# State of the Region

## *REGIONAL OVERVIEW*

Shasta County is located at the geographic center of California's sixteen-county North State (see Figure 4). Shasta County encompasses 3,847 square miles, of which 72 square miles (1.9%) are bodies of water. Elevations range from 420 feet at the valley floor to Lassen Peak, standing 10,457 feet tall in Lassen Volcanic National Park.

Shasta County contains four distinct geographic regions. Western Shasta County is mountainous, collecting high precipitation amounts from up sloping Pacific storms. Several creeks draining these mountains provide riparian habitat and fish spawning grounds. The northern part of Shasta County is in the Siskiyou mountain range, which is recognized for its biological diversity and global botanical significance. The eastern part of Shasta County contains the convergence of the Sierra Nevada range and the Cascades. This region is dominated by oak woodlands at the lower elevations to mixed conifer forests at higher elevations. Significant amounts of snowfall feed numerous creeks and the Sacramento River. The central part of Shasta County contains the upper end of the Sacramento Valley. Growth and development, along with associated linear structures like roads, canals, and power lines, dominate this area.

Prior to becoming a county in 1850, the area was home to five American Indian Tribes: the Achomawi, Atsugewi, Okwanuchu, Wintu and the Yana. In the mid- to late-1800s, the region's abundant natural resources, including gold and timber, drew legions of settlers in search of economic opportunity and a better life. The arrival of the railroad in 1872, construction of Shasta Dam between 1938 and 1945, and the completion of Interstate 5 in the early 1960s further fueled the growth and development of Shasta County.

Today, Shasta County is the second-most populous county in California's sixteen-county North State (just behind Butte County) while Redding is the largest urbanized population center north of Sacramento. The region serves as a hub for retail and service industries and is a popular destination for outdoor tourism and retirement. It is home to a number of iconic attractions, including the Sundial Bridge, Turtle Bay Exploration Park, Lassen Volcanic National Park, Whiskeytown National Recreation Area, Shasta Lake, and McArthur-Burney Falls Memorial State Park.

**Figure 5 - Regional Context**

# TRENDS AND CHALLENGES

The following factors present challenges and opportunities affecting the timing, location, type, and scale of investments in transportation infrastructure and services. Such investments can be reactive (i.e. a response to demand as it occurs) or decision makers may seek to proactively shape the future of the region in accordance with community values and priorities, fiscal sustainability and other objectives.

## POPULATION AND GROWTH

As of the 2010 Census, Shasta County is home to 177,823 residents. Much of Shasta County is unpopulated or rural, having an average of 47 persons per square mile compared to an average of 239 persons per square mile statewide.

The Redding Urban Area, as defined by the U.S. Census and generally falling along the south county Interstate 5 corridor, is more densely populated. It represents only about 2% of the county's total land area, yet is home to over 66% of the county's population.

Even the Redding Urban Area is largely rural and suburban in nature, having 1,625 persons per square mile (2.5 persons per acre). Among comparable Urban Areas, the Redding Urban Area has the most dispersed population (see Table 4).

**Table 4 - Redding Urban Area Population Density Comparison to Similar-sized Urban Areas**

| Urban Area | Pop (2010) | Pop/ Square Mi | Pop/ Acre |
|---|---|---|---|
| **Redding, CA** | **117,731** | **1,625** | **2.5** |
| Grants Pass, OR | 50,520 | 1,838 | 2.9 |
| Medford, OR | 154,081 | 2,372 | 3.7 |
| Reno, NV/CA | 392,141 | 2,377 | 3.7 |
| Carson City, NV | 58,079 | 2,509 | 3.9 |
| Chico, CA | 98,176 | 2,849 | 4.5 |
| Yuba City, CA | 116,719 | 2,990 | 4.7 |
| Santa Rosa, CA | 308,231 | 3,138 | 4.9 |
| Woodland, CA | 55,513 | 4,551 | 7.1 |
| Davis, CA | 72,794 | 5,145 | 8 |

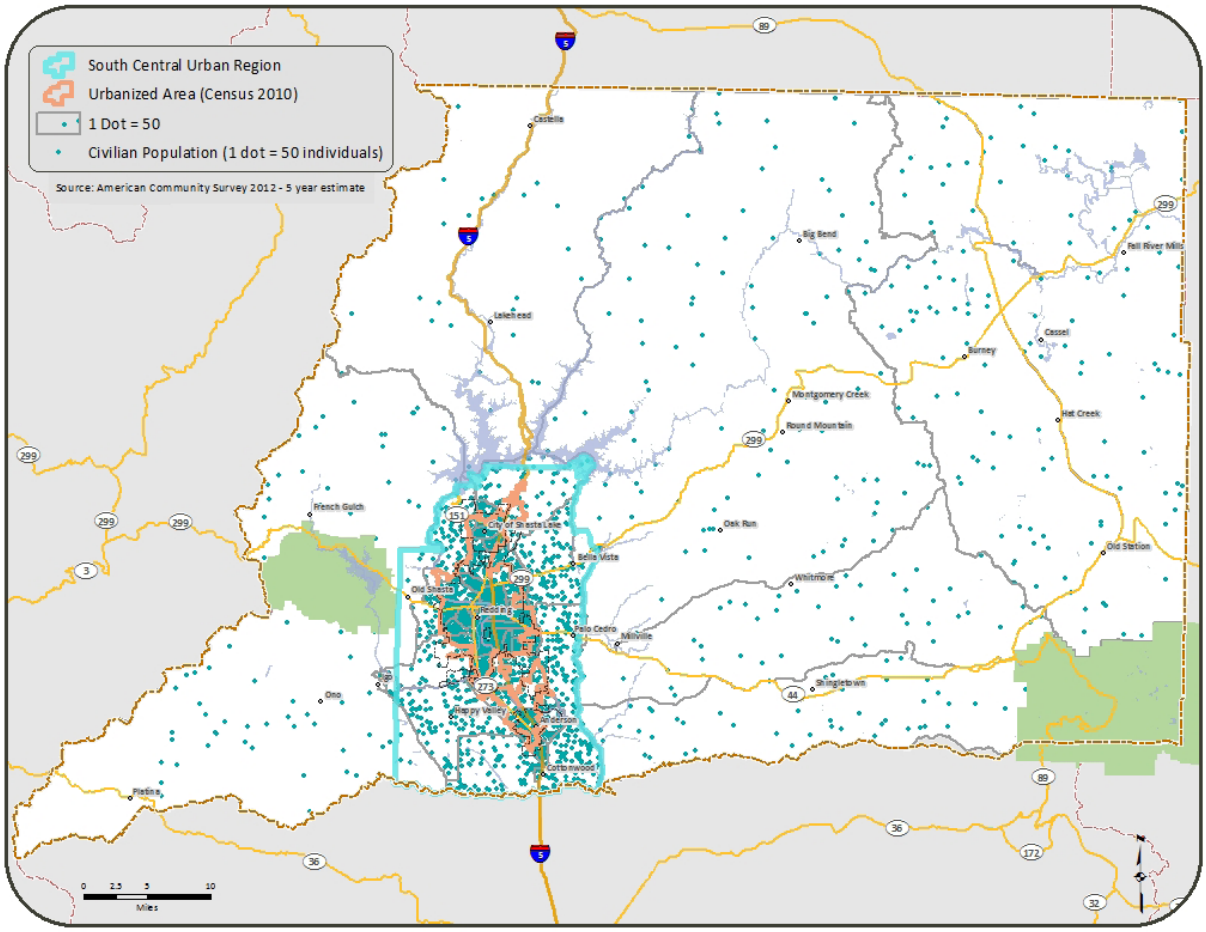
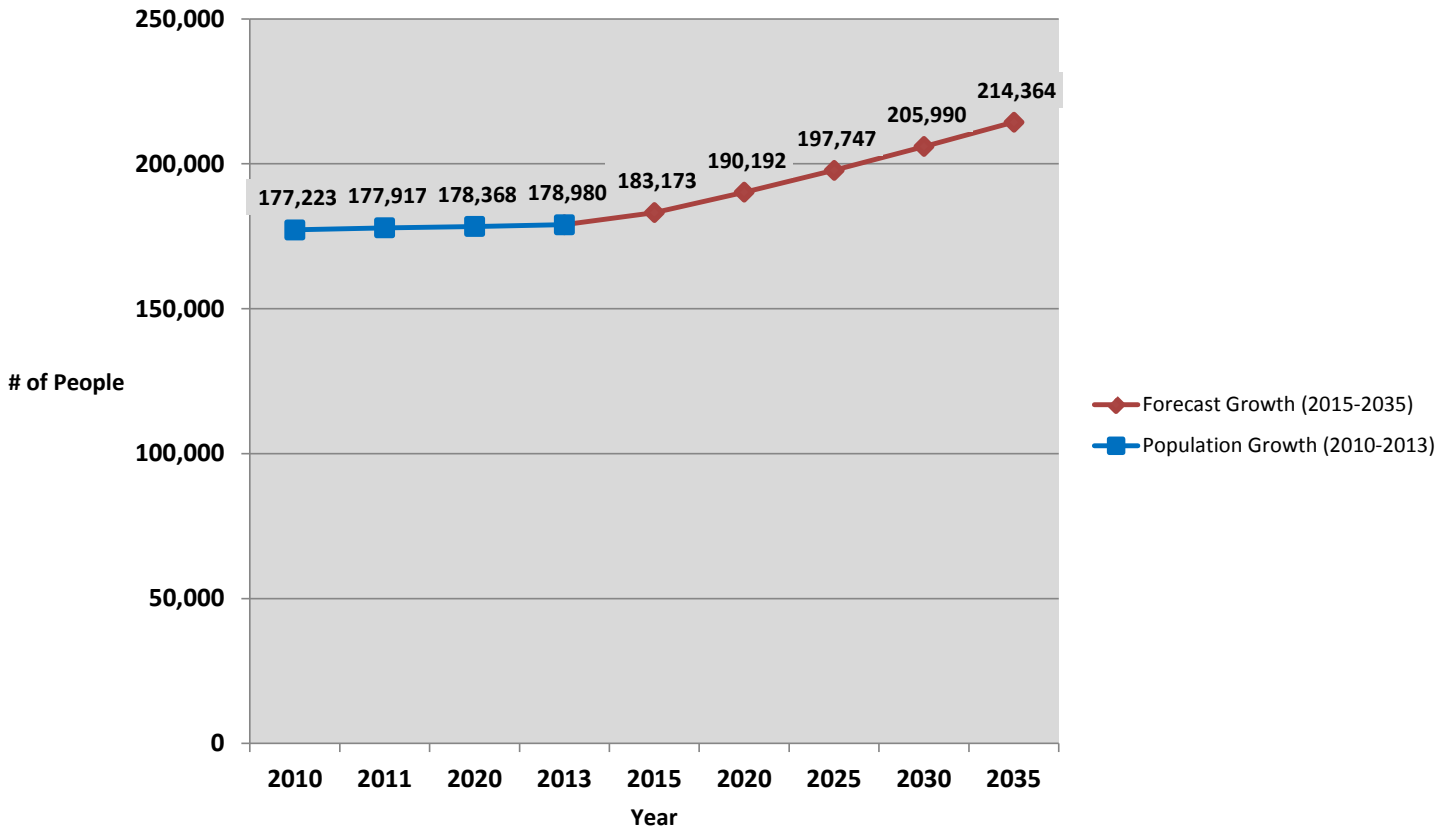



**Figure 6 - Population Base**

**Chart 3 - Shasta County Population Growth (2010-2013)* and Forecast Growth (2015-2035)**




[2]*Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2013. Source: U.S. Census Bureau, Population Division. Release Date: March 2014*

Average annual growth rate for Shasta County between 2000 and 2010 was approximately 0.9%, falling to <0.3% in more recent years (US Census Bureau). Population forecasts estimate future growth at a rate of 0.8% per year, with a population of 214,364 persons for the Shasta County region by year 2035 (*Appendix 1 - Shasta County Forecast Assumptions Memorandum, November 8, 2011*).

## DEMOGRAPHICS

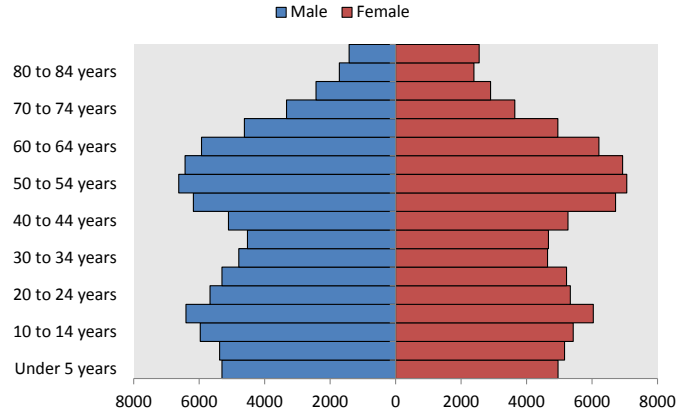
Shasta County is on the leading edge of the trend towards an aging population. At 42.9 years of age, the 2015 median will be 6.7 years above the statewide median age of 36.2 years. By 2040, Shasta County's median will reach 48.1, compared to the state's median of 40.4, or 7.7 years older.

Examining the differential growth rates projected for each age group reveals a graying population. Fifty-one percent of the County's increase in population between 2015 and 2040 will be in the age group of 65 and older. This is an 87 percent increase in this age group between 2015 and 2040 and 2.6 times the growth rate of the County population as a whole.

The number of people between the age of 25 and 64 are expected to increase by about 27 percent between 2015 and 2040. This age group is considered the prime market for larger single-family detached homes because they are most likely to be raising a family. The number of people aged 0 to 19 years will, however, only increase by about 10 percent during the same time frame, suggesting a trend of smaller families and households with no children.
Shasta County is less diverse than the state. In 2013, 81.4% of Shasta County residents identified themselves as white alone (not Hispanic or Latino), compared to 39% statewide. Minority populations include Black and African American (0.9%), American Indian (2.1%), Asian (2.6%), Pacific Islander (0.2%),

two or more races (3.4%), and Hispanic or Latino (8.4%).

**Chart 4 - Age Distribution of Shasta County Population (2010)**




Shasta County lags behind the state in higher education. Statewide in 2013, 30.5% of adults had a bachelor's degree or higher, compared to 19.3% in Shasta County (ACS 2008-2012). Although a number of degree programs are available through extension of Chico State University in Redding and the privately-owned Simpson College, the absence of a university hampers workforce training and business attraction in comparison to nearby urbanized areas, including Chico, CA (home to Chico State University), Davis, CA (home to University of California Davis), Arcata-Eureka, CA (home to Humboldt State University), and Medford-Ashland, OR (home to Southern Oregon University).

Shasta County does, however, have a higher number of high school graduates (88.4% versus 81.2% in all of California); those having some college but no degree (31.8% versus 22.2% in all of California); and Associates degree (11% versus 7.7% in all of California). Shasta College, a two-year junior college, plays a key role these statistics, providing a broad range of educational opportunities at its main campus as well as the Downtown Redding Health Sciences Division.

Shasta County is less prosperous than the state. The median household income is substantially below the state average. For the five-year time period (ACS 2008-2012), Shasta County median household income was $44,396 compared to the state's average of $61,400. About 12.2% of Shasta County residents are below the poverty level versus 15.9% statewide.

The overall cost-of-living in Shasta County, however, is substantially less than the state average. Based on the cost-of-living index , where a score of 100 represents the nationwide average, Shasta County is 11% above the national average whereas California as a whole is 51% above the national average. In effect, household income goes a lot farther in Shasta County than in many other California regions.

## HOUSING

There were 77,555 housing units in Shasta County in 2013. Shasta County residents are more likely to own their home compared to California as a whole. Among occupied units, 62.5% are owner-occupied and 37.5% are renter-occupied compared to California at 54.2% and 45.8% respectively.

There are fewer persons per household in Shasta County – 2.53 compared to the statewide average of 2.93. Shasta County has far more detached single family dwellings units and substantially less higher density multi-family dwelling units (see Table 3).

The median value of owner-occupied units in Shasta County, at $204,800, is approximately one-half of the $405,800 median value for California. However, median monthly rent in Shasta County, at $1,446, is only 37% less than the $2,157 median rent for California. Nearly 42% of owner-occupied households spend more than 30% of their household income on mortgage payments, whereas an alarming 62% for renter-occupied households.

A household's rent or mortgage payment is the primary, but not sole determining factor in housing

**Table 5 - Housing Stock Desciption**

| Housing Type | Shasta | CA |
|---|---|---|
| Detached single family | 69.5% | 58.5% |
| Attached single family | 2.9% | 6.9% |
| 2 multi-family | 2.7% | 2.5% |
| 3-4 multi-family | 6% | 5.5% |
| 5-9 multi-family | 2.9% | 6.1% |
| 10+ multi-family | 5% | 16.8% |
| Mobile home or other | 11.1% | 3.6% |

[3]*Sperling's (www.bestplaces.net)*

[4]*U.S. Census Bureau, 2011-2013 American Community Survey 3-year estimate.*

affordability. Transportation costs are the second-largest budget item for most households, accounting for about 17 percent of annual income on average.

In recent years, housing affordability has expanded to include the idea of 'location affordability'. This method takes into account household factors (e.g. household income, persons per household, commuters per household and median rent/mortgage) as well as mobility factors (e.g. community walkability, median commute distance, access to public transportation, and access to employment). Simply put, those who live in location-efficient neighborhoods (e.g. more compact with convenient access to jobs, schools, shopping, and services) that are served by a range of viable mobility options (e.g. high quality public transportation, complete and connected bicycle and pedestrian facilities, and rideshare services) tend to have lower transportation costs.

Furthermore, in such areas where alternative travel modes are practical and appealing options for everyday trips, households are more adaptable and resilient when faced with a change in income or ambulatory mobility; the additional demands of children in the home; or other challenges that accompany different life stages.

When housing and transportation costs are considered together, consumers are able to make more informed decisions about where to live to fit their income and desired lifestyle. As planners and policy makers strive to manage infrastructure costs, alleviate traffic congestion, and achieve equitable economic opportunity and prosperity within their jurisdiction, a comprehensive approach that includes coordinated land use, housing, and transportation investment strategies is needed.

Two sources provide data for Shasta County: the 'Housing + Transportation Affordability Index' (a product of the Center for Neighborhood Technology); and the 'Location Affordability Portal' (a collaborative project by the U.S. Department of Housing and Urban Development, U.S. Department of Transportation, and the U.S. Environmental Protection Agency).

### DISADVANTAGED COMMUNITIES

New to the RTP for 2015 is a closer look at social equity. More specifically, whether all segments of the population – regardless of income, race, age, disability, or other distinguishing characteristic – enjoy fair access to basic needs, including but not limited to mobility.

Historically, many California communities have inadvertently impeded or otherwise reinforced the geography of 'haves' and 'have-nots'. Although resource inequality is a systemic issue, opportunities do exist within the scope of the RTP and the purview of regional government to enable all citizens who actively choose to participate in society and work to raise their standard of living.

An expanded awareness and understanding of the burdens and benefits associated with prospective transportation policies, programs, and investments aids in the evaluation of alternatives and supports informed decision making. Actions range from 'do no harm' to targeted programs and investment strategies.

For the purposes of this RTP, 'disadvantaged communities' are defined as areas that, according to statistical data, have a markedly higher share of individuals challenged by the cumulative impact of:

- Poverty and unemployment
- Lack of mobility options, including access to automobile, active transportation, and public transportation
- Housing and transportation cost burden
- Single parent households
- Young and elderly
- Educational attainment
- Linguistic isolation
- Minority status

The predominant data for defining a low resource community was derived from the American Community Survey (ACS) five-year estimates for the years 2008 through 2012 and GIS data representing the non-motorized network and transit network for the region. Each indicator was divided into to classes of data based on natural breaks in the data and then manually editing the break point to the nearest multiplier of five. The indicators and break points are described below:

- Poverty - Census block groups where 45% or more of population lives at 200% or less of the federal poverty level based on 2012 5 year ACS data
- Unemployed - Census block groups where 20% or

more of the labor force is unemployed based on 2012 5 year ACS data

- Minority - Census block groups where 20% or more of population is either Hispanic or not White based on 2012 5 year ACS data
- Single Parents - Census block groups where 20% or more of families are single parent families based on 2012 5 year ACS data
- Age (Elderly) - Census block groups where 10% or more of population is aged 75 or older based on 2012 5 year ACS data
- Age (Young) - Census block groups where 20% or more of population is under age 18 based on 2012 5 year ACS data
- Education Attainment - Census block groups where 15% or more of population aged 25 and older have less than a high school diploma based on 2012 5 year ACS data
- Linguistic Isolation - Census block groups where 5% or more of households have no one over 14 who speaks English only or speaks English very well based on 2012 5 year ACS data
- Limited Mobility (Vehicle Access) - Census block groups where 40% or more of housing units with 0- 1 vehicles based on 2012 5 year ACS data
- Limited Mobility (Active Transportation) - Smaller block groups without bike and pedestrian facilities access
- Limited Mobility (Transit) - Smaller block groups without transit access
- Housing Cost Burden - Census block groups where 20% or more of occupied housing units pay more than 50% of household income in housing costs based on 2012 5 year ACS data
- Median Household Income (MHI for California = $61,400 from 2012 5 year ACS data) - 80% or less than the statewide median household income (80% of $61,400 = $49,120)

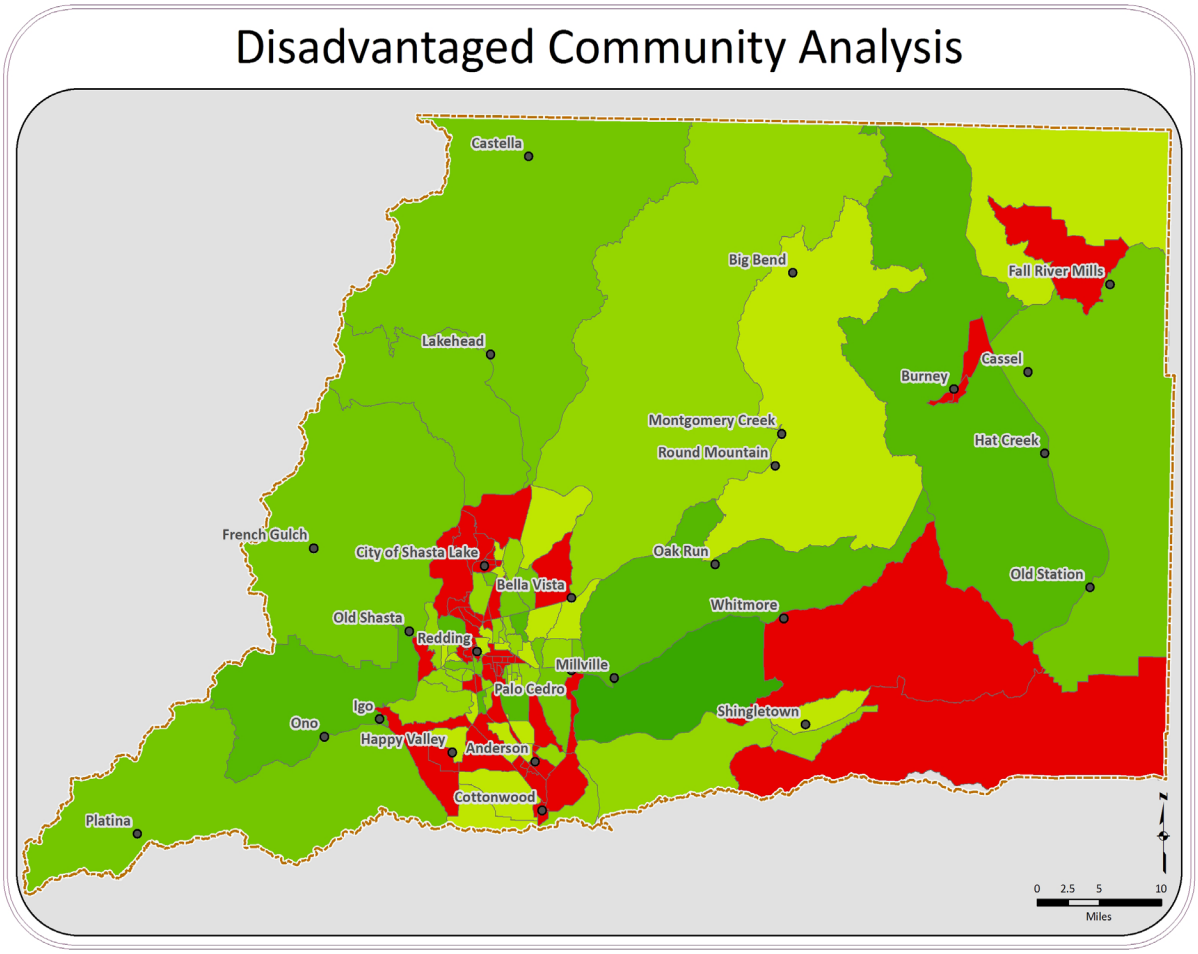



**Figure 7 - Disadvantaged Community Analysis**

The analysis created 13 total indicators and combined all indicators equally. Any block group that was flagged as low resource by five or more indicators was considered a low resource community (See Figure 6). Future planned enhancements to this analysis includes the mapping of essential services in relationship to disadvantaged communities.

In considering the above analysis, it must be recognized that transportation policies, programs, and investments play a limited and often indirect role in expanding opportunity in low-resource neighborhoods. Indeed, there are many contributing factors and complexities beyond the reach of transportation initiatives alone to affect. With this in mind, SRTA works proactively with its partner agencies and a broad range of community-based organizations to engender a more holistic and balanced approach.

Within the agency's scope as a transportation planning agency, SRTA has the greatest ability to directly impact or otherwise influence social equity through projects, programs, grant-seeking and other efforts that enhance the five 'D' factors correlated with mobility and known to affect travel behavior. More specifically:

- **Density** – the number of persons, jobs or dwellings in a given area;
- **Diversity of land use** – the number and variety of different land uses in a given area;
- **Design of streets and development** – the average block size, number of intersections, sidewalk coverage, building setbacks, street widths, pedestrian crossings, and other factors that result in a more human-scale environment;
- **Destination accessibility** – the number of common destinations (e.g. job sites, schools, shopping, etc) within a given travel time; and
- **Distance to transit** – the distance from home or work to the nearest transit stop by the shortest street route.

Due to limited resources and the number and degree of factors required to affect travel choice, these efforts are best focused in areas having disadvantaged populations and that fall within or adjacent to Strategic Growth Areas identified in the Sustainable Communities Strategy portion of this 2015 RTP.

## ECONOMY

Transportation is more than a convenience; it enables economic activity by connecting people, goods, services, and resources together for gainful employment and commerce. In addition, responsive, flexible, and affordable transportation leads to increased productivity, income, property values, and tax revenues. Targeted transportation strategies and initiatives may also be used to lessen economic disparities within the region.

The following description of Shasta County's economy is not intended to be comprehensive or replace other, more detailed analysis, but rather to:

1. Provide a general economic context for the RTP; and
2. Highlight the most salient opportunities to support economic development through regional transportation policies, programs, and investment strategies.

Conventional economic analyses, wherein a variety of indicators are used to understand current conditions and future prospects, have been complicated by the volatile market conditions associated with the Great Recession and drawn-out, uneven economic recovery. This is further complicated by the lag-time in available data. In an unsteady economy, data and trends are less reliable. Traditional methods must be supplanted in part by boots-on-the-ground assessments from local business and finance leaders working in the everyday trenches of economic development.

The following overview is based on the best available data, recent analysis, and direct consultation with economic development professionals in and around the region.

### Historic Economy

Shasta County's economy has historically been dominated by singular industries. In earlier years this included mining, forest products, and other natural resource extraction industries. Although still a relevant component of the North State economy, these industries are cyclical in nature and represent only a fraction of their peak productivity achieved decades ago. Such industries are not expected to return to former levels due to resource depletion, regulatory controls, and various other factors.

The arrival of the railroad in 1872 and Interstate

Highway System in 1966 helped fuel the economic development aspirations of their day by connecting people and goods to larger markets. Meanwhile, the construction of Shasta Dam from 1938 to 1945 and sporadic booms in the construction industry served the economy for a time but were not sustainable.

On the waning end of long-standing industries and economic boom periods, many jobs have been backfilled with those in retail, hospitality, and other lower wage industries. To create a more robust and resilient economy, core industries must be buoyed up in combination with the ongoing cultivation of new industries toward a more diversified economy.

**Current Economy**

What the region lacks in comparison to larger metropolitan regions (e.g. a large urban marketplace, intermodal transportation infrastructure, and a public four-year public university), are partly offset by secondary economic attractors.

Shasta County offers an appealing quality of life, including well-regarded public and charter schools, minimal traffic congestion and pollution, and a wealth of outdoor recreational activities. In addition lower land values, utility costs, and taxes improve businesses' bottom line and allow more rapid growth. Shasta County's location and built environment offer the following strategic advantages:

- Located at the geographic center and transportation crossroads of the sixteen-county North State – Shasta County serves as a hub for a range of professional services for consumers across a large, multi-county area.
- Access to major markets – Shasta County is bisected by Interstate 5, an international trade corridor spanning the entire west coast from the Mexican to Canadian border. In addition to linking all west coast ports, Interstate 5 allows for reliable one-day delivery to major markets (most notably Sacramento and San Francisco Bay Area). State Route 299/44 further connects Shasta County to California's North Coast to the west and Reno, Nevada to the east.
- Access to shovel-ready building sites – Shasta County has invested heavily in preparing a number of commercial and industrial sites with access to air, truck, and rail transportation. Notable examples include the Stillwater Business Park located in Redding and industrial lands located in Anderson at Deschutes Road and Interstate-5.

The following overview of regional industries and their respective life-cycle status offers insights into the economy and informs the development of economic initiatives. The industry matrix below is not intended to be comprehensive, but rather serves to highlight those industries believed to have the greatest impact on the current and future economy of the region. Industries are divided into four life-cycle stages, each requiring specialized strategies to sustain, develop, and bolster their contributions to the regional economy.

- Emerging industries have a positive growth outlook for which the region presently has a disproportionately higher share of jobs in these major and specific industries. An emerging industry typically consists of a few companies and is often centered on a new technology or a new application of existing technology.
- Growth industries are characterized by a rate of growth higher than that of the overall economy.
- Mature industries have passed the rapid growth stage and have an established pattern of market share, earnings, and profits.
- Declining industries have negative growth or are growing at a rate substantially less than the overall rate of economic growth.

**Table 6 - Shasta County Industry Analysis**

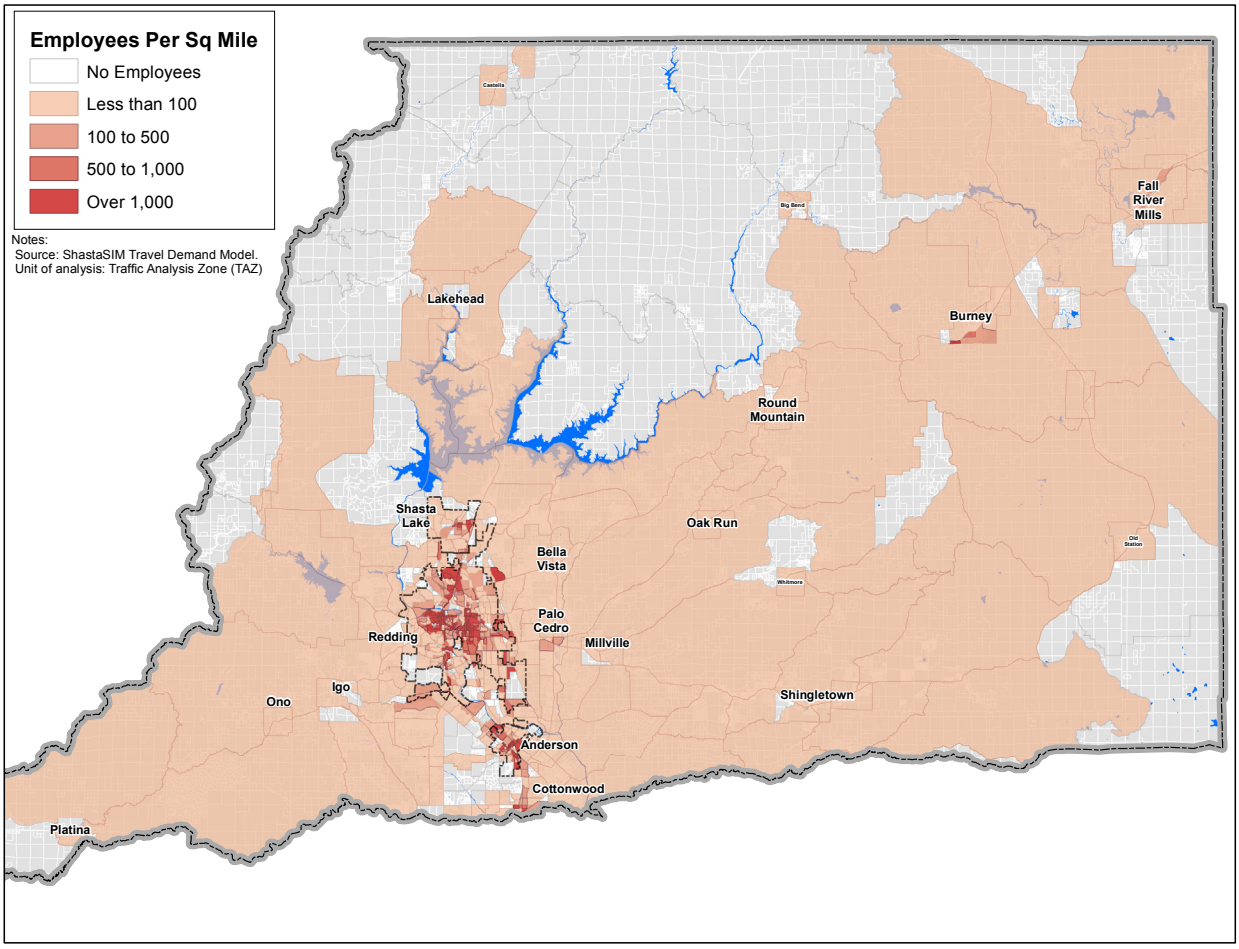
| Mature Industries | Growth Industries |
|---|---|
| Government<br>Leisure & Hospitality<br>Trade, Transportation, and Utilities<br>Other Services<br>Construction | Education & Health Services |
| **Declining Industries** | **Emerging Industries** |
| Financial Activities<br>Information<br>Manufacturing<br>Prof. & Business Services<br>Natural Resources | Surveying & Mapping Services |

*(Northern Rural Training and Employment Consortium, Industry Study Summary 2005-2009)*

The general location of major employment centers is relatively consistent and predictable, even if individual

employers vary from year to year. Figure 7 illustrates the regional distribution of jobs in the region.

**Figure 8 - Density Map of Jobs (Employees) by Traffic Analysis Zone (Year 2010)**




## Industry Clusters

Clusters of industry are geographically concentrated and inter-connected by the flow of goods, services and information. They include major industries and support industries that have congregated for mutual benefit and support. Industries identified in consultation with economic development professionals for further study and coordinated effort include the following:

- Health Services – Due to the significantly older population, distance to other large metropolitan regions, and the confluence of transportation corridors from surrounding counties, Shasta County is a natural hub for general and specialized health services for a broad geography and population extending well beyond the region's borders. The opportunity exists to expand the depth and breadth of healthcare related industries.
- Educational Services – Shasta County is located in an area surrounded by well-regarded universities, including Humboldt State, Chico State, and Southern Oregon University. None, however, are practical for regular commuting. The nearest is Chico State, located 62 miles southeast of Redding. Access to higher education and the ability to develop an educated workforce and new technologies is critical to the long-term prosperity of the region. Opportunities include the expansion of Shasta College in partnership with extended campus and distance education options offered by Chico State. A successful example includes the recent Health Sciences campus located in Downtown Redding, where a growing number of programs are being made available.
- Surveying and Mapping Services – Redding is home to a number of private sector firms offering geospatial services and a growing number of professionals who routinely use geospatial technology in their work. A Geographic Information Systems (GIS) certificate program is offered at Shasta College. SRTA has partnered with Shasta College and local agencies in building the 'FarNorCalGIS' regional server and online

map viewer. In addition, several professional organizations are active and engaged in the community, including the Redding Area GIS Users (RAGU) and Far Northern Regional GIS Council (FNRGC). The ongoing development of high-value/low travel demand industries such as geospatial technology support the economy while minimizing the impact on local and regional transportation systems. The same technologies are frequently used in planning, transport logistics, and other fields to enhance the productivity of existing transportation systems.

- Professional services – As an 'island' metropolitan region surrounded by rural counties and being located a considerable distance from Sacramento, San Francisco Bay Area, and other major metropolitan regions, Shasta County is a natural hub for medical, legal, accounting, information technology, and other professional services. Some industry sectors, such as medical services, generate substantial and often long-distance trips with impacts on both local and interregional travel patterns. Other sectors, such as information services, are able to render services electronically and therefore have relatively little impact on the transportation network.
- Wholesale Trade and Transportation – Shasta County's location at the geographic center and transportation crossroads of the North State makes the region a natural hub for consolidating wholesale trade and transportation services. Some infrastructure exists already, including food product distribution. Recent transportation investments at the Interstate-5 and Deschutes Road interchange provide direct access to industrial lands being annexed by the City of Anderson and improvements on State Route 299 in western Shasta County have opened new trucking routes to California's North Coast counties.
- Agriculture – The total value of agricultural products sold in Shasta County during 2012 is $65.6 million, a nearly 47% increase over 2007. Notable products include wild rice (Shasta County ranks 1st in California and 4th in the United States in acres of wild rice) and much of the nation's strawberry 'starts' that produce new plants for transport to fields in central and southern California for growing.

Because agriculture consists mainly of seasonal, high volume commodities, producers and distributors rely heavily on regional transportation systems to move products to market in a timely and efficient manner. Consolidating the transport of agricultural products is challenging because the origins of agricultural products are geographically dispersed and many products are perishable and therefore extremely time-sensitive. Moreover, agricultural products are typically low-value commodities on a cost-per-unit of volume or weight basis. Producers must compete against higher value commodities when accessing open market transport services. Or, as is the case with many specialty agriculture products, shipments are small and irregular. Accordingly, producers often supply their own transport or utilize a handful of specialized food transport services.

The 2013 North State Transportation for Economic Development Study identified an opportunity to create efficiencies and to organize the necessary critical mass of trade to justify a regional hub for the aggregation, wholesale, and distribution of agriculture and natural resource-based commodities.

**Coordinated Economic Development and Transportation Initiatives**

A goal of the 2015 RTP (Goal #5) is to strengthen high-value industries that generate below average travel demand and to improve the efficient movement of goods and services for industries that are reliant upon the transportation network. This is to be accomplished by reinforcing or otherwise facilitating sustainable economic development initiatives and by identifying and resolving transportation-related barriers to economic activity and productivity.

A more proactive and integrated approach to travel demand management will be used to get ahead of the curve, avoid the pitfalls of other regions, and fulfill the RTP vision. For example, employment centers can be located in urban, mixed-use environments or consolidated in large business campuses (even when located away from residential areas) in order to support the viability of alternative travel mode choice, including public transportation and ridesharing. Supporting the development of information-based industries would likewise have a positive impact on the economy while casting a relatively small burden

on transportation systems due the below-average number of trips generated. For those industries that rely on the efficient and affordable delivery of tangible goods and services, additional physical transportation infrastructure and/or the coordination and consolidation of goods movement would help to optimize the throughput and therefore capacity of the existing transportation network.

## COMMUNITY HEALTH & WELL-BEING

There is no explicit, federally defined responsibility for MPOs to address public health in transportation plans, programs, or projects. Beginning with MAP-21, Federal law does require MPOs and DOTs to consider a series of "planning factors," including economic vitality, safety, energy conservation, and overall quality of life (23 USC §134(h)). Several of these factors present specific opportunities for supporting public health goals and outcomes. In addition, the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention publishes various public health Indicators for Shasta County that are useful in the planning process (See Figure 8).

At the state level, California's Health in All Policies Task Force was established by Executive Order S-04-10 in February of 2010 . This task force brings together eighteen state agencies, departments, and offices to identify priority programs, policies, and strategies that improve the health of Californians.

There is no universal formula for addressing community health and wellness. Each region has unique challenges, resources, and flexibility when selecting tools, processes, and organizational structures used to affect health outcomes in the most direct and effective manner. The 2015 RTP seeks to integrate public health objectives throughout the goals, policies, strategies, and performance measures.

As a result of discussions with local public health

**Figure 9 - Centers for Disease Control and Prevention Health Indicators for Shasta County**

| | Better (most favorable quartile) | Moderate (middle two quartiles) | Worse (least favorable quartile) |
|---|---|---|---|
| Mortality | Diabetes deaths | Alzheimer's disease deaths<br>Chronic kidney disease deaths<br>Motor vehicle deaths | Cancer deaths<br>Coronary hearth disease deaths<br>Female life expectancy<br>Male life expectancy<br>Stroke deaths<br>Chronic lower respiratory disease deaths<br>Unintentional injury (including motor vehicle) |
| Morbidity | HIV<br>Preterm births | Adult diabetes<br>Adult obesity<br>Adult overall health status<br>Alzheimer's diseases/dementia<br>Cancer<br>Older adult asthma<br>Older adult depression<br>Symphillis | Gonorrhea |
| Health Care Access & Quality | | Primary care provider access<br>Uninsured<br>Older Adult preventable hospitalizations | Cost barrier to care |
| Health Behaviors | | Adult binge drinking<br>Adult physical activity<br>Teen births | Adult female routine pap tests<br>Adult smoking |
| Social Factors | Inadequate social support<br>On time high school graduation | Children in single-parent households | High housing costs<br>Poverty<br>Unemployment<br>Violent crime |
| Physical Environment | Drinking water violations | Limited access to healthy food<br>Living near highways | Access to parks<br>Housing stress<br>Annual average particulate matter 2.5 microns (PM 2.5) |

professionals and stakeholders, health-related issues with the greatest nexus to regional transportation programs, policies, and investment strategies were identified. These include:

- Transportation-related injuries and deaths as a result of vehicle collisions and vehicle-bicyclist/ pedestrian collisions, including a focus on safety around schools;
- Respiratory disease as a result of airborne particulate matter (PM 2.5);
- Epidemic of obesity caused in part by a lack of physical activity, lack of access to healthy foods, and concentrations of disadvantaged populations affected by multiple risk-factors.
- Social isolation as a result of mobility limitations.

In addition to supporting positive public health outcomes, coordination and collaboration with the public health community is simply good business. SRTA may capitalize on the health community's efforts to promote and facilitate active transportation. By leveraging their strengths in the areas of education, outreach, promotion, and safety training, SRTA and local agencies are better able to focus limited time and resources on providing the highest quality active transportation facilities and services.

# TRAVEL CHARACTERISTICS AND SYSTEM UTILIZATION

A detailed understanding of the nature and recurring patterns of regional travel is fundamental to the planning process.

## TRAVEL DATA

Information on who, why, when, and how people travel in Shasta County is gathered from a variety of data sources, including but not limited to:

- U.S. Decennial Census and interim American Community Surveys;
- California Household Travel Survey;
- Traffic counts;
- On-board transit surveys;
- ShastaSIM activity-based travel demand model; and
- Special studies (e.g. economic studies, corridor studies, transportation impact fee studies, origin and destination studies, etc.).

### Trip generation

Vehicle travel demand in Shasta County is the combined result of intra-regional trips (i.e. trips beginning and ending within Shasta County), interregional trips (i.e. trips having a local origin or destination but that enter or exit Shasta County), and through-trips (i.e. trips that enter and exit Shasta County without stopping).

The ShastaSIM regional travel model segregates trips into the eight trip types: work, school, escort (e.g. transporting a child to/from an activity or similar trip type), personal business, shopping, meal, social interaction, and home.

### Forecast Daily VMT (region and per capita)

According to the ShastaSIM regional travel model, total daily vehicle miles traveled in Shasta County will increase by approximately 32% between 2005 and 2035. Daily per capita vehicle miles traveled in Shasta County will, however, remain relatively steady, increasing by only 6% over the same period.

**Table 7 - Total Daily VMT and VMT/Capita**

| Year | Total Daily VMT[1] | VMT/Capita[1] |
|---|---|---|
| **2005** | 5,606,121 | 26.81 |
| **2020** | 6,171,441 | 26.88 |
| **2035** | 7,390,629 | 28.51 |

*[1]Results from ShastaSIM travel model reflect the current growth trend of the region without changes resulting from the 2015 RTP. Includes all trips types (inter-regional, intra-regional & through-trips).*

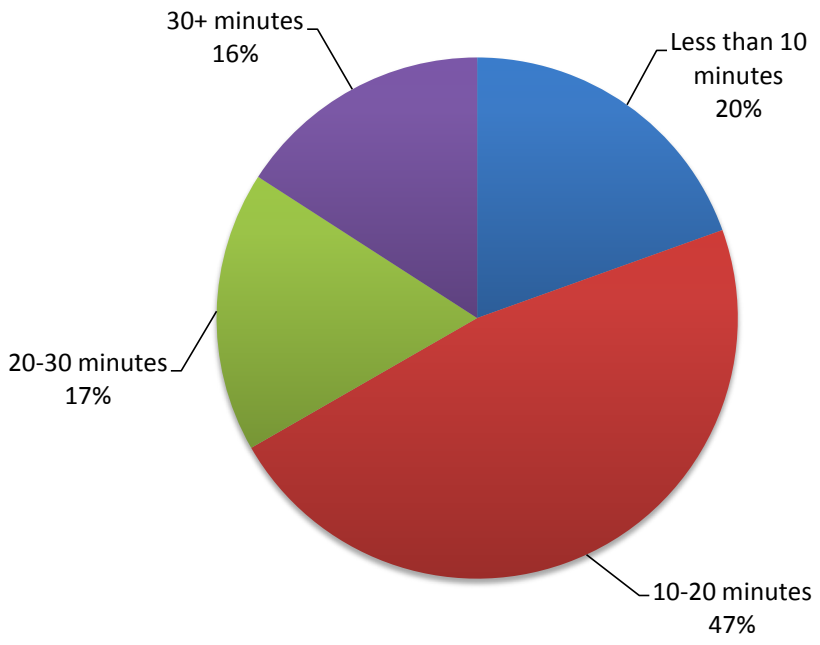
Residents living in the unincorporated regions of Shasta County have the highest VMT per capita (25.4), followed by Shasta Lake (18.1), Anderson (17.2), and then Redding (15.0). When comparing overall household VMT, Shasta Lake accounts for the smallest percentage (5%), followed by Anderson (6%), Redding (41%) and the unincorporated region of Shasta County (48).

### Daily trips per household and trip lengths

Using only those trip categories that are subject to SB 375, average daily VMT per household in 2005 was 47.5. It is projected that this will decrease approximately 1% to 47.2 miles by 2035. In the year 2035 it is forecast that residents in Anderson will make the most trips per household (6.6), followed

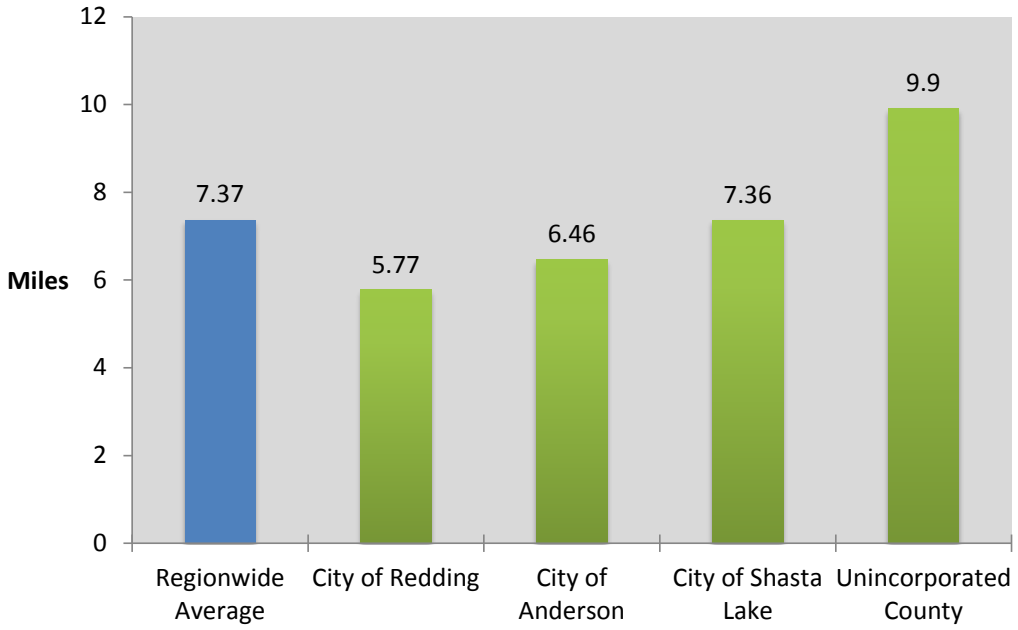
http://www.airsage.com/News/Nationwide-Commute-Report/

**Chart 5 - Average Work Commute Travel Time (By Time and Percentage)**




The average daily commute time for Shasta County residents is approximately 20 minutes.

**Chart 6 - Estimated Average Trip Length (Year 2035)**



by Redding and unincorporated Shasta County household (6.4). City of Shasta Lake household will make the fewest trip on average (6.0).

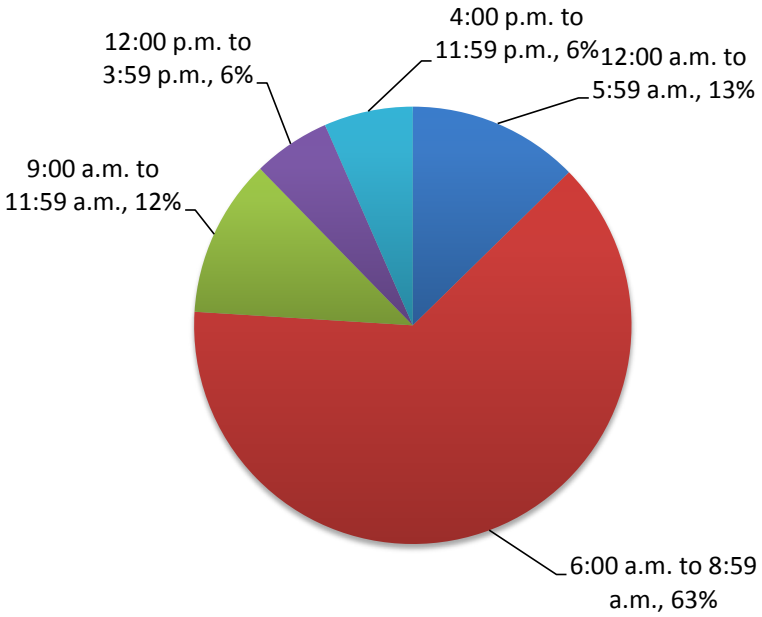
Although the number of trips per household is fairly consistent across the region, the average trip length is substantially different. Region wide in 2005 the average trip length is 7.4 miles. Due to the relative proximity to everyday destinations, City of Redding residents traveled the least per trip at 5.3 miles. On the other hand, residents in the rural unincorporated area of the County travel farthest, averaging 10.6 miles per trip.

According to the 2008-12 ACS, the average commute time to work was 19.7 minutes. Chart 5 shows the average commute travel time, today and Chart 6 shows the estimated average trip length by year 2035.

outside of Shasta County come from Tehama County, with almost 2,900 workers. As many as 400 workers travel in from Siskiyou County. Lassen and Butte counties each provide almost 200 workers traveling into Shasta County daily. However, the reliability of this type of census data is not always reflective of actual behavior because the data is based on a sampling of the actual population and is self-reported.

In recent years, the use of GPS data collected from mobile devices has increased. In a recent nationwide county-to-county commute report for the month of April 2014, it reported that as many as 9,765 people commute at least 14 days or more a month into Shasta County for work, school or other activities that require them to stay a majority of their day in Shasta County. Similarly, it was reported that just over 10,000 people who live in Shasta County commute outside of the county for 14 days or more a month.

**Chart 7 - Percentage of Commute Trips by Time of Day (2008-12 ACS)**




**County-to-County Commute Patterns**

Due to Shasta County's geographic isolation from other major population centers, travel patterns are less complex than those found in California's larger metropolitan regions. Nevertheless, there is notable inter-county commuting between Shasta County and bordering counties.

According to US Census county-to-county travel data compiled by the Census Transportation Planning Products (CTPP) the largest potential influx of workers

SRTA is looking further into what interregional travel data is available in order to grasp the magnitude of travel into and out of the region.

### DAILY PEAK TRAVEL DEMAND

Approximately 63% of all workers leave between 6:00-9:00am, with the largest amount of commuters (31.7%) traveling to work between 7:00-8:00am. Only 13% of commuters leave for work between the hours of noon and midnight on a given work day. Chart 6 shows the percentage of daily commute trips from

home to work, by time of day.

Lack of major disincentives for vehicle trips combined with limited, incomplete, and disconnected alternative modes limits the potential success of efforts to diversify mode choice. Alternative modes must appeal to value and priorities beyond mobility.

### MODE CHOICE

Even among the largest metropolitan regions, the single occupancy vehicle is the travel mode of choice for the majority of the population. At some point in the growth and development of a region, however, over-reliance on the automobile becomes financially, operationally, and environmentally unsustainable. Alternative modes, including public transportation, bicycling, walking, and ridesharing in combination with land use strategies must be introduced to help manage travel demand.

Mode split is affected by the natural environment (e.g. topography and climate), the built environment (e.g. transportation facilities and land use patterns), and individual and community choices.
Individuals may make choices based on comfort and convenience, timeliness, cost, perceived safety, and/or personal values such as improved health and reduced environmental impact. In addition, a community's prioritization of transportation spending and the application of transportation and land use policies have the effect of encouraging or discouraging certain travel behaviors. For example, a lack of bicycle lanes, infrequent transit service, segregated land uses, deferred facility maintenance, road tolls and parking fees, and other factors greatly influence travel behavior.

General information regarding the use of different travel modes is collected by the US Census Bureau through an annual questionnaire, called the American Community Survey, or ACS. This survey asks general questions regarding people's commute to work, including mode choice, travel time, travel duration, and other characteristics. Work trips are the focus because it is the most common reason for travel and the primary cause for congestion during peak morning and afternoon hours of the day.

According to the 2008-2012 ACS, travel to work in the region is primarily by driving alone (80%), with carpooling (9%) the second most common form of travel. It is estimated that 6% of all workers in the region work from home. The remaining 5% of work trips are split by the following modes: public transportation (1%), walking (2%), and taxicab, motorcycle, bicycle, or others means (2%)

Since 2000, the greatest change has been an increase in the number of people working from home, up from 4% of all workers to 6%.

### INTERMODAL TRAVEL

A major goal of the RTP (Goal #3) is the integration of various travel modes into a seamless network. Connectivity includes accessibility, physical connectivity, and schedule coordination.

Intermodal facilities include the Downtown Redding Transit Center that serves as the regional hub for local and regional public transportation, including Trinity Transit (Trinity County), Sage Stage (Modoc County), Susanville Rancheria Public Transit, Greyhound and Amtrak. Improvements are being made on streets in downtown Redding, such as California Street, to provide better commuting options for bicyclists and in connecting downtown Redding and the transit center to the Sacramento River Trail. However, the transit center does have its own challenges. The timing of transfers between transit services do not always match, causing lengthy waiting periods before transfers, and the frequency of some services are limited.

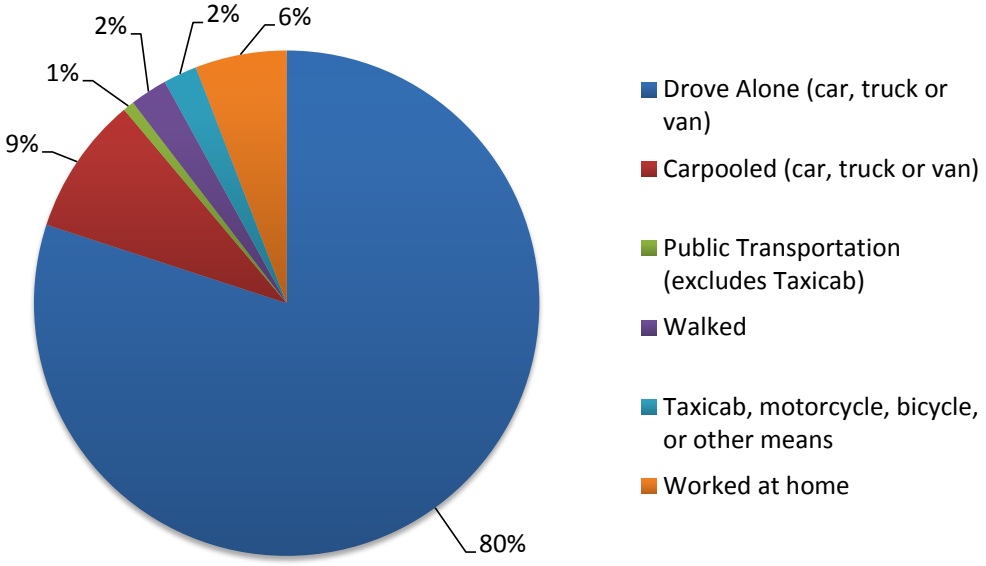
Amtrak passenger rail service is available via the Downtown Transit center. However, passenger service is infrequent and available only in the early AM hours of the day (southbound – 2:21am; northbound – 3:06am). Currently no day time passenger rail service is available.

Improvements have been made in connecting transit to the Redding Airport thanks, in large part, to travel demand generated by the IASCO Flight Training School. Hourly service is available from the Canby transit center Monday through Friday and six times a day on Saturdays. However Sunday service is currently not available.

Flights from Redding Airport occur two times daily from Redding to San Francisco via SkyWest (United Express). However, frequent flight cancellations make reliable air service difficult.

Facilities for bicycling and pedestrian activities are ever increasing throughout the region. Projects such as Dana to Downtown, which provided a way to connect bike facilities east and west of the Sacramento River, are well used. Improvements are being made as well to connect bike/pedestrian facilities to Shasta College, local schools, and job centers, such as downtown Redding.

**Chart 8 - Means of Transportation to Work (2008-12 ACS)**




## Goods and Freight Movement

The movement of goods and freight in and out of the region represents a major component of overall regional travel demand. Commodities flow in and out of the region by different modes:

- Air - Redding Municipal Airport supports airfreight and package movement services.
- Rail - Two active rail lines (Union Pacific and Burlington Northern) serve Shasta County. Rail spurs located in Redding and Anderson provide limited freight loading and unloading. In Redding, train car switching interferes with vehicle travel on several key downtown arterials.
- Trucking - The majority of regional goods and freight movement is (and will continue to be) performed by truck.

Critical corridors for trucking in Shasta County include Interstate 5, which is one of the first six 'Corridors of the Future' identified by the U.S. Department of Transportation in need of multi-state congestion relief initiatives. State Route 299/44/36 is considered a 'High Emphasis Route' critical to interregional travel and included in a subset of 'Focus Routes' in the Interregional Transportation Strategic Plan that are essential for connecting urban areas and linking rural areas to urban areas.

Reliable data is needed for the effective planning and programming of finite transportation resources. Information on commodity flows is derived from a combination of Caltrans Intermodal Transportation

Management System (ITMS) data, Federal Freight Analysis Framework (FAF), and the IMPLAN regional economic analysis model. Unfortunately, much of this data is outdated and based on very limited data samples outside of California's major metropolitan areas. Little information is available regarding the off-highway movement of goods and freight, including air and rail modes. In order to draw reasonable conclusions, data must be augmented with a local understanding of regional economic activity. Recently completed and planned efforts are described below.

**North State Transportation for Economic Development Study**

Completed in October 2013 by SRTA on behalf of the sixteen-county North State Super Region, the North State Transportation for Economic Development Study combined the best available goods and freight movement data with information gleaned from various public and private sector economic and transportation stakeholders. The study analyzed the interactions between transportation (current and planned systems) and the economy (current industries and economic development initiatives).

As noted in the study, the value of Shasta County commodities produced in 2010 is approximately $1.245 Billion. A further break down of major industries is provided in Table 8. About 15% of the region's commodities are locally consumed; the balance is exported to national and international markets. The region offers a lower cost of doing business (including lower taxes, labor costs and housing costs) and same-day access to several major markets (including Sacramento and the San Francisco Bay Area). Key issues from a transportation perspective include the disconnected and inefficient movement of goods and freight to the marketplace and long distance to processing facilities for North State agricultural and natural resource commodities. The final report recommended the development of regional strategic action plans comprised of the following components:

- A project prioritization process based on mobility and economic performance metrics;
- A short list of 'total package' projects that solve mobility and economic development benefits as well as leverage funding from multiple partners and sectors;
- A short list of 'game changer' transportation projects that would effectively remove known obstacles to regional economic development objectives;
- A proactive strategy for the prevention of non-weather related closures and catastrophic failures on the interregional transportation system; and
- Facilitation of coordinated movement of goods and freight.

SRTA is working on several initiatives designed to address these needs, including coordination with Caltrans freight census and statewide travel modeling; the development of performance-based project selection criteria; and a Consolidated Goods and Freight Movement Study described in further detail below. The product of these efforts will be incorporated into SRTA's 2018 RTP update.

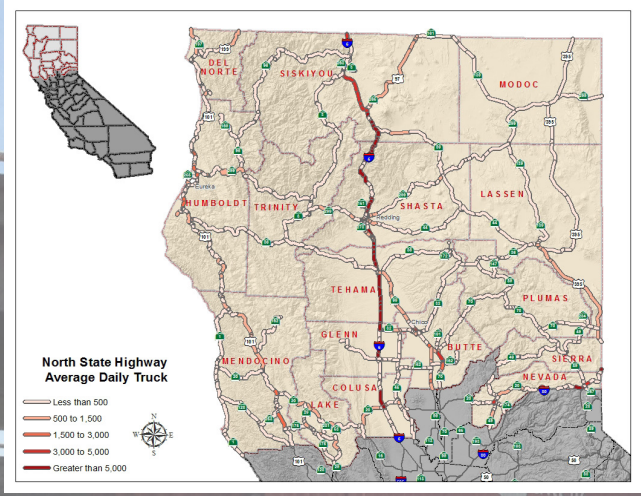
**Consolidated Goods and Freight Intermodal Hub Initiative**

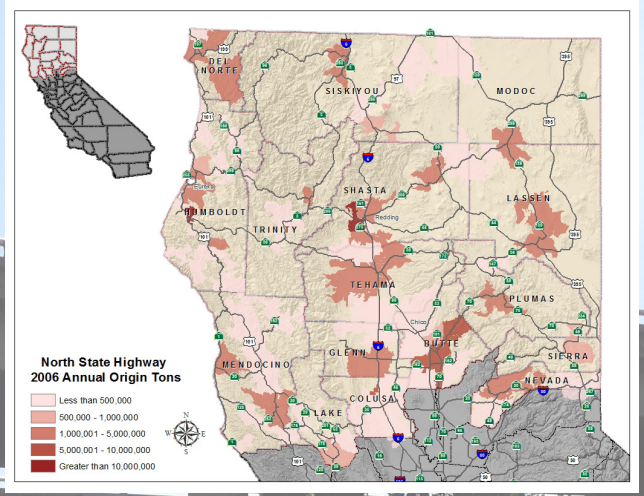
SRTA was awarded a Caltrans Strategic Partnerships planning grant in early 2015 to carryout a Far Northern California Consolidated Goods and Freight Hub Study and demonstration project. Core project stakeholders include SRTA, Superior California Economic Development District, and Growing Local (a coalition of agriculture related stakeholders representing California's eight northernmost counties).

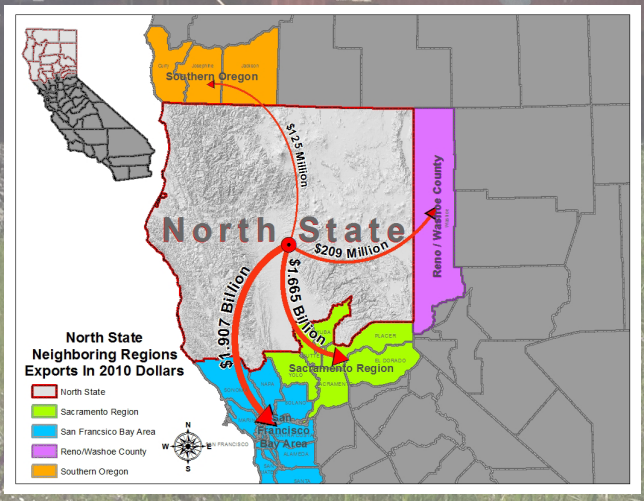
The study will measure the production, aggregation, and distribution patterns of agricultural inputs and

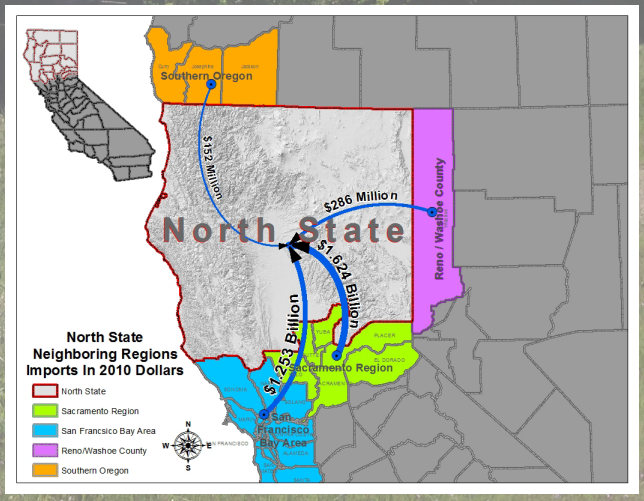
outputs. Results of the analysis, combined with travel demand modeling, will be used to identify location-efficient clusters of industries and to evaluate the feasibility for a centrally-located intermodal hub to reduce freight miles traveled and associated

## Figure 10 - North State Freight Flows



emissions. Findings will be shared with Caltrans Transportation/Freight Modeling and Data Branch and will support ongoing development of the California Statewide Travel Demand Model.

A demonstration project performed in collaboration with business and community partners will enable stakeholders to work through the essential terms, logistics, and communication protocols needed to attract grant funds, private sector partners, and financing for the hub.

**California Freight Mobility Plan**

Completed in December 2014 by the Caltrans Office of Freight Planning, the California Freight Mobility Plan (see http://dot.ca.gov/hq/tpp/offices/ogm/cfmp.html) identifies freight routes and transportation facilities that are critical to the state's economy and environment. The plan includes a list of good and freight movement projects, twenty-one of which are located in Shasta County. Project types include capacity increasing, system preservation, and operations and management. Projects are needed to:

- Address forecast congestion and bottlenecks, particularly on mainline Interstate 5 in and around the cities of Redding, Anderson, and Shasta Lake where truck volumes represent up to 30% of total traffic;
- Remedy freight accessibility and safety issues, including inadequate vertical and horizontal clearances on the Union Pacific Railroad bridge over Interstate 5 and narrow, winding, and steep interregional corridors;
- Relay real-time roadway and traffic conditions to travelers; and
- Proactively maintain pavement, bridges, and other assets.

**Table 8 - Approximate Value of Commodities Produced in the North State in 2010 ($ millions)**

| Commodity[5] | Value |
|---|---|
| Agriculture & Food Products | $236 |
| Machinery & Metal Products | $129 |
| Wood Products | $319 |
| Misc Manufactured Products | $91 |
| Mixed Freight/Cargo | $35 |
| Chemicals & Pharmaceutic | $156 |
| Petroleum & Coal Products | $151 |
| Stone, Gravel, Sand, Minerals, Ore and Related | $123 |
| Animal & Fish Products | $6 |
| Total | $1,245 |

[5]*North State Transportation for Economic Development Study (available at: http://www.srta.ca.gov/140/Transportation-Economic-Development-Stud)*