Source: SACOG, March 2010, www.sacog.org/rucs/ and Sacramento Region Food System Collaborative,, http://www.foodsystemcollaborative.org/

California's AgVision 2030

Over the last two years, the California State Board of Food and Agriculture has been working on the California Agricultural Vision (Ag Vision)—a process to result in a strategic plan for the future of the State's agriculture and food system. Its motivation was the rapidly growing list of challenges facing agriculture, from regulations and water supplies to urbanization and climate change. The Vision Framework states: "It is the policy of the State of California that agriculture is a strategic resource necessary to support a sustainable food production and delivery system as well as a vibrant natural resource base in California that promotes healthy citizens, thriving communities and a healthy environment."

Source: http://www.cdfa.ca.gov/agvision/framework.html

Urban Greening

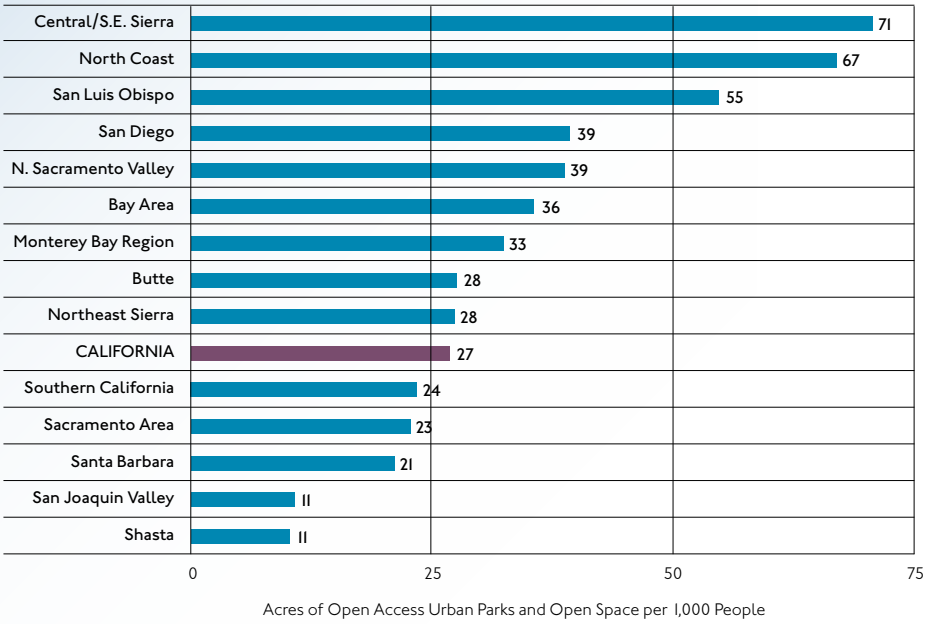
WHAT IS THIS INDICATOR?

The Urban Greening indicator is the acres of urban parks and open space per 1,000 people in each region as of June 2010. This data encompasses open access protected lands in urban incorporated areas including publicly owned parks and recreation, special park districts, botanical gardens, arboretums, private and foundation owned parks, open space, historical/cultural open space, plant and animal habitat, and terrestrial habitat. It includes urban forests where they occur.

WHY IS THIS INDICATOR IMPORTANT?

Urban Greening–the "green space" in developed areas–is an important component of community livability, quality of life, and health outcomes. Urban parks, open space and amenities promote access to recreation and active lifestyles, provide access to nature in the built environment, and contribute to community aesthetics. Parks, recreational facilities, bike and walking trails, open space and other public "green infrastructure" such as waterways are essential for livable communities, especially as density and urbanization increase.

FIGURE 15: **Urban Park and Open Space Acreage per Capita**
Acres of Open Access Urban Parks and Open Space per 1,000 People
As of June 2010



Data Source: GreenInfo Network, California Protected Areas Database; California Department of Finance
Analysis: Collaborative Economics

These green assets have other health and environmental benefits, such as reducing the "heat island" effect of development and pavement, improving air quality by removing pollutants, and helping to reduce water runoff during storm events. Research also has shown that trees absorb carbon dioxide from the air.[7]

WHAT PROGRESS ARE REGIONS MAKING?

The amount of park and open space acreage in urban incorporated areas was varied across regions. With 71 acres per 1,000 people, Central/Southeast Sierra had the highest acreage of urban parks and open space per capita, followed by the North Coast and San Luis Obispo regions. The data may be skewed in some rural areas due to low population levels. The San Joaquin Valley, one of the state's fastest growing and urbanizing regions, had the smallest amount of acreage.

Another important element of urban greening is tree canopy cover, which is a good indicator of urban ecosystem quality. Data is not yet available for all regions of the state but will be a valuable component to include in the future.

Access to urban green space is especially important for economically disadvantaged communities. Urban greening data will have high variability at the sub-regional level, and it would be beneficial to track both transit access to parks and open space, as well as people within distance of parks and other assets. Having both parameters would help to address spatial and equity disparities.

Funding for parks and open space, including maintenance of facilities, is challenged by severe state and local government budget deficits. The new Urban Greening Grant for Sustainable Communities Program of the SGC will be an important resource. This Program provides funds to preserve, enhance, increase or establish community green areas such as urban forests, open spaces, wetlands, and community spaces (e.g., community gardens).

Protected Lands

Protected lands in California encompass many resources, both within the urban footprint and throughout other areas within the regions. According to the Strategic Growth Council, "Protected lands are a critical element to achieving sustainability. Whether the goal is providing new urban parks in regions and communities that are underserved, ensuring that infill development is matched with green space, defining habitat corridors that enable climate-driven migration of key species, or developing regional and local plans that protect agricultural and ranch lands against rural parcelization, protected areas are essential elements in building a sustainable community in California that is productive, healthy and resilient."

Protected Areas are lands that are owned outright ("fee-owned ") or secured through an easement by an agency or non-profit organization (e.g., a land trust) that maintains them primarily for open space purposes such as parks, habitat conservation, wildlife corridors, waterways, flood control projects, recreation, ranching and other purposes as defined in the State's General Plan Guidelines for open space. Agencies that hold or manage protected areas include cities, counties, special districts, and state and federal entities. Non-governmental organizations include land trusts and related organizations.

A complete database inventory of all protected lands does not yet exist although efforts are underway to improve existing data. For future reports, it would be valuable to have a fuller picture of each region's different types of protected lands.

Source: Attachment 4: Data Improvement of California Protected Lands, March 17, 2010, Strategic Growth Council. See http://www.sgc.ca.gov/meetings/20100317/04_Attachment_Data_Protected_Lands.doc

[7] "Urban Tree Planting and Greenhouse Gas Reductions," by Greg McPherson, Center for Urban Forest Research, June 2007, p 32, Arborist News

Silicon Valley's Land Use Survey: A Prototype for Other Regions

Increasing density through more efficient land use and improved access to jobs, housing, education, health care, recreation, healthy foods and other services by better linking land use and transportation are major policy priorities for the Strategic Growth Council and the Regional Blueprints.

Several regions are developing models and measures to track changes in land use patterns, but there is not yet a commonly defined methodology or set of data sources, and there is currently no comprehensive dataset for density measures for California's regions. Better indicators and protocols are needed to measure progress towards desired land use patterns across the State. The Silicon Valley Land Use Survey provides a useful prototype for developing a set of land-use related indicators that could be replicated in other regions.

The Silicon Valley Land Use Survey has given the region (defined as San Mateo and Santa Clara Counties and parts of Santa Cruz and Alameda Counties) a unique perspective on its changing land use patterns. Beginning in 1998, Joint Venture: Silicon Valley Network began to survey its nearly 40 jurisdictions on specific land use changes not otherwise available through existing data sources.

The survey is conducted annually and is completed by the planning and development offices of each city. Survey results are reported every year in the Index of Silicon Valley, measuring the average units per acre of newly approved residential development and progress towards a shared regional goal of targeting new development close to transit. With this data, the region has been able to monitor land use efficiency of new housing units and the percentage of both residential and commercial development within ¼ mile of a rail station or major bus corridor.

This type of data could help regions measure the impacts of the Blueprints upon local land use policies and development plans, especially in the targeted Blueprint opportunity areas and zones at the city and county levels. Three prototype indicators that would facilitate measurement of the state's overall progress toward more efficient and connected land uses are described: 1) Housing Density: Infill and New Housing Units on Smaller Lots; 2) Access to Transit: Share of New Housing Units Near Transit; and 3) New Commercial Development Near Transit.

Trends in Residential Urban and Suburban Infill Well Underway

According to *Residential Construction Trends in America's Metropolitan Regions*, a recent U.S. EPA report, the number of residential permits in downtown areas and close-in suburbs has more than doubled since 2000 in 26 of the largest U.S. Metropolitan areas, and the trend is gaining in many smaller cities. This shift was strongest over the past five years, in spite of the real estate slump.

Source: "New Niche for Homebuilders," Urban Land Magazine, Urban Land Institute, July/August 2010, p. 54.

PROTOTYPE INDICATOR 1

Residential Density: Infill and New Housing Units on Smaller Lots

WHAT IS THIS INDICATOR?

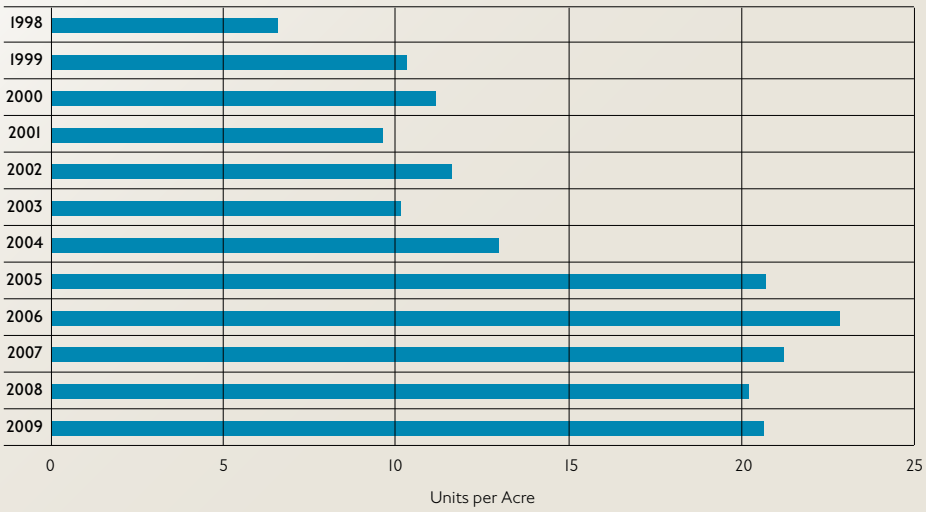
This prototype indicator measures the number of units per acre of new construction from 1998 through 2009, based on the information provided by local planning departments in the Silicon Valley Land Use Survey.

WHY IS THIS INDICATOR IMPORTANT?

Housing density is an important measure indicating priorities and choice within a region, and a reflection of responses to changing demographic needs. Higher-density, mixed-use communities create metropolitan and downtown communities, even in small cities, where day-to-day activities take place within a more compact area than in most suburbs and outlying areas. This provides residents with proximity to many community amenities and increased transportation choices. In turn, this creates the opportunity for residents to reduce their dependence on automobiles and use alternative modes of transport, such as public transportation, bicycles and walking, and may reduce the share of household costs spent on transportation. (See the Housing and Transportation Affordability Index discussion on p. 54).

Increasing housing density can mean single family units on smaller, more compact lots as well as multi-family structures, and can be appropriately scaled to any type of community, including suburban developments. Increased density can have an added benefit of facilitating the development of more affordable housing, as builders can take advantage of economies of scale. An increase in housing density, infill, and mixed-use development indicates more efficient land usage with respect to housing, takes advantage of existing infrastructure, reduces the pressure for land conversion, and creates opportunities to create open and shared public spaces.

FIGURE 16: **Residential Density—Units per Acre, New Construction**
Silicon Valley 1998-2009



Data Source: City Planning and Housing Departments of Silicon Valley, for Joint Venture: Silicon Valley Index
Analysis: Collaborative Economics

Market Demand Increases for Higher-Density Housing

According to Shelly Poticha, Director of the newly created Office of Sustainable Housing and Communities in the federal Department of Housing and Urban Development (HUD), "There is a whole array of studies that shows the demand for this kind of housing represents from a quarter to a half of the market today. The supply is so much less than the demand that it is an incredibly underserved market. Even though the rest of the housing market is still stalled, this segment is functioning and actually growing…"

Source: "New Niche for Homebuilders," Urban Land Magazine, Urban Land Institute, July/August 2010, p. 55.

Silicon Valley's Land Use Survey: A Prototype for Other Regions

WHAT PROGRESS HAS THE SILICON VALLEY MADE?

In the late nineties and into the early 2000s, new construction in the Silicon Valley was averaging just over ten units per acre. Then, in 2005, units per acre of new residential development doubled to 20. *Since 2005, residential density of new building has not dropped below 20 units per acre and has averaged 21.* A high of 22.8 units per acre was recorded in 2006—a nearly 250 percent increase in residential density from the 6.6 units per acre in 1998.

While the Silicon Valley example shows increasing density in a more developed region, other regions can improve land use efficiencies based on different scale. The San Joaquin Valley Blueprint calls for a valley-wide average of eight homes per acre in future development—more than double the number of units per acre that has been typical in the Valley. As in other regions, several of the region's housing developers are planning for subdivisions with higher densities than in the past in response to changing market conditions and the continuing high costs of land, construction, and infrastructure.

To have an overall impact on transportation and land use efficiency, density must be accompanied by other elements such as design and other "D" development factors to reduce travel and improve access to jobs and community amenities. It is also important that increased housing density does not occur in isolation but is part of the fabric of creating "complete communities"—where residents have many places they can walk to, such as schools, parks, stores, a coffee house, a library, a community center, and so forth.

Complete Communities

The concepts of the 20-minute neighborhood and walkability are essential for "Complete Communities." 20-minute neighborhoods are places where destinations accessible within a single trip—having "all of the necessary and enjoyable things that make life great"—within 10 or 20 minutes. Ideally, the trips could be made by walking, but biking, transit, and cars can also be included as travel modes to reach daily destinations, services, and amenities. Walkability refers to the convenience, safety, and desirability of walking in a neighborhood. Walkability audits are offered by some websites and non-profits, and allow residents to assess their neighborhoods for safety and other conditions necessary for walkability.

In addition to a range of destinations and uses, Complete Communities must have connectivity between destinations, density to support neighborhood businesses and transit, and a variety of safe and accessible transportation choices. Several California initiatives are contributing to the development of "Complete Communities."

Caltrans is implementing the Complete Streets Deputy Directive and will use all transportation improvements as opportunities to improve safety, access, and mobility for all travelers, recognizing bicycle, pedestrian and transit modes as integral elements of the transportation system.

The Sacramento Area Council of Governments (SACOG) has produced an online tool to help local governments implement complete streets. The Complete Streets Resource Toolkit is available online at www.sacog.org/complete.

PROTOTYPE INDICATOR 2

Access to Transit: Share of New Housing Units Near Transit

WHAT IS THIS INDICATOR?

This indicator measures the percentage of new residential development that is built within ¼ mile of rail stations or major bus corridors.

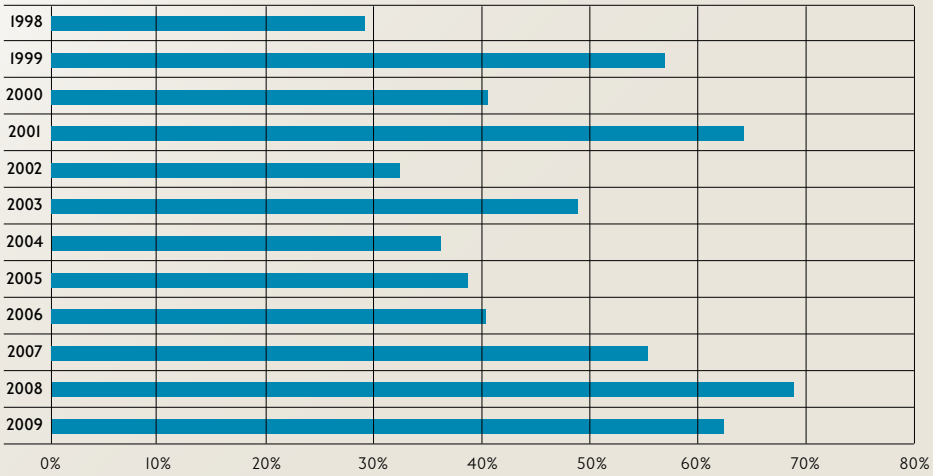
WHY IS THIS INDICATOR IMPORTANT?

The availability of new residential housing that is constructed within walking distance of public transportation is an important measure of whether transit opportunities are becoming more or less available to a region's residents. Along with increasing housing density in designated areas, this is a particular focus of the regional Blueprints and SB 375's Sustainable Communities Strategies.

The rationale for tracking housing near transit is that if public transportation becomes as or more convenient than riding in a car, then residents will be more likely to make use of it.

Shifting significant numbers of trips from personal motorized vehicles to public transportation would lead to a reduction in vehicle miles traveled, traffic congestion, and air pollution. Increasing residential density near transit would also increase access to jobs and services, including education and health care. Most regions in California do not track this aspect of land use development data. Use of the Silicon Valley prototype indicator could reinforce the important role that access to transportation plays in increasing livability, choice and equity in a region.

FIGURE 17: **Percentage of New Residential Development Near Transit**
Silicon Valley 1998–2009



Data Source: City Planning and Housing Departments of Silicon Valley
Analysis: Collaborative Economics

Community Audits for Walkability

Every neighborhood has unique characteristics that can encourage or discourage residents from walking and engaging in physical activity. Neighborhood and community walkability audits engage residents in identifying the barriers to walking and playing outdoors and developing unique solutions and strategies for the community.

Several communities in the San Joaquin Valley, including Bakersfield, Atwater, South East Stockton, and Pixley, participated in walkability audits with the assistance of the Healthy Kids, Healthy Places Initiative. The audits identified safety concerns such as stray dogs, gang activity, and speeding cars as major barriers to walking and utilizing parks.

Working with community groups, residents, local leaders, and city or county health, planning, and public safety workers, these communities developed solutions including neighborhood watch groups, park cleanups, and many other efforts based strongly on community volunteers and participation in partnership with local government.

For more information, see the Central California Regional Obesity Prevention Program's website, www.ccropp.org

Silicon Valley's Land Use Survey: A Prototype for Other Regions

WHAT PROGRESS IS THE SILICON VALLEY MAKING?

In the ten year period beginning in 1998 and ending in 2007, the Silicon Valley saw an annual average of 48 percent of total new residential development built within a quarter mile of a major transportation corridor. In 2008, the Silicon Valley saw a rise in the share of new residential housing located within walking distance of transit, climbing to 69 percent. In 2009, the share decreased to 62 percent of new housing within walking distance of transit. While lower than the development share in 2008, it was still above the average in the past decade.

Robust transit and mobility choices are needed to make infill and compact development work. From an equity standpoint, it will be important to document accessibility to efficient, safe and affordable pubic transit for underserved communities that are less likely to have access to automobiles for transportation. See below for trends and challenges in transit use.

Statewide Transit Use: Ridership on the Rise

Total transit ridership in California increased by 14.4 percent from 2001 to 2007 (with a 2.5 percent annual average), with Californians taking more than 1.4 billion transit trips in 2007. Because California's total population over the same period only increased by 9.1 percent (1.4 percent annual average), ridership increased faster than population growth. There are 89 transit agencies in California that report to the National Transit Database. Most of them had levels of ridership that changed only slightly over the period. However, seven transit agencies sustained high average annual ridership growth rates exceeding ten percent per year over seven years (twelve agencies had over five percent average annual growth). These agencies are mostly serving fast growing cities. Only three transit agencies experienced average annual ridership losses of five percent or more over the time period.

Despite overall ridership growth, many agencies are struggling with budget deficits and service cuts, impacting transit improvements, operations and maintenance. These challenges will impair the ability to reach the State's goals for increasing the efficiency of land use and reducing greenhouse gas emissions through reductions in the use of cars, and present a hardship to people dependent on transit for their mobility.

Source: National Transit Database, www.ntdprogram.gov/ntdprogram/archives/htm

PROTOTYPE INDICATOR 3

New Commercial Development Near Transit

WHAT IS THIS INDICATOR?

This prototype indicator from the Silicon Valley Land Use Survey measures the square feet of new non-industrial commercial development within ¼ quarter mile of a transit stop. Non-residential construction encompasses commercial, industrial, community and government buildings.

WHY IS THIS INDICATOR IMPORTANT?

The closer new construction of non-residential buildings is to transportation hubs, the easier it is for residents to travel from their homes to work, services and leisure activities.

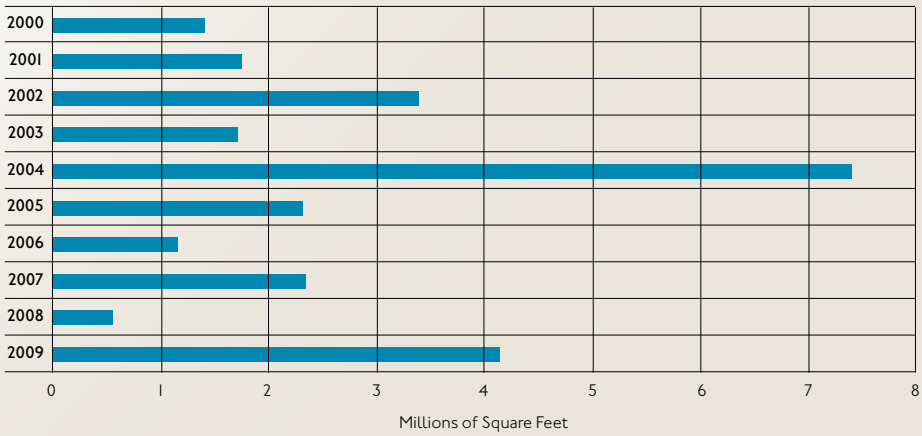
Having multiple uses accessible by transit is a key ingredient to fostering a complete community that can reduce automobile trips, promote a healthy lifestyle and improve overall quality of life.

Being able to track the trend of non-residential development near transit can help regional planners better understand how the region is developing and how to guide future planning and investment decisions.

WHAT PROGRESS IS THE SILICON VALLEY MAKING?

In the past ten years, the Silicon Valley has seen an average of 2.6 million square feet of non-residential development in close proximity to a major mass transit corridor. In 2004, the region saw a spike of new construction near transportation nearly triple that of the ten-year average (approx. 7.4 million square feet). 2008 had the lowest levels of development for the decade at 550,000 square feet. However, despite a prolonged nation-wide credit crunch, 2009 trended upward, with over four million square feet of non-residential construction started.

FIGURE 18: **New Commercial Development Near Transit**
Silicon Valley 2000-2009



Data Source: City Planning and Housing Departments of Silicon Valley
Analysis: Collaborative Economics

Metropolitan Transportation Commission (MTC)'s TOD Policy

To promote cost-effective transit, ease regional housing shortages, create vibrant communities and preserve open space, MTC has adopted a Transit-Oriented Development (TOD) policy that will be applied to transit extension projects in the Bay Area. Research shows that residents living within half a mile of transit are much more likely to use it and that large job centers within a quarter mile of transit draw more workers on transit. According to MTC's research of TOD projects around the Bay Area, "Transit-oriented development is not a one-size-fits-all phenomenon; it is a flexible form of development adapted to local circumstances."

Source: http://www.mtc.ca.gov/planning/smart_growth/tod/.

Economic Competitiveness and Opportunity

Job Growth and Wages

Green Employment and Business Establishments

Housing Affordability

WHY ARE THESE INDICATORS IMPORTANT?

California's economy, the eighth largest in the world, is one of diverse regional economies with distinct comparative advantages. Globally, the scale of economic competitiveness is regional. It is the combination of human talent, resources, infrastructure, services, industry clusters, and business culture within regions that creates the conditions for competitiveness. To be competitive in today's economy, regions must be able to attract investment and workers with critical assets such as workforce housing, mobility, and high quality of life.

Economic competitiveness and access to opportunity are the foundation for a prosperous and thriving community and region. This group of indicators aims to provide a basic assessment of the economic health of the regions through a look at overall job growth and average wages; the future competitiveness of regions in the emerging green economy (through green employment and establishments); and the opportunities available to regions' residents to live affordably in the region as expressed through levels of housing burden. These indicators reflect both the economic competitiveness of and quality of life in a region.

Without a diversified, innovative, equitable, and resource efficient economy that produces a range of quality jobs, it will be difficult to generate the economic opportunity necessary to raise living standards and provide the public revenues and services that contribute to community quality of life. The current recession is showing the importance of these connections. As the economy has faltered, declining business revenues, property values, and individual incomes have dramatically reduced public sector revenues, contributing to funding shortfalls for public services. This has strained the "vital cycle" of public services and revenues that support further economic and community progress.

Increasing job quality and wages are essential not only for an improved standard of living in general, but also for increasing the affordability of housing relative to income. Affordable housing affects a region's ability to maintain a viable economy by attracting and retaining businesses and a high-quality workforce. When combined with location efficiency and an accessible multi-modal transportation system, affordable housing ensures a high quality of life and supports a positive business climate.

The Green Economy

"California's "Core Green Economy" is growing at a faster rate than the economy as a whole and offers a wide range of job opportunities across all levels of skills."

Source: *Many Shades of Green*, Next Ten, p. 9.

From 2005 through 2007, while total jobs increased by just one percent statewide, green jobs increased by ten percent.

Source: *California Green Innovation Index*, Next Ten, p. 70.

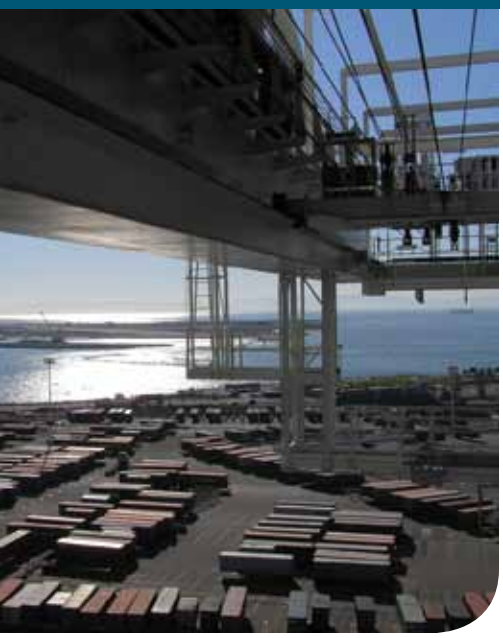
As California recovers from the deep recession, the challenge is to facilitate not only the transition of its economy toward better energy and resource efficiency, but to become a leader in the emerging clean energy sector and green economy globally. The green employment and business formation indicators are indicative of this important emerging sector, one that will generate the services, technologies and products to move California's households, businesses, public institutions and communities to a more sustainable path.

California already has a strong foundation in the green economy, as illustrated by the economic investment and job growth being spurred by important policy drivers such as AB 32, the Million Solar Roofs program, the Renewable Portfolio Standard and new green building codes. According to state profiles on the green economy prepared for the NGA Center for Best Practices, California is a national leader in several green energy segments, including energy generation, energy finance and investment. Other areas of growing comparative advantage include advanced materials, business services, energy efficiency, and energy infrastructure.[8] The 2009 California Green Innovation Index reports that clean technology investment in California reached an all-time high of $3.3 billion in 2008, almost doubling 2007 investment and accounting for 57 percent of clean tech venture capital investment in the US.[9]

Improved energy productivity in the economy –measured by the ratio of energy consumed relative to Gross Domestic Product (GDP) –has improved in the last two decades, but further progress will free up resources that can be redirected toward investment or job creation in other areas. The greening economy is saving money for many businesses and households and will reduce emissions and other pollution that impinge upon individual and community health.

When all of California's regional economies are healthy, energy efficient and diversified, and provide accessible opportunities for their residents and businesses, California as a whole will benefit in global competitiveness, resilience and economic leadership. An adequate supply of affordable housing in the right location, including housing which is retrofitted for energy efficiency, will improve the standard of living for residents and support a positive business climate.

[8] California Profile of the Green Economy Summary, NGA Center for Best Practices, prepared by Collaborative Economics, 2009, p. 1
[9] California Green Innovation Index 2009, Next Ten, p. 29.



Job Growth and Wages

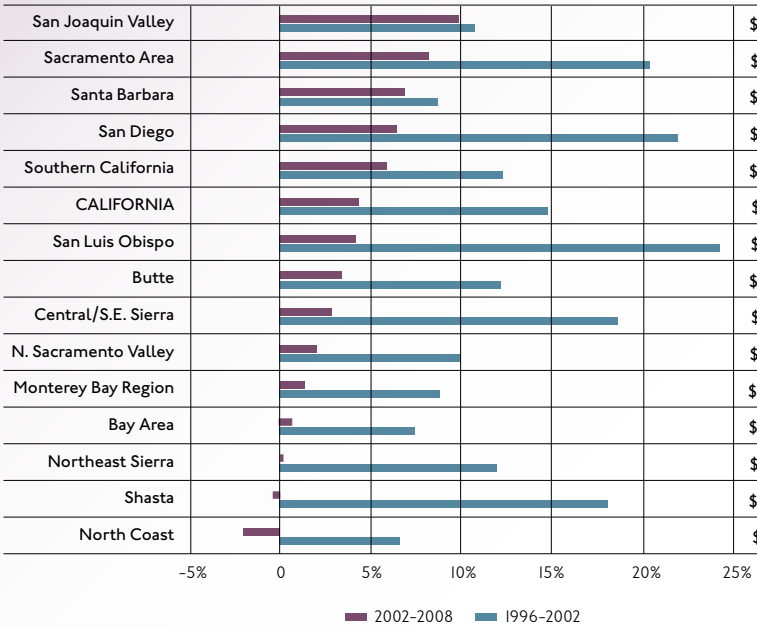
WHAT IS THIS INDICATOR?

This indicator shows non-farm job and wage growth, including all industry and government jobs. The indicator shows the change in total jobs from the time periods 1996 to 2002 and 2002 to 2008. It also shows the average wage per job in 2008 and the change in wages from 1996 to 2008. Wages are adjusted for inflation using the California Consumer Price Index (CPI) of all urban consumers. The CPI measures changes in costs for housing, transportation, food, utilities and other basic goods for the state. While there are some variations in the costs of living across the regions, using the California CPI provides for consistency, especially where a regional CPI is not available.

WHY IS THIS INDICATOR IMPORTANT?

Job gains are one of the most basic measures of economic health. Employment growth and decline is natural over the course of the business cycle, but longer-term, longer-lasting changes may indicate structural changes in a region or state's economic composition. Job gains provide a measure of progress in terms of quantity, while quality can be better assessed with average annual wages and growth. Together they reflect job quality and provide an indication of regional prosperity and individual opportunity.

FIGURE 19: **Employment Growth**
Percent Change in Total Jobs
1996–2002 and 2002–2008



	2008 Annual Avg. Wage*	% Change in Wages 1996–2008
San Joaquin Valley	$36,749	+13%
Sacramento Area	$47,243	+14%
Santa Barbara	$42,485	+14%
San Diego	$48,927	+19%
Southern California	$48,770	+7%
CALIFORNIA	$51,328	+14%
San Luis Obispo	$38,016	+11%
Butte	$34,204	+14%
Central/S.E. Sierra	$34,817	+14%
N. Sacramento Valley	$32,888	+10%
Monterey Bay Region	$40,368	+13%
Bay Area	$66,773	+22%
Northeast Sierra	$36,081	+15%
Shasta	$35,545	+4%
North Coast	$32,971	+11%

* Annual average wage is adjusted for inflation and shown in 2009 dollars.
Data Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW)
Analysis: Collaborative Economics

WHAT PROGRESS ARE REGIONS MAKING?

Overall growth in employment was significantly greater between 1996 and 2002 than between 2002 and 2008. The analysis compares two six-year periods for which all data were available. During the earlier period, San Luis Obispo had the largest increase (24 percent), with San Diego (22 percent) and Sacramento (20 percent) following closely. In addition, high growth was widespread. In contrast, only five regions had a net increase in jobs greater than five percent between 2002 and 2008, with the San Joaquin Valley leading, followed by Sacramento (see Figure 19).

Every region had a net gain in jobs between 1996 and 2002. However, two regions had a net loss of jobs between 2002 and 2008. The North Coast and the Shasta regions had a two percent decline and a 0.4 percent decline, respectively, between 2002 and 2008. These regions have transitioning natural-resource based economies. The Bay Area had a minimal increase of 0.8 percent. It was the region hardest hit by the technology sector-induced downturn in the early part of the decade and was recouping from significant job losses. Southern California had an increase of six percent, but labor force growth of 20 percent, thereby contributing to rising unemployment.

Unemployment for the state was 7.2 percent in 2008, the beginning of the current recession, compared to 6.7 percent in 2002, the tail end of the 2001 recession. The brunt of the latest recession hit employment in 2009 with a 6 percent drop in jobs as unemployment shot up to 11.4 percent.

Since 1996, wages increased across all regions. However, there were large disparities across the regions. The annual inflation adjusted wage in 2008 ranged from $32,888 in the Northern Sacramento Valley to $66,773 in the Bay Area. The highest growth in real wages was seen in the Bay Area (22 percent) and in San Diego (19 percent) over the twelve years. Higher wages are correlated with higher levels of educational attainment and skills. Southern California had the second lowest increase at seven percent, a troubling trend given that half of the State's population resides in this region.

In the most recent time period, the San Joaquin Valley had the fastest growth in jobs, with moderate wage growth but one of the lowest average wages in the state. In contrast, the Bay Area had a low rate of overall job growth, but the highest wage growth in the state. Parts of the Bay Area had higher rates of inflation in 2008 than the statewide average, which can have the effect of reducing the impact of the region's high level of wage growth. According to the Center for the Continuing Study of the California Economy, the most recent 2009 and 2010 data would show nearly all regions with net job losses over the decade or since 2002, and would wipe out much of the inflation-adjusted wage gains shown in the indicator.

Information on California's Economy

The California Economic Strategy Panel analyzes California's regional economies and industry clusters of opportunity on an ongoing basis to provide information for policy makers on economic development, workforce development, and education. This information includes regional economic profiles, industry cluster analyses and monographs on key economic issues such as "California's Role in the Global Economy".

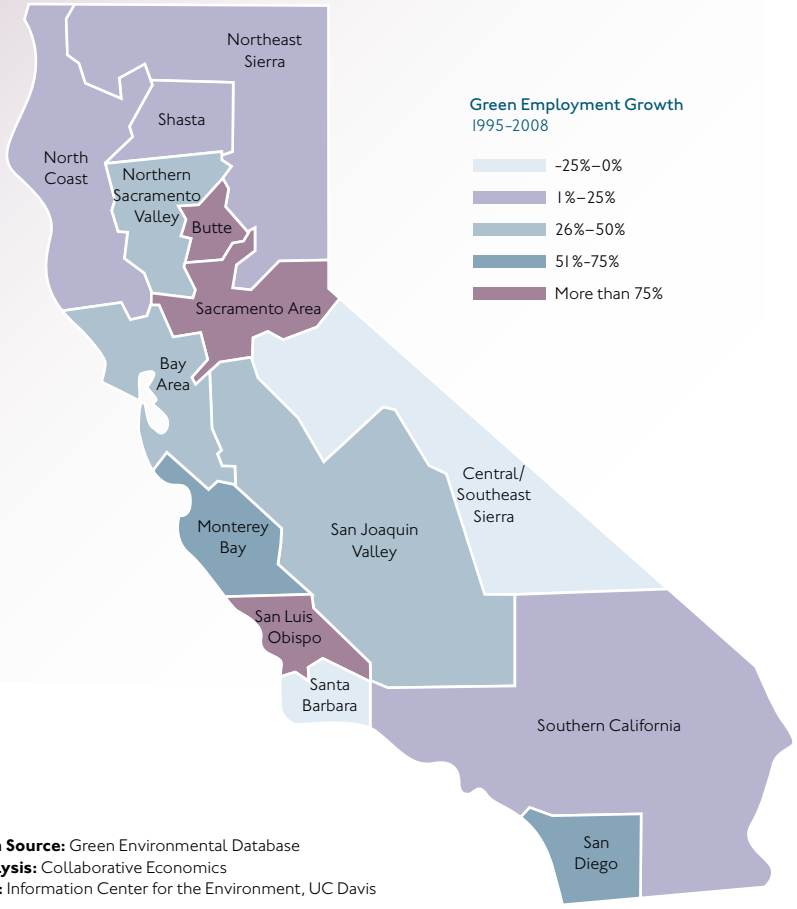
See http://www.labor.ca.gov/panel/espcrep.htm for more information on the broad range of California's industries.

Green Employment and Business Establishments

WHAT IS THIS INDICATOR?
Based upon the methodology developed on behalf of the California nonprofit, Next 10, as part of the *2009 California Green Innovation Index*, the "green economy" comprises any business establishments that provide products or services that conserve energy and all/or other natural resources including water, provide alternatives to carbon-based energy sources, reduce pollution, or repurpose or reduce waste. This indicator examines total people employed and number of business establishments across 15 segments of the "Core" Green Economy (see table on p. 49).

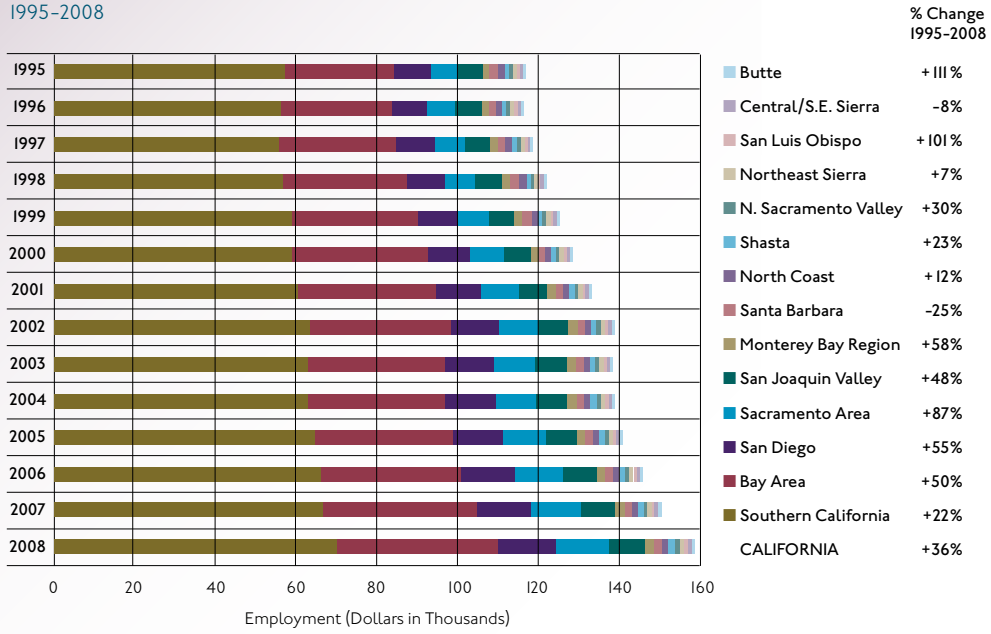
WHY IS THIS INDICATOR IMPORTANT?
Healthy activity in the "green economy" is proving to be a bright spot in the current slow recovery. Although the sector is currently small, comprising only about one percent of total jobs statewide in 2008, it is growing rapidly. To varying degrees, every state is seeing growth in some green industry segment. Existing products and services are finding new uses or are taking new forms in response to new market demands. California's regions are focusing on green economy industry clusters as potential growth sectors in part to address sustainability challenges such as air pollution and use of fossil fuels. Employment shifts across industry sectors

FIGURE 20: **Green Employment Growth**
1995-2008



Data Source: Green Environmental Database
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis

FIGURE 21 : **Total Green Employment by Region**
1995-2008



Data Source: Green Establishment Database
Analysis: Collaborative Economics

could indicate structural changes to the regional and state economy. Some of the shifts toward green employment are being accelerated by state policies.

WHAT PROGRESS ARE REGIONS MAKING?

Between 1995 and 2008, total green employment in California increased by 36 percent. Green employment increased in 12 of the 14 regions, while decreasing in Santa Barbara and the Central/ Southeast Sierra (See Figure 21). Green employment in San Luis Obispo and Butte more than doubled between 1995 and 2008.

The number of green establishments in California increased by 45 percent between 1995 and 2008 (Figure 22). Every region in the State saw at least a 24 percent increase in the number of green establishments in this time period.

Air & Environment is the largest Green Segment by employment, accounting for 27 percent of total green employment in California in 2008 (Figure 23). Energy Generation and Recycling & Waste each accounted for 16 percent of Green Employment. Southern California is a clear leader in Recycling and Transportation, with 60 percent of total 2008 statewide jobs in each of those segments. The Bay Area is a leader in Finance & Investment (75 percent of total jobs statewide), Energy Infrastructure (66 percent), and Advanced Materials (66 percent). Descriptions of all fifteen Green Segments are provided in the following table.

There are additional segments relating to sustainability that can be added to this list. For example, the growing and management of urban landscape vegetation is a $5.4 billion industry, and organic and sustainably grown agriculture and food processing is another large growth sector.[10]

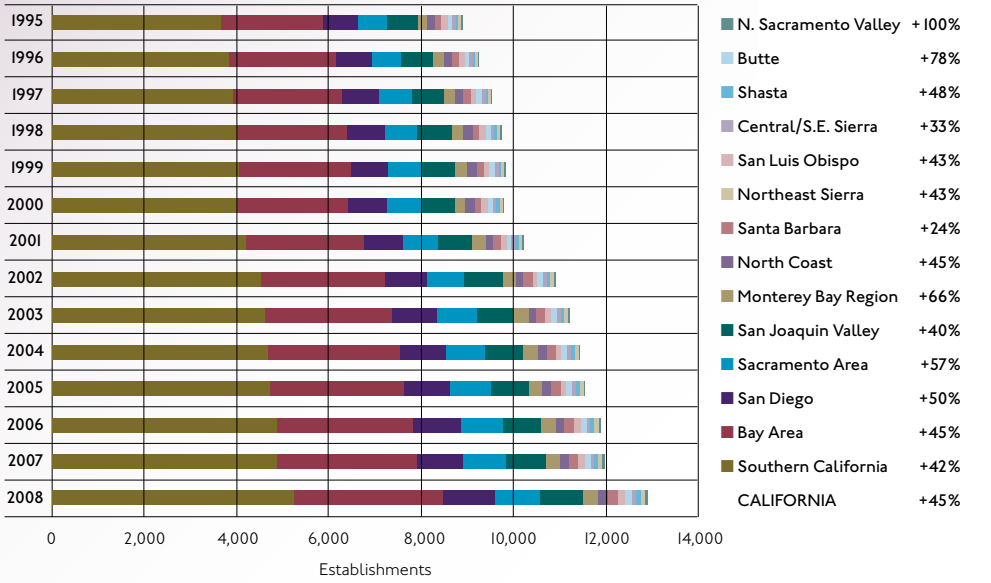
"With cities around the world implementing new green goals and standards, the pace of innovation in materials, clean technology, and green design is accelerating rapidly, enabling development of healthier buildings and the upgrading and retrofitting of existing stock. The U.S. Green Building Council predicts that the value of green building construction will increase to $60 billion in year 2010 and that the green building market will reach $140 billion by 2013."

Source: A Low Carbon Future," Kristina Kessler, Urban Land, August 2009, p 19.

[10] "Economic Impacts of Urban Forestry in California," Scott Templeton, Principal Investigator, Clemson University for CAL FIRE, forthcoming October 2010.)

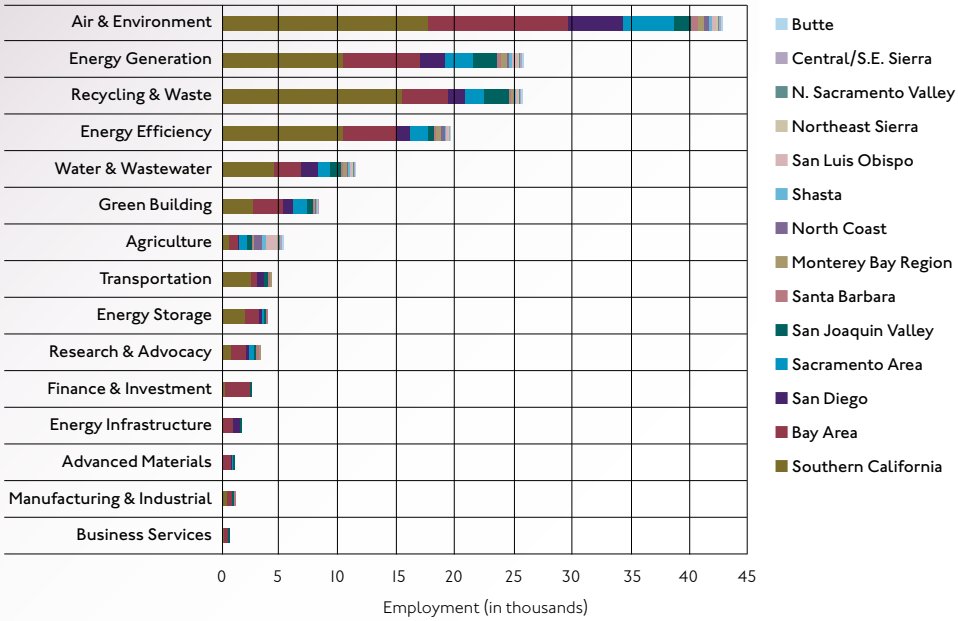
Green Employment and Business Establishments

FIGURE 22: **Total Green Establishments by Region**
1995–2008



Data Source: Green Establishment Database
Analysis: Collaborative Economics

FIGURE 23: **Green Employment by Segment**
2008



Data Source: Green Establishment Database
Analysis: Collaborative Economics

Green Economy Resources

The California Employment Development Department provides more detailed information about green economy data and resources, including new occupational demands. See http://www.labormarketinfo.edd.ca.gov/.

Fifteen Segments of the Core Green Economy

As published in Next 10's 2009 California Green Innovation Index

SEGMENT	DESCRIPTION	
1. Energy Generation	• Renewable energy generation (all forms of solar, wind, geothermal, biomass, hydro, marine & tidal, hydrogen, co-generation)	• Renewable energy consulting services • Research & Testing in renewable energy • Associated equipment, controls, and other management software and services
2. Energy Efficiency	• Energy conservation consulting and engineering services • Building efficiency products and services • Energy efficiency research	• Energy efficiency meters & measuring devices • Alternative energy appliances (solar heating, lighting, etc.)
3. Transportation	• Alternative fuels (biodiesel, hydrogen, algae and biowaste-based ethnanol and feedstock-neutral ethanol infrastructure)	• Motor vehicles & equipment (electric, hybrid, and natural gas vehicles, diesel technology)
4. Energy Storage	• Advanced batteries (Li-Ion, NiMH) • Battery components & accessories	• Fuel cells
5. Air & Environment	• Emissions monitoring & control • Environmental remediation	• Environmental consulting (environmental engineering, sustainable business consulting)
6. Recycling & Waste	• Consulting services • Recycling (paper, metal, plastics, rubber, bottles, automotive, electronic waste and scrap)	• Recycling machinery manufacturing • Waste treatment
7. Water & Wastewater	• Water conservation (control systems, meters & measuring devices) • Devel. & manufact. of pump technology	• Consulting services • Water treatment/purification products • Research and testing
8. Agriculture	• Sustainable land management and business consulting services	• Sustainable supplies and materials • Sustainable aquaculture
9. Research & Advocacy	• Organizations and research institutes focused on advancing science and public education in the areas of: renewable energy, alternative fuels and transportation.	
10. Business Services	• Environmental law legal services • Green business portals	• Green staffing services • Green marketing and public relations
11. Finance & Investment	• Emission trading and offsets • Venture capital/private equity investment	• Project financing (e.g. solar installations, biomass facilities, etc.)
12. Advanced Materials	• Bioplastics	• New materials for improving energy efficiency
13. Green Building	• Design & construction • Building materials	• Site managemeno • Green real estate & development
14. Manufacturing & Industrial	• Advanced packaging	• Industrial surface cleaning
15. Energy Infrastructure	• Consulting and management services	• Cable & equipment

Housing Affordability

WHAT IS THIS INDICATOR?

Housing affordability relates to housing "burden," or the proportion of household income that is used for mortgage or rental expenses for owners and renters respectively. Affordability is a function of many factors such as housing supply, variety, prices, interest rates, and household income. The higher the percentage of income required to either rent or own, the higher the burden. Although the 2007 Progress Report used a 35 percent standard of burden to reflect changes in market thresholds, this Report uses the 30 percent standard, in accordance with the California Department of Housing and Community Development's standard, US Department of Housing and Urban Development (HUD) definitions.

The indicator compares 2005 to 2008 data. The data source, the American Community Survey (ACS) from the U.S. Census Bureau, was designed to replace the long form data last collected for the 2000 Census. However, it has limitations for measuring housing affordability in smaller or rural regions, since county-level annual data are not as reliable as large metropolitan area and state data. Since year-to-year comparisons of the data for smaller regions may present problems, three-year averages are often recommended. The ACS data has only been in use since 2005, so there is not yet comparative data for two sets of time periods. Thus, certain regions and counties are not included in the comparison between the two time points. As more years of ACS data become available, all areas can be included. A single three-year average is provided for 2006 to 2008, and covers more counties than the single point data.

WHY IS THIS INDICATOR IMPORTANT?

Shelter is a fundamental necessity that often comprises the single biggest ongoing cost for individuals and households. Housing affordability impacts the ability of workers to live close to job centers, and affects overall quality of life and community viability.

The lack of affordable housing in a region leads to at least two major impacts: pushing housing farther away from urban and job centers and forcing those who do live in the region to devote higher-than-recommended portions of their income to housing. Pushing people to find less expensive housing farther away from their jobs and amenities leads to longer commutes and distances for daily trips—which in turn diminishes productivity, curtails family time and increases traffic congestion and air pollution.

Lack of affordable housing restricts the ability of crucial service providers—such as teachers, nurses and police officers—to live in the communities in which they work. Unaffordable housing also places significant burdens on households that devote more than 30 percent of their income to housing. It can result in overcrowding, and may increase the risk of mortgage defaults and homelessness. See page 54 for the combined impact of housing and transportation on affordability.

WHAT PROGRESS ARE REGIONS MAKING?

Throughout all regions, housing affordability was a concern for a large portion of residents, regardless of ownership status. Housing affordability decreased during the middle years of the decade due to the accelerated increase in housing prices and relatively modest gains in inflation-adjusted wages.

In 2008, of the nearly 12.2 million occupied units in California, 57 percent were owner occupied and 43 percent were renter occupied. In the period from 2005 through 2008, the housing burden affected a larger portion of renters (55 percent, statewide) than homeowners (44 percent, statewide).

The percent of renters faced with housing costs greater than or equal to 30 percent of income decreased or remained steady in six regions from 2005 to 2008. The regions with the least renters burdened, the Bay Area and Monterey Bay Region, still had approximately half of all renters at or above the 30 percent of income threshold. The region with the highest rate of burden for renters was Butte, with 62 percent of all renters faced with burden (see Figure 24).

However, the percent of owners with housing costs accounting for 30 percent or more of income grew in nearly every region. This is troubling since figures include homeowners who have no mortgage. The Bay Area had some of the highest housing prices in the state, but its high average income resulted in a housing burden just under the state average of 44 percent (see Figure 24).

Comparatively, Butte was the least expensive for homeowners, where just 36 percent of owners had housing costs in excess of 30 percent of income. The highest rates for homeowners were in the Monterey Bay Region and Southern California, at 46%, followed closely by San Diego.

Renters and Owners with Housing Costs Exceeding 30 Percent of Income

American Community Survey 3-year Estimates 2006-2008

RENTERS PAYING IN EXCESS OF 30%		OWNERS PAYING IN EXCESS OF 30%	
Bay Area	47%	Butte	36%
Monterey Bay Region	50%	Sacramento Area	42%
Sacramento Area	52%	San Joaquin Valley	41%
CALIFORNIA	52%	Shasta	37%
San Diego	53%	North Coast*	36%
San Joaquin Valley	51%	San Luis Obispo	42%
Southern California	54%	Bay Area	43%
San Luis Obispo	55%	Santa Barbara	43%
Santa Barbara	56%	Northeast Sierra*	37%
Shasta	54%	CALIFORNIA	44%
Northeast Sierra*	47%	San Diego	45%
North Coast*	51%	Southern California	45%
Butte	58%	Monterey Bay Region	47%
Northern Sacramento Valley	48%	Northern Sacramento Valley	37%
Central/SE Sierra*	50%	Central/SE Sierra*	40%

Source: U.S. Census Bureau, 2006-2008 American Community Survey, 3-year estimates, B25106. Tenure by Housing Costs as a Percentage of Household Income in the Past 12 Months; regional data compiled by HCD
*Does not include data for all counties within a region: North Coast does not include Trinity County. Northeast Sierra does not include Modoc and Sierra Counties. Central Sierra does not include Alpine, Inyo, Mariposa,, and Mono Counties.

Lower Income Households Experience Greater Housing Burden

Not surprisingly, homeowners on the lower rungs of the income ladder suffer the most from high housing costs. According to an analysis of housing burden by the U.S. Census, "The American Community Survey does not collect data on consumer expenditures and thus cannot measure the true plight of low income households."* While the data can show only part of the story for low income households, they show that households in the bottom income quartile paying 50 percent or more of their income on housing costs. In 2006, ACS data for California showed that 70 percent or more of mortgaged owners in this quartile and approximately 55 percent or more of renters spent 50 percent or more of their income on housing costs—classified as a severe burden by HUD. According to estimates by the California Budget Project, using the 30 percent level of housing burden, more than three quarters (over 75 percent) of lower income owner households, and nearly all lower income renter households (over 91 percent), spent over 30 percent of their income on housing costs in 2006. These cost burdens far outpace the rates for total owners and renters (43 and 55 percent, respectively).†

* "Who Can Afford to Live in A Home: A Look at data from the 2006 American Community Survey, by Mary Schwartz and Ellen Wilson, U.S. Census Bureau;
† "Locked Out 2008: the Housing Boom and Beyond," California Budget Project, 2008.

Housing Affordability

Looking at housing affordability as an annual average for the three-year period of 2006 through 2008 shows slight variations compared to the range of those affected in just the single year 2008. The three year average of renters paying in excess of 30 percent of income ranged from 47 percent to 58 percent, versus 48 percent to 62 percent in single-year 2008 data. Average three year estimates for owners paying in excess of 30 percent of incomes on housing ranged from 36 percent to 47 percent, slightly higher than the 36 percent to 46 percent range for single-year 2008 data. The average covers more counties than the single year data but not all of them due to data limitations (see chart on page 51).

While affordability appeared to deteriorate from 2005 to 2008 as illustrated in Figure 24, the end of the period reflects just the beginning of a severe housing market correction. By 2008, home prices had begun to fall from their peak in 2006. Prices had outstripped income growth for much of the late 1990s through the mid 2000s. Most recently, in 2010, statewide prices have fallen dramatically and finally may be approaching the bottom.

Numerous factors contributed to the ongoing housing market correction and continue to weigh on the recovery. The 2008 collapse of the credit markets continues to constrain banks and other lenders, although some of the restraint is healthy, e.g., a large drop in mortgage lending to unqualified and/or overleveraged borrowers.

Because of the steep housing price declines, as many as 25 percent of American homeowners may have suffered sharp declines in home equity and have mortgages worth more than their homes, according to First American CoreLogic (*State of the Nation's Housing*, Joint Center for Housing Studies of Harvard University). Some 40 percent of these 11.2 million "underwater" owners are located in California and Florida.

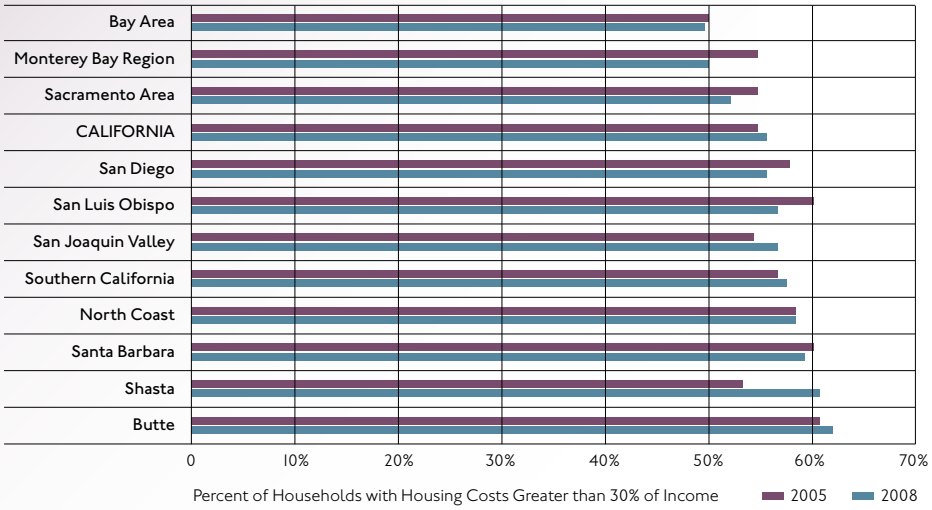
Second quarter 2010 data from First American CoreLogic shows geographically where mortgages exceed home values. The Central Valley has been particularly hard hit. In Stockton, 62.4 percent or 80,505, of all residential properties had a mortgage in negative equity–nearly three times the national average. In Modesto, almost 60 percent of residential properties–58,900, were "underwater," while in the Sacramento metropolitan area, 43.4 percent of residential properties–314,468 units–were in negative equity.[11]

In 2009, a total of almost 632,600 California properties received a foreclosure filing, the nation's highest total and an increase of nearly 23 percent from 2008, according to the California Reinvestment Coalition. This crisis has affected homeowners, their neighborhoods, businesses, and the state economy as a whole. The housing burden will be an important issue to track as the economy and housing market rebound.

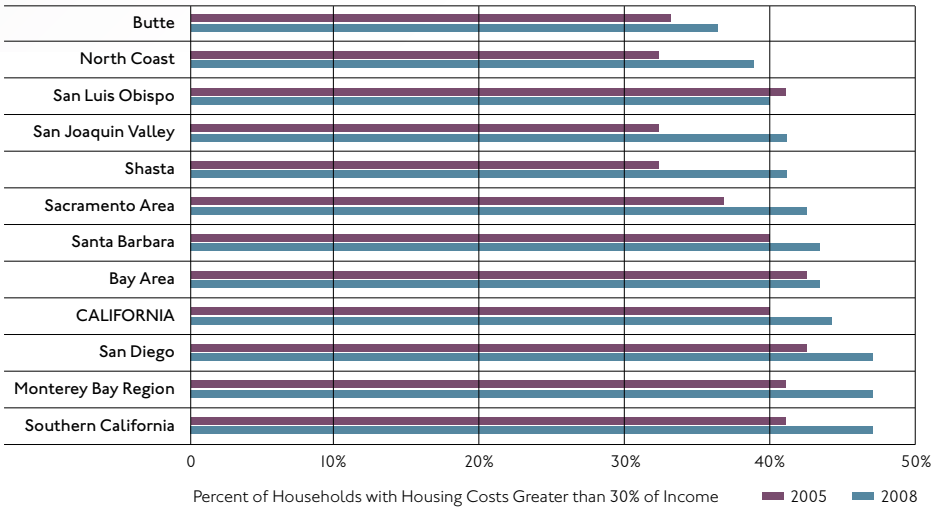
[11] "Central Valley Awash in Worthless Homes," Central Valley Business Times, August 26, 2010.

FIGURE 24: **Housing Affordability**
Percent of Households with Housing Costs Greater than 30%
2005 and 2008

RENTERS



OWNERS



* Does not include data for all counties within region
Note: Data is not available for N. Sacramento Valley, Northeast Sierra, and Central/Southeast Sierra.

Because of the steep housing price declines, as many as 25 percent of American homeowners may have suffered sharp declines in home equity and have mortgages worth more than their homes.

Housing + Transportation Affordability

There is a growing recognition that assessing the affordability of a housing choice cannot be based on the cost of a mortgage or rent alone. Transportation costs are critical factor when assessing affordability. In some places, transportation costs even exceed housing costs.

In many urban areas, housing prices decrease as one travels farther out from the urban center. The resulting outward suburban and exurban development patterns are encouraged by the "drive 'til you qualify" phenomenon, whereby households qualify for mortgage rates based on housing cost, independent of the location of that housing or its proximity to job centers. In other words, one only needs to keep driving farther away from high price metropolitan areas to qualify to buy a house. As people move farther out, they must drive longer distances to make their daily trips and access the jobs, services, and entertainment frequently concentrated in urban centers. For many years, this resulting increase in transportation costs has not been factored into the affordability of housing.

A 2009 study by the Center for Neighborhood Technology (CNT) has found that when affordability is measured based on housing costs alone, seven in 10 communities nationwide are considered affordable (using a threshold of 30 percent of income for housing). When an additional 15% of income is included for transportation costs, comprising a total affordability index of 45% of income, the number of affordable communities shrinks to just four in 10. On average, savings in housing costs are overcome by increased transportation costs when commute distances exceed approximately 10 miles.

To assist people in more accurately assessing housing costs and to assist decision makers in reassessing land use, transportation, and housing policies, CNT has developed a housing plus transportation affordability measurement tool, the H + T Affordability Index. The tool allows users to view the combined housing and transportation costs for any of 337 metro regions in the United States, for a total of 161,000 neighborhoods covered. The index and CNT's reports are available at http://htaindex.cnt.org/index.php.

In California, CNT prepared a neighborhood-scale H + T Affordability Index for the entire Bay Area at the request of the Metropolitan Transportation Commission (MTC). The resulting report, "Bay Area Housing and Transportation Affordability: A Closer Look" reveals the affordability of Bay Area neighborhoods for low-income and moderately-low income families. For moderately-low income households, when housing costs are considered alone, the Bay Area's affordable neighborhoods are primarily in outlying communities and a ring of communities bordering the bay. When transportation costs are added, many of those outlying areas are no longer affordable, and the number of affordable communities shrinks greatly. The picture for low-income households is far bleaker. With housing and transportation costs factored in, only parts of eastern San Francisco and Oakland are affordable.

The Bay Area and nationwide CNT reports offer important insights, including:

- Community location, character, and design better predict overall affordability than household size and income.
- In many metro regions, foreclosures have been highest in the "drive 'til you qualify" zones, and high rates of mortgage defaults may correspond to inefficient locations with less overall (H+T) affordability.
- Housing + Transportation affordability should be monitored by tracking production of affordable housing located near transit stations and hubs.
- Policies are needed to redefine affordable housing to include transportation costs, encourage development near transit and use of transit, educate people about location efficiency and affordability, and promote increased access to location-efficient housing markets through location-efficient mortgages and other incentives.

While the State presently lacks a consistent baseline for comparisons between regions to provide a regional housing and transportation affordability index, it is recommended that such an index be developed and included in the next Progress Report.

Sources: " Penny Wise, Pound Fuelish," Center for Neighborhood Technology, February 2010; see http://www.cnt.org/repository/pwpf.pdf.
"Bay Area Housing and Transportation Affordability: A Closer Look," Metropolitan Transportation Commission, 2009. See http://www.mtc.ca.gov/planning/smart_growth/.
Location Efficient Mortgage, The Institute for Location Efficiency. http://www.locationefficiency.com/ <http://www.locationefficiency.com/> .

Environmental Health

Air Quality

Particulate Matter 2.5

Asthma

Overweight and Obesity

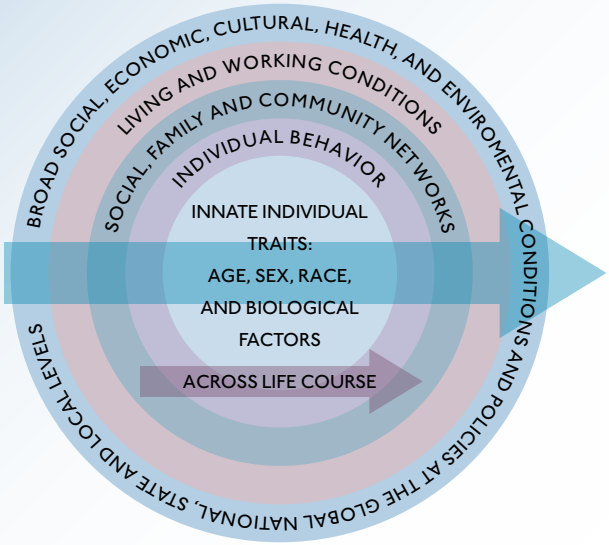
WHY ARE THESE INDICATORS IMPORTANT?

"In its broadest sense, environmental health comprises those aspects of human health, disease, and injury that are determined or influenced by factors in the environment. This includes not only the study of the direct pathological effects of various chemical, physical, and biological agents, but also the effects on health of the broad physical and social environment, which includes housing, urban development, land-use and transportation, industry, and agriculture."
– *Healthy People 2010, U.S. Department of Health and Human Services*

In the field of public health, the need for an integrated, collaborative approach to problem solving is made clear by the complexity of and diffuse responsibility for factors that contribute to health outcomes. Whether the source is environmental toxins, air pollutants, water contamination, or the built environment, solutions for improving health outcomes are spread across traditional academic, regulatory, jurisdictional, and policy areas.

Public health officials are increasingly adopting intersectoral approaches to tackling health problems, and in particular aspects of health related to the surrounding environment, or environmental health. This approach is evident in the growing Health in All Policies movement, an initiative to incorporate the consideration of health impacts in all policies first adopted by Finland and the European Union in 2006, and initiated in California by a Governor's Executive Order in February 2010.

FIGURE 25: **Determinants of Health**



Outcomes

Behavioral outcomes

Specific risk factors, diseases, and conditions

Injuries

Well-being and health related Quality of Life

Health equity

Source: California Department of Public Health, Healthy People 2020 Overview Presentation, January 23, 2009. http://www.cdph.ca.gov/services/boards/phac/Documents/HealthyPeople_012309.pdf

Environmental Health

The Environmental Health indicators in this section include two types. The first is environmental factors that influence human health, and as such are predictors of future health outcomes. These are often referred to as health determinants. The second type of indicator is current health outcomes and status. These assess the population's current health in areas that are known to have strong ties to environmental factors.

As represented in Figure 25, the Determinants of Health, human health results from complex interactions between innate traits, individual behaviors, family and community networks, living and working conditions, and broader social, economic, and environmental conditions. The physical environment and community health can play a significant role in improving health outcomes and quality of life. The California Department of Public Health is working with multiple partners to help develop policies that can create communities supportive of human health, equity, and a high quality of life. Its definition of a Healthy Community (below) is an example of a comprehensive, intersectoral approach to developing goals and indicators that can better measure progress toward sustainability in the area of environmental health.

For many health-related issues, community and neighborhood-level indicators are essential to accurately characterizing health determinants and outcomes within a region. One such indicator, Neighborhood Food Environment, is provided in this section as an example of a community-level health indicator.

Defining a Healthy Community

The California Department of Public Health (CDPH) has developed an encompassing definition of a sustainable healthy community, shown below. CDPH is developing a set of indicators for measuring a Healthy Community that should be available for the next Progress Report.

A Healthy Community provides for the following through all stages of life:

Meets basic needs of all

- Safe, sustainable, accessible and affordable transportation options
- Affordable, accessible and nutritious foods
- Affordable, high quality, socially integrated and location-efficient housing
- Affordable, accessible, high quality health care
- Complete and livable communities including affordable and high quality schools, parks and recreational facilities, child care, libraries, financial services and other daily needs
- Access to affordable and safe opportunities for physical activity

Social relationships that are supportive and respectful

- Robust social and civic engagement
- Socially cohesive and supportive relationships, families, homes and neighborhoods
- Safe communities, free of crime and violence.

Adequate levels of economic, social development

- Living wages, safe and healthy job opportunities for all
- Support for healthy development of children and adolescents
- Opportunities for high quality and accessible education

Health and Social Equity

Quality and sustainability of environment

- Clean air, soil and water, and environments free of excessive noise
- Tobacco and smoke free
- Green and open spaces, including agriculture lands
- Minimized toxics, GHG emissions and waste
- Affordable and sustainable energy use

Air Quality: Particulate Matter 2.5

WHAT IS THIS INDICATOR?

This indicator measures the annual average maximum days that Particulate Matter 2.5 levels exceed the national standard over a five year period. The five year time period is used to lessen the yearly variation in particulate matter levels depending on weather and forest fires. Heavy fire seasons such as occurred in 2008 can elevate the measurements of particulate matter, potentially distorting long-term air quality improvement trends. However, these heightened levels are still relevant for health concerns and resource management.

Particulate matter as a pollutant is grouped by particle size: PM 10 includes particles measuring 10 microns or less in diameter and PM 2.5 includes particles of 2.5 microns diameter and less. PM 2.5 is the focus of this indicator because it is more closely associated with health effects, and in many areas is a large component of PM 10. PM 2.5 is generated by all types of combustion, including exhaust from trucks, passenger cars, and off-road equipment; byproducts from electric power generation and industrial processes; and residential wood, forest, and agricultural burning.

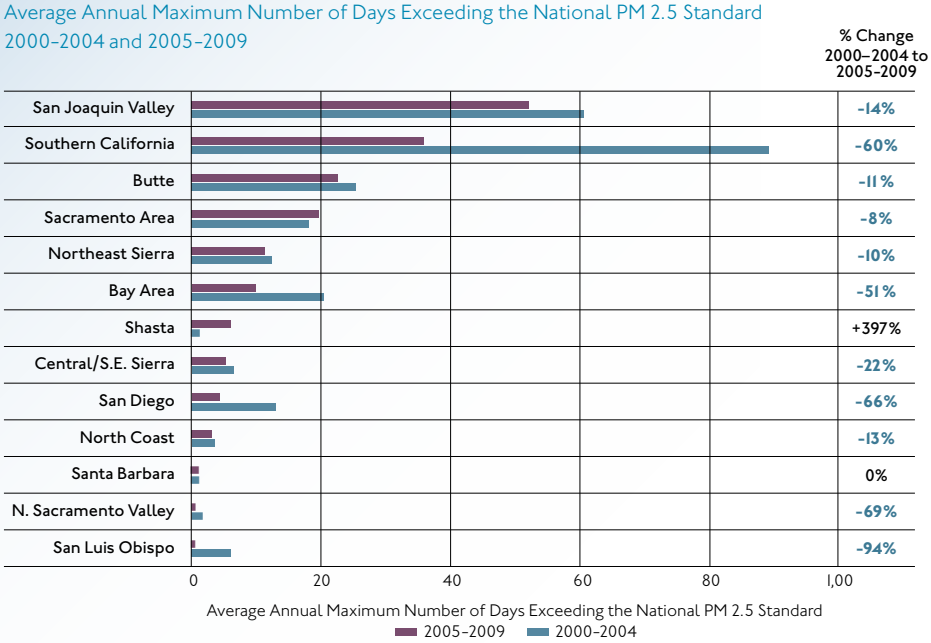
WHY IS THIS INDICATOR IMPORTANT?

Air quality directly affects the health of all residents and the ecosystems of regions. Tracking particulate matter (PM) is essential because many studies from around the world have shown that PM pollution can have serious long-term effects on health, and exposure to even small increases in the concentration of PM pollution is associated with increased premature deaths.

The California Air Resources Board (CARB) has estimated that between 14,000 and 24,000 deaths statewide every year may be associated with PM 2.5 exposure. PM 2.5 particles are particularly harmful to human health because they can easily penetrate into the airways and lungs where they may produce harmful health effects such as the worsening of cardiovascular and respiratory diseases.

The California Air Resources Board (CARB) has estimated that between 14,000 and 24,000 deaths statewide every year may be associated with PM 2.5 exposure.

FIGURE 26: **Air Quality: Particulate Matter 2.5**
Average Annual Maximum Number of Days Exceeding the National PM 2.5 Standard
2000–2004 and 2005–2009



Note: Data for Monterey Bay Region counties is unavailable.
Data Source: California Air Resources Board
Analysis: Collaborative Economics

Air Quality: Particulate Matter 2.5

Exposure to PM is linked to strokes, cardiovascular diseases and heart attacks, and respiratory illnesses. Decreasing PM 2.5 pollution has important equity implications because primary PM sources such as ports, trucking corridors, and industrial processes are frequently concentrated in low-income and minority neighborhoods.

WHAT PROGRESS ARE REGIONS MAKING?

All regions in the state experienced a reduction in PM 2.5 pollution since 2000, excluding major wildfires. Aggressive air pollution control measures by the California Air Resources Board in the last two decades, and control measures directed at particulate matter and diesel particulate matter in particular since 2000, have achieved a thirty percent reduction statewide in ambient PM 2.5 since 1999.

From the 2000–2004 to 2005–2009 period, the average annual maximum number of days exceeding the National PM 2.5 standard declined or remained stagnant in all but two regions. The decrease was especially notable in Southern California. Both Sacramento and Shasta experienced increases attributed to smoke from severe wildfires.

The San Joaquin Valley had among the highest days exceeding PM 2.5. Trucks, trains and ships involved in goods movement–sources that are largely beyond regional control–are significant and often inter-regional contributors to air pollution in the San Joaquin Valley, in particular. A new report to the Air Resources Board estimates that changes in wind patterns due to climate change will further exacerbate particulate matter pollution in the San Joaquin Valley if emission levels are not reduced.

California's geography and wind patterns create challenges for controlling air quality, especially in inland California. Wind currents transport pollution across regions, and can accumulate pollution in certain air basins far from the source. One well documented wind eddy, the Fresno Eddy, takes air pollution collected from the Bay Area and across the central valley and carries it into the southern end of the Sierra Nevada Mountains, including the Sequoia and Kings Canyon National Parks. The inter-regional nature of much of California's travel and commerce, combined with the natural phenomena that can transport pollutants far downwind from their point of origin, make air pollution an inter-regional, statewide, and national concern.

Progress in Reducing Ozone

The 2007 Progress Report looked at ground level ozone, a caustic gas that is a main component of smog. Ozone is formed through chemical reactions between gases emitted by sources including vehicles, fossil fuel combustion, and other industrial and consumer product sources. Ozone can damage tissue in the respiratory tract and lungs, worsen asthma symptoms, decrease the health and productivity of plants including crop and timber yields, and damage infrastructure and building materials including metals, rubber, plastics, and paint.

Throughout the last twenty years, California's air quality in terms of ozone pollution has improved. The 2007 Report indicated progress in nearly all regions of the state in reducing the days with ozone above the standard for 8-hour average ozone levels. Statewide, this trend has continued.

California's highest ozone concentrations are now close to half of what they were in 1990, and the total number of Californians breathing air that meets federal ozone standards has more than doubled, from 20 percent in the early 1990s to 45 percent today. In the South Coast region, once infamous for its "smog," ozone concentrations have decreased by more than one-third since 1990. However, the topography and climate of many of California's inland areas provides ideal settings for creating and re-circulating ozone and PM2.5, and many people are still exposed to potentially harmful ozone levels.

Climate Change: New challenges in reducing Ozone

A new report to the California Air Resources Board by UC Davis and UC Berkeley estimates that climate change will pose additional challenges for controlling ozone levels. The study predicts that rising temperatures from climate change will increase California's days exceeding the federal clean air ozone standards between 6 and 30 days in a year, depending on how much ozone-creating pollution California continues to emit.*

Transportation funding and air pollution

In addition to the costs of health care and hospitalizations related to air pollution, California's regions risk losing critical Federal transportation funding if air quality standards are not met. The federal funds are contingent on meeting the US EPA's air quality standards, a task which will become increasingly difficult as warmer temperatures exacerbate California's ozone pollution. Regions rely heavily upon federal monies to maintain existing infrastructure and develop new roadways.

*"Climate Change Impact on Air Quality in California," Report to the Air Resources Board, Michael J. Kleeman, She-Hua Chen, Robert A. Harley. June 2010.
To read the report, go to the Air Resources Board's website, www.arb.ca.gov.

Costs and Health Consequences of Air Pollution

A new study by the RAND Corporation analyzed the health care costs in California's hospitals* associated with air pollution. Key findings from the study include:

- Failing to meet federal air quality standards led to nearly 30,000 hospital admissions and emergency room visits in California over the period 2005-2007.
- Resulting spending was about $193 million by public and private health insurers.
- Public insurers such as Medicare and Medi-Cal spent the most, but private insurers, employers, and employees also ultimately paid for dirty air.
- Health and cost effects of pollution varied across the state, with the greatest number of air pollution-related hospital events occurring in the Southern California, San Joaquin Valley, and Sacramento regions.
- Statewide, ozone exposure was associated with over 6,000 admissions for acute bronchitis, pneumonia, or Chronic Obstructive Pulmonary Disease (COPD) and over 2,000 asthma ER visits.
- PM 2.5 exposure contributed to over 12,000 asthma ER visits by children under 18 and thousands more pneumonia, COPD, and cardiovascular admissions.

*These numbers exclude out-patient care and some other well-known adverse health effects associated with particulate matter and ozone, and so actual health care costs and health impacts are likely much higher.

Source: "The Impact of Air Quality on Hospital Spending," and "Cost and Health Consequences of Air Pollution in California" (research highlights). John A. Romley, Andrew Hackbarth, Dana P. Goldman. RAND 2010.

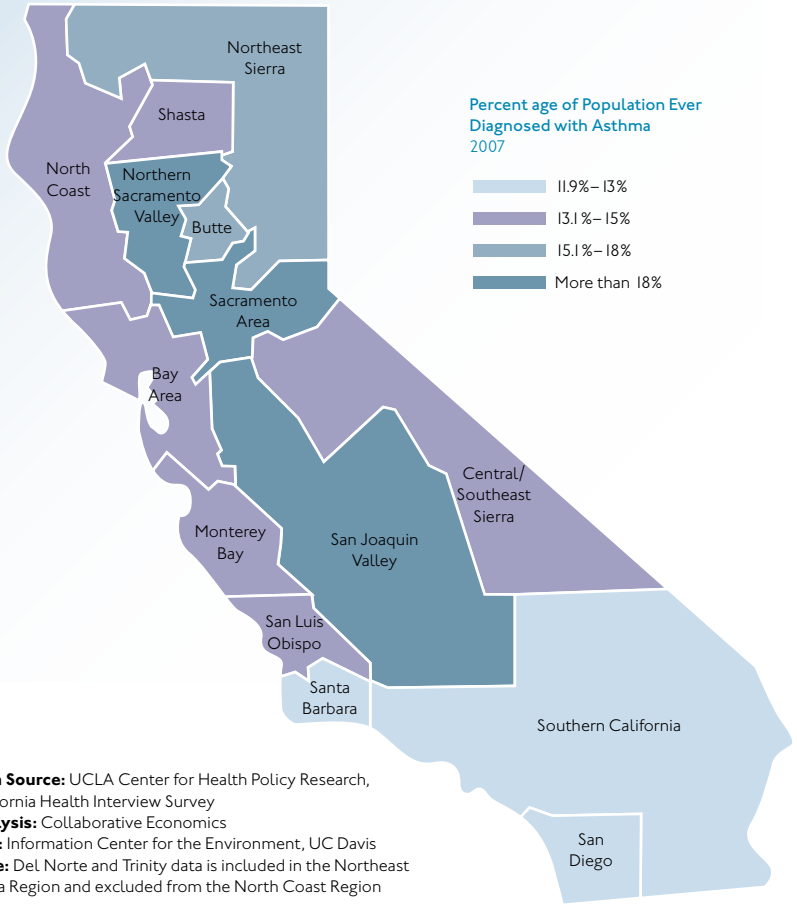
Asthma

WHAT IS THIS INDICATOR?
This indicator measures the percent of a region's population that has ever been diagnosed with Asthma. Figure 28 shows the total percentage of people ever diagnosed in each region, along with the change between 2001 and 2007.

WHY IS THIS INDICATOR IMPORTANT?
Asthma has been found to be exacerbated by poor air quality, much of which is a byproduct of automobile-dependent development patterns, agricultural, industrial, and port operations, and trucking.

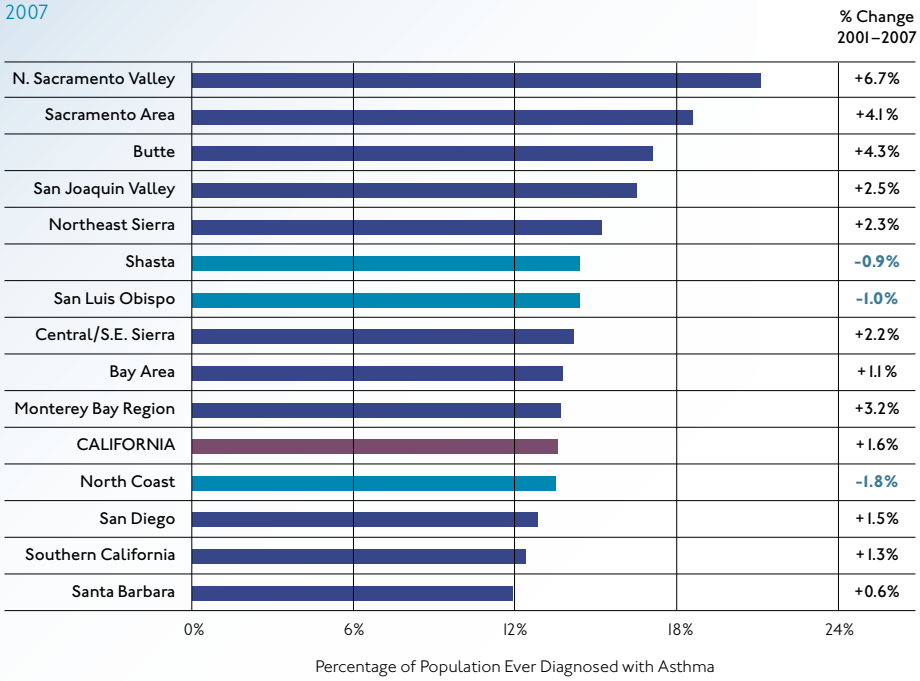
Asthma rates can be higher among lower income populations. People suffering from asthma can experience a decline in physical stamina and health, and populations with high asthma rates can have higher rates of premature mortality. Asthma also results in high health care costs, much of which are paid for by State and Federal health care programs and by employers and private insurers (see p. 59 for discussion on air pollution costs). Asthma has additional costs associated with lost productivity and children missing days at school.

FIGURE 27: **Percentage of Population with Asthma**
2007



Data Source: UCLA Center for Health Policy Research, California Health Interview Survey
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis
Note: Del Norte and Trinity data is included in the Northeast Sierra Region and excluded from the North Coast Region

FIGURE 28: **Percentage of Population with Asthma**
2007



Data Source: UCLA Center for Health Policy Research, California Health Interview Survey
Note: Del Norte and Trinity data is included in the Northeast Sierra Region and excluded from the North Coast Region
Analysis: Collaborative Economics

Asthma has been found to be exacerbated by poor air quality—much of which is a byproduct of automobile-dependent development patterns, agricultural, industrial, and port operations, and trucking.

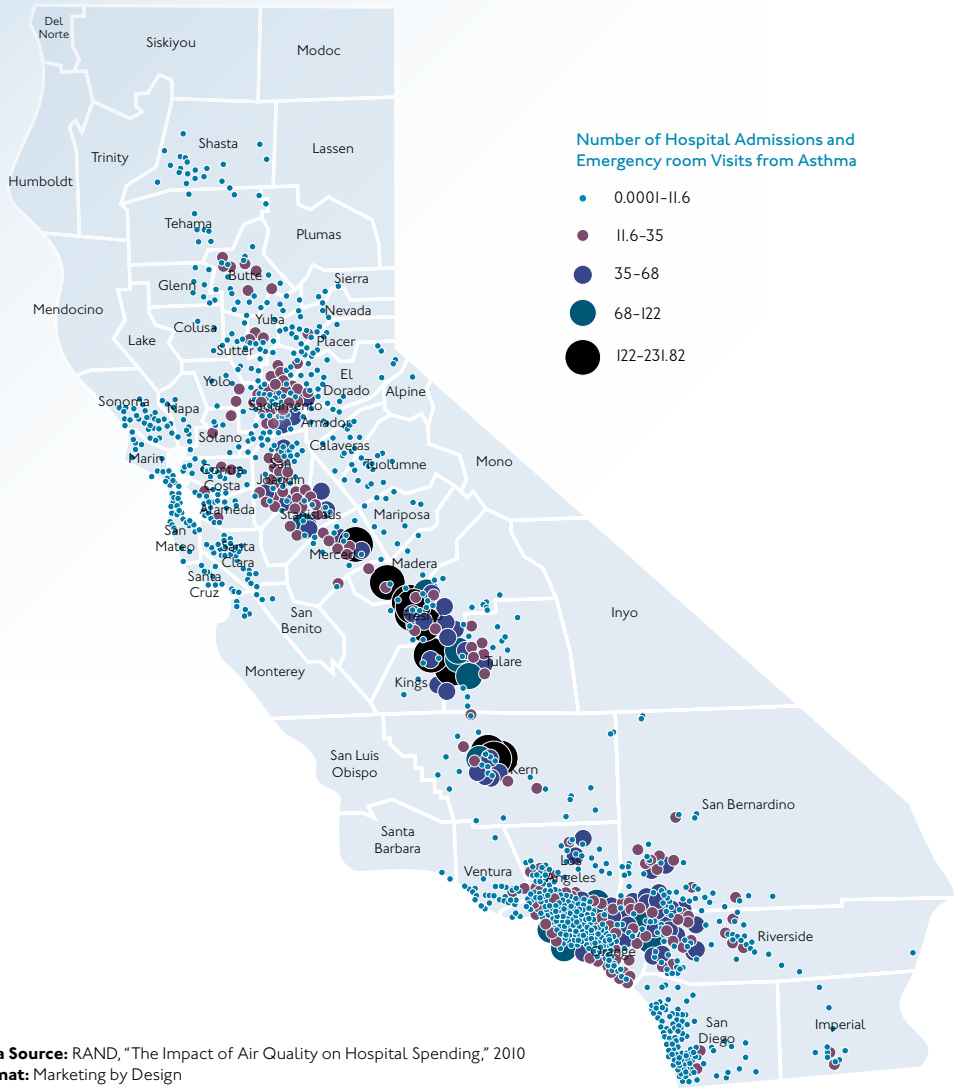
WHAT PROGRESS ARE REGIONS MAKING?

In 2007, the asthma rates across California's regions ranged between 11 and 22 percent of the total population. While three regions have slowed or reversed growth in the percent of residents diagnosed with asthma, the remaining regions have not. From 2001 to 2007, Shasta, San Luis Obispo, and the North Coast regions have seen decreases in their population's asthma rates. Regions with the highest shares of asthma are in inland Northern California and the San Joaquin Valley. These areas have also seen the greatest increase in their population's asthma rates.

Asthma

California is experiencing a widening chasm between regions that have seen reduced percentages of residents with asthma and regions in which asthma rates are on the rise. An important factor that could influence regions' reported rates is underreporting of asthma by certain populations. Some groups are more likely to seek a doctor's care and diagnosis than others, and some groups may have limited access to health care, thus inflating the rates in areas where asthma is more likely to be reported. For this reason, as well as to paint a clearer picture of current asthma health impacts, a future indicator that could be used to assess asthma-related health impacts is the number of hospital admissions and emergency room visits from asthma, such as the example from the RAND study in Figure 29.

FIGURE 29: **Pollution-Related Hospital Events Throughout California Over 2005-2007, by Patient Zip Code**



Data Source: RAND, "The Impact of Air Quality on Hospital Spending," 2010
Format: Marketing by Design

Overweight and Obesity

WHAT IS THIS INDICATOR?

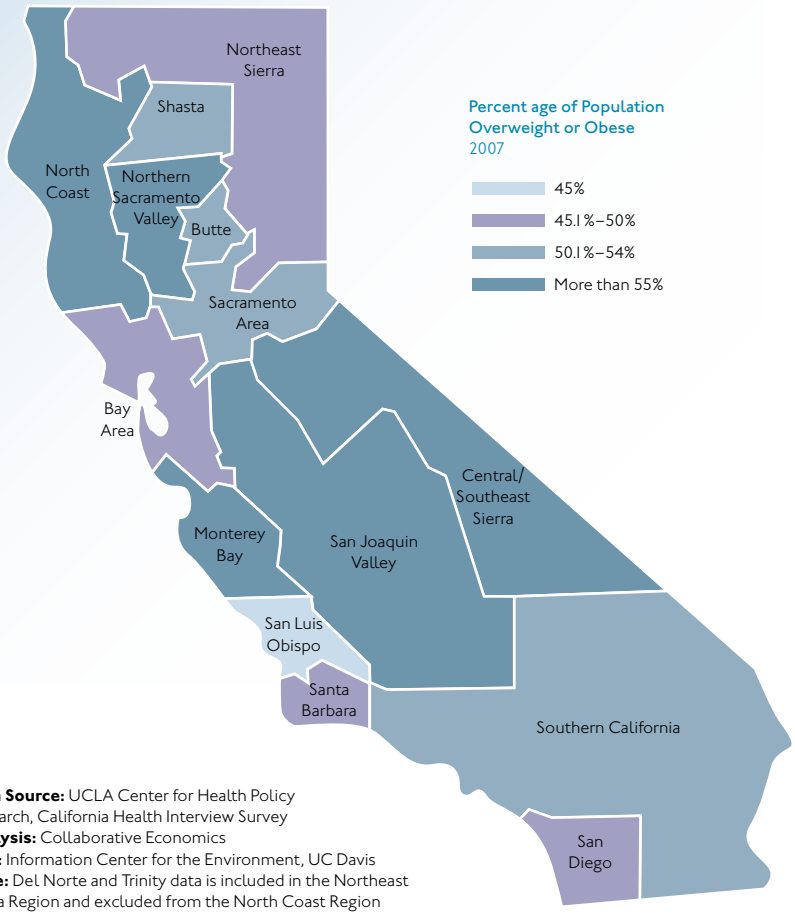
This indicator measures the percentage of each region's population that is considered overweight or obese according to definitions set by the Center for Disease Control and Prevention (CDC). According to the CDC, overweight and obesity are labels for ranges of weight that are greater than what is generally considered healthy for a given height. The overweight and obese weight ranges have been shown to increase the likelihood of certain diseases and other health problems.

An adult who has a Body Mass Index (BMI) between 25 and 29.9 is considered overweight, and an adult who has a BMI of 30 or higher is considered obese. BMI is used because the height-to-weight ratio correlates with the amount of body fat for most people. The National Institutes of Health determines BMIs for children and teens using the BMI-for-age percentile. A child or teen's BMI-for-age percentile shows how his or her BMI compares with other boys or girls of the same age. A youth is considered overweight or obese if their BMI is in the 95th percentile with respect to their age and gender.

WHY IS THIS INDICATOR IMPORTANT?

Over the past two decades, obesity has risen dramatically in the United States, and its occurrence is not just limited to adults—the percentage of young people who are overweight has more than tripled since 1980. Being overweight or obese increases the risk of many

FIGURE 30: **Percentage of Population Overweight or Obese** 2007



Data Source: UCLA Center for Health Policy Research, California Health Interview Survey
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis
Note: Del Norte and Trinity data is included in the Northeast Sierra Region and excluded from the North Coast Region

Health Disparities

Overweight and obesity rates are highest among Californians of Latino, American Indian, African American, and Pacific Islander descent, Californians from lower-income households, and those with disabilities. A California Health Interview Survey study found that low-income teenagers are more than twice as likely to be obese than their more affluent peers, with more than 30% of low-income California children and teens overweight or obese.

Where you live also impacts obesity: at the sub-regional level, disparities are even more pronounced, with Imperial County at 73% of adults overweight or obese, versus 43% of San Francisco County adults. Within counties, residents of low-income neighborhoods have higher obesity rates. In affluent West Los Angeles, approximately three in every ten adults are overweight or obese, versus more than seven in ten in lower-income South Los Angeles.

Sources:
1) Behavioral Risk Factor Surveillance System, Centers for Disease Control and Prevention, 2007. See www.cdc.gov/brfss.
2) California Health Interview Survey, UCLA Center for Health Policy Research, 2007. See www.chis.ucla.edu.
3) "Prevalence of High Body Mass Index in US Children and Adolescents," Ogden CL, Carrol MD, Curtin LR, Lamb MM, Flegal KM.2007-2008. JAMA 2010; 303:242-249.
4) Pediatric Nutrition Surveillance System, Summary of Health Indicators, California Department of Health Care Services, 2008. See http://www.dhcs.ca.gov/services/chdp/Documents/PedNSS/2008/2C.pdf.

Overweight and Obesity

diseases and health conditions, including type 2 diabetes, hypertension, coronary heart disease, stroke and some types of cancers. Obesity and its associated health problems have a significant economic impact on the nation's health care system as well as the overall economy due to associated declines in productivity and increases in health care costs.

While poverty and issues of access (such as to healthy foods, recreation, and health care services) are critical determinants of obesity, researchers are increasingly showing associations between obesity and land use and transportation patterns that discourage physical activity (see page 65).

WHAT PROGRESS ARE THE REGIONS MAKING?

Obesity continues to be a problem in all regions. As of 2007, one in every nine California children, one in three teens, and over half of adults were already overweight or obese. Overall, 52 percent of California residents were overweight or obese in 2007–a 1.6 percent increase since 2001.

While this epidemic affects virtually all age, income, educational, ethnic, and disability groups, overweight and obesity rates do not affect groups equally (see sidebar on health disparities).

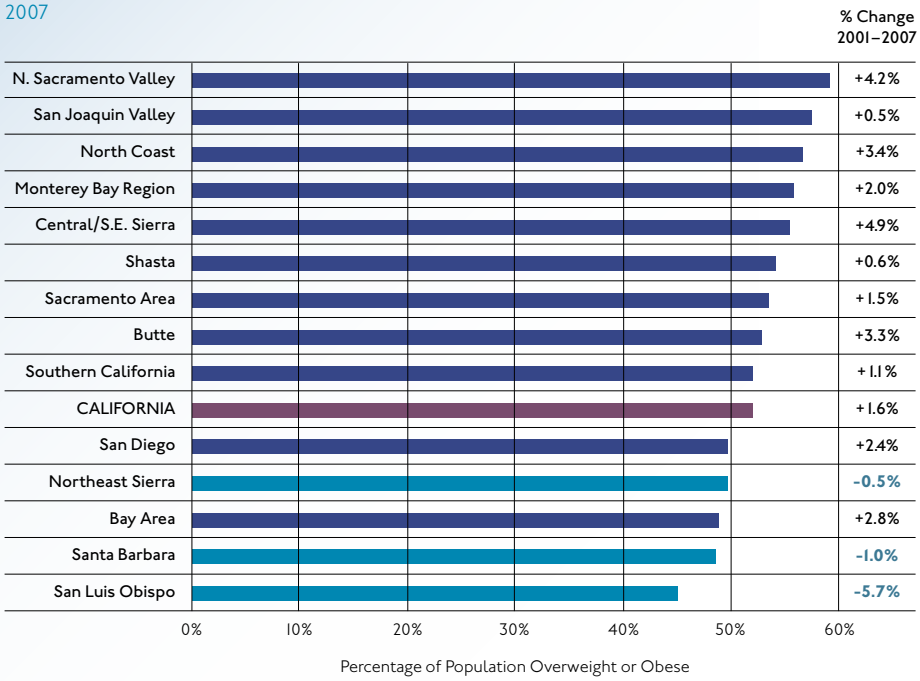
Almost every region increased its percentage of overweight and obese residents since 2001, and although the rate of growth has leveled off in recent years, percentages remain alarmingly high. San Luis Obispo was the only region to decrease its percentage, while in contrast, the Northern Sacramento Valley increased 4.2 percent, with nearly 60 percent of the region's population either overweight or obese.

Costs of Obesity

California's costs attributable to physical inactivity, obesity, and overweight in 2006 were estimated at $41.2 billion. The costs of obesity-related chronic illness are even higher. A report by the Milken Institute estimated that by 2023 Californians will have 4.2 million avoidable chronic diseases. The treatment costs of these diseases are estimated at $18.9 billion, and losses in productivity are estimated at $98 billion. Estimates indicate that California could save $1.7 billion over five years by investing $10 per person per year in strategic prevention programs.

Sources:
California Center for Health Advocacy. "The Economic Costs of Overweight, Obesity, and Physical Inactivity Among California Adults-2006." July 2009.
Milken Institute. "An Unhealthy America: The Economic Burden of Chronic Disease – Charting a New Course to Save Lives and Increase Productivity and Growth." Ross DeVol and Armen Bedroussian, et.al. 2007.

FIGURE 31: **Percentage of Population Overweight or Obese**
2007



Data Source: UCLA Center for Health Policy Research, California Health Interview Survey
Analysis: Collaborative Economics
Note: Del Norte and Trinity data is included in the Northeast Sierra Region and excluded from the North Coast Region

Community Level Indicators Snapshot: Healthy Foods Access and Neighborhood Food Environment

What people eat is an important factor in whether they are overweight or obese. The environment where people live influences not only their level of physical activity, but also how much healthy or unhealthy food they consume. A 2007 statewide study reported that there are four times as many "unhealthy" food outlets as "healthy" food outlets in California. At the neighborhood level, this ratio can be much higher. Access to healthy foods and neighborhood food environments are important local level indicators that can identify community improvements needed to decrease obesity and overweight and improve community health.

Transportation Access to Healthy Food

Transportation and Food Access in South Los Angeles is a Caltrans Environmental Justice Grant project lead by the Los Angeles Community Redevelopment Agency that is working to address the health impacts and disparities associated with unhealthy food environments in Southeast Los Angeles. The project is engaging community members and organizations to map existing food access points compared to transit system service. For underserved areas identified, participants propose land use, transportation, and reinvestment strategies to promote access to healthy foods.

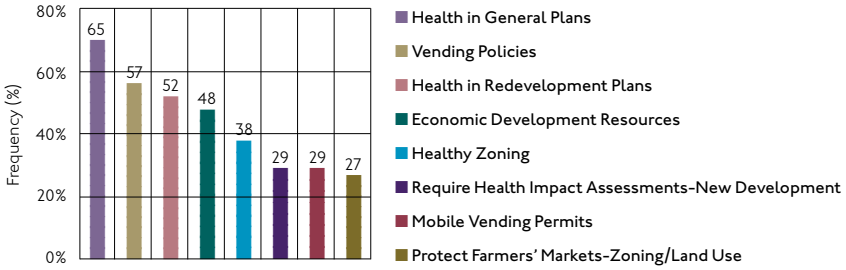
Neighborhood Food Environment

The Network for a Healthy California has put together an index for calculating the ratio of healthy to unhealthy foods for use at a neighborhood and community level (modified from the California Center for Health Advocacy's Retail Food Environment Index). The higher the resulting index value, the worse the retail food environment is for healthy eating. The index is calculated as:

$$\frac{\text{\# fast food outlets + \# convenience stores + \# poor quality small markets}}{\text{\# supermarkets/grocery stores + \# farmers' markets + \# produce vendors + \# good quality small markets}} = \frac{\text{Unhealthy foods}}{\text{Healthy foods}}$$

Eighty-six low-income neighborhoods have been surveyed by 23 local health departments since 2006 as part of the Network's Communities of Excellence in Nutrition, Physical Activity, and Obesity (CX^3) program. CX^3 uses GIS mapping and field survey audits to assess food provider types and location, whether they stock affordable fresh fruit and vegetables, how easily and safely accessible they are, if they provide nutrition information and promote healthier choices, and what type of marketing they use near local schools, parks, and playgrounds. The data obtained categorized stores and fast food restaurants according to meeting healthy foods standards, and provides a snapshot of neighborhood nutrition indicator performance.

FIGURE 31: **Policy Level Approaches to Improving Neighborhood Food Enrollment in 22 CX^3 Cities**



CX^3 aims to inspire local action on neighborhood improvements, connecting to multiple city and county programs, and implementing policy level approaches to improving the neighborhood food environment. Beyond the neighborhood level, the index can inform many policy areas, including: zoning policies, support for retailers including farm to market programs, school meal programs, limitations on marketing practices, as well as larger transportation, land use, and economic development decisions that shape neighborhood food access and the food retail. Figure # shows the policy approaches being used by 22 CX^3 sites.

Communities of Excellence in Nutrition, Physical Activity, and Obesity Prevention (CX^3) is a community planning framework that involves assessing communities in relation to a variety of nutrition, physical activity and obesity prevention benchmarks knows as community indicators and assets. These indicators and assets are standards of "excellence." By using the CX 3 framework, people will be able to (1) assess their community's strengths, weaknesses, and gaps to figure out where the community is at and where it wants and needs to go to become a community of excellence, (2) set priorities based on the localized assessment data, (3) implement strategic action plans to create community change, and (4) evaluate progress.

Resource Efficiency and Conservation

Energy Use

Non-residential and residential electricity consumption

Non-residential and residential natural gas consumption

Urban Water Use per capita

WHY ARE THESE INDICATORS IMPORTANT?

Resource efficiency and conservation is a particularly important concern for California, with its great diversity of growing communities and regional economies that require reliable and cost-effective sources of energy and water to function. Events of the past decade–including the energy crisis in the early 2000s, recent drought conditions, the deteriorating environmental conditions in the Delta and other watersheds, flood risks, ongoing volatility of energy prices, and increased awareness of the impacts of climate change related to the use of fossils fuels–demonstrate the need for holistic planning, management and investment strategies to ensure a viable supply of these critical resources.

Decisions made by state policymakers and agencies, local governments, utilities, special districts, businesses, institutions and residents determine in part the level of resource availability, costs, efficiencies, and conservation. How we plan for the long-term management of these critical resources will determine our levels of resource use and availability in relation to the economic and quality of life benefits we receive in return. Considerations include: where and how we construct our buildings and infrastructure systems; how much we invest in large scale statewide and regional resource systems; how we implement resource saving technologies; and whether or not we adopt additional resource conserving behaviors.

California has been a leader nationally in energy efficiency. However, population growth, increases in the average size of new homes, and dramatically increased use of electronics in the home and workplace are generating new levels of demand for energy. Buildings are a significant source of greenhouse gas emissions. The transport of water across state, regional, and local water systems is another major source of energy use. Efficiencies gained in better resource use will help meet regional targets for greenhouse gas emissions reductions, contribute to improved air quality and health outcomes, and allow savings to be redirected to other aspects of the economy.

Likewise, although California has been a leader in water conservation, a growing population and other environmental, regulatory and infrastructure-related factors are stressing water supplies. Precipitation, the foundation of California's water supplies, varies dramatically throughout the state, from season to season and year to year. Agricultural and urban water users vary in their needs for the quantity, quality, timing and place of use. The state's ecosystems and water systems must withstand the stress of too little water during drought years and too much water during wet years when floods may occur. Impaired water bodies also affect the quality and availability of drinking water, as do aging water systems.

Sustainable management of energy and water resources in the face of these many challenges requires a long time horizon, new approaches such as climate change adaptation and mitigation strategies, and an acknowledgement that the future holds uncertainty and risk. Improving resource utilization is critical. The indicators in this section were chosen to highlight important regional trends in resource efficiency and conservation, to show how our resource consumption per person has changed in both residential and non-residential settings.

Energy Use

WHAT IS THIS INDICATOR?

This indicator measures the energy consumption per person for residential and non-residential electricity and natural gas use by region. The percent of change in per capita consumption from 2001 to 2008 is also represented. Electricity consumption is measured in kilowatt hours (kwh) per capita, and natural gas is measured in therms per capita (1 therm = 100 cubic feet).

WHY IS THIS INDICATOR IMPORTANT?

The reliable and affordable delivery of energy is vital to the functioning of our economy and communities. As global demand for energy and all natural resources continues to rise, the ability to improve efficiencies becomes more important for households, businesses, institutions, and communities. Climate change also increases the importance of energy efficiency, since fossil-fuel based sources will remain a large proportion of California's energy use even with increases in renewable energy sources in coming years.

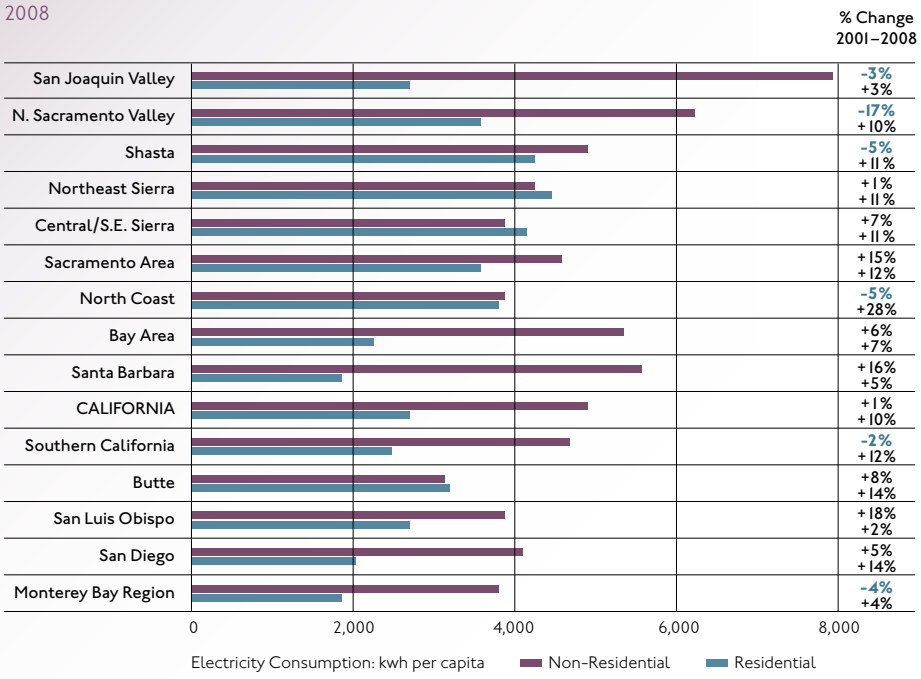
Innovations in technology, building design, appliances and other efficiency standards, as well as use of shading, can reduce per capita energy consumption. There are added benefits: reducing costs to businesses and residents, and creating jobs in industries that provide energy efficiency-related products and services. Tracking per capita rates of consumption for energy (electricity and natural gas) provides a good indication of progress toward higher efficiency and cost savings while meeting economic and community needs. However, in future reports it would be valuable to track renewable energy generation as well as use of alternative energy sources to gain a more complete picture of California's overall energy use trends.

WHAT PROGRESS ARE REGIONS MAKING?

California's residents, businesses, and industries were using increasing amounts of electricity. From 2001 to 2008, statewide residential electricity consumption per capita (personal use) grew by ten percent and non-residential consumption per

Efficiencies gained in better resource use will help meet regional targets for greenhouse gas emissions reductions, contribute to improved air quality and health outcomes, and allow savings to be redirected to other aspects of the economy.

FIGURE 32: **Electricity Consumption per Capita**
Residential and Non-Residential
2008



Data Source: California Energy Commission; California Department of Finance
Analysis: Collaborative Economics

Energy Use

capita (commercial, production) rose by one percent (Figure 32).

Although residential and non-residential consumption are presented in the same chart, it is important to note that they have very different trends that should be explored further.

Residential electricity consumption per capita has risen in every region, with an average growth of ten percent in California. Between 2001 and 2008, only five regions reported growth rates that were lower than the statewide average. Because residential consumption has continued to increase significantly despite increased efficiencies in appliances and lighting and efforts to weatherize housing, these data suggest that personal electricity use is greatly outpacing the gains from efficiency improvements. Increased use is likely due to the growing use of electronic devices in households as well as increases in the average square footage of housing units.

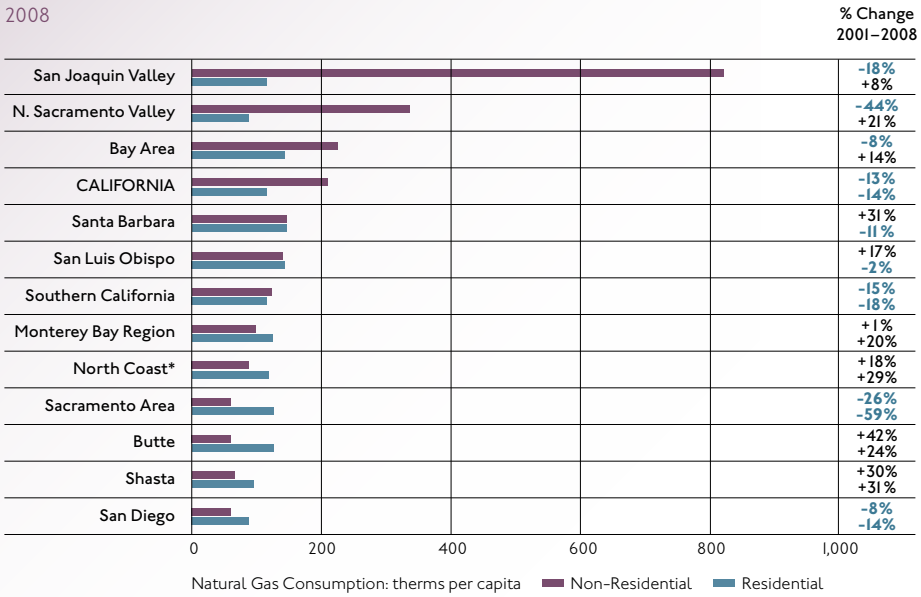
Non-residential energy use tells a different story. Despite per capita growth of one percent since 2001, six regions experienced declines over this period. Non-residential electricity consumption can indicate the efficiency of businesses in the region, but it can also indicate decreased economic activity. An estimated 37 percent of California's total electricity consumption comes from commercial buildings, which represents an opportunity to increase efficiencies and cost savings through building retrofits and installation of energy saving technologies. In the next report, measuring improved energy productivity in the economy could be achieved by monitoring a ratio of non-residential energy consumption to Gross Domestic Product for each region.

Trends in natural gas consumption have been mixed across regions. Five regions improved efficiency of residential natural gas consumption per capita (Figure 33). For non-residential use, six regions reduced their per capita consumption. Comparatively, statewide natural gas consumption dropped 13 percent in the non-residential sector and 14 percent in the residential sector.

Compared to other regions, both non-residential electricity and natural gas consumption are particularly high in the San Joaquin Valley, partially because some of the most agriculturally productive counties in the nation are in this region. The country's top eight producing counties are all in California, six of which are in the San Joaquin Valley (Fresno, Tulare, Kern, Merced, San Joaquin, and Stanislaus).[12] Given the San Joaquin Valley's large agricultural economy, the region is highly dependent on the transportation of water for irrigation, which is highly energy intensive.

[12] *The California Agriculture Economy*. California Energy Commission. n.d. Web. 21 June 2010. http://www.energy.ca.gov/research/iaw/industry/agri.html

FIGURE 33: **Natural Gas Consumption per Capita**
Residential and Non-Residential
2008



*North Coast does not include data for Del Norte or Lake Counties.
Note: Data for Northeast and Central/Southeast Sierra is unavailable.
Data Source: California Energy Commission; California Department of Finance
Analysis: Collaborative Economics

Renewable Energy on the Rise

"Compared to the nation, California generates a larger portion of its total power generation from renewable sources. In 2007, renewable energy sources accounted for 11.8% of California's total energy generation and 2.5% of the nation's… California's power generation from renewable sources is on the rise and rose 24% between 2000 and 2007 alone. Of all sources, the fastest growing renewable source in the State is wind… Solar power still represents a small fraction of the total electricity generated by renewable sources in California—but that fraction may increase over the next decade. In the past five years, there has been a leap in the amount of electricity generated from solar installations connected to the State's electrical grid, including a 41% increase between 2006 and 2007." Increasing the sources of renewable energy generated in California would help reduce greenhouse gas emissions. California's imported electricity is more carbon-intensive than locally produced electricity because a large amount of imported electricity is generated at coal-fired plants. While California imports only 22 percent of its total electricity, imports account for approximately half of its greenhouse gas emissions from electricity.

Source: *California Green Innovation Index 2009*, Next Ten, pp. 52–54.

CoolCalifornia.org is a one-stop on-line resource for households, businesses, local governments, schools and youth developed by a collaboration of state government agencies – the California Air Resources Board (ARB), the California Energy Commission and the California Public Utilities Commission, the Renewable and Appropriate Energy Laboratory at University of California Berkeley, and the non-profit Next 10. Among other resources, CoolCalifornia.org provides a toolkit to help small businesses save money and reduce their environmental impact. The toolkit includes a carbon footprint calculator, money saving actions, and information on rebates, incentives and other resources. See www.coolcalifornia.org.

Urban Water Use per Capita

WHAT IS THIS INDICATOR?

Water use data is reported using a different regional definition and boundaries than the other indicators. This indicator measures the gallons of water used per person per day associated with urban uses within the major hydrologic regions of the state. Urban water use includes residential, commercial, industrial, and recreation uses, energy production, military and institutional use, but does not include agricultural water use. The term is applied as a kind of use rather than a place or location of use.

WHY IS THIS INDICATOR IMPORTANT?

Water is one of the most precious regional resources, serving a multitude of needs including drinking water, agricultural and industrial uses, recreation, aquatic life, and habitat. Water is also a limited resource because water supply is subject to geography, weather patterns and changes in climate; state and federal regulations; ecosystem conditions; and infrastructure capacity. Recent drought conditions, concerns about the health of major ecosystems such as the Delta which provides water for millions of Californians, and the challenge of competing demands from urban, agricultural, and other uses have intensified concerns about the sustainability of our water resources. Many regions report that areas within their regions have reached capacity for water availability.

Examining urban water use per capita provides insight into the pattern of use by California residents and non-agricultural businesses. Sustainability in the long run requires households, workplaces and agricultural operations to efficiently use and reuse water, and implement innovative approaches and technology to get more economic and quality of life benefits from less and more variable water suppliers over time.

It also means taking the availability of water into account in long-term planning processes, planning for new developments, converting to drought tolerant landscaping, and incorporating watershed planning into transportation, land use and other regional plans. The California Water Plan has 13 objectives and many recommendations to help achieve a more sustainable water system, emphasizing a mix of strategies based on integrated regional water management plans.

WHAT PROGRESS ARE REGIONS MAKING?

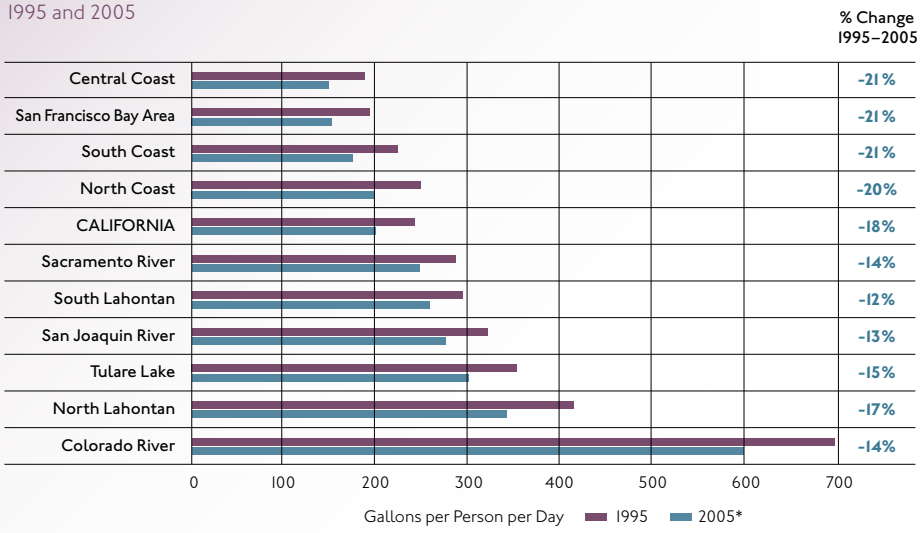
Urban water use accounts for a small but growing share of total water use, with per capita efficiency gains outpaced by population and economic growth. In 2005, urban water use accounted for 23 percent of total water use, compared with 10 percent in 1960.[13] From 1995 to 2005 (the latest data available), every major hydrologic region in California took significant strides to decrease water use per capita. On average, urban water use per capita shrunk 18 percent statewide between 1995 and 2005. Reductions in urban water use per capita were greatest in the Central Coast, San Francisco Bay, and South Coast, declining 21 percent in all three regions since 1995, closely followed by the North Coast (Figure 34).

Much of this reduction can be attributed to conservation programs implemented by urban water agencies during the drought in the early 1990s.[14]

In 2005, urban water use per capita was nearly four times higher in the Colorado River region than in the Central Coast, partly because of the importance of golf-based tourism in the region.[15]

California recently adopted the first mandatory green building code in the nation, which among other things requires a 20% reduction in water use in new residential development.[16] Water availability and sustainable supply increasingly will be a critical factor influencing new development, and in future reports the capacity

FIGURE 34: **Urban Water Use per Capita**
Gallons per Person per Day by Major Hydrologic Region
1995 and 2005



*Data for 2005 is provisional.
Note: Data is for applied water use.
Data Source: California Water Plan Updates, California Department of Water Resources; Public Policy Institute of California

Regional Strategies for Water Supply

"Regional partnerships in many parts of the State are successfully employing a mix of resource management strategies... With Integrated Regional Water Management (IRWM) regions have been able to take advantage of opportunities that are not always available to individual water suppliers: reduce dependence on imported water and make better use of local supplies; enhance use of groundwater with greater ability to limit groundwater overdraft; increase supply reliability and security; and improve water quality."

Source: California Water Plan Highlights, Integrated Water Management, Update 2009, Department of Water Resource, p. 20.

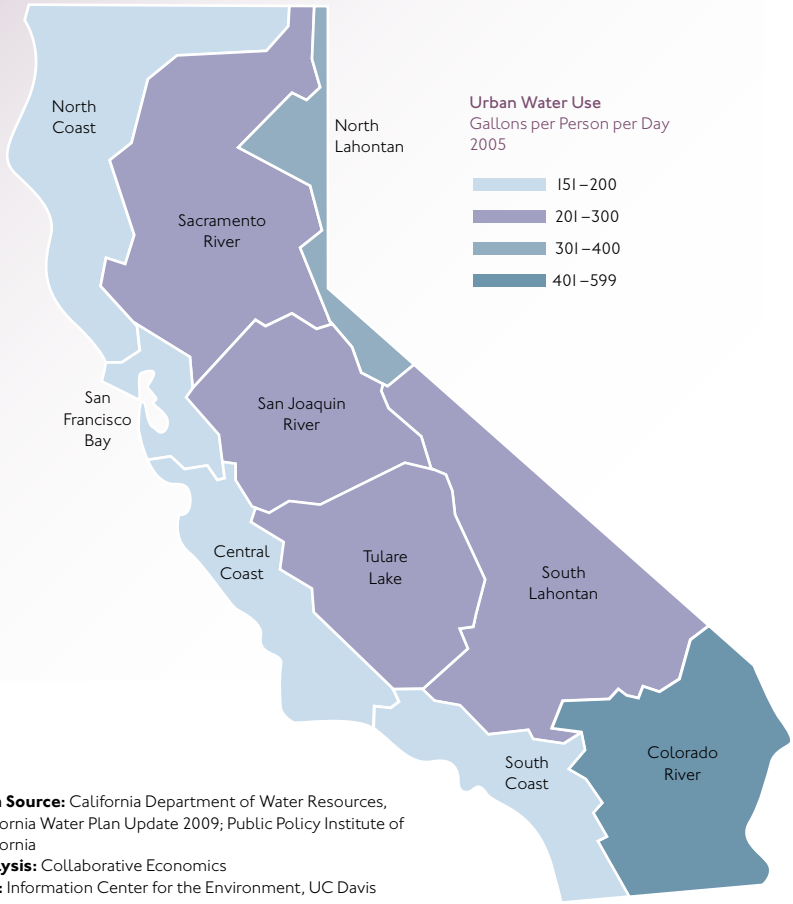
[13] Hanak, E. and J. Lund, *California Water Myths*, Public Policy Institute of California, San Francisco, 2009.
[14] Ibid.
[15] Ibid.
[16] See www.hcd.ca.gov/codes/shl/CALGreenGuide_COMPLETE_6-10.pdf.

Urban Water Use per Capita

and sustainability of California's water supplies would be a valuable indicator to include.

The Department of Water Resources (DWR) recognizes the importance of long-term sustainability of the state's water resources. As part of the California Water Plan Update 2013, DWR is initiating analysis to develop sustainability indicators for water resources in California, both urban and agricultural. DWR will be working closely with the Sustainability Water Resource Roundtable (SWRR), a federal initiative working in cooperation with members of state agencies, academic institutions, and private businesses to develop water resources sustainability indictors for the U.S. as a whole. At this time, DWR is reviewing data and formulating procedures to develop a set of initial indicators for California. DWR envisions a six-step process to define objectives and measurable outcomes, and identify indicators and data sources, among other activities, but warns that there may be potential barriers and data gaps making it difficult to measure long-term trends.

FIGURE 35: **Urban Water Use by Major Hydrologic Region**
2005



Data Source: California Department of Water Resources, California Water Plan Update 2009; Public Policy Institute of California
Analysis: Collaborative Economics
Map: Information Center for the Environment, UC Davis

Energy Use in California's Water Use Cycle

California uses about 14 trillion gallons of water in a normal year, with more than three quarters going to agriculture and the remainder to the urban sector. Once water is collected or extracted from a source, it is transported to water treatment facilities and distributed to end users. Wastewater from urban end uses is collected and treated before it is discharged back into the environment, where it becomes a source for other uses. In general, wastewater from agricultural end uses is not treated (except for holding periods to degrade chemical contaminants before release to the environment) and is discharged directly to the environment as runoff into natural waterways or groundwater basins. As mentioned above, there is a growing trend to recycle some portion of the wastewater stream and redistribute it for non-potable end uses.

Because electric and gas meters do not measure water-related uses separately, it is difficult to determine the amount of water-related energy consumed by end users. Better information is available about energy consumption by water and wastewater utilities. Total water-related energy consumption accounts for roughly 19 percent of all electricity used in California, approximately 32 percent of all natural gas, and 88 million gallons of diesel fuel. These estimates could benefit from further refinement (source: 2005 IEPR).

California recently adopted the first mandatory green building code in the nation, which among other things requires a 20% reduction in water use in new residential development.

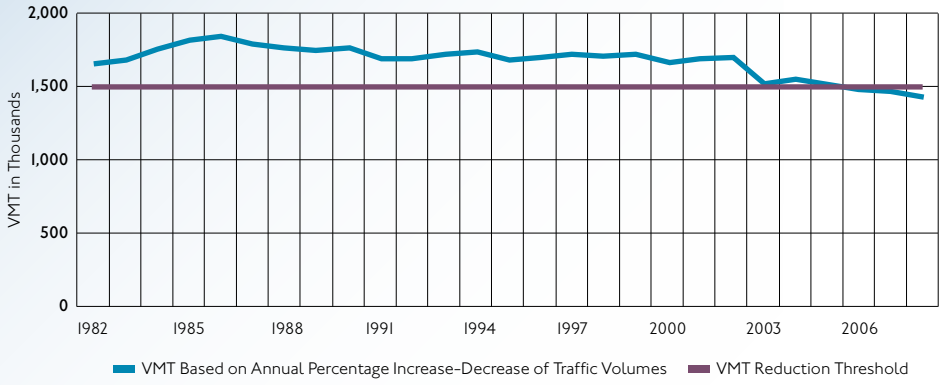
Regional Profile: Bi-State Lake Tahoe Basin Region (California and Nevada)

This profile presents selected indicators and data for the Lake Tahoe Basin region, addressing a recommendation of the 2007 Progress Report to develop cross-border regional data. It also provides an example of how future versions of the Progress Report could feature profiles of other regions. The Lake Tahoe basin is a unique sub-region of the Sacramento region and includes portions of two California and three Nevada counties. The region's exceptional natural beauty inspired the likes of Mark Twain, who called Tahoe "the fairest picture the whole world affords."

Planning for the Basin, led by the Tahoe Regional Planning Agency (TRPA), is guided by a Bi-State Compact which was ratified by the U.S. Congress (1969, amended in 1980). The Compact established "Environmental Threshold Carrying Capacities," with "standards" designed to maintain a significant scenic, recreational, educational, scientific, or natural value of the region or to maintain public health and safety. These standards include and are not limited to standards for air quality, water quality, soil conservation, and vegetation preservation. The TRPA is in the process of updating its Regional Plan for the Basin. The Regional Plan contains policies and implementation strategies for meeting environmental goals.

TRPA is the bi-state federally designated Tahoe Metropolitan Planning Organization (TMPO) for the Basin and the designated Regional Transportation Planning Agency (RTPA) in the state of California. TRPA has established indicators to assess the effectiveness of the Basin's land use plan through measuring compliance with adopted threshold standards. Several of these indicators correspond with Progress Report indicators and others highlight region-specific issues such as lake clarity. This profile is also a case study for regional planning and sustainability, as TRPA was the first bi-state regional environmental planning agency in the country.

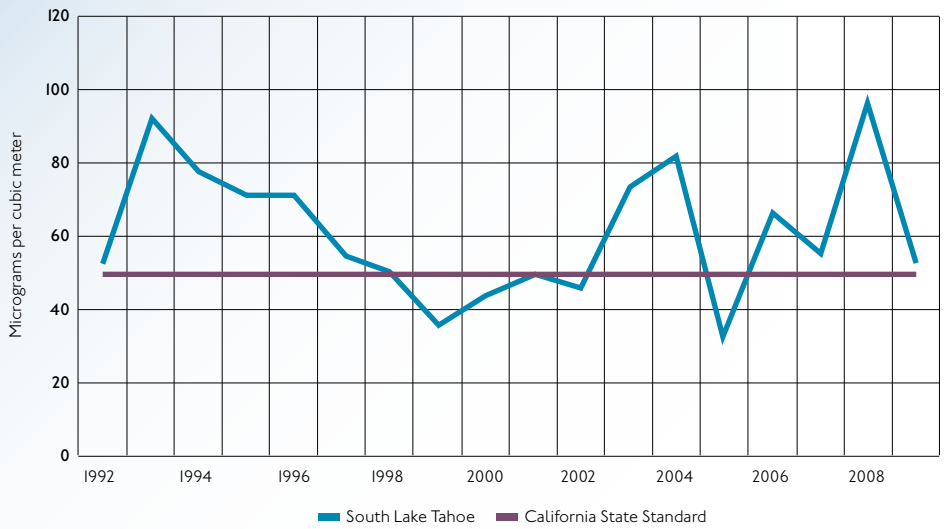
FIGURE 36: **Tahoe Region VMT Based on Annual Percentage Increase-Decrease of August Traffic Volumes**



Source: TRPA

This profile is a case study for regional planning and sustainability, as the Tahoe Regional Planning Agency (TRPA) was the first bi-state regional environmental planning agency.

FIGURE 37: **South Lake Tahoe PM10 24-Hour Trend Summary**
1992-2009



Source: California Air Resources Board, TRPA

VEHICLE MILES TRAVELED

Vehicle Miles Traveled (VMT) is estimated to have decreased below the TRPA threshold standard in the past few years. Based on traffic counts between 1981 and 2008, it is estimated that the region is in attainment of reducing VMT by ten-percent of 1981 values (Figure 36). Several factors may have contributed to these trends. They include: the recent economic downturn in the past few years and the longer-term decline in the economy related to changes in the gaming industry; a loss of 15 percent of the population and 22 percent of school enrollment between 2000 and 2008, related both to long-time local homeowners cashing out to second homeowners during the real estate peak earlier this decade, school closures, and people leaving the Basin due to lack of housing affordability and/or job loss; and the high numbers of second homeowners, up to 65 percent in some areas of the Basin. These factors are counter-balanced by increased commuting into the Basin from nearby housing centers, especially in the Reno area and Carson Valley.

AIR QUALITY - PM^{10} AND OZONE

California Air Resources Board (CARB) data indicates that the trend in Particulate Matter 10 (PM^{10}) in the South Lake Tahoe area has been variable in terms of statewide exceedence of its 24-hour standard of 50 micrograms per cubic meter recorded since 2002, after being at or below the State standard from 1998 to 2002. PM^{10} hit a peak in 2008, possibly due to the impact of forest fires, and was very close to the State standard in 2009 (Figure 37). *Ozone data (not shown) indicates that the number of days exceeding the California state Eight-Hour standard is down significantly from a peak of 20 days in 1992.* In 2006, the State standard became more stringent. The area exceeded the standard for 2007-2008 by five days each, decreasing to one day over in 2009. In 2010, CARB recommended the Basin be designated as a non-attainment area for the ozone standard.

MODES OF TRAVEL

Information collected in a 2005 household travel survey indicated that the private vehicle continues to be the primary mode of travel for workers traveling to work (88 percent). Additional

information collected in 2006 indicates that the private auto is the primary travel mode to recreation sites in the Region (87 percent). Walking accounted for seven percent of travel to work in 2005 and for eight percent of recreational travel in 2006, while biking was two percent and four percent respectively in those years. Transit accounted for only two percent of travel to work and only one percent for travel to recreational sites. It is a high priority of local agencies and partners to provide increased opportunities for non-car travel in and around the Basin.

ECONOMIC TRENDS

The Basin economy is in distress. *From 2000 to 2007 employment decreased by 5.7 percent (2000 jobs), compared to job growth of 8.6 percent in California and Nevada.* The job loss occurred in the Tourism and Visitor Services Economic Cluster, mostly related to the long-term decline of the gaming industry, but other important sectors like Health and Wellness were challenged by the loss of population (Figure 38). Overall job losses have continued since 2007, with 2010 unemployment rates similar to high rates in other rural areas of the state.

One area of opportunity for economic revitalization is in environmental restoration and redevelopment of the aging built environment, which includes green building, green lodging, energy efficiency, and the development of renewable energies. The new Lake Tahoe Basin Prosperity Plan is focused on a cluster-based strategy for the Basin's economy to be a center of sustainable tourism and recreation, environmental innovation, and health and wellness, including medical specialties such as sports medicine.

LAKE TAHOE CLARITY

Lake Tahoe is one of the clearest lakes in the world. More than forty years ago, the Lake's clarity was over 100 feet, but began a steady

FIGURE 38: **Lake Tahoe Basin Prosperity Plan Economic Clusters Payroll Job Growth Compared with California and Nevada**
2000–2007

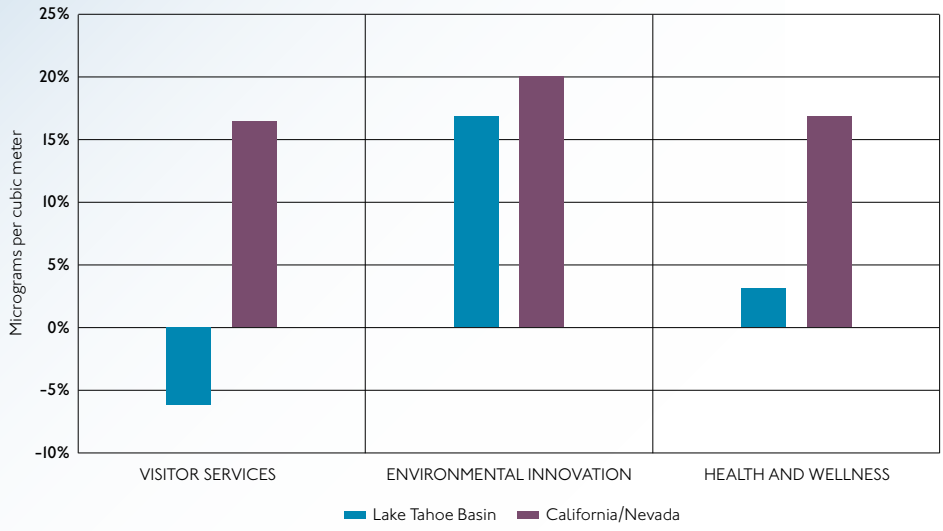
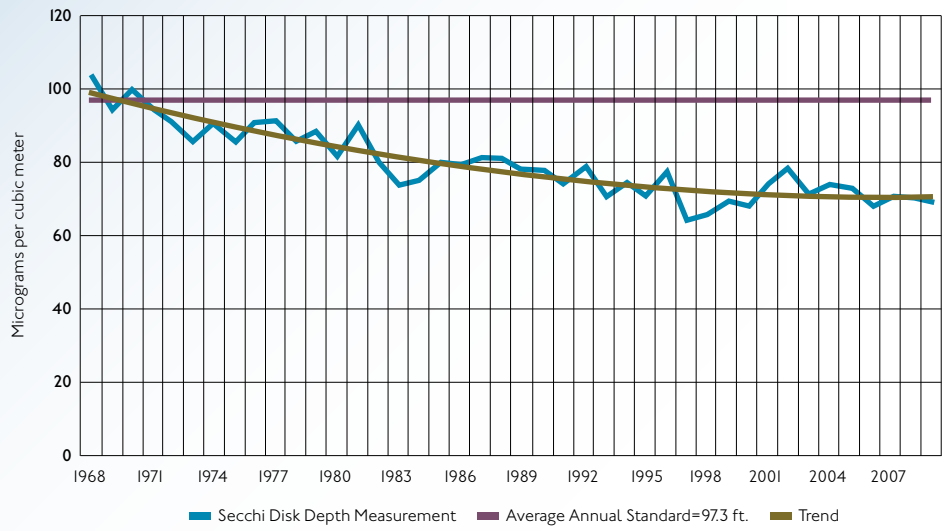


FIGURE 39: **Annual Mean (trapezoidal) Secchi Disk Depth Measurement at Lake Tahoe Index Station Relative to California State Standard**
1968-2009



Source: U.C. Davis, Tahoe Environmental Research Center, 2010

decline in the late 60's. Lake Tahoe is located at the bottom of a very deep basin, with more than 63 streams and tributaries flowing into the Lake and only one that flows out. Dirt, lawn chemicals, runoff, and atmospheric deposition (among other things) are flowing into the Lake, but very little is flowing back out of it. These nutrients feed the algae growing in the Lake and cause cloudiness and loss in clarity. According to the State of the Lake 2010 report, the Lake Tahoe ecosystem is highly influenced by meteorology. In the short term conditions are expressed as daily variations in weather, and in the long term, as normal cyclical variations in wet and dry cycles, and long-term trends related to global climate change.

Clarity is the most obvious sign of Lake Tahoe's health and is one of the most important aspects of TRPA's work. The indicator of the Lake's clarity is the Secchi Disk measurement. The lowest documented reading was 64 feet in 1997. Since that time readings have improved and held relatively steady, with the most recent reading at 68.1 feet in 2009 (Figure 39). Scientists who monitor the Lake believe that efforts to restore the Lake's watershed deserve part of the credit.

SUMMARY

The Lake Tahoe Basin region showed general improvement in several indicators. In one of those areas, reductions in total VMT, the reductions likely were mostly a function of the socio-economic factors described above. Air quality trends were somewhat variable; better data is needed for the entire region. The all important indicator on lake clarity shows that the decline seems to have stabilized.

Although progress is being made, mostly as a result of concerted efforts by local, state and federal partners, the region faces many challenges, especially with the long-term decline of certain key economic sectors and resulting economic distress indicators. These conditions impair the ability to revitalize aging and deteriorated infrastructure and buildings, which in turn is impacting lake clarity and overall community health and vitality. Increased transportation choices are also needed. These and other challenges, as well as opportunities to revitalize the economy and environment through a focus on sustainability, are being addressed by several ongoing planning initiatives.

Lake Clarity Restoration Efforts

According to Dr. Geoff Schladow, director of the UC Davis Tahoe Environmental Research Center, the latest test results on lake clarity may be cause for some optimism. Even though precipitation was much higher in 2009 than in 2008 or 2007, the annual clarity remained relatively stable. Rainfall and snowmelt wash water-clouding particles into the lake. Another hopeful finding: 2009 summer clarity readings were much better than 2008 summer readings. Overall, clarity during the summer months of 2009 was 10 feet better than in summer of 2008.

UC Davis and many other academic institutions, including the Desert Research Institute and University of Nevada, Reno, and public agencies are working with the private sector to restore and preserve the Tahoe Basin ecosystem. Led by the Tahoe Regional Planning Agency, the collaborative Environmental Improvement Program is among the nation's most ambitious public-private restoration initiatives.

Source: www.terc.ucdavis.edu/.

Recommendations and Next Steps

RECOMMENDATIONS

The *2010 California Regional Progress Report* highlights the diversity of California's regions as well as the disparities in regional conditions and outcomes. In order for the state as a whole to make progress towards sustainability, all of California's regions must make progress in their outcomes across the three E's of Environmental quality, Economic vitality, and social Equity. Dialogue, knowledge sharing, coordination, better indicators, focused action, and targeted resources are all critical elements to successfully move the state and regions toward sustainability.

Measuring progress is an ongoing process, and while much has been accomplished, much remains to be done. The following recommendations can guide the state in improving overall outcomes, and help the regions address their challenges while honoring their diversity.

1. Initiate Dialogue–Engage state, regional, and local governments in conversations and workshops with academic, non-profit, philanthropic, and private sector stakeholders to:

- Explain regional disparities in outcomes and progress;
- Identify successes and innovative strategies;
- Investigate and clarify challenges and barriers, acknowledging what's not working and why; and
- Commit to sustaining and expanding successful strategies and working toward solutions to challenges.

2. Share the Knowledge–Celebrate successes, spread best practices, inform decision making, build capacity, offer assistance, and promote implementation.

3. Institutionalize Coordination around Sustainability Measurement–Establish regular collaboration and forums that bring together a wide range of partners in order to:

- Refine the State's definition of sustainability;
- Collaborate with subject matter experts to develop consensus on data sources, databases, and methodologies; and,
- Engage stakeholders and leaders to establish priority indicators.

4. Advance Sustainability Measurement–Improve state and regional technical capacity to measure sustainability:

- Improve, refine, and add indicators to the Regional Progress Report's suite of sustainability indicators (see page 80 for indicator-specific recommendations);
- Collect and consolidate data, and build and maintain priority databases, continuing the work of the SGC's Data Working Group;

- Continue to measure progress with Regional Progress Report updates every two to three years, supplemented with single issue reports in off years; and,

- Address equity: Develop a robust framework and methodology for measuring equity across issue areas; identify meaningful regional-scale indicators; and build capacity to measure and analyze equity indicators at local and regional scales.

5. Focus Action–Build on the idea that "what gets measured gets done" to:

- Provide direction and consistency on how the state defines and measures sustainability and progress toward sustainability;
- Align resources to support regional efforts addressing sustainability challenges and opportunities; and,
- Inform decision making about planning for and investing in more sustainable patterns of growth, land use, and use of other important resources.

6. Support Lagging Regions–Focus on solutions, targeted investment and assistance, and local empowerment.

NEXT STEPS

The next stage of the California Regional Progress Report (2011-2012) is being sponsored by the Strategic Growth Council, in coordination with its Sustainable Communities Learning Network and State Agencies Learning Network initiatives. Work plan activities for 2011 and 2012 will include:

- Broad dissemination of the 2010 Progress Report;

- Policy discussions and briefings on findings and action steps;

- Capacity building on development and use of sustainability measures and indicators;

- Coordination with SGC-sponsored and other regional sustainability-related indicators research and data collection efforts, such as those planned by the Department of Water Resources (for water use and capacity) and by the California Department of Public Health (for a healthy communities indicator framework);

- Refinement of the Progress Report's Matrix of Regional Sustainability Indicators to develop a recommended set of preferred indicators for SGC objectives, working with subject area experts; and

- Recommending indicators for the 2012 Progress Report.

Measuring Equity

Measurement of equity is an evolving area that needs further development of indicators and collection of data. In many cases, equity considerations will best be shown at the local rather than regional level. The 2010 Progress Report has provided a few examples to illustrate this approach. The Strategic Growth Council and the future Progress Report effort should look for equity issues that are meaningful and measurable at the regional scale for inclusion in future reports.

The Center for Regional Change at UC Davis, which conducts research on regional equity indicators, suggests some approaches to assess distributional equity at a regional scale, including opportunity and equity indices. One example draws on the work of john powell and the Kirwan Institute at Ohio State University, which assesses population-based patterns of access or lack of access to regional economic and environmental opportunities. Another is the analyses of Manuel Pastor and colleagues on "regions that work," measuring intra-regional social and spatial equity as driving patterns of economic growth.

The following indicator-specific recommendations were referenced throughout the report and provide a starting point to stimulate discussion and action:

Efficient Transportation and Land Use

Indicator Area	Recommendations*
Baseline for Greenhouse Gas Emissions (GHGs)	Add regional GHG data from Metropolitan Planning Organizations' (MPOs) improved Vehicle Miles Traveled (VMT) models to track progress towards GHG targets.
Vehicle Miles Traveled	Refine VMT indicator to separate out miles attributable to goods movement. Utilize forthcoming improved MPO models and the Caltrans Statewide Household Travel Survey to increase the understanding of factors contributing to VMT change. Expand collection of data on non-commute trips.
Vehicle fuel Consumption	Create indicators to monitor the development of alternative fuel vehicle infrastructure. Create indicators to track the use of alternative fuels and the deployment of alternative fuel and high efficiency vehicles.
Conversion of Agricultural Lands	Improve categories of land conversion measured: Include the conversion of farms and ranches to low-density rural residential development, ranchettes, and exurbs. Add an indicator to capture forest land conversion to residential or commercial use.
Urban Greening	Refine the definitions of types and locations of parks to more accurately capture the "green" footprint. Create indicators measuring: people living in proximity to parks and other such assets; transit access to parks, open space, and cultural/ entertainment urban infrastructure; tree canopy cover; and an inventory of different types of protected lands. Create indicators measuring the social, health, and economic outcomes associated with urban greening.
Density, Access and Connected Land Use	Develop data and indicators (e.g., through a survey like Silicon Valley's) to track improvements in residential density, access to transit, and commercial or other mixed uses near transit.
Transit Ridership	Add an indicator. (This was a 2007 Progress Report Indicator.)

Economic Competitiveness and Opportunity

Job Status	Include statewide and regional unemployment indicators.
Green Employment and Business Establishments	Add the categories of urban landscape management and organic or sustainably grown agriculture and food processing to existing green jobs/establishments types.
Housing Affordability	Develop a housing + transportation (H+T) affordability measure; add a troubled mortgages indicator and/ or measure of households with negative equity; add chronic and family homelessness indicators.

Environmental Health

Health Determinants (Air Quality and Other)	Add measures for: additional air quality or pollution, safety and crime, complete streets scoring systems, complete community profiles, population living in poverty, and access to healthy foods.
Health Outcomes (Asthma, Obesity, Other)	Add indicators including: air pollution-related hospitalizations, mental health, diabetes, heart disease, strokes, and pedestrian and bicycle-related accident rates.

Resource Efficiency and Conservation

Energy Use	Add indicators for: renewable energy generation, use of alternative energy sources, and improved energy productivity in the economy (e.g., ratio of non-residential energy consumption to Gross Domestic Product).
Water Use	Add an indicator(s) assessing water capacity and supply sustainability of regions (in conjunction with water plans developed by the Department of Water Resources).

* These recommendations were collected from the Progress Report scoping and indicator selection processes, and are illustrative of possible or desired indicators.

IN SUM,

The California Regional Progress Report is an information resource and tool for . . .

The State–to use the report to look at disparities across regions, and align state efforts, policies and resources to better address regional issues, needs, and opportunities

The Regions–to look at their outcomes, evaluate their need for targeted investments and assistance, and share and spread the best and most efficient practices for improving outcomes

All–to understand the complexity, variation, and interrelation of regional issues and the cumulative outcomes that determine California's progress toward sustainability across environment, economy, and equity measures

A sustainability indicators report creates the most value when it is . . .

Ongoing
The data is a snapshot of a point in time. A series of snapshots is needed to understand longer term trends and disparities and to overcome anomalies such as those caused by the recent economic recession.

Collaborative
The interactive development of the Progress Report has resulted in significant strides toward overcoming the traditional silo-approach of the public sector, fostering collaboration between state agencies, levels of government, and stakeholder sectors. This collaborative process should continue, increasing the breadth of participation as new issues are identified and addressed.

2007 Report Recommendations Addressed in the 2010 Progress Report

The *2007 California Regional Progress Report* recommended improvements to the measurement of regional progress. Since then, the activities of the SGC and the collaboration demonstrated in preparing the 2010 Report have helped to: improve the flow of data among state agencies and the regions; strategize for improved data collection; "connect the dots" across issue areas; and support adoption of best practices and new indicators. The 2010 Report also addressed the following specific indicator-related recommendations:

- Added Urban Green Infrastructure Indicator: Urban Greening
- Cost of Living: Housing/ Affordability Index profiled
- Air Quality: Pollutant PM 2.5 Indicator added
- Cross-border Data: Case Study added for the Lake Tahoe Basin
- Efficient Development and Infill: Prototype Indicators presented

Appendix

State and Federal Policy Drivers for State Sustainability Goals (as of October 2010)

Many state and federal policies, regulatory initiatives, and planning efforts are shaping the context for sustainable communities planning and development, including:

Strategic Growth Council (SB 732, 2008) – Established to provide guidance and incentives to local and regional agencies implementing sustainability strategies, including planning and urban greening grants to support the development of sustainable communities and to make recommendations for better coordination of State planning and sustainability activities and programs.

2010 California Green Building Standards Code (CALGreen, Title 24 Part 11) – Sets new requirements for residential and non-residential buildings to reduce construction waste, increase building energy efficiency, and reduce indoor water use. Takes effect January 2011.

Governor's Executive Order S-0410, Health in All Policies Taskforce (2010) – Created the Health in All Policies (HiAP) Task Force within the Strategic Growth Council to incorporate health considerations into all relevant programs, policies and activities that will promote health and healthy communities.

Caltrans Smart Mobility Framework (2010) – "Smart Mobility 2010 – A Call to Action for the New Decade" incorporates smart growth and land use/transportation integration concepts into transportation systems for California (Caltrans).

California Essential Habitat Connectivity Mapping Project (2010) – Maps critical corridors and linkages for wildlife to help incorporate natural resources into transportation planning and conservation efforts.

Interagency Partnership for Sustainable Communities (2009) – A federal interagency initiative between the U.S. Environmental Protection Agency, Department of Transportation, and Department of Housing and Urban Development to incorporate sustainability and livability into their three agencies and coordinate policies and programs to support their livability principles.

California Transportation Plan (SB 391, 2009) – Requires that by December 31, 2015, the Plan identifies an integrated, multi-modal system needed to achieve AB 32 targets, and an interim report by December 31, 2012, based on the MPOs' Sustainable Communities Strategies (Caltrans).

California Interregional Blueprint and California Transportation Plan (2009) – Integrates state transportation plans, regional transportation plans, and regional blueprint planning to plan an integrated multi-modal transportation system that will meet AB 32, SB 391, and SB 375 goals for a sustainable transportation system (Caltrans).

California Climate Adaptation Strategy (2009) – A comprehensive plan by the Natural Resources Agency that recommends strategies to adapt to the projected impacts from climate change in seven sector areas including public health, water management, agriculture, transportation and energy infrastructure (Natural Resources Agency).

California Water Plan Update 2009 – Details comprehensive strategies for integrated water management, and documents the issues and concerns facing water management in California and a vision for sustainability (Department of Water Resources).

Vision California Project – Funded by the California High Speed Rail Authority in partnership with the SGC, is developing two new modeling tools to formulate and compare how California can accommodate projected growth. Early analyses shows household costs savings from more efficient growth patterns.

SB 375 (2008) – Requires Metropolitan Planning Organizations (MPOs) responsible for preparing long-range transportation plans to develop Sustainable Communities Strategies (SCSs) that will utilize integrated land use, housing and transportation planning to achieve each region's greenhouse gas emissions reduction target; will encourage cities and counties to promote higher density.

California Green Jobs Council – Established in 2008, the Green Jobs Council is an intergovernmental effort to help prepare workforce for the growing green economy (California Workforce Investment Board).

The Global Warming Solutions Act (AB 32, 2006) and AB 32 Climate Change Scoping Plan – Sets State greenhouse gas emissions (GGE) reduction goals; the California Air Resource Board (ARB) developed an Implementation strategy to meet AB 32 goals and sets regional targets.

Executive Order S-3-05 (2005) – Sets a goal of reducing California's greenhouse gas emissions to 80% below 1990 levels by 2050.

California's Renewables Portfolio Standard and Executive Order S-14-08 – Sets a goal for California to increase the percentage of renewable energy sources used by the State's investor-owned utilities to 33% by 2020 (CEC).

AB 857 (2002) – Established three primary State Planning Priorities: infill development in the cities; protection of open space, farmland and habitat outside the cities; and more efficient use of land wherever development occurs; serves as the State's plan. These priorities suggest specific ways in which state government can prioritize activities related to infrastructure spending and land use to promote more sustainable development in California. The State's Environmental Goals and Policies Report must be consistent with the priorities.

State Housing Element Law – While this law is more than 20 years old, specific statutory references promote multifamily development and redevelopment. Adoption of local housing elements and their programs has resulted in many communities increasing densities and promoting more infill and compact development.

Indicator Data Sources

EFFICIENT TRANSPORTATION AND LAND USE

Vehicle Miles Traveled & Population Density

VMT estimates: the California Department of Transportation's "2008 California Motor Vehicle Stock, Travel, and Fuel Forecast." Data includes annual total VMT on State highways and non-state highways.

Population (used for all per-capita and population density calculations): California Department of Finance, Revised County Population Estimates, 1970-2009, December 2009. Population density data is from the 2000 U.S. Census.

Vehicle Fuel Consumption: Diesel & Gasoline

Fuel consumption: Caltrans, 2009 "California Motor Vehicle Stock, Travel, and Fuel Forecast". Population: DOF.

Conversion of Agricultural Lands to Urban & Built-up Uses

The California Department of Conservation, State Farmland Mapping and Monitoring Program (1996-1998 and 2004-2006). Figures are the sum of prime, statewide & unique, other land & water, and grazing and local lands. Data for 11 rural counties and San Francisco are unavailable.

Urban Park acreage per capita

GreenInfo Network, "California Protected Areas Database," June 2010. Data includes open access protected lands in urban incorporated areas including lands used for open space, historical/cultural open space, plant and animal habitat, parks and recreation, and terrestrial habitat. Population: DOF and 2000 U.S. Census data.

Silicon Valley's Land Use Survey: A Prototype for Other Regions

Prototype 1: Residential Density: Infill and new housing on smaller lots

Joint Venture: Silicon Valley Network land use survey of all cities within Silicon Valley for the past ten years. Collaborative Economics completed the survey compilation and analysis. Thirty-five cities and two counties participate in the survey. Most recent data are for fiscal year 2009 (July '08-June'09). The average units per acre of newly approved residential development are reported directly by cities and counties participating in the survey.

Prototype 2: Access to Transit: share of new housing units within 1/4 mile of rail stations or major bus corridors

Joint Venture: Silicon Valley Network Land Use Survey. The number of new housing units within one-quarter mile of transit (distance considered "walkable") are reported directly by cities and counties participating in the survey.

Prototype 3: New Commercial Development near Transit

Joint Venture: Silicon Valley Network Land Use Survey. The number of square feet of commercial development within one-quarter mile of transit are reported directly by cities and counties participating in the survey.

ECONOMIC COMPETITIVENESS & OPPORTUNITY

Job Growth and Wages

Employment data: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Wages were adjusted for inflation and are reported in 2009 dollars using the California Consumer Price Index (CPI).

Green employment and business establishments

Green business establishments and jobs: methodology originally developed on behalf of Next 10 for the California Green Innovation Index. The National Establishment Time Series (NETS) database based on Dun & Bradstreet establishment data was sourced to extract business information such as jobs. The operational definition of green is based primarily on the definition of "cleantech" established by the Cleantech GroupTM, LLC.

Housing Affordability

U.S. Census Bureau, American Community Survey. Renters: 2005 and 2008 one year estimates from the dataset: "B25070. Gross rent as a percentage of household income in the past 12 months." For owners, 2005 and 2008 one year estimates from: "B25091. Mortgage status by selected monthly owner costs as a percentage of household income in the past 12 months." Monterey Bay Region does not include data for San Benito County. North Coast does not include data for Del Norte or Trinity Counties. Data not available for Central/Southeast Sierra, Northeast Sierra, or Northern Sacramento Valley.

Information on overall national and state housing conditions, p. 52: "The State of the Nation's Housing," The Joint Center for Housing Studies, Harvard University, 2010. Available at: http://www.jchs.harvard.edu/publications/markets/son2010/son2010.pdf

Indicator Data Sources

ENVIRONMENTAL & HUMAN HEALTH

Air Quality: Particulate Matter

The California Air Resources Board, Aerometric Data Analysis & Management (iADAM) database. Data includes annual trends by region and shows the average maximum number of days exceeding the National 24-hour PM 2.5 Standard.

Asthma and Obesity

The 2007 California Health Institute Survey, UCLA Center for Health Policy Research.

RESOURCE EFFICIENCY AND CONSERVATION

Energy Use

Electricity and natural gas consumption: the California Energy Commission, Energy Consumption Data Management System. Data represent retail sales of electricity and natural gas to end-use customers. For natural gas consumption, North Coast does not include data for Del Norte or Lake Counties. Natural gas consumption data for Northeast and Southeast Sierra is unavailable. Population: DOF.

Urban Water Use per Capita

Urban water use per capita: data from California Water Plan Updates (Department of Water Resources, various years), aggregation by Public Policy Institute of California. Data is for applied water use by major hydrologic region. Data for 2005 is provisional. Urban water use includes residential and non-agricultural business uses.

PHOTO SOURCES

Association of Bay Area Governments (ABAG): p. 44

California Air Resources Board (CARB): pp. 20, 47

Caltrans: inside front cover, pp. iii, 1, 3, 8, 14, 15, 17, 22, 24, 26, 27, 29, 30, 31, 32, 36, 38, 46, 49, 55, 58, 71, 72, 75, 77, 81

Corey Rich Photography: p. 76

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Sacramento Area Council of Governments (SACOG): pp. 23, 25, 35, 41, 46

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