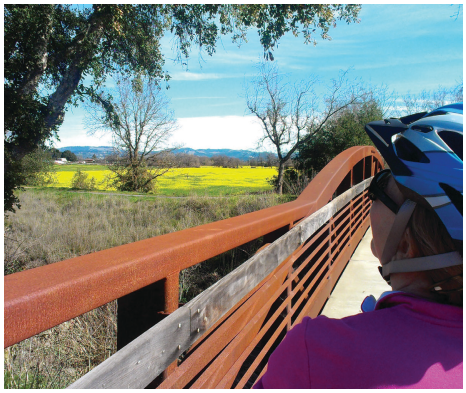
SCTA Countywide Bicycle and Pedestrian Master Plan



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Sonoma County Transportation Authority

SCTA
sonoma county transportation authority

In partnership with:

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Rohnert Park	Santa Rosa	Sebastopol	Sonoma
Windsor	Sonoma County (unincorporated areas)		

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This Plan is updated periodically as needed.

Glossary and List of Acronyms

ADA	Americans with Disabilities Act, passed in 1990, gives civil rights protections to indi-viduals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. Title II of the ADA prohibits discrimination against qualified individuals with disabilities in all programs, activities, and services of public entities, including local governments.
Bicycle Facilities	Bicycle infrastructure, including bike lanes, bike routes, and bike paths.
BAAQMD	Bay Area Air Quality Management District was created through the California Legislature in 1955 to manage air quality in the 9-county Bay Area. BAAQMD funds a variety of bicycle, pe-destrian and transit projects through various grant programs, such as TFCA. Only the southern section of Sonoma County falls within the Air District's boundaries. The jurisdictions north of Windsor (Healdsburg and Cloverdale) outside of the BAAQMD boundaries.
Bicycle Support Facilities	Bike racks, bicycle lockers, changing rooms, signal detection, and other amenities that support bicycling.
Bike Lane	A painted lane for one-way bicycle travel with a minimum 5 foot width. Defined as a Class II Bikeway by Caltrans.
Bike Route	A street that is designated for shared bicycle and motor vehicle use by placement of bike route signs along the roadway. Note that bicyclists are legally allowed to ride on all roadways in California, whether they are bike routes or not, unless expressly forbid. Defined as a Class III bikeway by Caltrans.
BPAC	BPAC is a Bicycle and Pedestrian Advisory Committee; many cities and counties have these committees in place to discuss bicycle and pedestrian planning.
Caltrans	California Department of Transportation
CBPAC	Countywide Bicycle and Pedestrian Advisory Committee - SCTA manages this committee, which is comprised of members from all 10 jurisdictions in Sonoma County.
Complete Streets	Compete Streets describes roadways that are planned, designed, operated and maintained for safe and convenient access by all users (bicyclists, pedestrians, drivers, transit riders, etc).
Measure M	The voter-approved Traffic Relief Act for Sonoma County is a 1/4 cent sales tax used to maintain local streets, fix potholes, widen Highway 101, improve interchanges, restore and enhance transit, support development of passenger rail, and build and support safe bicycle and pedestrian routes and programs.
Mode Share	A measurement of the number of trips or percentage of trips that are taken by a given type of transportation. Mode shares include, but are not limited to, bicycling, walking, transit, and driving.
MTC	Metropolitan Transportation Commission is the regional transportation agency for the 9-county Bay Area. MTC manages a variety of funding programs such as TDA3.
Multi-Use Path	A paved path with an 8-foot minimum paved width, that is solely for bicycle and pedestrian travel. Defined as a Class I bikeway by Caltrans.

Glossary and List of Acronyms, continued

NSCAPCD	The Northern Sonoma County Air Pollution Control District (NSCAPCD) is one of 35 California air districts established to regulate the emissions of air pollution from "stationary sources" that could be detrimental to the health, safety, and welfare of the public. The NSCAPCD manages the northern section of Sonoma County that is outside of BAAQMD's boundary, and manages grant and incentive opportunities for clean air projects.
Pedestrian Amenities	Street furniture, pedestrian-scale lighting, landscaping, and other infrastructure and design elements that support pedestrians and improve the walkability of a street.
Pedestrian Facilities	Pedestrian infrastructure, including sidewalks and paths.
ROW	Right-of-Way
Sharrows	Shared Roadway Bicycle Markings - A stencil of a bicycle and chevron placed in the middle of the right-hand vehicle lane, typically adjacent to parallel parking. The shared lane marking indicates to bicyclists where they should ride to avoid opening car doors and reminds motorists that bicycles will be riding in the middle of the lane.
SCTA	Sonoma County Transportation Authority manages countywide planning and programming of funds.
SRTS	Safe Routes to Schools. There is a Countywide Safe Routes to Schools Program. There are also locally managed SRTS activities in some jurisdictions.
SWITRS	A database of police-reported collisions maintained by the California Highway Patrol.
TDA3	Transportation Development Act, Article 3 is a 2% set-aside from TDA funding, which is exclusively reserved for bicycle and pedestrian projects. In Sonoma County, each jurisdiction accumulates TDA3 funds each year based upon their share of the population.
TFCA	Transportation Fund for Clean Air is a funding program managed by the Bay Area Air Quality Management District. The TFCA program is funded by a $4 vehicle registration surcharge in the Bay Area.

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Executive Summary

Principal Goal - To develop and maintain a comprehensive countywide bicycle and pedestrian transportation system, which includes projects, programs, and policies that work together to provide safe and efficient transportation opportunities for bicyclists and pedestrians.

Walking and bicycling are key components of vibrant, livable, healthy communities, and are an integral part of a complete transportation system. These active transportation modes assist in reducing traffic congestion, air pollution and energy consumption, while also helping to improve the health and quality of life of residents and communities. As Bill Nesper of the League of American Bicyclists states: "bicycling is an indicator of a high quality of life". It is this high quality of life that many communities are seeking to achieve in order to attract businesses and residents.

In recognition of these benefits and to provide support for these active transportation modes, the Sonoma County Transportation Authority (SCTA) adopted the first Countywide Bicycle Plan in 2003. The plan that followed was adopted in 2008, which established a comprehensive, collaborative approach to countywide bicycle and pedestrian planning. Since adoption of the SCTA Countywide Bicycle and Pedestrian Master Plan in 2008, every jurisdiction in Sonoma County has a Bicycle and Pedestrian Master Plan. In 2013, SCTA and its jurisdictions embarked on a process to update this plan. Therefore, this is a Plan Update, which focuses on data, map and project list updates. The County vision, goal and objectives remain the same with a few minor alterations to include such concepts as "complete streets".

The Plan consists of two main sections: (1) Countywide Overview Section, and (2) the jurisdiction plans. The Countywide Overview Section sets the tone for the entire plan. The countywide vision, principal goal, and countywide objectives are introduced in this section, as are countywide planning efforts and background information. This Overview Section is an umbrella under which the rest of the plan falls. The Countywide Bicycle and Pedestrian Master Plan exists in its entirety with all jurisdiction plans connected; likewise, each jurisdiction's Bicycle and Pedestrian Master Plan also exists as their own stand-alone plan, which is formally adopted by each jurisdiction.

Table 0.1
Countywide Commute Mode Share Data

	Employed Persons	*Drove Alone*	*Bike*	*Walk*
2000	*224,947*	*75%*	*0.8%*	*3.1%*
2007-2011	*255,738*	*75%*	*1.2%*	*3.1%*

US Census 2000, American Community Survey 2007-2011

Significant progress has occurred with bicycle commuting as demonstrated in the above table. Since the 2000 Census, bicycle commuting in Sonoma County has increased 50 percent. However, the commuting by walking and single occupant vehicles has remained the same. Completing bicycle and pedestrian projects, as well as maintaining safety and education programs will be necessary to increase commuting by active transportation modes - walking and biking.

In 2008, Sonoma County had more than 241 miles of built bicycle infrastructure, of which the vast majority were in the form of bike lanes on street networks. Since then, more than 74 miles of bicycle infrastructure have been built of which almost 9 miles are Class I facilities (separated bicycle/pedestrian paved paths), 46 miles are Class II facilities (bike lanes), and more than 19 miles are Class III facilities (shared use lanes). Since 2008, Class II facilities were the dominant form of bicycle infrastructure built, which equaled 62% of the overall bicycle infrastructure built throughout the entire Sonoma County area. The miles built of Class I and Class III were 12% and 26%, respectively, of the total miles built. As this plan details in the plan and appendices, more 1000 miles of bicycle and pedestrian facilities are planned to be built, of which more than 500 miles is planned to be Class 2 bike lanes, throughout Sonoma County in the years to come.

The Countywide Overview Section consists of five chapters as detailed below.

1 | Introduction

Introduces the plan purposes and the general organization of the planning process.

2 | Context and Setting

Describes the transportation, land use, demographic and commuting patterns for Sonoma County.

3 | Vision, Goal, Objectives, Policies

Details the Countywide vision, principal goal, and countywide objectives, as well as the relationship to other plans and policies.

4 | Benefits of Walking and Bicycling

Discusses the economic, environmental, health and transportation benefits of walking and bicycling.

5 | Countywide Bicycle and Pedestrian Network

Describes the existing pedestrian and bicycle system, safety campaigns, programs, proposed projects, and funding.

1 | Introduction

The *SCTA Countywide Bicycle & Pedestrian Master Plan* was developed under the guidance of the Sonoma County Transportation Authority (SCTA). As a collaborative agency of the cities and County of Sonoma, SCTA works to maintain and improve the transportation system by prioritizing, coordinating, and maximizing funding, and providing comprehensive, countywide planning. This plan is one such planning initiative. This planning process assists in informing jurisdictions on priorities for bicycle and pedestrian improvements, identifying strategies for the implementation of associated projects and programs, and supporting countywide bicycle and pedestrian coordination. This planning places all jurisdictions in an improved position to qualify for, and leverage, funding.

The 2008 Countywide Bicycle and Pedestrian Master Plan took a comprehensive countywide approach, emphasizing cooperation and coordination among jurisdictions. The Plan consists of two main sections: (1) Countywide Overview Section, and (2) the jurisdiction plans. The Countywide Overview Section sets the tone for the entire plan. The countywide vision, principal goal, and countywide objectives are introduced in this section, as are countywide planning efforts and background information. This Overview Section is an umbrella under which the rest of the plan falls. The Countywide Bicycle and Pedestrian Master Plan exists in its entirety with all jurisdiction plans connected; as well, each jurisdiction's Bicycle and Pedestrian Master Plan exists as their own stand-alone plan, which is formally adopted by each jurisdiction.

Each jurisdiction's plan is to be used by each individual jurisdiction to guide implementation of local projects and programs, and document local policy. The countywide overview section discusses mutual issues and supports continued coordination among jurisdictions in realizing the countywide bicycle and pedestrian system. Through this planning effort, individual plans have been prepared for the cities of Cloverdale, Cotati, Healdsburg, Rohnert Park, Sebastopol, Sonoma, and the Town of Windsor. The County of Sonoma, Santa Rosa, and Petaluma each began developing their own plans throughout the process of the 2008 Plan; however, these jurisdiction's Plans do not follow the Countywide Bicycle and Pedestrian Master Plan layout. These jurisdictions manage their own plans, and most were adopted more recently (i.e. 2010).

The 2008 Countywide Bicycle and Pedestrian Master Plan was developed over the course of approximately eighteen months through the coordinated efforts of the SCTA's Countywide Bicycle and Pedestrian Advisory Committee, a focused project steering committee, city and county staff, and input from the public through a series of public workshops and public review periods. The Project Steering Committee was established to oversee the development of the plan and consisted of representatives from the County and each of its cities. Public workshops were held throughout the County to collect input from interested citizens. The workshops were advertised through various local and regional print media, mailings, the posting of public fliers, and government outreach efforts. Development of the 2008 plan was funded by the Metropolitan Transportation Commission (MTC) with TDA Article 3 funds.

The 2014 Plan Update was funded and managed internally by SCTA staff and included input from every jurisdiction. This Plan Update began with a discussion at the May 28, 2013 Countywide Bicycle and Pedestrian Advisory Committee. SCTA staff has worked closely with all participants at the Countywide Bicycle and Pedestrian Advisory Committee meetings, as

well as with representatives from each jurisdiction. The major Plan Updates include the following: census data (demographic data, journey to work, travel time to work, and bicycle and pedestrian mode share data), collision data, project lists, and the countywide map. There are also a few key areas where information will be added or enhanced, such as: bicycle and pedestrian count data (both MTC and SCTA), Countywide Safe Routes to School information, and complete streets. The majority of the Plan did not change as it is still relevant for the coming years.

Therefore, the Plan Update process began in May 2013 at the Countywide Bicycle and Pedestrian Advisory Committee meeting. During Phase 1 (June – August 2013), the majority of the data updates were completed. During Phase 2 (September – November 2013), the project lists, existing network lists, and mapping edits were completed. Throughout the plan update process, jurisdictions updated chapter sections in each of their respective plans. During Phase 3 (December 2013 - April 2014), the Countywide Bicycle and Pedestrian Advisory Committee finalized edits to the maps and content of the Plan. There were more than 10 public meetings where the public could engage in this Update process. The Countywide Bicycle and Pedestrian Master Plan Update was approved in April 2014 by the SCTA Board of Directors.

The primary emphasis of this planning effort is to facilitate transportation improvements for bicyclists and pedestrians. The role of the SCTA is in advocating, planning, coordinating, and funding, whereas local agencies, such as cities, towns, the County, transit agencies, Caltrans, and the non-profit and private sectors, will be chiefly responsible for implementing projects and programs, realizing the objectives, and carrying out the policies in this Plan. The Plan includes recommendations for physical improvements and programs to enhance and expand existing facilities, connect gaps, address constraints, provide for greater local and regional connectivity, and increase the potential for walking and bicycling as transportation modes.

Purposes of the Plan

The purposes of the *SCTA Countywide Bicycle & Pedestrian Master Plan* are to:

- Assess the needs of bicyclists and pedestrians throughout Sonoma County in order to identify a set of local and countywide improvements and implementation strategies that will encourage more people to walk and bicycle;
- Identify local and countywide systems of physical and programmatic improvements to support bicycling and walking;
- Provide local agencies that adopt the Plan with eligibility for various funding programs, including the State Bicycle Transportation Account (BTA), which is now part of the State Active Transportation Program (ATP);
- Act as a resource and coordinating document for local actions and regional projects;
- Foster cooperation between entities for planning purposes and to create Geographic Information System (GIS) maps and a database of existing and proposed facilities countywide.

* The definition of "pedestrian" includes persons who use wheelchairs (please see side box)

Purposes of the Plan Update:

The update to the 2008 Countywide Bicycle and Pedestrian Master Plan was driven by the need to address the current environment for pedestrian and bicycle planning in Sonoma County. Over

California Vehicle Code – Pedestrian

Section 467 of the California Vehicle Code (CVC) provides the following definition for a pedestrian:

(a) A "pedestrian" is a person who is afoot or who is using any of the following:

(1) A means of conveyance propelled by human power other than a bicycle.

(2) An electric personal assistive mobility device.

(b) "Pedestrian" includes a person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian, as specified in subdivision (a).

the past five years, a variety of changes have taken place, therefore accompanying information needs to be updated. The key updates are:

- Map: countywide bicycle and pedestrian facilities map
- Data: Census data, collision data, and commuting statistics
- Project Lists: Countywide proposed bicycle and pedestrian projects

Motivations for Planning

The impetus for the rising interest in both walking and bicycling is multi-faceted, which includes economic, environmental, health and transportation benefits. As interest grows, the desire for greater access to pedestrian and bicycle modes is creating public demand for a comprehensive, connected infrastructure to accommodate pedestrians and bicyclists, as well as for programs and policies that foster these modes.

Walking and bicycling are integral activities in our communities. The quality of life is enhanced when people can walk and bicycle in pleasant and safe environments. The benefits of walking and bicycling for children are a significant factor in maintaining childhood health. Safe facilities to allow these choices in transportation are a high priority. Likewise, many adults find walking and bicycling pleasant ways to both increase fitness and reduce transportation costs. Additionally, Sonoma County's population is already demographically showing a higher percentage of older residents. As this trend continues as the "boomer" generation reaches their 60s, 70s and 80s, there will be more people seeking alternatives to driving. For people who can no longer drive, who choose not to drive, and who do not have access to a car, walking, bicycling and easy connectivity to transit are natural options.

Decision makers and the general population are increasingly aware of the impacts of lifestyle choices not only on personal health and mobility, but on the environment. With greenhouse gas emissions attributed largely to gas-powered vehicles, many people would like to find ways to lessen that impact. In Sonoma County, approximately 53 percent of the greenhouse gas emissions are from transportation (Regional Climate Protection Agency, 2013). Alternative modes are a way of lessening dependency on oil and assisting in curbing climate change. The switch to non-motorized modes, or active transportation, also serves to reduce local air pollution and traffic congestion, while improving personal health.

Many people in Sonoma County are not able to completely give up their cars; however, most seem receptive to making at least some trips by bicycle or on foot if the infrastructure is there to make the trips safe and convenient. Additionally, at some point in each of our days, we are all pedestrians.

Attractive bicycling and walking environments are also important aspects of the local economy. Pedestrian and bicycle friendly attributes are focal points of our tourism campaigns, bicycle tourism---from bed and breakfasts, to touring cyclists on the Pacific Coast Route, to cycling events like the Tour of California, and Wine Country Century, bring revenue to the County. Pedestrian-friendly districts and corridors are also very important to the regional economy. Many of the County's historic downtowns precede the existence of the automobile and maintain their pedestrian-friendly environments with tree-lined streets, quaint downtown squares, and popular restaurants and retail establishments. Furthermore, the local, regional, and state parks, as well as the open space areas offer tourists and residents alike many opportunities to enjoy the Sonoma County landscape. This will be discussed in greater detail in the chapter 4 of this Plan.

This *SCTA Countywide Bicycle & Pedestrian Master Plan* is a response to the need to engage in coordinated long-range planning to set priorities for improvements and put in place programs and policies to expedite making bicycling and walking safe, pleasant, and feasible options throughout the County. The plan has involved the public in looking at the relevant issues and deciding direction.

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2 | Context and Setting

With a land area of 1,576 square miles, Sonoma County is the largest and most rural of the San Francisco Bay Area's nine counties. Located in Northern California, it is an area known for its beautiful Pacific Ocean coastline, ancient redwood forests, oak-studded open space, and diverse agriculture, prominently including productive vineyards and wineries. There are more than 300 vineyards and wineries in Sonoma County, where the name "Wine Country" is well-deserved. Wine Country events, unique farm-to-table dining, as well as the multitude of outdoor activities, such as bicycling, hiking, and camping, support a healthy tourism industry.

Sonoma County is bounded by the Pacific Ocean to the west, Mendocino County to the north, Lake County to the northeast, Napa County to the east, and San Pablo Bay and Marin County to the south. The County has nine incorporated cities, a number of smaller unincorporated towns and hamlets, and several square miles of rural land. Seven of the nine incorporated jurisdictions align with Highway 101: Cloverdale, Healdsburg, Windsor, Santa Rosa, Rohnert Park, Cotati, and Petaluma. The remaining two jurisdictions off the 101 corridor are Sebastopol in West County and Sonoma in the southeastern portion of the county. The map below shows these jurisdictions, Highway 101, as well as State Routes. The County's southern border is about twenty-five miles north of San Francisco's Golden Gate Bridge. A prominent geographical feature is the central Santa Rosa Plain with its Laguna de Santa Rosa. The majority of the County's incorporated communities and major population centers are located within or adjacent to this central plain, which is opportune for intercity travel. This mostly flat plain is bordered by hills. Sonoma County has numerous valleys including Dry Creek, Knights, and Alexander valleys to the north; and Sonoma and Petaluma valleys to the south. The Russian River meanders through the Russian River Valley to the sea through the heart of the County. Elevations range from sea level along the western ocean edge and at San

Pablo Bay to over four thousand feet. The higher elevations are found along much of the eastern boundary, which is part of the Coast Range.

Influenced by the ocean and mountain barriers to the hotter inland valleys, Sonoma County's climate is characterized by moderate temperatures and precipitation amounts. Conditions for walking and bicycling are favorable for most of the calendar year. The cooler marine climatic zone stretches along the coast and up the Russian River, and covers the southern area inland to Rohnert Park and Petaluma. The more moderate and warmer climate zone is found primarily in the central Santa Rosa Plain area from Sebastopol and the West County to east of Santa Rosa, as well as from Sonoma to the southern border. The third zone, characterized by hot summer temperatures, is found across most of the north and northeast sections of the County, which is located north of Healdsburg to Cloverdale, and north of Sonoma along the eastern border.

Land Use and Transportation

In 1850, Sonoma County became part of the new state of California. All of the towns were small hamlets at that time. Transportation was generally slow and difficult, dependent mostly on foot or horse power for land travel, and boats for water travel. Land use patterns reflected these transportation options, by creating small, close-knit communities near waterways. Sonoma County's older cities, specifically those established prior to the automobile, all retain core areas where pedestrian access was important and a mixture of uses supported local needs. Most of the cities retain downtown areas that reflect a pedestrian historical context. Rohnert Park and Windsor were developed after the automobile.

Land Use

generally refers to what types of structures are on any parcel of land. All cities and the county have land use maps.

Common land use designations are:
COMMERCIAL (stores, restaurants)
INDUSTRIAL (warehouses)
AGRICULTURAL (farms, vineyards)
RESIDENTIAL (houses, apartments)

The automobile altered the patterns of land development and lifestyles. The first mass-produced cars were sold in America in 1901. By 1927, more than 15 million Model T cars had been sold. With availability of the affordable automobile, transportation was revolutionized. Trips that had taken a day by horse and buggy were reduced to half that time. Americans could suddenly travel further distances to work, shop, live, recreate and establish businesses. Demand for new roads and highways grew as car ownership grew and automotive technology advanced.

An issue common in Sonoma County, and for that matter in many of California's historic cities, is that roadway widths were not built to accommodate all transportation modes (i.e. drivers, bicyclists and pedestrians), as well as parking. Areas that developed after arrival of the automobile were generally oriented to automotive travel, which allowed land uses to become further segregated. Subdivisions of homes were built all over the County, which incorporated dependency on the automobile. As development sprawled and car ownership grew, use of non-motorized means of travel declined. The low-density, segregated land development that car travel enabled remains to be a challenge to the County's non-motorized transportation system. The impacts of low-density on alternative means of travel are obvious; not only are walking and bicycling distances to destinations increased, but transit service becomes less feasible and more costly per rider. There are many impacts of the separation of land uses, of which one is the continual dependency on the car for transportation. In recent decades there has been a movement to reintroduce pedestrian orientation in new development and once again mix land uses through smart growth, transit-oriented development, and more recently with the complete streets movement.

Highway 101 was built in the corridor of the old north-south rail line. Evolving from a pack trail to a two-lane road to

a freeway, Highway 101 became the County's transportation backbone, cutting through seven of the County's nine incorporated cities. Later realignments took the roadway out of downtowns to create freeways. Ironically, while freeways greatly increased vehicular mobility, they have hampered pedestrian and bicyclist mobility. The barriers created by freeways are among the most difficult challenges for bicyclists and pedestrians in many locations.

Another challenge for biking and walking in Sonoma County, is the inadequacte roadway width to accommodate all modes on almost all of the older roadways. While some have been upgraded, many provide insufficient width to safely accommodate bicyclists and pedestrians.All jurisdictions – the cities and the County – are now in a position of needing to find ways to accommodate bicyclists and pedestrians through retrofitting roadways for the use of pedestrians and bicyclists, and/or constructing new separated pathways (i.e. Class I). Both approaches can be costly, especially when accommodations may mean the need to acquire additional right-of-way; engineer and construct drainage, culverts and bridges; and take projects through the public review, approval and environmental clearance processes.

Demographics and Commute Patterns

Population

The County population has grown to approximately 490,423 (2013 CA Department of Finance Population Estimate). Table 2.1 to the right details the 2013 population estimates for all jurisdictions in Sonoma County. The recent 2010 Census demonstrated a 5% increase in Sonoma County's population since the 2000 Census. All jurisdictions in Sonoma County have experienced some growth since the last census except for Sebastopol and Rohnert Park. Santa Rosa now claims approximately 35% of the County's total population. Santa Rosa's proportion of the county's total population is slowly growing. Approximately thirty percent live in the unincorporated areas of the County, including both rural and urbanized areas. This segment of the population can be found in Roseland, the coast, Russian River, Sonoma Valley, West County hills, and across the County in a low-density land use pattern. Petaluma is the second largest city in Sonoma County and claims12% of the county's total population. The remaining incorporated cities have less than 9% each of the County's total population.

Table 2.1

Countywide Population Estimates

2013

County (total)	***490,423***
Cloverdale	*8,669*
Cotati	*7,310*
Healdsburg	*11,509*
Petaluma	*58,804*
Rohnert Park	*41,034*
Santa Rosa	*170,093*
Sebastopol	*7,445*
Sonoma	*10,731*
Windsor	*27,132*
Unincorporated County	*147,696*

Source: 2013 California Department of Finance

Future Trends

An earlier population projection by the Association of Bay Area Governments (ABAG) expected the County's population to rise to 535,200 by 2020; however the growth rate has been slower than previously expected. In the recent regional transportation plan for the Bay Area (Plan Bay Area), it is anticipated that there will be a 24 percent increase in the County's population over the next thirty years with an overall population of 598,382 by 2040. Favoring the greater use of walking and bicycling as a viable transportation mode is the general policy direction of the County's jurisdictions, along with voter approved "urban growth boundaries" which focus new growth within already urbanized areas rather than sprawling beyond existing city boundaries. Only 10% of the County's growth in the next three decades is expected to occur in rural areas. The "smart growth" model of residential infill, mixed-use, transit-oriented, and pedestrian and bicycle infrastructure is prominent in much of the most recent development throughout Sonoma County.

ABAG projections assume that a voter-approved Sonoma Marin Area Rail Transit (SMART) train will be operational along the Northwestern Pacific Rail line. Though eventual service between Cloverdale and the Larkspur Ferry Terminal in Marin County is expected, the Initial Operating Segment (IOS) will be between Santa Rosa and San Rafael. The Initial Operating Segment is expected to be operational in 2016. Commuter rail operation will encourage mixed use and employment

centers near stations, which will encourage walking and bicycling. Moreover, the SMART trains are expected to have space for 20 bicycles aboard the trains, thereby further supporting the bike-to-transit combination. The bicycle could become an important link with SMART in its ability to complete the first and last mile of the commute. Along with the SMART rail line, a north-south multi-use pathway along the SMART corridor is being built by a variety of agencies. This multi-use pathway will provide a "spine" for the County's bicycle and pedestrian network, directly linking seven of the County's incorporated communities and countless destinations along the way, as well as linking Sonoma and Marin Counties. The development of the SMART Pathway was a priority recommendation in the 2008 Plan and was supported through policy by each of the affected jurisdictions, independent of the viability of future rail operations. The SMART Pathway continues to be a source of excitement for the bicycle and pedestrian community in Sonoma County.

Another favorable trend is that job growth is projected to increase by 34 percent over the next thirty years in the County. In 2010, there were 192,010 employees in Sonoma County; this number is expected to increase to 257,450 by 2040, according to ABAG. Conversely, housing units are only expected to increase by 19 percent. Therefore, more Sonoma County residents will be able to work within the County, and hence travel fewer miles to work. This improved jobs-housing balance will facilitate the feasibility to walk or bicycle to work for a large portion of employees who live and work in Sonoma County. Over 90% of the job growth is expected to be in the southern portion of the county, consisting of the cities of Santa Rosa, Petaluma, Rohnert Park, Cotati and Sebastopol. Furthermore, much of this area has terrain favorable for walking and bicycling, because it is primarily flat with occasional gentle slopes.

Local Bicycle and Pedestrian Commute Travel Characteristics

The commute travel data in each jurisdiction was analyzed to identify mode share and to evaluate travel time to work. The term 'mode share' refers to the percentage of travelers using a particular mode of transportation (i.e. walking, bicycling, taking a bus, driving, carpooling, etc). The commute analysis establishes base data on the existing number of bicycle and pedestrian commuters, as well as an indication of the number of potential bicycle and pedestrian commuters in the plan area. This information can then be used by staff and local officials to develop improvement plans and set priorities, with the objective of increasing the percentage of people who choose to walk or bicycle rather than commute by car.

A review of available demographic and commute statistics was performed in order to better understand the level of walking and bicycling to work in Sonoma County. Several data sources were reviewed, including California Department of Finance Population Estimates, the Bay Area Travel Survey, and Journey-to-Work (JTW) Data from the US Census Bureau.

Every ten years, the US Census Bureau attempts to count every person throughout the nation. In the 2000 Census, the "journey-to-work" dataset was included in the long-form of the census questionnaire; however, this dataset is no longer included in the decennial census, but rather now is included in the American Community Survey. Each year, the question "How did you usually get to work last week?" is asked of participants in the American Community Survey (ACS). Respondents who typically use more than one method of transportation are instructed to mark the mode used for "most of the distance". There are also other questions such as "How many people, including this person, usually rode to work in the car, truck or van last week?" and "How many minutes did it usually take this person to get from home to work last week?", which together form the set of data known as Journey-to-Work (JTW). Even though, the Journey-to-Work data from the ACS is available at the county level each year, only the 5-year data set has the ability to show this data for all Sonoma County jurisdictions. Therefore, all Journey-to-Work data in this section is from the recent 5-year American Community Survey (2007-2011).

What is mode share?

The term "mode share", or mode split, refers to the percentage of trips or people using a particular form of transportation, such as bicycling, walking, driving, or taking transit. A bike mode share (or bike share) of 10%, for example, means that 1 out of 10 commute trips is made by bike, or that 1 out of 10 people travel by bike to work.

Because of its large sample size, JTW data is considered the most reliable source of transportation mode share information

available. However, while the JTW data provides a glimpse of how Sonoma County residents travel to work, the data source only provides a partial understanding of travel characteristics. This is particularly true in assessing walking and bicycling trips since it does not reflect multi-modal trips or non-work trips. Thus the JTW data misses school, shopping, and recreational trips, which may constitute much of the bicycle and pedestrian travel. In fact, work trips only constitute 15% of all trips throughout Sonoma County. Furthermore, many Journey-to-Work trips involve more than one mode (i.e. bike or walk to transit), which is not accounted for in this data set. The instructions effectively eliminate any record of the pedestrian or bicycle portion of walk/bike-to-transit and walk/bike-to-carpool trips; for commuters who do not use the same mode every day, the decision on which mode to mark is left to the respondent. Regardless of the drawbacks of this data set, it is still highly regarded as a reliable source of data. An overview of countywide bicycle and pedestrian mode share data is included in Table 2.2. Additional analysis of travel characteristics including travel time to work is included in the individual plans. Furthermore, to broaden the understanding of walking and bicycling in Sonoma County, a variety of sources, such as the California Health Interview Survey, the California Add-on to the National Household Travel Survey (CA-NHTS), and MTC and SCTA bicycle and pedestrian count data, are referenced in this Plan.

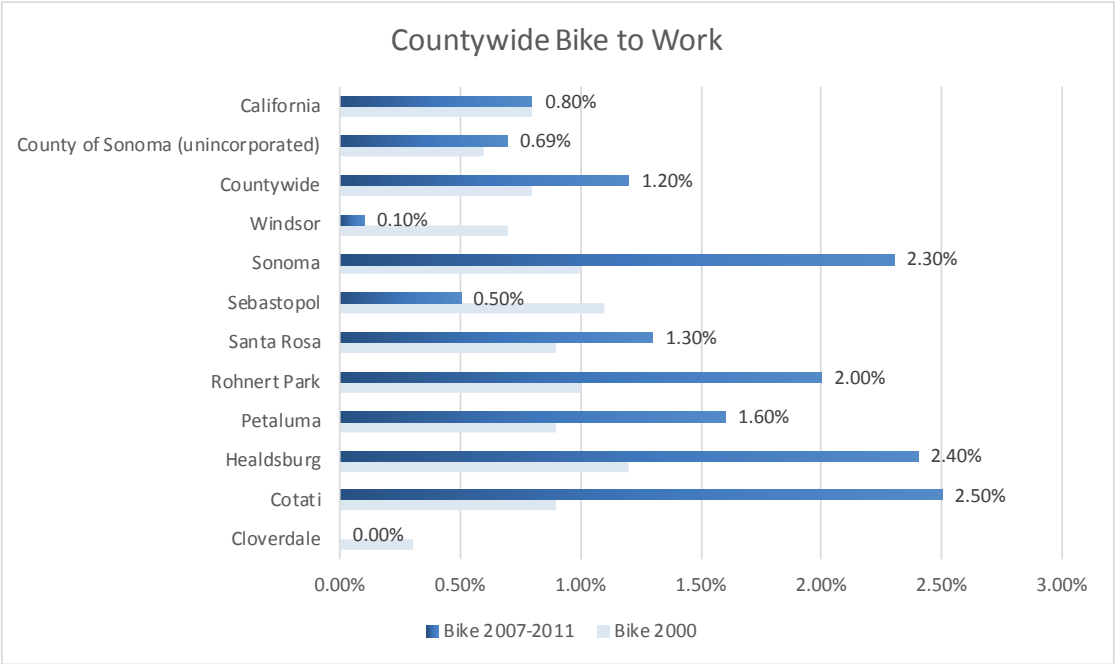
Table 2.2
Countywide Bicycle and Pedestrian Commute Mode Share Data

Jurisdiction	Population (2010)	Employed Persons 16 years of age +	Drove Alone	Bike	Walk
Cloverdale	*8,618*	*3,732*	*78%*	*0.0%*	*5.3%*
Cotati	*7,265*	*3,929*	*80%*	*2.5%*	*0.6%*
Healdsburg	*11,254*	*5,312*	*72%*	*2.4%*	*7.3%*
Petaluma	*57,941*	*28,539*	*72%*	*1.6%*	*2.9%*
Rohnert Park	*40,971*	*20,502*	*77%*	*2.0%*	*2.9%*
Santa Rosa	*167,815*	*75,477*	*76%*	*1.3%*	*2.9%*
Sebastopol	*7,379*	*3,920*	*76%*	*0.5%*	*7.4%*
Sonoma	*10,648*	*4,658*	*72%*	*2.3%*	*6.2%*
Windsor	*26,801*	*12,761*	*82%*	*0.1%*	*0.9%*
County (unincorporated)	*145,186*	*71,171*	*69%*	*1.0%*	*2.95%*
Countywide	*483,878*	*226,280*	*75%*	*1.2%*	*3.1%*
California	*37,253,956*	*16,251,032*	*73%*	*0.8%*	*2.8%*
United States	*308,745,538*	*139,488,206*	*76%*	*0.6%*	*2.8%*

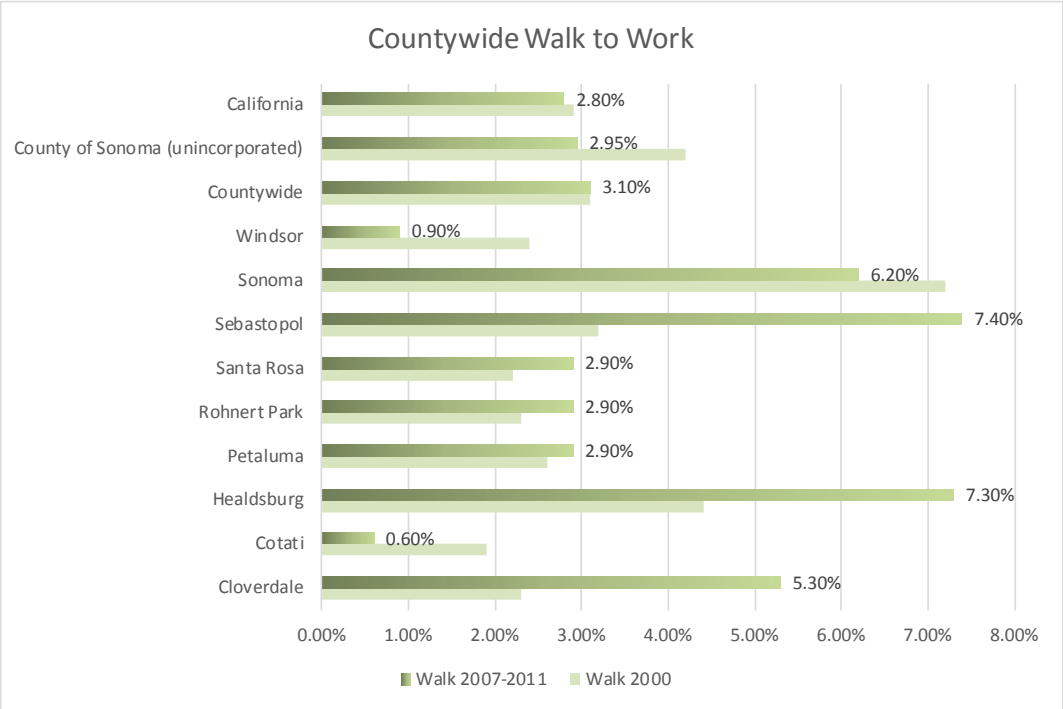
Source: American Community Survey, 2007-2011, 5-year Estimates

When comparing the most recent ACS data with the 2000 census data, six jurisdictions have experienced a decrease in driving alone to work. Countywide there has been a slight decrease (0.3%) in driving alone to work. The bicycle commute mode share has increased in six jurisdictions. Countywide there has been a 50% increase in bicycle commuting. Lastly, four jurisdictions experienced an increase in walk commute mode share. Countywide there was no change in walk commute mode share; it remains at 3.1%, which is above both the California and US average. Overall, more Sonoma County residents are biking to work, even though there has been no change in the drive alone and walk to work commute mode share data.

Graph 2.3 Countywide Bike to Work Mode Share



Graph 2.4 Countywide Walk to Work Mode Share



Furthermore, the jurisdictions with the highest walk commute mode shares also have high citywide scores from Walk Score. Table 2.5 below lists the walk scores (walkscore.com) for each jurisdiction as compared with their walk commute mode share (American Community Survey, 2007-2011). In Sonoma County there appears to be no relation to the lack of car ownersihp and higher walk commute percentages. The communities with the highest percentage of no vehicle available to a worker (aged 16 years and over) are not the communities with the highest walk commute mode shares

(Cotati, Petaluma, and Santa Rosa). It is likely, however, that in these communities where there is a higher percentage of workers who do not have a car that use transit instead of walking or biking (2.5% in Cotati, 3.4% in Petaluma, and 2.9% in Santa Rosa).

Table 2.5: Walk Score®

Jurisdiction	City (in general)		Walk Commute Share	% of Workers Without a Car
Cloverdale	*86*	*Very Walkable*	*5.30%*	*0.3%*
Cotati	*72*	*Very Walkable*	*0.60%*	*2.9%*
Healdsburg	*98*	*Walker's Paradise*	*7.30%*	*0.9%*
Petaluma	*46*	*Car-Dependent*	*2.90%*	*2.0%*
Rohnert Park	*38*	*Car-Dependent*	*2.90%*	*1.3%*
Santa Rosa	*42*	*Car-Dependent*	*2.90%*	*2.7%*
Sebastopol	*98*	*Walker's Paradise*	*7.40%*	*1.0%*
Sonoma	*89*	*Very Walkable*	*6.20%*	*1.1%*
Windsor	*36*	*Car-Dependent*	*0.90%*	*1.9%*

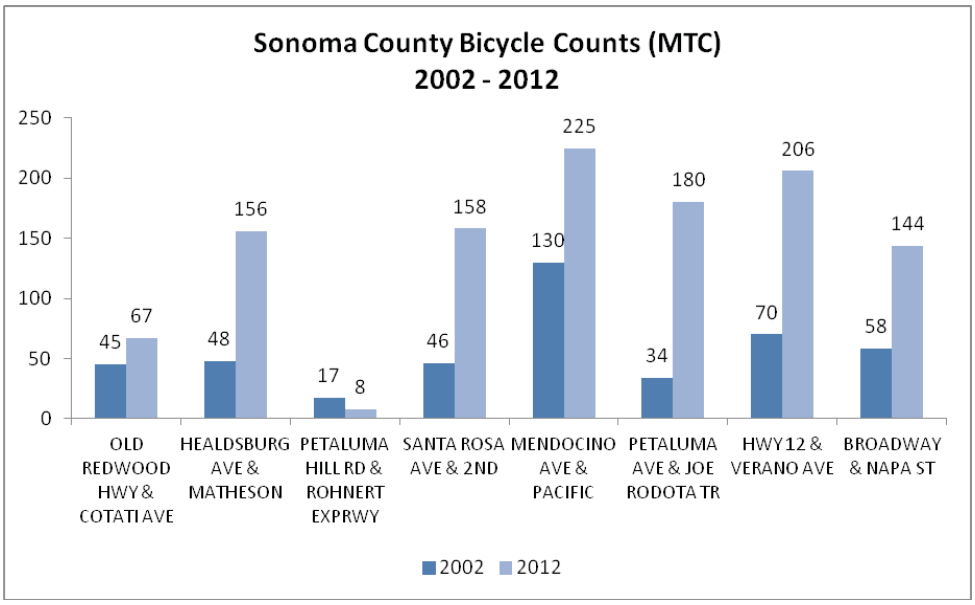
Bicycle and Pedestrian Count Program

Bicycle and Pedestrian Counts

Since adoption of the 2008 Countywide Bicycle and Pedestrian Master Plan, significant work has been accomplished on the bicycle and pedestrian count program by the Sonoma County Transportation Authority (SCTA). SCTA began their bicycle and pedestrian count program in 2009. The completion of the 2008 Countywide Bicycle and Pedestrian Master Plan assisted in informing SCTA staff of key locations within each jurisdiction to be included in a countywide bicycle and pedestrian count program. Moreover, the Metropolitan Transportation Commission (MTC) began collecting bicycle and pedestrian count data at eight locations in Sonoma County in 2002. The MTC count locations have remained consistent; however counts are not conducted every year by MTC due to a lack of funding in certain years. Graph 2.3 below demonstrates the total bicycle and pedestrian counts for the eight locations in Sonoma County. According to the data in the MTC counts, there has been a steady increase in both bicycle and pedestrian activity in Sonoma County.

According to the data in the MTC counts, Sonoma County has experienced a 155 percent increase in bicycle activity between 2002 and 2012. Furthermore, there was a 104 percent increase in bicycle activity between 2010 and 2012 whereas these locations only saw a 25 percent increase between 2002 and 2010. Therefore, the majority of the increase in bicycle activity at these locations has occurred in recent years.

Graph 2.6 - Bicycle Counts by Metropolitan Transportation Commission (2002-2012)

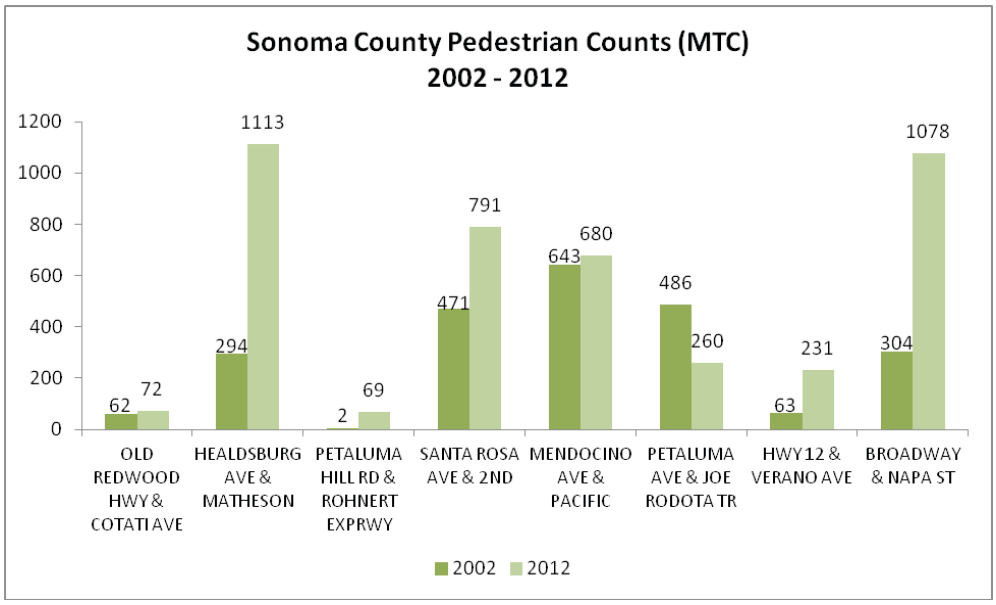


The graph above demonstrates the bicycle counts by MTC in Sonoma County for 2002 and 2012. All of these locations have experienced an increase in bicycle activity from 2002 to 2012 except for the location at Petaluma Hill Road and Rohnert Park Expressway.

Similar to bicycle activity in Sonoma County, pedestrian activity has also experienced a large increase since 2002. Specifically, there has been an 85 percent increase in pedestrian activity between 2002 and 2012. Unlike the trend that Sonoma County has experienced with bicycle activity, pedestrian activity has not accelerated in recent years. There was a 68 percent increase in pedestrian activity between 2002 and 2010, whereas there was only a 10 percent increase in pedestrian activity at these locations between 2010 and 2012. Therefore, pedestrian activity has remained more constant with incremental increases each year.

Graph 2.4 below demonstrates the pedestrian counts by MTC in Sonoma County for 2002 and 2012. All of these locations have experienced an increase in pedestrian activity from 2002 to 2012 except the location at Petaluma Avenue and Joe Rodota Trail. It should be noted, however, that this location has experienced a 31 percent increase in pedestrian activity between 2011 and 2012.

Graph 2.7 - Pedestrian Counts by Metropolitan Transportation Commission (2002-2012)



Unlike the MTC bicycle and pedestrian count data which has maintained counts at the same locations, SCTA has collected data at a variety of locations which has not remained consistent. This has allowed jurisdictions to move their count locations year over year, which allows flexibility. However, this flexibility, or variability, in locations has made it difficult to do the same level of analysis that can be done with the MTC data.

SCTA began their bicycle and pedestrian count program in 2009 with 15 locations throughout almost all jurisdictions in Sonoma County. By 2011, all jurisdictions were included in the SCTA bicycle and pedestrian count program. Due to the variability of the count locations, as well as the number of locations counted each year by SCTA, the data cannot be analyzed like the data from MTC. Tables 2.5 and 2.6 below demonstrates the bicycle and pedestrian count data for each year. This table also shows the variability in the raw numbers for each year, as well as the average bicycle and pedestrian counts per location for each year. Analysis on individual locations are included in each jurisdiction's plan. For a full report on the SCTA 2013 Bicycle and Pedestrian Count Program, please visit www.sctainfo.org.

Table 2.8
SCTA Countywide Bicycle Counts

	2009	2010	2011	2012	2013
Total	*994*	*1243*	*1341*	*3307*	*1397*
AM	*495*	*409*	*365*	*1294*	*557*
PM	*499*	*834*	*976*	*2013*	*840*
Average	*66.3*	*62.2*	*63.9*	*62.4*	*66.5*
Number of Count Locations	*15*	*20*	*21*	*53*	*21*

	2009	2010	2011	2012	2013
AM	*951*	*2259*	*1110*	*2829*	*1815*
PM	*1574*	*4082*	*3897*	*3794*	*2507*
Average	*168.3*	*317.1*	*238.4*	*125.0*	*205.8*
Number of Count Locations	*15*	*20*	*21*	*53*	*21*

Even though significant work has been accomplished in recent years on collecting bicycle and pedestrian count data, SCTA can only count approximately 20 locations per year. Moreover, only four hours per location are collected in manual bicycle and pedestrian counts. Therefore, the lack of full documentation on usage and demand for pedestrian and bicycle facilities remains a challenge facing staff and local decision makers in bicycle and pedestrian planning. Moreover, we have no data on non-commute travel hours, or on weekend bicycle and pedestrian travel throughout Sonoma County. Without accurate and consistent data, it is difficult to accurately measure the benefits of bicycle and pedestrian investments, especially when compared to the other types of transportation such as the automobile. In order to supplement JTW data, to attain a better understanding of existing usage and travel patterns, and to be able to project demand, consistent bicycle and pedestrian counts are recommended. Therefore, SCTA is exploring various options to purchase automated counters to assist in counting bicyclists and pedestrians for longer periods of time at locations throughout Sonoma County. This will be a collaborative effort, which will include participation from each jurisdiction.

Count Methodology

In 2003, the Metropolitan Transportation Commission (MTC) developed the Bicyclist and Pedestrian Data Collection and Analysis Project. The project resulted in the Handbook for Bicyclist and Pedestrian Counts, for MTC. This methodology represents standard guidelines typically used when conducting counts of bicycle and pedestrian activity. Using the procedures outlined in this handbook ensures consistent results among local agencies for the development of a database, as well as with larger efforts conducted by MTC throughout the region.

The bicycle count methodology has been developed to attain a consistent regional bicycle count and analysis procedure so that trends in usage can be documented. The counting strategy outlined provides an easy and inexpensive method of conducting bicycle and pedestrian counts on a regular basis. The level of detail to be extracted during routine counts is kept to a minimum to reduce ambiguity while still providing useful data. This is not unlike the typical traffic count that reveals little more than the time of day, and direction of travel. Collection of data regarding the motorist's age, trip purpose, length of trip, etc. is relatively rare.

Bicyclist and pedestrian counts can be conducted during three different times of the year: fall, spring and summer. However, most agencies also avoid the summer months due to school not being in session and summer vacations by those in workfoce. In general, the winter months should be avoided due to poor weather conditions and extended holiday-related vacations. To capture bicycle and pedestrian activity near schools, counts in the fall should start after Labor Day and end before the end of daylight savings time, whereas counts in the spring should start after the beginning of daylight saving time and end before Memorial Day. School districts and/or institutions within each jurisdiction should be contacted to verify when schools will be in session to avoid spring and winter breaks and special school events. Counts at locations that are not near schools can be accurately conducted during the summer months. Further, the summer months often have somewhat lower peak period volumes due to the reduction in work force trips due to vacations except near recreational attractors, such as wineries in Sonoma County, where summertime conditions may represent peak demand. It should be noted that the counting period should be as condensed as possible to ensure the most consistent conditions.

The counts should be conducted on Tuesdays, Wednesdays or Thursdays during non-holiday weeks. If counts must be conducted during holiday weeks, the actual holiday day should be avoided, and the Tuesday after Monday holidays and the Thursday before Friday holidays should also be avoided.

Proposed count locations for each of the participating agencies have been identified through this planning process. The basic criteria used to select count locations included points along and intersections of primary streets in the network, area coverage, population centers, attractors and generators, and community gateways. Proposed count locations are included in Appendix C.

Proposed Data Collection - Sidewalk Inventories

Maintaining a database of sidewalk locations and their condition can be an effective tool to identify gaps in the pedestrian network, prioritize maintenance, and take advantage of maintenance and upgrade opportunities, such as those provided by new development or utility trenching. It is recommended that jurisdictions develop an inventory program and database. Initial inventories are often accomplished utilizing student interns in either planning or public works departments. The database should then be updated periodically over time to reflect changes to the system.

Issues, Constraints, and Opportunities

This section provides a brief overview of issues and opportunities related to walking and bicycling throughout Sonoma County.

Issues/Constraints

- There is a shortage of, and a latent demand for more, dedicated pedestrian and bicycle facilities including sidewalks and paths, improved pedestrian crossings, multi-use trails, bike lanes, bike routes, bicycle parking, and recreational opportunities.
- Concerns over safety, whether real or perceived, limit the level of bicycling and walking countywide.
- In some cases, state highways serve as both “Main Streets” and intercity connections. As such, these facilities must be multi-modal to serve all members of the communities through which they pass, including the non-driving public.
- Physical barriers including US 101, rail lines, state highways, major arterials and various waterways.
- With many competing interests and limited public rights of way, a variety of strategies need to be employed including creative approaches, retrofits, compromise, and sometimes difficult political choices.
- Funding availability is limited and securing funding can be complex and time consuming.
- Clear and consistent policy direction, and the expertise and resolve to implement and sustain projects and programs are needed for ongoing success.

Opportunities

- This effort presents a new collaboration for planning and implementation of multi-jurisdictional projects and programs.
- There are numerous natural and man-made corridors in the County that are potential locations for Class I multi-use

pathways, these include:

- Railroad right-of-ways such as the Northwestern Pacific/SMART rail line, and historic lines such as Santa Rosa – Petaluma Railroad, Sonoma – Schellville Railroad and others.
- Sonoma County Water Agency flood channels
- Laguna de Santa Rosa
- Utility corridors such as PG&E easements and the Geysers Pipeline

- The availability of dedicated non-motorized transportation funding sources:
  - Measure M, Sonoma County's dedicated transportation sales tax, administered by SCTA
  - Sonoma County Agricultural Preservation and Open Space District is increasingly focusing on access and recreation
  - Transportation Development Act Article 3 is dedicated to bicycle and pedestrian projects, which is administered by the Metropolitan Transportation Commission
- The major reconstruction of Highway 101 is presenting multiple opportunities to improve associated bicycle and pedestrian crossings.
- In recent times, the development community has been largely responsive to the public's desire to see pedestrian and/or bicycle facilities built into new development.
- City and County zoning, permitting, and design standards have been put in place to foster infill, and non-motorized accessibility.
- Mandates and guidelines requiring the routine accommodation of bicyclists and pedestrians in the construction and upgrading of facilities serve to accelerate the build-out of the bicycle and pedestrian systems.
- Public involvement in the planning process creates greater awareness of needs, public desires, and solutions. Bicycle and pedestrian advisory groups, cycling groups, and advocacy organizations like the Sonoma County Bicycle Coalition, provide effective means of communicating.
- Programs like Safe Routes to School, and those involving law enforcement to improve motorist, bicyclist and pedestrian behaviors are supportive.

3 | Vision, Goal, Objectives and Policies

Through a collaborative planning process, a vision, goal and objectives were approved by all ten jurisdictions of Sonoma County: Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, Windsor, and the County of Sonoma. These are designed to guide the development and maintenance of bicycle and pedestrian facilities throughout Sonoma County and express the intent of SCTA and Sonoma County jurisdictions to enhance non-motorized mobility and improve safety, access, traffic congestion, air quality, and the quality of life of Sonoma County residents, workers and visitors. They serve as guidelines in the continual development of the countywide bicycle and pedestrian transportation system. The vision, goal and objectives are meant to function as the mutually agreed upon common framework applicable to both the primary countywide system and local bicycle and pedestrian networks. Customized and/or additional objectives and specific policies for each of the jurisdictions are included in the individual plans.

Vision

The vision for a comprehensive bicycle and pedestrian transportation system is:
In Sonoma County bicycling and walking are:

- Important to residents' quality of life
- Integral parts of an interconnected transportation system
- Safe and convenient for all user groups
- Viable means of reaching desired destinations
- Routinely accommodated as part of a complete streets approach
- Encouraged by easy connections to transit
- Supported by education and enforcement
- Advanced by actions of government, schools and the private sector
- Promoted as tourism and recreation attractions
- Mode choices that contribute to personal health
- Options that reduce vehicle miles traveled and greenhouse gas emissions

Principal Goal

To develop and maintain a comprehensive countywide bicycle and pedestrian transportation system, which includes projects, programs, and policies that work together to provide safe and efficient transportation opportunities for bicyclists and pedestrians.

Countywide Objectives

Objective 1.0 The Countywide Bicycle and Pedestrian Network
Establish a comprehensive countywide bicycle and pedestrian transportation system.

Objective 2.0 Design
Utilize accepted design standards and complete streets principles for the development of bicycle and pedestrian facilities.

Objective 3.0 Multimodal Integration
Develop and enhance opportunities for bicyclists and pedestrians to easily access other modes of transportation.

Objective 4.0 Comprehensive Support Facilities
Encourage the development of comprehensive support facilities for walking and bicycling.

Objective 5.0 Education and Promotion
Develop programs and public outreach materials to promote bicycle and pedestrian safety and the benefits of bicycling and walking.

Objective 6.0 Safety and Security
Create countywide pedestrian and bicycle networks that are, and are perceived to be, safe and secure.

Objective 7.0 Land Use
Encourage smart growth land use strategies by planning, designing and constructing bicycle and pedestrian facilities in new development.

Objective 8.0 Planning
Plan for the ongoing expansion and improvement of the countywide bicycle and pedestrian system.

Objective 9.0 Maintenance
Maintain and/or improve the quality, operation, and condition of bicycle and pedestrian infrastructure.

Objective 10.0 Funding
Maximize the amount of funding for bicycle and pedestrian projects and programs throughout Sonoma County, with an emphasis on implementation of these objectives.

Relationship to Other Plans and Policies

Implementation of each individual plan will require coordination, consistency, and cooperation among numerous jurisdictions and agencies with varied interests that share policy decisions within and immediately adjacent to each city or town and Sonoma County. There are myriad relevant federal, state, regional, county, and local agencies that have developed plans, programs, directives, policies, and regulations related to funding, planning, designing, operating, maintaining, and using bicycle and pedestrian facilities. These agencies and their plans, policies, etc., have been evaluated for coordination, consistency, and conformance with this Plan. Summaries of regional, state, and federal plans and policies are included in Appendix K. Local plans and policies are summarized in the individual plans. In particular, complete streets legislation and policy are highlighted below.

California Complete Streets Act of 2008. Assembly Bill 1358, the California Complete Streets Act of 2008, requires "that the legislative body of a city or county, upon any substantive revision of the circulation element of the general plan, modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs of all users [including] motorists, pedestrians, bicyclists, children, persons with disabilities, seniors, movers of commercial goods, and users of public transportation…." This provision of the law went into effect on January 1, 2011. The law also directs the Governor's Office of Planning and Research to amend its guidelines for the development of circulation elements so as to assist cities and counties in meeting the above requirement.

MTC's Complete Streets Policy. In 2006, the Metropolitan Transportation Commission (MTC) adopted Resolution Number 3765, now referred to as the MTC Complete Streets Policy, outlining a policy that projects funded all or in part with regional funds "shall consider the accommodation of bicycle and pedestrian facilities, as described in Caltrans Deputy Directive 64" in the full project cost. The policy requires project-sponsoring agencies to submit a completed checklist evaluating bicycle and pedestrian facility needs as part of the planning and design of each transportation project submitted for funding to MTC.

The checklist "is intended for use on projects at their earliest conception or design phase so that any pedestrian or bicycle consideration can be included in the project budget." The checklist also serves to bring the project designer's attention to the needs of bicyclists and pedestrians, and to inform the public on how well projects accommodate bicycling. MTC's funding decisions are not contingent on how the checklists are completed.

Planning for Pedestrians

Walking is essential to everyday life. In this plan, walking is defined broadly to encompass pedestrian mobility in all its aspects (travel on foot and with the assistance of wheelchairs, canes, and other mobility devices). Walking is the only type of transportation common to all. After driving, more people in Sonoma County walk than use any other transportation mode. Walking is an essential component of vibrant, livable, healthy communities, and an integral part of a complete transportation system. Furthermore, walking is the connector mode to car travel, transit, and bicycling. Likewise, walking contributes to creating healthy communities by reducing the number of vehicles on the road – thereby improving air quality – and improving public health, by reducing the rate of obesity and other health conditions such as heart disease and diabetes.

Sonoma County communities have many of the attributes that can create a "culture of walking," including a temperate climate, mainly flat geography, and well-established downtown districts. Unlike other modes of transportation, which rely on networks that travel longer distances, most walking trips are short, and take place within a relatively small area. Therefore, the pedestrian environment is largely conceived of, financed and planned at the local level. The network that enables pedestrians to travel longer distances is transit. Because the local and regional transit agencies serve communities across the county, walk access to transit is often examined and improved for transit hubs and major transit stops in coordination among the transit agency and the jurisdiction.

Within this plan there are more than 277 miles of proposed Class I facilities. These facilities are a separated path that benefit pedestrians as well as bicyclists. Likewise, jurisdictions have identified more the 70 intersections where they are proposing pedestrian crossing enhancements.

Complete Streets

describes roadways that are planned, designed, operated and maintained for safe and convenient access by all users (bicyclists, pedestrians, drivers, transit riders, etc)

Caltrans' Deputy Directive 64

"views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system"

There are many factors that affect how often and how much people walk, from their age, income and health condition ot hills and the weather. In addtion, many aspects of the built environment have a strong effect on people's decision to walk. The following characteristics of the built environment are associate with higher walking rates:

- Higher-density neighborhoods, making for shorter distances between destinations
- Neighborhoods that integrate different activities (homes, jobs, shops, parks)
- A grid street system, short blocks and narrower streets, with lower-speed traffic
- Buildings close to each other, with interesting facades and with entrances close to the street
- Fewer car-oriented features such as surface parking lots and drive-throughs
- Pedestrian facilities such as sidewalks, multi-use trails, stairways, stripped crosswalks and street trees
- Elements that increase perceptions of safety such as pedestrian-level lighting and entrances and windows facing the street

Therefore, planning for pedestrians also includes the community environment – parks, parklets, public spaces, sidewalk cafes, fountains and other water features, trees and other vegetation, pedestrian-oriented lighting, as well as community art projects. Together, these community amenities create the full picture for which a pedestrian-friendly community should strive. While sidewalks are a very important and necessary piece to the pedestrian environment, it should be noted that there are a multitude of other factors that create a friendly and welcoming environment for pedestrians of all ages and abilities.

SCTA and all jurisdictions in Sonoma County are continually planning for greater pedestrian access. It is the hope that this plan will continue to inform planners and elected officials, alike, to think about and plan for pedestrians of all ages and abilities. With the incorporation of complete streets principles in all projects, the pedestrian is being considered and improvements are being made across the county.

Throughout this plan, there are a variety of information sources that are essential to pedestrian planning, such as pedestrian counts, collision data, programs (i.e. Countywide Safe Routes to Schools), safety education, enforcement activities (i.e. crosswalk stings) and pedestrian projects (many of which are included in street projects, which make it difficult to carve out the specific costs for the piece of the construction project that was for the pedestrian-specific part of the project).

4 | Benefits of Walking and Bicycling

The Sonoma County Transportation Authority (SCTA) Board of Directors directed staff to investigate the economic impacts of bicycle and pedestrian activity in Sonoma County. Elected decision makers are constantly charged with evaluating which policies and investments will best serve the public interest. In an era of constrained resources at all levels of government it is especially important that public money be used where positive benefit to cost ratios will be achieved. Economic analysis helps in assessing the relative benefits of actions. This section provides information about the economic benefits of investing in bicycle and pedestrian events, non-motorized infrastructure, and supporting amenities and activities.

A useful resource recently published states that conventional project evaluation methods tend to overlook and undervalue non-motorized transportation. Author Todd Litman makes the case that "conventional travel statistics imply that only a small portion of total travel is by non-motorized modes (typically about 5%), but this results, in part, from travel survey practices which overlook many short and non-motorized trips".[1] Likewise U. S. Census data tends to negatively distort the importance of non-motorized trips. Frequently cited mode share Census statistics are based on the longest leg of commute trips. The shorter walking and bicycling legs of commute trips are not captured; nor are the majority (+80%) of trips, because commute trips account for less than 20% of all trips. Non-peak, non-work, children's school trips and those for pleasure, sport, shopping, and errands are not included. Regardless, commuting by bike is increasing. For the 2010 Census commuting by bicycle was 1.2% in Sonoma County (a 50% increase since the 2000 Census), and commuting by walking was 3.1%, which remained the same since 2000.

The evaluation methodologies, and the conventional thinking places priority on mobility and congestion relief, must yield to new thinking about transportation. There has been extensive focus placed on commute trips, which comprise approximately 15% of all trips. The California Proposition 111 in 1990, increased the state gas tax to assist the state Congestion Management Program, and also specified that each countywide body (i.e. Congestion Management Agency, or CMA) put programs in place to keep traffic levels manageable. This legislation revealed the priority placed on congestion management. This emphasis assumes faster throughput and longer trips are superior to slower, shorter trips. Non-motorized trips were categorized as: 1. "Transportation" (or utilitarian) trips (focused on commute travel), and 2. "Recreational" trips - despite the fact that all trips that provide mobility involve transport of people to desired destinations.

During the last decade the ideas about transportation have gradually evolved and become more complex. Transportation is recognized as being an integral component of decisions that must consider not only vehicular throughput, but system accessibility for diverse users (including multi-modal connectivity), as well as the environmental, social equity, economic, and health impacts. Furthermore, the need to take action to protect the climate is now a major driver of transportation policy decisions. The Sustainable Communities Strategy in Plan Bay Area, is a statement of policy direction that demands a much more sophisticated and complex thinking about transportation relative to land use; resource use; quality of life factors including health; and global warming impacts. Each such aspect adds new layers of economic impact. The new considerations change the equation of which trips are to be considered important --- now *all* trips matter, not just those

1 Evaluating Non-Motorized Transport Benefits and Costs, Victoria Transport Policy Institute, September 2012

for taking people to jobs by car in peak hour traffic.

This chapter describes the economic, environmental, health and transportation benefits of walking and bicycling. It aims to balance the undervaluing of pedestrian and bicycling modes, also known as active transportation. It will also attempt to integrate the consideration of bicycling and walking into the context of the broadened conversation regarding what transportation is. The economic impacts of walking and walkability, and bicycling and bikeability, will be examined. These economic impacts are diverse, significant, overlapping, and multi-faceted. In considering these impacts it will be useful to examine them by category, even though there is crossover between categories.

Economic Benefits

- *Avoids high car ownership costs*
- *Benefits the local economy*
- *Facilitates access to jobs for non-drivers*
- *Walkability increases property values*
- *Pedestrian/bicycling facilities and amenities are a tourism magnet*

Walking and bicycling save money for Sonoma County pedestrians and bicyclists and economically benefit the County as a whole. The positive economic impacts of event-based and year-round bicycling and walking are increasingly recognized in Sonoma County. Economic benefits for the business sector are realized as profits. Business profits are gained through sales generated by tourism events; directly from sales related to biking and walking; and more pervasively through the walkability and bikeability of business place environments --- the profitability of ambiance. Less direct impacts take the form of increased property values; and the ability to recruit and retain a desirable work force.

Economic benefits to pedestrians and bicyclists. While walking and bicycling are very economical, car ownership is expensive and consumes a major portion of many Sonoma County residents' income. Fuel, maintenance, insurance, depreciation and parking add up to almost 15 percent of the average household's income. When safe facilities are provided for pedestrians and bicyclists, people can walk and bike more and spend less on transportation.

Car ownership is not attainable for many Sonoma County residents who are too young, cannot afford or are unable to drive. Having safe walking and bicycling facilities, including convenient access to public transit, ensures that all residents have access to viable modes of transportation, which enables them to have access to employment and services.

Tourism. Some of the draws for bicycle tourism, including major bicycle events, bicycling tour groups, and independent riding, are the County's scenic environments, varied topographies, moderate climate and bicycle related businesses. Annual bicycle and pedestrian events impact the local economy through spending by riders, support staff, riders' families, spectators, staff, and media personnel on food and drink, shopping, recreation and lodging. Events also generate business for local media and advertisement suppliers, which in turn generate profits from advertising. Some tourists come to Sonoma County for scheduled events; many others are avid or more casual independent bicyclists looking for vacation destinations with attractive bicycle facilities. Organized or not, tourist dollars are spent.

Quick Facts

$9,752

average cost of operating a vehicle for 1 year

$120

average cost of operating a bicycle for 1 year

15%

of average Sonoma County household's income goes toward car ownership costs

2.4

automobiles per Sonoma County household in 2010

Sonoma County hosts many special bicycle and pedestrian events. Some of the major annual bicycle and pedestrian races and events include the Amgen Tour of California, Levi Leipheimer's King Ridge GranFondo, Vineman Triathlon, and the Santa Rosa Marathon. A list of recent bicycle and pedestrian events is provided in Appendix I of this Plan.

The Amgen Tour of California is one of the largest, most successful, and recognized bicycling events in the United States. Since the Amgen Tour of California's start in 2006, the city of Santa Rosa has held stage starts and finishes, which provide Santa Rosa with significant economic benefits. In 2012, the Amgen Tour of California was projected to generate $6.8 million for the local economy as spectators, racing teams, sponsors, and organizers patronized local hotels, restaurants, and shops.[2] During this year's tour there were over 2,000 hotel rooms filled in Santa Rosa and 4,500 throughout Sonoma County. According to the Sonoma County Tourism Bureau, this amounts to about $750,000 a night in room revenue and an additional $1.8 million in spending per day by visitors and tourists.

Levi Leipheimer's King Ridge GranFondo is another bicycle event that is held annually in Sonoma County. Santa Rosa's *GranFondo Economic Impact Report for 2009* states that nearly 3,500 bicyclists (some local and some visitors) registered and participated in the event. It created 13.8 jobs; recruited 600 volunteers and 48 vendors with staff to work the event. Results from a rider survey indicated 65% of the participants stayed in Santa Rosa for one or more nights (43% for 1 night, 22% for 2 + nights) and 51% stated that they traveled with friends and family who did not ride in the event. This produced an economic benefit of tourist spending over the weekend of the GranFondo of $811,807, and transient occupancy tax of $17,325.

The assumed average daily spending of the visitors the weekend of the race includes:

- Food and Beverage $50.00
- Lodging $100.00
- Retail $50.00

Many local bike shops, bars, and restaurants experienced record or near record sales on the weekend of the GranFondo. Sonoma County hotels and lodging facilities either had high occupancy rates or were completely sold out within the city limits of Santa Rosa for the weekend of the event. Extrapolations can be made for the more recent GranFondos, the latest of which was on October 2013. The estimated number of riders has at least doubled since 2009. As a rough measure, the economic benefits could be estimated as likewise doubling. An additional economic benefit is the money the event raises. It is invested back into the local economy. Approximately $200,000 was expected to benefit Santa Rosa (for hosting), and local charities, schools and activities. The event itself covers expenses that would otherwise be public costs. For example "50 CHP officers were hired to handle and direct traffic."[3]

For the *2011 Sonoma County Annual Tourism Report* (Sonoma County Economic Development Board, and Sonoma County Tourism Bureau) local tourism-related businesses were asked to identify what tourism assets were most attractive to potential visitors to Sonoma County and in which markets there was room for growth. The highest ranking of potential niche markets was bicycling at 53.8%.

It is safe to assume that the Vineman, Santa Rosa Marathon and the many other active recreation events produce similar economic impacts on the local economy proportionate to the size of these events. Across the U.S. $46.9 billion is spent on

2 Bob Norberg, Amgen Tour of California Expected to be Economic Boon for Santa Rosa. The Press Democrat, 2012

3 Bob Norberg, GranFondo, The Press Democrat, 9/26/2012

meals, transportation, lodging, gifts and entertainment during bicycling trips and tours.[4]

Pertaining to the 2012 Amgen race, Raissa de la Rosa, Santa Rosa's economic development specialist, stated that the Amgen race was expected to generate $82,000 in hotel occupancy taxes for the City of Santa Rosa.[5]

Local Bike Businesses. Sonoma County is home to more than 50 bicycle and pedestrian related businesses including manufacturers and retailers of bicycles and parts; bicycle repair and maintenance services; running and cycling apparel; and bicycle tour operators. These types of businesses provide economic benefits through annual sales, rentals and services. Only part of such sales are to tourists. A list of bicycle oriented businesses is provided in Appendix J of this Plan. Businesses range from small businesses to large big box retail stores. Local business owners were interviewed in order to gather information, and to get a sense of the magnitude and type of economic impacts bicycle and pedestrian related businesses have on the County. From the information gathered, annual revenue from sales, rentals, repairs, and services from these small and medium sized bicycle and pedestrian related business is estimated at $900,000 to $1.5 million. Additionally, big box businesses provided various comparable products.

Nationwide, "More than three times as many new bicycles (14.9 million) are sold in the U.S. each year than cars (4.6 million)".[6] The U.S. bicycle industry sold $5.6 billion in bicycles and equipment in 2009.[7]

Employment. A direct benefit of bicycling and walking in Sonoma County is through the job opportunities resulting from bicycle-related manufacturing, retail sales and maintenance of bicycles; planning, design and construction of non-motorized infrastructure; bicycle and pedestrian advocacy; safe routes and safety programs; plus those generated by non-motorized events (including associated media use and reporting); rentals; and tours. As described above, jobs may be directly related, or indirectly by way of visitor and resident spending ancillary to events and tourism. According to the League of American Bicyclists, bicycling supports nearly 1.1 million jobs nationally.[8]

As mentioned above, Sonoma County has many small and medium sized bicycle and pedestrian related businesses providing products and services, such as sales of bicycles, parts, and accessories, running shoes, bicycling apparel, bicycle repairs, and bicycle rentals. Small bicycle and pedestrian related businesses employ between two and four full time employees with an average annual staff salary from $40,000 to $80,000. On average, medium sized bicycle and pedestrian related businesses employ a mix of full time and part time employees, ranging from six to twelve employees. These medium sized businesses have annual staff salary expenditures of $250,000 to $300,000+ for their full time and part time employees (data derived via employer surveys).

Profitability of Ambiance Benefit. More subtle, but more pervasive and sustainable are the positive economic impacts that result from an increased emphasis on creating and maintaining walkable and bikeable communities. By creating a culture that promotes and supports non-motorized travel, both visitors and residents are encouraged to bicycle and walk. For retail shops and eating/drinking establishments, fostering non-motorized traffic by making environments safe, pleasant and convenient is good for business. Sonoma County has a wealth of environments that thrive as being pleasurable places to walk and bike. Many Sonoma County downtowns are vibrant places for business friendly non-motorized traffic. Complementary to Sonoma County's spectacular Wine County vistas is the charm of bicycling on scenic rural roadways and walking in picturesque built environments. Many of the old downtowns existed before the advent of motor vehicles, so they are walkable by design. There are also new areas that have been built with walkability/bikeability in mind. People

4 Darren Flusche, Policy Analyst, The Economic Benefits of Bicycle Infrastructure Investments, League of American Bicyclists, June 2009

5 Bob Norberg, Amgen Tour of California Expected to be Economic Boon for Santa Rosa. The Press Democrat, 2012

6 National Bicycle Dealers Association: http://nbda.com/articles/industry-overview-2009-pg34.htm; Bureau of Transportation Statistics: http://www.rita.dot.gov/bts/publications/national_transportation_statistics/pdf/entire.pdf

7 National Bicycle Dealers Association: http://nbda.com/articles/industry-overview-2009-pg34.htm

8 Darren Flusche, The Economic Benefits of Bicycle Infrastructure Investments, League of American Bicyclists, June 2009

spend money where it is pleasurable to linger and stroll --- places where foot traffic is safe, trees give shade, and the environments are interesting and at a human scale.

Walkability for seniors merits special attention especially since "statistics show that Americans 50 years of age and over account for one-half of the total amount of discretionary spending".[9] Walkability for seniors means smooth sidewalks, adequate street crossing times at stoplights, places to sit to rest, and good lighting.

A discussion paper referenced below explored the economic benefits of making streets more walking and bicycling friendly. This topic was taken on in part because "a potential barrier identified in 2010 was around retailer perceptions that creating pedestrian and cycle friendly streets would negatively impact the retail sales of the traders located on those streets. Retailer and trading associations had opposed reducing traffic speeds in high pedestrian areas and had called for more car parking near local shops".[10] The report has applicability locally. The research demonstrated strongly that greater pedestrian ease, safety, and comfort; bicycle parking; and a welcoming of customers arriving on foot or by bicycle (many from surrounding neighborhoods) was an excellent means of boosting sales.

Property Value Benefit. Another positive economic impact on businesses from the establishment of a bicycling culture and a pleasant, safe and convenient walking and bicycling environment is the resulting increase in property values. The desirableness of places to eat, drink, shop and conduct business is positively impacted economically when people can access them by non-motorized modes. Therefore, those properties are more valuable.

Sonoma County residents are fortunate in having many state, county, and city parks, and open spaces, for hiking and bicycling. Furthermore, when employees engage in active transportation, statistically they will tend to have reduced rates of absenteeism related to health problems; and greater productivity (e.g., due to more alertness).

Adequate pedestrian infrastructure is needed to provide users easy and safe access to destinations, including transit services. When people can access fixed route transit, paratransit use can be reduced. Because of the cost differential between what a fixed route bus trip costs a transit provider and what an on-demand paratransit trip costs, government realizes savings each time fixed route can be utilized by a rider who would otherwise ride paratransit.

Environmental Benefits

- *Decreases impact to global climate*
- *Improves air quality*
- *Reduces water pollution*
- *Helps maintain beauty of the County*

All residents also benefit from the environmental benefits achieved through bicycling and walking. These include reduction of polluting emissions to air and water, greenhouse

9 Peter Tuckel and William Milczarski, Population Shifts and Implications for Walking in the United States, July 2012

10 Dr. Rodney Tolley, Good for Business: The benefits of making streets more walking and cycling friendly, Heart Foundation of Australia, 2011

Quick Facts

55%

of greenhouse gas emissions in Sonoma County are from transportation in 2010

60%

of emissions that contribute to smog are released in the first few seconds of a 1-mile trip

12%

increase in vehicle miles travelled (VMT) in Sonoma County between 2000 and 2010

75%

of smog in the Bay Area is created by motor vehicles

gases, noise, and traffic congestion, with its associated cost of travel delay. "For every 1 mile pedaled rather than driven, nearly 1 pound of CO_2 (0.88 lbs) is saved".[11] Furthermore, "traffic congestion wastes nearly 3.9 billion gallons of gas per year in the U.S".[12]

The Rails-to-Trails Conservancy determined the cost/benefit of Portland, Oregon's $57 million investment in a 300-mile bicycle network. As infrastructure was built "From 1991 through 2008, bicycling increased exponentially at an annual rate of 10%, and at annual rates of 15% to 20% more recently." "By 2008, Portlanders had saved $12 million in fuel … costs from the increase in biking." By 2040, amortizing the initial $57 million, and considering another $100 million investment, and $7.2 million for promotion, Portland "… is on track to generate net benefits of $1.2 billion" … "more than $8 for each dollar invested" just considering two of the many potential factors of savings (a benefit to cost ratio of 8.3 to 1).[13]

The conservancy conducted additional research on the benefits of bicycling and walking. In the report *Active Transportation for America: The Case for Increased Federal Investment in Bicycling and Walking*, quantitative assessments and an overall estimation of the monetary value of the benefits of current and future bicycling and walking is provided. "The main premise of the analysis is that short trips of three miles or less, which currently make for about half of all trips taken in the United States can, to some extent, be shifted from driving to bicycling and walking." Currently 78% of these short trips are made by car. "One-quarter of all trips … are within a mile, or about a 20-minute walk." US Department of Transportation confirms that "most trips Americans make are short: 50% are less than 3 miles, 40% are less than 2 miles, and 28% are less than 1 mile".. The status quo for bicycling and walking was deemed to be a 9.6% mode share; a modest increase would be 13%; and a substantial shift 25%. For comparison, Portland is aiming for 20% by 2040. The report stated that the federal investment in bicycling and walking is only about $1.50 a year per resident. The United States has the lowest rate of active transportation of all western countries and investments have a direct relationship to rates, the under investment is a barrier to achieving the transportation, oil independence, climate protection and public health benefits estimated with cost/benefit ratios of $1 to $5 or more.

Short car trips are a significant source of emissions. The rate of emissions during the first few miles of driving is higher, and fuel efficiency is lower, because the catalytic converter does not function well when a car is first started. Shifting to non-motorized trip making for short trips (e.g., under 5 miles) helps to reduce these "cold start" vehicle emissions.

The benefits of non-motorized mobility choice extend to the global in terms of climate protection. The Victoria Transport Policy Institute states "walking and cycling improvements can support strategic land use development objectives by helping to create more compact, mixed, multi-modal, "smart growth" communities, where residents drive less and rely more on alternative modes".[14] The Bay Area Air Quality Management District states "walkability of environments and increased transit use are key strategies of creating sustainable communities, thus walking is deserving of greater focus for the benefits of greenhouse gas and pollution reduction. Alternatives to gas-powered single-occupancy vehicles, whether for commuting or recreation, serve environmental goals."

Quick Facts

10%

of Sonoma County adults reported getting no physical activity in 2009

55%

of Sonoma County adults were either overweight or obese in 2009

36%

of Sonoma County children were either overweight or obese in 2010

16%

of Sonoma County residents have been diagnosed with asthma

36%

of all people killed in Sonoma County collisions were pedestrians and bicyclists in 2011

11 http://www.epa.gov/OMSWWW/fetrends.htm#summary
12 Texas Transportation Institute, 2010
13 Thomas Gotschi, PhD, The Success of Active Transportation in Portland, Rails-to-Trails
14 Todd Litman, Evaluating Non-Motorized Transport Benefits and Costs, 2012

Demonstrating that leaders and residents care deeply about the environment, Sonoma County was the first community in the nation where all local governments pledged by resolution to reduce their greenhouse gas emissions. There is also less pressure to widen roads and provide parking if motor vehicle travel declines, thus maintaining the beauty and rural nature of Sonoma County and its communities.

The benefits of walking and bicycling to the environment are particularly strong on short trips—two miles or less. For example, 60 percent of emissions that contribute to smog are released in the first few seconds of a one-mile trip. A 2006 study by Analy High School students revealed that 40 percent of students who live less than one mile from the Sebastopol campus drove alone to school. Although Sonoma countywide data isn't available, nationally, 13 percent of trips are less than one-half-mile, which is considered to be a comfortable walking distance, and over one-third of trips are within convenient bicycling distance, less than three miles long. As more motor vehicle trips are replaced with bicycling and walking, Sonoma County's air will become cleaner, and the County will contribute less to global climate change, making measurable progress toward meeting its greenhouse gas reduction goal.

Health Benefits

- *Reduces asthma cases*
- *Increases physical safety*
- *Decreases rate of obesity*
- *Cuts health care costs*
- *Improves mental health*

The myriad health benefits of walking and bicycling in Sonoma County are experienced directly by the pedestrians and bicyclists themselves, as well as to other County residents. These health benefits, described below, are a result of both reducing vehicle travel and increasing opportunities for physical activity.

Over the last decade, there has been greater recognition of the health impacts of transportation choices. Many of these impacts are directly related to public costs of health care delivery; and lost productivity due to sickness and absenteeism. If a population's health can be improved through the increase in non-motorized modes, personal, private (e.g., employers) and governmental costs can be reduced. As an example: by 2040, Portland, Oregon will have saved $3.40 in health care expenses alone for every dollar it invested on bicycling.[15] The 2012 Benchmarking Study states "if just one out of every 10 adults started a regular walking program, the U.S. could save $5.6 billion in health care costs — enough to pay the college tuition of more than 1 million students".[16] Additive are the improved health outcomes resulting from a reduction of pollution from motor vehicles, for example reduced particulate exposure for people with pulmonary diseases.

The benefits of exercise for virtually all age groups are well documented by the medical profession. Exercise is in fact a keystone of preventative medicine --- and considering the monetary, social and human costs of illness and chronic disease, an overwhelmingly cost effective one. Exercise not only strengthens muscles but also can cut rates of obesity, heart disease,

15 Why Invest in Bicycling? Bikes Belong
16 Alliance for Biking & Walking

Quick Facts

104%

increase in bicycling in Sonoma County (2010–2012)

83%

of Sonoma County adults walk for transportation, exercise or fun

3.1%

of Sonoma County workers walk to work

1.2%

of Sonoma County workers bike to work

13%

of trips are less than 0.5 mile long, which is considered a distance easily walked or biked

cancer, hypertension, osteoporosis, stroke, dementia and depression, among other conditions.[17] "Adults who bike to work have better weight, blood pressure, and insulin levels".[18] "Women who bike 30 minutes a day have a lower risk of breast cancer".[19]

Walking and bicycling are among the most affordable and available means of exercise. User monetary costs are minimal for walkers, i.e., perhaps shoes can be regarded as equipment. For bicyclists, costs involve purchasing and maintaining bicycles, and helmets, which is far less than automobile ownership. Per the League of American Bicyclists the cost of operating a bicycle for a year is only $120.[20]

Improved physical safety. Another health benefit of walking and bicycling is that it becomes safer as it becomes more popular. Called "Safety in Numbers," a 2004 study of collisions at intersections indicates that as more people walk through a particular intersection, pedestrians at that location are safer. The study showed that if the number of people walking in a given intersection is considered when evaluating how many vehicle-pedestrian collisions occur, the risk that a pedestrian might be hit by a motor vehicle is often lower at intersections with greater pedestrian volumes—even if those intersections experience more collisions.

As with all transportation users there are injury risk costs. Any actions, projects, programs or enforcements that contribute to greater safety for non-motorized users will enhance the overall cost-benefit of walking and bicycling. Users themselves can significantly reduce their personal risk by adopting safety practices (proper equipment, following the rules of the road, being visible and unimpaired). Research has reported that "... the health benefits of cycling outweigh the risks by a factor of 20 to one".[21] Additionally, as the number of bicyclists and walkers grows, safety increases --- the more there are, the safer it is.[22]

Walkable and bikable neighborhoods have sidewalks filled with pedestrians and well-used bike facilities, each of which sends a message that the community is safe and friendly. Such districts have plenty of eyes on the street—which translates to a sense of security—and attracts businesses and tourism dollars. Automobile traffic is calmed in these neighborhoods, making it safer for children to play and travel independently.

Reduced rates of obesity and related effects. In recent years, researchers have documented a high correlation between communities designed primarily with cars in mind and a level of physical activity far below recommended levels. Physical activity is essential for the cardio-vascular health, flexibility, mental health, and overall fitness and well-being of all Sonoma County residents.

On the other hand, physical inactivity often results in the tendency to be overweight or obese, conditions that have increased dramatically over the past two decades in Sonoma County and throughout the US. Obesity is now widely understood to play a significant role in the most common chronic diseases, including coronary heart disease, stroke and diabetes—each of which is a leading cause of death in Sonoma County. Obesity is occurring at increasingly younger ages:

17 Peter Tuckel and William Milczarski, Population Shifts and Implications for Walking in the United States, Hunter College, July 2012
18 Bikes Belong: Gordon-Larsen, P., et al., 2009
19 Bikes Belong: Luoto, R., et al., 2000
20 www.bicyclinginfo.org
21 Bikes Belong: Hillman, M. 1992.
22 Injury Prevention: Jacobsen, P., 2003

Comprehensive Tranportation Plan

Goal 1
Maintain the System

Policy 1A
Pavement Management: Maintain streets and roads at a standard within the range of 70-80 Pavement Condition Index (PCI) – the equivalent of good to excellent on the PCI scale. Include the maintenance of bicycle routes along roadways as part of this measure.

Goal 2
Relieve Traffic Congestion

40 percent of Sonoma County children ages five-to-19 are overweight or at risk of becoming overweight. If this trend continues, today's children will be the first generation in history with a shorter life expectancy than their parents.

In response to these disturbing trends, the public health profession has begun to advocate for the creation of walkable and bikable communities as one of the most effective ways to encourage active lifestyles. Recent studies have found that people with access to sidewalks are more likely to walk and meet the Surgeon General's recommendations for physical activity. By providing more opportunities to walk and bike for transportation and exercise, transportation agencies can contribute to other public sector efforts to increase rates of physical activity.

"Adolescents who bicycle are 48% less likely to be overweight as adults".[23] The Rails-to-Trails Conservancy determined the cost/benefit of Portland Oregon's $57 million investment in a 300-mile bicycle network. As infrastructure was built "from 1991 through 2008, bicycling increased exponentially at an annual rate of 10%, and at annual rates of 15 to 20% more recently." As mentioned previously, Portland's bicycle network has saved $10 million in health care costs from the increase in biking.

Positive health outcomes are a major goal of safe routes to school programs --- particularly aimed a reducing rates of childhood obesity with the associated risks of increased diabetes, heart and other diseases. These programs encourage bicycling and walking to and from school, as was much more customary for past generations. Among students living within 1 mile of school, the percentage of walkers fell from 90% to 31% between 1969 and 2001[24]. According to the Centers for Disease Control and Prevention, only 13% of children walk to school today compared with 66% in 1970. The health impacts of obesity are of such seriousness that, if not curbed, the predictions that the current generation of children will die at a younger age than their parents may come true.

Reduced health care costs. In California, physical inactivity costs almost $20.2 billion annually in medical care, lost employee productivity and worker's compensation costs.[25] For example, walking one half-hour three or more times a week saves approximately $540 in annual health care costs per person.

Transportation Benefits

- Reduces congestion
- Reduces road maintenance
- Enhances traffic safety
- Improves transit access
- Increases travel choices

Bicycling and walking benefit all users of Sonoma County's transportation system in a variety of ways. As direct users, pedestrians and bicyclists are also provided transportation options for

23 Bikes Belong: Menschik, D, et al., 2008

24 Environmental Protection Agency, 2003, *Travel and environmental implications of school siting,* EPA 231-R-03-004

25 http://www.publichealthadvocacy.org/PDFs/Costofobesity_BRIEF.pdf

Comprehensive Tranportation Plan

Goal 3
Reduce greenhouse gas (GHG) emissions.

Objective
Meet the target to reduce GHG emissions 25% below 1990 levels by 2015, and 40% by 2035 by working with government agencies and the public.

Policy 3A
Reduce vehicle miles traveled (VMT) per capita by 10% below 2005 levels by 2035.

Policy 3C
Improve accessibility and safety for pedestrians at and around activity centers.

Policy 3D
Implement 2008 Countywide Bicycle and Pedestrian Master Plan.

commute, business and recreational trips – options that are in general more affordable and more supportive of environmental quality. While many people will be unable to forgo all car driving, if even some trips are made by bicycling or walking versus by gasoline-fueled vehicles, financial savings will be realized --- the more non-motorized trips there are, the higher the incremental savings will be.

Congestion reduction. A shift away from the automobile for shorter trips will result in fewer cars on the road and less congestion. Thirteen percent of trips nationwide are less than one-half-mile long, which is considered to be a comfortable walking distance, and over one-third of trips are within convenient bicycling distance, less than three miles long. Although thousands of Sonoma County residents walk and bicycle to work every day, almost 80 percent of trips in the County are for school, shopping and other non-commute purposes, many of which are conducive to walking and biking.

Less pressure to pave. Because a bicycle creates much less wear and tear on a roadway, and needs just one-twelfth as much parking space as an automobile, more bicycling and less driving can also reduce demand for costly roadway and parking capacity increasing projects. The resulting savings can be invested in pedestrian and bicycle facilities, which can entice even more motorists to try walking and cycling. Reduced parking demand frees up valuable land for amenities that are key ingredients of walkable communities, such as wide sidewalks and pedestrian plazas and seating areas.

"Everybody Walks" is a cliché, but nevertheless a useful one in raising awareness of the importance of the pedestrian mode of transportation. If barriers exist in the walking environment that entail unacceptable safety hazards and/or obstacles for people, including people using wheelchairs or other mobility aids, the benefits of non-motorized and transit transportation may be denied to them. Social equity is served by having a range of viable transportation options. Significant socio-economic benefits are realized when people can reach employment and educational opportunities and needed services. People also need to be able to participate fully in civic, recreational, social, and religious activities of their choice. For some low-income or transit dependent individuals, walking and bicycling may be essential primary modes.

Travel choices. By providing safe and inviting bicycling and walking environments, many of Sonoma County's shorter auto trips can shift to non-motorized modes, thereby increasing public demand for bicycle, pedestrian and public transit facilities and amenities. Viable transportation choices provide independence to those who cannot drive due to youth, age, disability or affordability, and create alternatives for those with the option to drive.

It is not only people who cannot drive or afford cars that want prioritization of pedestrian infrastructure and supporting amenities and actions. "Major population shifts in the United States point to changes in American attitudes and behaviors regarding walking. These shifts are likely to result in a substantial increase in both recreational and utilitarian walking. Three demographic changes, in particular, are likely to promote this "walking revolution": (1) the aging of the baby boomers, (2) the different transportation priorities of young people, and (3) the decline of the suburbs".[26] Americans in 2011 drove 6% fewer miles than in 2004. Regarding the age cohort of younger drivers (18-30), they are driving even less --- even among those who can afford car ownership.[27]

26 Population Shifts and Implications for Walking in the United States by Peter Tuckel and William Milczarski, July 2012

27 Peter Tuckel and William Milczarski, Population Shifts and Implications for Walking in the United States, Hunter College, July 2012

Comprehensive Tranportation Plan

Goal 4
Planning for Safety and Health

Objective
Increase safety and emphasize health aspects of transportation planning strategies.

Policy 4B
Planning for Public Health - Plan neighborhoods that encourage walking, biking and physical activity, and connect residential areas, workplaces, schools, commercial center and community facilities.

Furthermore, a recent survey showed that boomers prefer to live in more "walkable" communities – whether these communities are situated in cities, older suburbs, or small towns. [28] People want non-motorized options and complete streets; the National Highway Traffic Safety Administration states that 47% of Americans say they would like more bike facilities in their communities.

Walkable and bikeable communities has gained traction with the movement of "complete streets". Complete Streets describes a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, seniors, children, youth, and families. Striving to realize the fullest potential of Complete Streets should be a countywide priority. As policy, it aims to consider the needs of all users of all modes, of all ages and all abilities. As infrastructure is built and retrofitted, implementation will facilitate walking, bicycling and transit use, because those users, in addition to motorists, are to be explicitly accommodated.

28 Belden, Russonello & Stewart, LLC., The 2011 Community Preference Survey: What Americans are looking for when deciding where to live, commissioned by the National Association of Realtors, March, 2011

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5 | Countywide Bicycle and Pedestrian Network

Existing Conditions

The Pedestrian System

The number of people in Sonoma County for whom walking is the main form of transportation is very small. Likewise, lack of organized advocacy for pedestrians—except for and among special-need populations such as schoolchildren, seniors and the disabled—means that walking is often underappreciated. The importance of providing facilities for walking, however, should not be diminished. We are all pedestrians for at least part of all trips, whether that is walking through a parking lot or to a transit station or strolling in a downtown or in a park.

7.9%
of all purpose daily trips are walk/bike

13.6%
of home-to-school daily trips are walk/bike

9.4%
of home-to-other (e.g. home-to-café) daily trips are walk/bike

Source: Sonoma County Transportation Authority Travel Model Data, 2010

In the older neighborhoods of cities, sidewalks have been in place for many decades. Historic downtowns have retained their "walkability," where a variety of destinations are reachable by foot from residences. Sidewalks or pathways are also in place in almost all of the most recently developed residential, civic, and business developments. System gaps are frequently found in locations between the oldest and the newest development. In areas that were developed during the 1950s to 1980s, the focus was on access by motorists. Pedestrian facilities were frequently not required. Examples of this pattern can be found adjacent to sections of commercial development along what were once principal interregional routes, such as Old Redwood Highway, Santa Rosa Avenue, Sebastopol Road, and Cloverdale Boulevard. This pattern has also been prevalent in the County's unincorporated towns.

Major barriers to safe pedestrian travel are the freeways, particularly Highway 101, and high-speed and/or multiple lane arterials---facilities that place priority of automobile mobility. Crossing on-ramps and off-ramps, traveling under or over freeways, and traversing principal arterials are challenges many pedestrians find difficult. An array of approaches is being used to address this issue by redesigning roadway facilities. Various cities have added bulb-outs to slow traffic and shorten the distances pedestrians travel from curb to curb. Others have completed "road diets" and other safety measures to calm traffic speeds. A road diet commonly takes a 4-lane thoroughfare and reduces it to 2 car travel lanes, and 2 bicycle travel lanes, sometimes with a middle turn lane. Signal and warning devices, and various pavement marking and median treatments have been also implemented. The current re-construction of Highway 101 is creating opportunities to upgrade pedestrian accommodations.

Included in the pedestrian system are: sidewalks, pathways, recreational trails, Class I multi-use trails, and informally, roadway shoulders. Discontinuity in any of these can create a facility gap that makes travel difficult, unsafe or impossible. Public transit access can sometimes be a challenge. Amenities such as landscaping, tree plantings, lighting and street furniture to create pedestrian friendly environments, are also important system components. Land use is critical to the viability of a pedestrian system; with pedestrian facilities designed to provide safe and pleasant access to attractors like schools, offices, shopping and restaurants.

The Bicycle System

The countywide bicycle system includes, but not limited to, the following facilities: Class I, Class II, Class III, bicycle boulevards, multi-use trails, traffic calming, signage, bicycle-activated signal detection, and bicycle parking infrastructure.

A range of users must be considered in building a bicycle system. Some experienced riders or bicycle commuters might prefer the shortest and fastest on-road route, regardless of the type of facility; however, most riders will likely prefer a Class 1, separated bicycle facility, or Class II, bike lane. Bicycle riders of all ages and abilities, and those who are riding for both recreation and transportation to destinations like work and school, must be considered in system implementation.

The bicycle system of Sonoma County is comprised of both on-road and off-road facilities, however, many gaps still exist that break the continuity of bicycle travel. Throughout the County Class I, II and III facilities have been implemented. Class I facilities are separated from roadways (such as the Joe Rodota Trail); Class II facilities are on-road bicycle lanes designated with striping and signage and/or pavement markings; and Class III facilities are on-road, "share the road," bicycle routes indicated just with signage. There are also unpaved recreational trails. A detailed list of bikeways by facility type and pedestrian infrastructure (where pedestrian data was available) is provided in each of the individual plans.

Off-Road Facilities

The off-road facilities consist of separated bike paths (Class I). There are 91 miles of Class I facilities throughout the county. In Sonoma County, there are opportunities to use public right-of-ways to establish trails. Many of the Class I facilities have been, or will be, constructed along creek alignments owned by cities or the County (e.g., Sonoma County Water Agency) and along prior or existing railroad rights-of-way (e.g., existing Joe Rodota Trail; proposed SMART Pathway). Class I facilities have already been constructed along parts of the SMART right-of-way.

The major existing Class I facility in the County is the Joe Rodota Trail (3 miles) leading east to west from Santa Rosa to Sebastopol. It links to the West County Trail, a facility with some gaps as a Class I, which currently extends to Forestville. Passing through scenic areas of the West County, mostly in alignments that were formerly rail lines, these two multi-use trails are utilized by commuters, and recreational users of all ages. The alignment of the proposed SMART Pathway would intersect with the Joe Rodota Trail, providing north-south and east-west connections.

In addition to the facilities utilizing public rights-of-way, others have been, and will be, constructed as part of private developments. For example, Cloverdale has several trails in residential areas that were developed as part of subdivision master planning.

On-Road Facilities

The on-road bicycle facilities consist of bike lanes (Class II) and shared lane facilities, such as

Bikeway Definitions

Class I (bike path): *Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross-flow of motorized traffic minimized.*

Class II (bike lane): *Provides striped lane for one-way bike travel on a street or highway.*

Class III (bike route): *Provides shared use with pedestrians or motor vehicles.*

Existing Bicycle Facilities

Class I: 91 miles
Class II: 167 miles
Class III: 61 miles

Total: 319 miles

sharrows (Class III). There are more than 220 miles of Class II and III facilities throughout the county. The County's roadway system presents many barriers and safety concerns for bicyclists. Many roads are narrow and/or have insufficient shoulder widths; and freeways, high-speed and multiple-lane arterials present challenges for the on-the-road bicyclist.

Incrementally jurisdictions are addressing the inadequacy of almost all of the older roadways, and setting priorities for their improvement. Many roadways still provide insufficient width to safely accommodate bicyclists. There are many examples in rural areas where shoulder widths are sub-standard, and along some roadways almost non-existent. Cities and the County are now in a position of needing to retrofit roadways for the use of bicyclists. Sometimes roads are widened to include room for bicyclists and sometimes roads are subjected to "road diets", or other safety measures, to create environments friendlier to bicyclists and pedestrians. High priority is often given to gap closures, particularly, those on facilities with high demand and those that are part of the regional network.

Countywide Primary Bikeway Network

An element of this planning effort has been the designation of a Countywide Primary Bikeway Network – a continuous countywide network of on- and off-street bikeways that extend between and through communities. The Primary Bikeway Network consists of a selection of existing and proposed Class I, Class II, and Class III bikeways that provide inter-city and inter-county routes along with connections to other transportation modes, major destinations, jobs, neighborhoods, recreation, and local bicycle networks. The network typically includes north-south and east-west routes through each community. The intention of the network is to focus and collaborate on a set of basic routes that will provide access to major destinations and activity areas. Primary Bikeway Network routes are identified on the countywide bicycle and pedestrian map, with a colored highlight along the route. Approximately 65 miles of Primary Bikeway Network currently exist and approximately 514 miles of bikeways are proposed on the Primary Bikeway Network.

Bicycle Parking and End of Trip Accommodations

Bicycle parking, storage, and end of trip accommodations such as shower and changing facilities must not be overlooked when planning and implementing a bikeway system. Bicycle parking includes bicycle racks, bicycle lockers, parking corrals, covered parking, and indoor parking. Effective parking requires properly designed racks, lockers, and shelters, which are sited appropriately for ease of use and convenience. End of trip amenities include locations where commuter cyclists can change clothes and either shower or 'freshen up', and then store their bicycling gear.

National bicycle surveys consistently find that inadequate end-of-trip facilities and the fear of theft (bicycles are one of the top stolen items in all communities) are major deterrents to bicycle commuting, and the lack of safe and convenient parking is a problem facing many "would-be" bicycle commuters throughout the County. Left on the street for hours at a time, bikes are too often easy targets for theft and vandalism, as well as damage caused by inclement weather. On-site, indoor bicycle parking provides the best solution. Unfortunately, not all building managers recognize the benefits of allowing employees to bring bikes inside, and some buildings have banned bikes.

Many destinations throughout Sonoma County provide bicycle parking in the form of bicycle racks. While a complete inventory of bicycle parking for the entire county is currently unavailable, most jurisdictions maintain information on a bicycle parking list or map. In general bicycle parking is provided at major shopping centers, along storefronts throughout our communities' downtowns, at civic destinations, at transit facilities, park and rides, and public parking garages, at

schools and colleges, local and regional parks, and in most new commercial development and office parks. However, long-term bicycle parking in the form of bicycle lockers is provided at only a handful of locations throughout the County. In May of 2013, just in time for Bike to Work Day, 28 secure bicycle lockers were installed at 3 locations in the County Administration Center. There are 8 bike lockers at the Sonoma County Hall of Justice, 12 bike lockers at the Permit and Resource Management Department (PRMD) Building, and 8 bike lockers at the La Plaza Building parking lot. Anyone who has a BikeLink card can gain access to these bike lockers. Moreover, BikeLink cards with $20 pre-loaded were given to any Sonoma County employees who requested them as part of their marketing campaign. These bike lockers were funded by grants through the Bay Area Air Quality Management District (BAAQMD) and the Metropolitan Transportation Commission (MTC). Inventories of existing and proposed bicycle parking locations are identified in the local plan chapters.

Relationship to Other Transportation Modes and Services

Transit and Multi-Modal Access

Convenient multi-modal connections for bicyclists and pedestrians that are well-integrated into the transportation system are a vital component of the bicycle and pedestrian network. Transit has the potential to extend trip ranges for bicyclists and pedestrians to nearby communities and destinations outside of Sonoma County. This is especially important for Sonoma County considering some of the existing barriers to bicycle and pedestrian travel such as distance between some communities, gaps in the existing bicycle and pedestrian networks between urban areas, and heat during the summer months or rain during the winter months. While these obstacles likely serve as deterrents to existing and potential trips by bike or by foot, convenient multi-modal access can help to address these issues and extend trip ranges. Table 5.1 below demonstrates how many people access transit by walking and bicycling out of the three main operators in Sonoma County. Out of the three operators, Sonoma County Transit experiences the highest percentages of people accessing transit by bicycling.

Table 5.1
Pedestrian and Bicycle Access to Transit

	Walking	Bicycling
Sonoma County Transit	85%	7%
Santa Rosa CityBus	97%	2%
Petaluma Transit	97%	3%

Eight agencies provide fixed route bus service in Sonoma County: Sonoma County Transit, Golden Gate Transit, Santa Rosa CityBus, Petaluma Transit, Mendocino Transit Authority, Vine Transit, Healdsburg Transit, and Cloverdale Transit. These agencies accommodate bikes on buses with front loading bike racks. Golden Gate Transit, Mendocino Transit Authority, and Vine Transit provide regional bus service to and from other counties. Sonoma County Transit provides countywide and local inner-city service. Santa Rosa City Bus, Healdsburg Transit and Petaluma Transit provide inner city service. Sonoma County Transit manages Cloverdale Transit and Healdsburg Transit.

Approximately fifty bus stops in Sonoma County are equipped with bicycle racks. The Santa Rosa Transit Mall also features six "clam shell" bike lockers. Of the County's twenty park and ride lots, sixteen are equipped with bicycle racks. There are also bike lockers at three Caltrans Park-n-Ride lots in Sonoma County. (These facilities are listed in Appendix D.)

Sonoma-Marin Area Rail Transit (SMART)

The SMART District is a regional transportation district that was established in 2003 by the California Legislature with the passage of California State Assembly Bill 2224 (Nation, District 6). The SMART District was established to oversee the development and implementation of passenger rail service in Sonoma and Marin counties along the Northwestern Pacific Railroad. Currently, the District holds approximately fifty-five miles of railroad right-of-way in public ownership between the cities of Healdsburg and Larkspur, and is charged with planning, engineering, evaluating and implementing passenger train service and corridor maintenance from Cloverdale to Larkspur. Additionally, the development of a multi-use bicycle and pedestrian pathway within, or adjacent to, the rail corridor is included in the project.

The SMART passenger rail project would serve fifteen developing or planned multi-modal train stations between Cloverdale in Sonoma County and the ferry terminal in Larkspur in Marin County, where a connection could be made to San Francisco via the existing Golden Gate Transit Larkspur Ferry service. SMART will also provide a critical north-south transportation route for bicyclists and pedestrians, with a multi-use pathway located along or adjacent to the right-of-way along the 70-mile corridor between Cloverdale and Larkspur. The SMART Path project will provide a continuous north-south route through Sonoma County comprised largely of Class I multi-use pathway along with short segments of Class II bike lanes or Class III bike routes, where right-of-way constraints occur, to connect seven of the County's nine cities: Cloverdale, Healdsburg, Windsor, Santa Rosa, Rohnert Park, Cotati, and Petaluma.

Accessibility for All People

The Americans with Disabilities Act (ADA) was enacted in 1990, providing rights and protections to individuals with disabilities. To comply in the realm of the pedestrian network, local governments must bring sidewalks, curb ramps and roadway crossings up to a set of specified standards when constructing new facilities or making modifications within existing public rights-of-way. For purposes of facility use and planning, people who use wheelchairs are considered pedestrians. Implementation of this plan will provide many benefits to those people who use wheelchairs or other mobility devices, including those who would like to access transit.

In addition to providing individuals with disabilities with accessible sidewalk, curb ramp and crossing facilities, many ADA requirements help others as well. For instance, in addition to serving people who use wheelchairs, curb ramps facilitate travel by those pushing strollers and inexperienced bicyclists who are not yet ready to ride in the street. Wide sidewalks, and a lack of obstructions, create a nicer environment for all pedestrians. These improvements can also reduce demand for paratransit services (demand-responsive transit for people whose disabilities prevent them from using public transit) by allowing some people with disabilities to access public transit stops.

Section 21200 of the California Vehicle Code provides that "every person riding a bicycle upon a highway has all the rights and is subject to all the provisions applicable to the driver of a vehicle. In other words, a bicyclist has the same rights to utilize the State roadways as the driver of a motor vehicle. Moreover, bicyclists and pedestrians are entitled to travel on all roads except those that are lawfully prohibited to them (CVC 21960.).

Safety

Safety is a major concern of both current and potential bicyclists and pedestrians. For those who walk or bicycle, it is typically an on-going concern. For those who avoid walking and/or bicycle riding, concern about safety is one of the most compelling reasons not to do so. Furthermore, for the most recent National Household Travel Survey (2009), the State of California purchased an add-on that provided more detailed information from California residents on their travel behavior. When respondents were asked to list barriers that keep them from walking more, several barriers related to safety were mentioned, such as: not enough light at night (33%), fear of street crime (21%), fast traffic (20%), unsafe street crossings (18%), too many cars (17%) and no sidewalks or sidewalks in poor condition (15%). Similarly, when asked what keeps them from biking more, several barriers related to safety were also mentioned: fast traffic (40%), not enough light at night (38%), too many cars (34%), unsafe street crossings (34%), and no sidewalks or sidewalks in poor condition (26%).

Riding a bicycle on the street is commonly perceived as unsafe because of the exposure of a lightweight, two-wheeled vehicle to heavier and faster moving motor vehicles including autos, trucks and buses. Actual collision statistics, however, show that bicyclist injuries and fatalities are actually lower than expected. In the most recent SWITRS 5-year data (2007-2011), bicycle collisions accounted for 8 percent of total collisions, but were only 2 percent of the fatalities and were 6 percent of the total injuries reported. Conversely, pedestrians, which account for 6 percent of total collisions, were 16 percent of the fatalities reported, and were only 4 percent of the total injuries reported. Therefore, pedestrians experience a disproportionately high risk of dying in a traffic collision. The vast majority of the bicycle collisions are between bicyclists and motorists; only 1 percent of bicycle collisions involve a pedestrian. With regard to bicycle-vehicle collisions, bicyclists and motorists almost equally share the fault in a collision, according to the most recent 5-year collision data. For this reason, programs that educate both bicyclists and motorists on safe riding and safe driving would be highly beneficial.

Pedestrians are disproportionately affected in fatal collisions.

5%
of total collisions in Sonoma County involve pedestrians

31%
of total traffic fatalities are pedestrians

Source: SWITRS, 2007-2011

Collision Analysis

Each jurisdiction's collision history was reviewed to determine any trends or patterns that could indicate safety issues. The collision data for 2007-2011 was obtained from the California Highway Patrol (CHP) as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The CHP Accident Investigation Unit maintains SWITRS. It was developed as a means to collect and process data elements from a collision scene. The program ensures that local police departments and the CHP utilize and maintain uniform data collection tools and methods to collect and compile meaningful data and statistics which can be used to improve roadway conditions and monitor the effectiveness of enforcement efforts.

It is important to note that SWITRS only includes reported collisions, so may not reflect all conflicts that occur. A comprehensive review of the data was performed to help understand the nature and factors involved in bicycle and pedestrian collisions. A better understanding of these factors may help planners and engineers address some of the physical environments that contribute to these incidents. For example, if it is determined that a high incidence of collisions are occurring in the evening, lighting improvements may help to correct the situation. Conversely, if it is determined that a high incidence of collisions are attributed to bicycle riding on the wrong side of the road, or those involving children, then it may be addressed through education and/or enforcement activities.

The following types of data were reviewed with an emphasis on the conditions indicated to better understand the factors

that may have contributed to the reported collisions:

Collisions: This information includes an analysis of the major causes of each collision, the locations of collisions, and the seasonal variation of collisions.

Conditions: Environmental conditions at or near the collision site at the time of each crash were examined. This included an analysis of weather conditions, lighting conditions, and types of traffic control devices present.

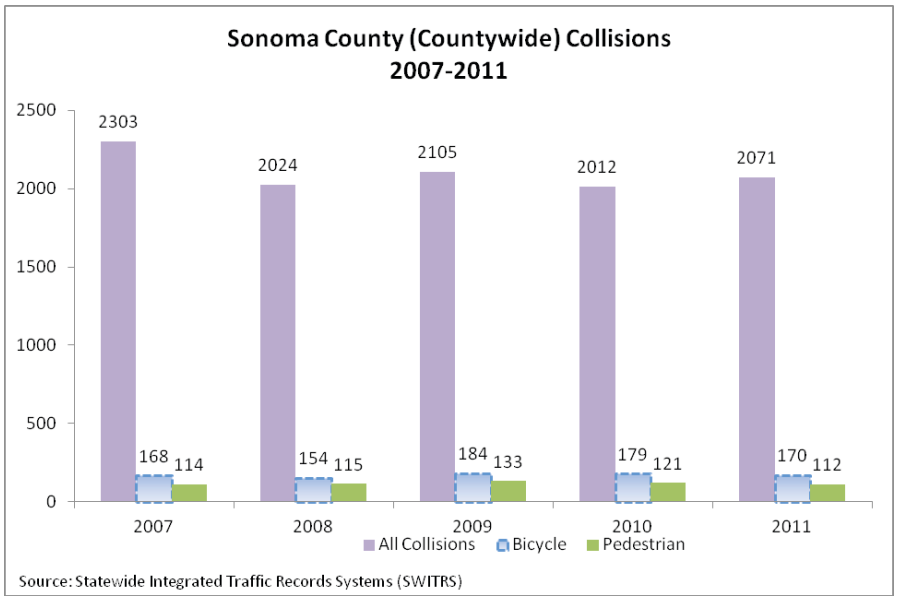
Demographics: This included a determination, by gender and age, of collision rates for bicyclists and pedestrians.

Locations: This portion of the analysis includes a citywide map of bicycle and pedestrian collisions and other spatial analyses of different collision types.

During the five-year period, there were 10,515 collisions recorded. Between 2002 and 2011, total traffic collisions have decreased by 29 percent – from 2933 to 2071.

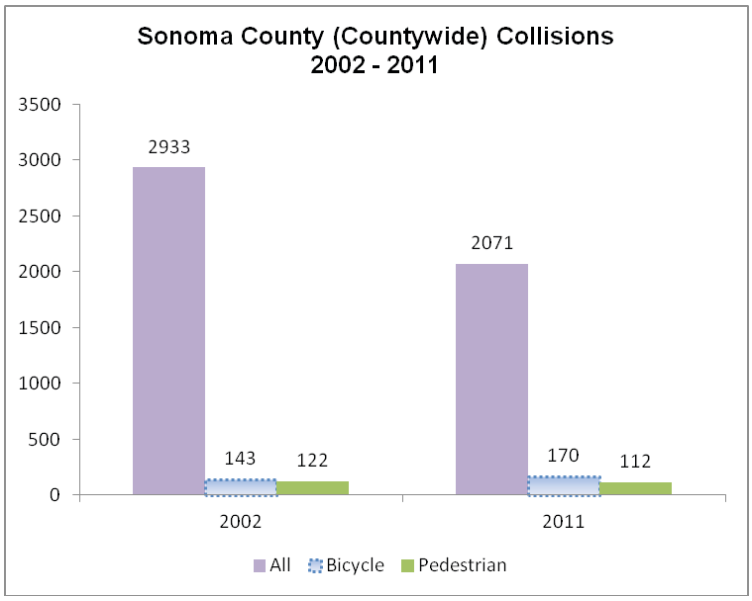
Analysis of the data revealed a decline in the number of collisions from 2007 to 2011. Since 2008, the total yearly collisions in Sonoma County have remained relatively steady without much fluctuation. Of this total number, 855 bicycle collisions and 595 pedestrian collisions were recorded, a 16 percent increase and 0.3 percent decrease respectively since the 2002-2006 data. Both bicyclist and pedestrian collisions experienced a high in 2009, but overall remained fairly steady throughout the 5 year period. During this period, there were a total of 197 fatalities of which 4 were bicycle fatalities and 31 were pedestrian fatalities. This data represents a 64 percent decrease in bicycle fatalities, but a 15 percent increase in pedestrian fatalities since the previous period (2002-2006). *Individual collision data are included in the local jurisdiction chapters of the plan. An overview of Countywide Collision Data is included in Appendix F.*

Graph 5.2: Countywide Collisions (2007-2011)



The average age of bicyclists in collisions is 45 and the median age is 31. Approximately, 25 percent of bicyclists in collisions are 18 years of age or younger.

Graph 5.3: Countywide Collisions (2002-2011)



The total number of collisions in Sonoma County have decreased by 29% from 2002 to 2011. Pedestrian collisions have decreased by 8%, but pedestrian fatalities have increased by 200%, during the same time period. Bicycle collisions have increased by 19%, but have bicycle collision fatalities have decreased by 67%, during the same time period. As the collisions data suggests, safety and education remain an important part of bicycle and pedestrian planning.

Bicycle and Pedestrian Safety and Education Programs

The pedestrian and bicycle systems must be comprised of more than transportation surfaces. This Plan includes recommendations for both physical improvements – such as construction projects – and programmatic recommendations such as community outreach and educational campaigns. This section highlights a few of the programs already in place in various jurisdictions and details a number of programs that can be implemented on a countywide basis or locally to support an increase in bicycling and walking throughout Sonoma County.

While capital projects are critical for increasing bicycling and walking, creating a thriving biking and walking culture in Sonoma County will require initiatives that promote bicycling and walking, teach safety skills and provide other programmatic support for walking and biking.

There are 5 essential elements that should be considered with bicycle and pedestrian planning, which a variety of programs aim to achieve. These are known as the 5 E's:

- Education
- Encouragement
- Enforcement
- Engineering
- Evaluation

Programs can be effective low-cost measures that can be implemented and maintained by citizenry in partnership with local advocacy groups and a sponsoring agency. The goal of these activities is to improve mobility without placing a large burden on agency staff or local funding resources. However, there

are issues worth noting. Implementation requires organizational leadership, funding, follow-through, and maintenance. Drawing on a variety of community resources including public and private partnerships, and maintaining community support will be essential to ensure that the policies, programs, and projects within this Plan are implemented over time.

Existing Programs

There are a variety of existing programs and activities already in place around the County, which are aimed at improving safety, convenience, and activity levels. Some of these existing programs have been in place for years, while others are relatively new. The programs and funded and managed in a variety of ways; most often utilizing a combination of funding resrouces and government staff, non-profit staff, and volunteer time. Each entity should take advantage of the success of these existing programs and the benefits they provide to the community and visitors, alike. Some existing programs and activities include:

- Safe Kids Sonoma County: Safe Kids Sonoma County is a coalition that helps connect parents and caregivers with the safety resources they need—information, safety tips, current research, workshops, and classes
- School Zone Enforcement Activities: engaging law enforcement in school zones
- Bicycle Fairs, Races, and Events: a variety of events occur year-round across the county
- Bike to Work Day / Month Activities: each May people across the country participate in Bike to Work Day; it is a promotional event used to encourage more people to bike to work
- Bike Safe Sonoma: the Sonoma County Bicycle Safety Campaign (share the road); website contains useful bicycle safety information. www.bikesafesonoma.com
- Sonoma County Regional Parks – bicycle education and helmet giveaway
- Santa Rosa Street Smarts Program: a public education campaign to change driver, pedestrian and bicyclist behavior
- Bike Mobile: Through Spare the Air Youth, MTC is funding this mobile bike repair program, which is supporting all counties in the Bay Area. It is commencing in the 2013/2014 fiscal year, and Sonoma County will be receiving 18 Bike Mobile visits as part of the program. It is a free hands-on repair clinic for youth, parents, and teachers at K-12 schools, community centers, and public events.

Countywide Safe Routes to Schools Program

Safe Routes to School programs are heavily based on the 5 E's – education, encouragement, enforcement, engineering, evaluation. The Safe Routes to School program in Sonoma County is a comprehensive program to encourage and empower children and adults to walk and bicycle to school where it is safe, and partner to make changes where it is not safe. Over the past forty years, the percentage of children walking and biking to school has dwindled dramatically from about 50% of all students in 1969 to just 13% in 2009. Parents cite long distances as the most common barrier. Even though fewer children live within a mile of school (41% in 1969, 31% in 2009), of those who live within one mile of school, 88% walked or biked to school in 1969 versus only 38% in 2009. Parents also list traffic and crime danger as barrier to walking and bicycling. However, according to research by Jacobsen (Safe Routes Partnership), a motorist is less likely to collide with a

person walking and bicycling if more people walk or bicycle. The risks of walking and bicylcing are far outweighed by the health risks associated with an increasingly overweight or obese American population.

The Countywide SRTS Work Group formed in April 2009 with the purpose to engage in comprehensive program planning and sustainable fund development for a countywide SRTS program. The Countywide SRTS Workgroup engaged in the following activities during the 2009-2010 reporting period:

- Recruited members to represent every area of the County
- Created and reviewed the 2008-09 SRTS Annual Report
- Created and practiced a presentation that members will present to City Councils and the County Board of Supervisors, PTAs, and School Boards
- Proposed a bill to change California Education Code to require bicycle and pedestrian safety be taught in schools
- Researched funding opportunities and participated in planning processes

Sonoma County Bicycle Coalition

The first full year that funds from Measure M's Transportation Tax were used to support the countywide SRTS program was 2009. Since Sonoma County does not have a significant source of sustainable funding for a Countywide SRTS program, SRTS has been implemented in a series of pilot programs primarily with State and Federal funding through Caltrans. Sonoma County has been fortunate to receive both infrastructure and non-infrastructure SRTS funding. The cities of Petaluma, Sebastopol, Santa Rosa, Sonoma, Healdsburg, Windsor, and the County of Sonoma have been awarded over $8 million for infrastructure improvements since the first cycle of funding in 1999.

Caltrans offered federally-funded, non-infrastructure grants for the first time in 2007. Cycle 1 recipients included the cities of Sebastopol, Santa Rosa (Santa Rosa City Schools), and Rohnert Park. The Sebastopol SRTS program is a 3-year program in 4 elementary schools for FY 2008-2011. The Santa Rosa SRTS program is a 2-year pilot project offered to the 18 schools in the Santa Rosa City School District for fiscal years (FY) 2008-2010. Rohnert Park is a one-year program in 4 elementary schools in FY2010-11. The County of Sonoma received funding from Cycle 2 for seven schools in South Santa Rosa's Roseland and Bellevue School Districts for FY 2009-2013. The County extended that program to serve the Roseland School District during the 2013-2014 school year (ending in February 2014).

Besides these federally-funded programs, Kaiser Permanente and the SRTS National Partnership funded a pilot program at Kawana Elementary in South Santa Rosa for FY 2008-09. It was extended through December, 2011. Kawana was one of ten schools selected from across the country to pilot the SRTS program in a low-income school. Kawana Elementary is part

of the County's SRTS program in South Santa Rosa.

Walking and bicycling to school has many benefits to students and their families, communities, and the environment. First of all, walking and bicycling to school is part of an active lifestyle and contributes to individual health and well-being. Sedentary lifestyle, air pollution, and motor vehicle crashes account for the majority of deaths in the United States. In 1969, the rate of child obesity in 12-19 year old was only 5%. Currently, it is over 15%. The low income population is even more at risk. Increased Vehicle Miles Travelled (VMT) is closely associated with the increased rates of obesity. [28]

In 2006, overweight, obesity, and inactivity cost Sonoma County $436,724,958 in health costs and loss of productivity. Children are healthier when they are physically active every day. In addition, students are safer when there is less arrival and departure vehicle traffic. More and more studies indicate that children who are more physically active are also more prepared to learn once they arrive at school. They do better on standardized tests, have better attendance, and have fewer disciplinary incidents.[29,30] Physical activity activates several systems in the brain that foster learning: attention, impulse control, memory, and executive function (processing speed, response speed and working memory). Studies also show that physical walking and bicycling to school improves mental health and instills a sense of independence and control in life.

Table 5.4
International Walk and Roll to School Day

Year	*Schools Participated*	*Students Participated (number)*	*Students Participated (percent of total)*
2007	*18*	*2139*	*not available*
2008	*33*	*3138*	*not available*
2009	*52*	*5924*	*not available*
2010	*73*	*10,621*	*41%*
2011	*84*	*7929*	*30%*
2012	*76*	*11,534*	*42%*
2013	*69*	*11,026*	*37%*

Percentages not exact due to lack of precise counting at middle and high schools - only students who check-in at the sign-in table are counted; therefore, it is highly likely that the numbers and percentages are higher.

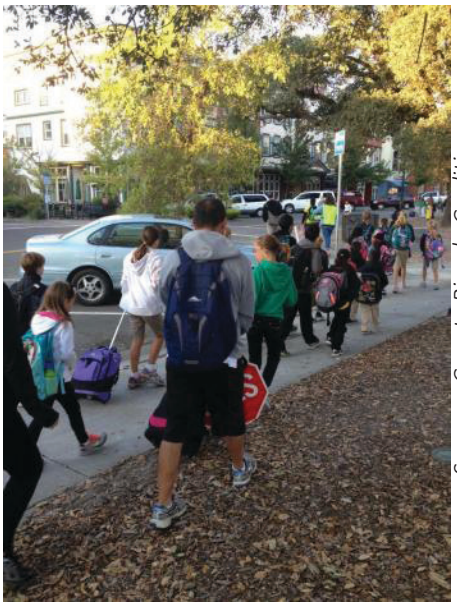
The International Walk and Roll to School Day is included as an event in the Countywide Safe Routes to Schools program, which encourages and educates students to safely walk and bike to and from school, and educate parents, school officials, and staff about the benefits of walking and biking to school. The Sonoma County Bicycle Coalition, Safe Kids Sonoma County, Santa Rosa Street Smarts, iWALK, Kaiser Permanente, Network for a Healthy California, and FedEx sponsored the 13th annual International Walk and Roll to School Day on Wednesday, October 7, 2009. The organizing team invited City Leads to reach out to each city in the county which enabled this year's event grow significantly from the previous year. In 2009, over 50 schools throughout the county encouraged children and their parents to walk and bike safely to school, up from 36 in 2008. Several elementary schools hosted "walking school buses" and "bike trains". City council members and representatives of state and federal elected officials participated in local events. In 2013, 69 schools participated across Sonoma County, which resulted in 11,026 students walking or biking to school, or 38% of students at participating schools.

28 The link between obesity and the built environment. Evidence from an ecological analysis of obesity and vehicle miles of travel in California. http://www.ncbi.nlm.nih.gov/pubmed/16253540

29 The Economic Cost of Overweight, Obesity, and Physical Inactivity among California Adults—2006, July 2009

30 Active Living Research, a program of the Robert Wood Johnson Foundation, fall, 2007. http://www.activelivingresearch.org/files/Active_Ed.pdf

The 2009 Walk and Roll to School Day kicked off the Countywide Safe Routes to School (SRTS) Program. The new Safe Routes to School website: www.sonomasaferoutes.org, funded by revenues from Measure M, was announced. The website provides information about the Sonoma County SRTS program and resources that schools can utilize to implement their own SRTS programs, including downloadable curriculum, encouragement materials, as well as other supporting information. iWALK, www.iwalksonoma.org also launched the iWALK School Bus to create an incentive for schools to start walking groups to get kids to and from school. The concept of a walking school bus has existed in practice through Sonoma County Bicycle Coalition.



Sonoma County Bicycle Coalition

In October 2011, 15 schools were added to the Safe Routes to School Countywide program through Congestion Mitigation and Air Quality (CMAQ) funds. By August 2012, one of the original 15 had dropped out and Sonoma County Department of Health Services (DHS) added 4 more schools, for a total of 18 schools that were being served by CMAQ funds. The areas where DHS was able to expand the SRTS program include, but are not limited to: Cloverdale, Cotati, Healdsburg, Petaluma, Sebastopol, and Sonoma. Schools that are involved in the SRTS Countywide program receive a variety of services and success of the program is measured in several ways. In addition to the amount of students involved in the program as an indicator of program impact, the main indicator of program success is measured by student hand tally surveys. These surveys are taken at different times throughout the program and measure "active transportation" trips to and from school, otherwise known as human powered mobility, i.e. walking, bicycling, skateboarding, etc.

In Cloverdale, 2 elementary schools were added. Jefferson Elementary was added as a full service school and Washington Elementary was added as a minimal support school. Jefferson has been the main focus of the SRTS efforts. Baseline data was collected in Fall 2011, and follow up data was collected in Spring 2013. Between the morning and afternoon data that was collected, Jefferson showed a 2.3% average increase in active transportation. Total populations of approximately 539 students at Jefferson and approximately 434 students at Washington have been served by these funds annually.

In the Cotati-Rohnert Park School District, 2 elementary schools were added; Evergreen and Monte Vista. Evergreen had baseline data collected in Fall 2011, with follow up data collected in Spring 2013. In between 2011-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 4.3%. Monte Vista had baseline data collected in Fall 2011, with follow up data collected in Spring 2013. In between 2011-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 9%. Total populations of approximately 651 students at Evergreen and approximately 664 students at Monte Vista have been served by these funds annually.

In Healdsburg, Healdsburg Fitch Mountain Campus was added to the SRTS program. Healdsburg Fitch Mountain had baseline data collected in Fall 2011, with follow up data collected in Spring 2013. In between 2011-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 4 %. A total population of approximately 341 students at Healdsburg Fitch Mountain campus has been served by these funds annually.

In Petaluma, Corona Creek Elementary and Meadow Elementary were taken on by the SRTS Countywide program in 2011. Corona Creek had baseline data collected in Fall 2011 with follow up data collected in Spring 2013. In between 2011-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 2.4%. Meadow Elementary had baseline data collected in Fall 2011 with follow up data collected in Spring 2013. In between 2011-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 9.8%. Total populations of approximately 463 students at Corona Creek and approximately 461 students at Meadow Elementary have been served by these funds annually. In 2012, Miwok Elementary was taken on by the SRTS Countywide program as well.

Miwok Elementary had baseline data collected in Fall 2012 with follow up data collected in Fall 2013. In between 2012-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 3.95%. A total population of approximately 564 students at Miwok campus has been served by these funds annually. Furthermore, the City of Petaluma was awarded a Safe Routes to School federal planning grant in 2011 in the amount of $129,600. These funds were used to create a Petaluma Safe Routes to School Plan, which is expected to be adopted by the City of Petaluma in May 2014.

In Sebastopol, Parkside was taken on by the SRTS Countywide program in 2011 and Brookhaven in 2012. Both schools have been involved with the SRTS program since 2008 however - until 2011 they were served by the Sebastopol City SRTS program. Parkside had baseline data collected in Fall 2008, with follow up data collected in Spring 2013; there has not been a statistically significant increase in the percentage of students using active transportation measured between baseline and follow up data.. Brookhaven had baseline data collected in Fall 2008, with follow up data collected in Spring 2013. There has not been a statistically significant increase in the percentage of students using active transportation measured between baseline and follow up data. Total populations of approximately 443 students at Brookhaven and approximately 239 students at Parkside have been served by these funds annually.

In Sonoma, Sonoma Charter Elementary was added to the SRTS program. Sonoma Charter had baseline data collected in Fall 2010, with follow up data collected in Spring 2013. In between 2011-2013, the morning and afternoon data that was collected did not show a statistically significant increase in active transportation rates. A total population of approximately 233 students at Sonoma Charter Elementary campus has been served by these funds annually.

The Town of Windsor was awarded a Cycle 3 SRTS grant which commenced in July 2013. The Windsor SRTS grant serves Mattie Washburn Elementary, Windsor Creek Elementary, Brooks Elementary, Cali Calmecac Language Academy, and Windsor Middle School. Baseline data was collected in Fall of 2013. A total population of approximately 550 students at Mattie Washburn, 575 at Windsor Creek, 550 at Brooks, 1030 at Cali Calmecac, and 1700 at WMS will be served by the Windsor SRTS grant until June 2016.

The City of Santa Rosa was awarded a Cycle 1 SRTS grant which commenced in the Spring of 2008 and operated primarily during the 2008-09 school year at 18 K-8 schools in the Santa Rosa City School District. Pre-and post program parent surveys were conducted at all sites, but tallies were not conducted to indicate shifts in travel behavior. The City of Santa Rosa SRTS program focused primarily on outreach about bicycle/pedestrian safety “Street Smarts” through community events, radio, and light pole banners, rather than implementation of site-based programs that could result in mode-shift. In 2011, Proctor Terrace, JX Wilson, Strawberry and Helen Lehman Elementary were added to the CMAQ-funded SRTS program. All four sites had baseline data collected in Fall 2011, with follow up data collected Spring 2013..In between 2011-2013, the morning and afternoon data that was collected showed an average increase in active transportation of 19.45% at Proctor Terrace, 9.8% at J.X. Wilson, and 6.4% at Helen Lehman. At Strawberry, there has not been a statistically significant increase in the percentage of students using active transportation measured between baseline and follow up data. A total population of approximately 450 students at Proctor, 600 students at JX Wilson, 410 students at Strawberry, and 510 students at Helen Lehman has been served by these funds annually. In 2012, RL Stevens Elementary and Mark West (in the unincorporated area of Santa Rosa) were added to the CMAQ-funded SRTS program. Baseline data was collected in Fall of 2012, with follow up data collected Fall 2013In between 2012-2013, the morning and afternoon data that was collected at R.L. Stevens showed an average increase in active transportation of 12.2%. In between 2012-2013, the morning and afternoon data that was collected at Mark West showed an average increase in active transportation of 8%. A total population of approximately 390 students at Mark West is served by these funds annually.

Eco$_2$School Program

Climate Protection Campaign's ECO2school is an award-winning student commute program with a seven-year track record of reducing emissions associated with the student commute by promoting youth leadership, climate literacy, and active transportation. We use a service-learning model working in high schools across the county to bring real life learning applications to schools that support healthy living, safe commutes, biking walking and transit ridership, traffic decongestion, and improved air quality for the entire community.

The ECO2school program is unique in that it specifically targets high school students to address the challenge posed by climate change through their school commute choices.

Our program is both a youth leadership and an environmental education program that inspires thousands of high school students to take action for climate protection each year. The program includes a year-long set of events, educational lessons, biking field trips, leadership trainings, and incentive programs, which are integrated into existing school curriculum and school culture.

We work intensively with a small group of students from clubs and classes to calculate their school's commute carbon footprint through analysis of a survey that the students implement. We then help them develop and implement a plan to educate and inspire their peers to reduce it. Students are able to see both the impact of their individual actions and the exponential impact of collective action, thereby inspiring and training the next generation of environmental stewards to take meaningful action to protect our climate.

Safety Campaigns

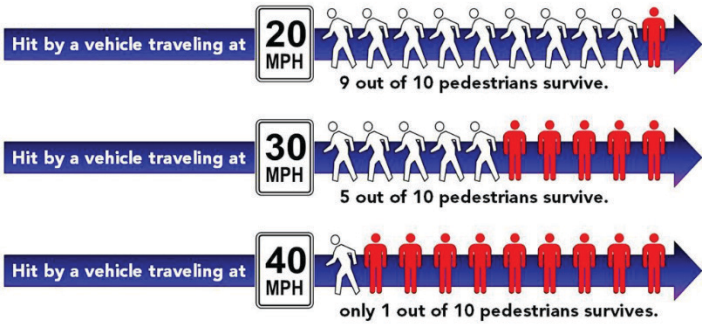
It's Up to All of Us

Every hour a pedestrian is injured or killed in California. Pedestrians accounted for nearly one out of five deaths in traffic collisions in 2009 – roughly 58 percent more than the national average. To address this tragic fact, the County of Sonoma in conjunction with the Sonoma County Safe Streets Coalition and the California Department of Public Health are launching a new "It's Up to All of Us" public education campaign to remind residents to create a safer environment for pedestrians.

The innovative campaign will use public advertising, internet, and community outreach to promote targeted messages that focus on reducing pedestrian fatalities and injuries. In a series of ads, drivers receive the messages: *"Drive Like Our Lives Depend On It"* and *"Slow Down", "Look Out for Others"* and *"Don't Drive Distracted"*. Pedestrians will be asked to *"Stay Alert – Stay Alive"* and *"Look Up, Look Around"*, *"Don't Assume You're Seen"*, and *"Walk Safely, Your Life Depends On It"*. The campaign is aimed at reducing vehicle speeds and driving without distractions such as cell phones, encouraging pedestrians to not text or talk on the phone when crossing streets, to look both ways, and to always look up and never assume they are seen by motorists.

"This campaign will have a significant impact on people's lives. If even one life is saved or one tragedy is averted due to our efforts, we will have been successful," said Shirlee Zane, 3rd District Supervisor in Sonoma County. "Making Sonoma County a safer place to live has always been one of my highest priorities. Each of us can help make this happen by being a more careful driver; after all, the lives of all of us and the ones we love, depend on it."

The simple step of slowing down and being more aware can have a significant difference in driver and pedestrian safety. Research shows that as vehicle speed decrease, so too do fatalities; only 1 out of 10 pedestrians are likely to be killed when struck at 20 mph, whereas nearly 9 out of 10 pedestrians are likely to be killed when struck at 40 mph, as demonstrated in the below infographic from www.peds.org.



www.peds.org

The "It's Up to All of Us" Campaign is made possible by the California Department of Public Health, through a grant from the California Office of Traffic Safety and the National Highway Transportation Safety Administration.

Sonoma County Safe Streets Coalition

The Sonoma County Safe Streets Coalition task force was formed by Sonoma County Supervisor Shirlee Zane in 2012. The Coalition brings together relevant public and nonprofit organizations to collaborate on improving the safety of pedestrians and bicyclists. Several successful public service campaigns have developed through this Coalition.

Santa Rosa Police Department Pedestrian Safety Operation

The Santa Rosa Police Department completed a specialized Pedestrian Safety Enforcement Operation that was conducted from June 17-28, 2013. This effort was made to bring awareness to pedestrian safety and education. Officers' patrolled areas heavily traveled by pedestrians and made contact with over 100 pedestrians who received a pamphlet regarding pedestrian safety. These pamphlets are provided by the City of Santa Rosa Street Smarts program.

Traffic officers from the Petaluma Police Department, Rohnert Park DPS, Santa Rosa Junior College Police and CHP assisted traffic officers from the Santa Rosa Police department. Collectively, 57 drivers were cited for violating the right of way of a pedestrian in a crosswalk. During this same period 17 pedestrians were cited for various pedestrian violations. Operations like this are aimed at reducing pedestrian collisions.

Proposed Programs

There are three additional countywide programs proposed in this Plan to support walking and bicycling throughout Sonoma County. Proposed programs (as detailed in Appendix G) include:

- Comprehensive Signing
- Bicycle Parking
- Bike Share Study

Advocacy Groups

It is important to recognize the significant contributions that local advocacy organizations make in their efforts to promote and enhance non-motorized transportation in Sonoma County. These organizations, which range from ad-hoc groups to longstanding foundations with officers and board members continue to promote education, support local actions, and organize events ranging from races to elementary school education programs. Partnerships with these groups can help to effectively implement many of the programs contained within this Plan, reduce their related labor cost, provide sustained maintenance, and ensure their affect. The following summary identifies many of the existing groups and their activities.

- Sonoma County Bicycle Coalition – Advocacy, Safety Training and Awareness, Road Skills Courses, Valet Bicycle Parking at community events, Safe Routes to Schools Activities
- Santa Rosa Cycling Club – Advocacy, Community Bike Rides
- Sonoma County Climate Protection Campaign – Cool Schools Program (Eco to School)
- Community Bikes – Low Cost Bicycle Repair and Donation Programs
- LITE initiatives/Community Bikes – community walks and bicycle rides
- Sonoma County Stompers/American Volkssport Association – walking groups

Proposed Projects

Projects have been proposed in each of the jurisdictions for which this planning effort has been conducted. Each individual plan includes a list of existing and proposed projects. Proposed projects have been ranked as high, medium, or low priority, and estimated costs have been assigned. The lists were refined following public reviews and resulted from careful considerations. Please refer to Appendix B to review existing and proposed facilities on maps. Likewise, please refer to Appendix A for the complete Countywide Bicycle and Pedestrian Project List.

In 2008, Sonoma County had more than 241 miles of built bicycle infrastructure, of which the vast majority were in the form of bike lanes on street networks. Since then, more than 74 miles of bicycle infrastructure have been built of which almost 9 miles are Class I facilities (separated bicycle/pedestrian paved paths), 46 miles are Class II facilities (bike lanes), and more than 19 miles are Class III facilities (shared use lanes). Since 2008, Class II facilities were the dominant form of bicycle infrastructure built, which equaled 62% of the overall bicycle infrastructure built throughout the entire Sonoma

County area. The miles built of Class I and Class III were 12% and 26%, respectively, of the total miles built. As this plan details in the plan and appendices, more 1000 miles of bicycle and pedestrian facilities are planned to be built, of which more than 500 miles is planned to be Class 2 bike lanes, throughout Sonoma County in the years to come.

There are a total of 1027 projects detailed in this plan, which represent all jurisdictions in Sonoma County. There are a total of 277 miles of Class I facilities (separated bicycle/pedestrian paved paths); a total of 511 miles of Class II facilities (bike lanes); a total of 264 miles of Class III facilities (signed, shared routes) from all jurisdictions. Together these facilities total 1052 miles of proposed Class I-II-III facilites throughout all jurisdictions in Sonoma County. Furthermore, all jurisdictions have identified proposed pedestrian crossing enhancements at numerous locations throughout the county. Please refer to individual city/town bicycle and pedestrian maps to view these locations (Appendix B).

Construction Projects

Because this plan's planning process has generated a ranked list of construction projects for each entity, addition information about the sources of infrastructure financing will be useful. Bicycle and pedestrian projects are eligible for funding through a variety of program sources. However, while a portion of the funds available for such improvements are programmed or 'guaranteed' to the local agencies based on various formulas, the majority of the funds are available through a competitive process at the state, regional, or local level. Thus while improvements to major roadways are likely to be financed through programmed transportation funds, the majority of the projects contained in this Plan are likely to be funded through competitive grant programs or some combination of the two sources.

To ensure timely implementation of the projects contained in this plan, it will be incumbent upon the local agencies to pursue competitive source funds, which are expected to account for the majority of funds available to implement the projects in this plan. Competition for these limited funds can be intense, especially at the state and regional levels where often hundreds of applicants compete for limited funds. Therefore, competitive programs typically require the development of extensive applications with clear documentation of the project need, costs, and benefits, along with maps, cost estimates, schedules, letters of support, and proposed work scopes. A local match of between 10 and 20 percent is typically required; however some programs require a dollar for dollar match. While the development of applications combined with securing local matching funds can be challenging, competitive source funding programs represent an outstanding opportunity to secure funds for local improvements.

Costs and Implementation

This section provides an overview of the costs, implementation strategies, and actions that are necessary to implement the projects and programs that have been identified in this Plan.

Project Costs

Since the local agencies will be responsible for implementation of the projects contained in this plan, project cost estimates are included in the local agency chapters. Planning level cost estimates were developed for this effort. Bicycle project cost estimates were developed by utilizing available information on each proposed project including segment length, corridor condition, and other available information. Each segment was evaluated according to an estimated cost-per-mile based on the recommended facility type. Unit costs were developed by researching the latest unit costs experienced by sample of local agencies in Sonoma County and the North Bay, and were reviewed by agency staff. Pedestrian projects were assigned costs based on individual estimates.

A summary overview of proposed bicycle projects and costs by jurisdiction is provided in Table 5.5. This Plan describes the implementation of 277 miles Class I facilities (separated bike/pedestrian paved pathways), 511 miles Class II facilities

(bike lanes), and 264 miles of Class III (signed, shared routes), which is a total of 1052 miles of bikeways connecting all of the jurisdictions.

Proposed projects and programs in this Plan have been analyzed to determine financing requirements, and to allow the entities to budget their resources and target available funding sources. It is important to note that the majority of funding for the projects contained in this Plan is expected to be derived from competitive funding sources that require a combination of sound applications, local support, and lobbying on the regional and state level.

Table 5.5
Project Cost Estimate Summary

Jurisdiction	Total # of Bicycle/ Pedestrian Projects	Class I Bike/Ped Path (miles)	Class II Bike Lane (miles)	Class III Bike Route (miles)	Total (miles)	Costs for Pedestrian-Specific Projects	Estimated Cost
Cloverdale	*23*	*7.36*	*2.59*	*3.38*	*13.33*		*4,445,064*
Cotati	*21*	*0.6*	*1.5*	*1.9*	*4.0*	*2,797,968*	*3,245,573*
Healdsburg	*24*	*2.96*	*0.89*	*4.3*	*8.15*		*11,598,340*
Petaluma	*84*	*22.37*	*43.28*	*17.94*	*83.59*		*40,765,600*
Rohnert Park	*60*	*13.5*	*6.22*	*7.9*	*27.6*		*20,053,394*
Santa Rosa	*373*	*27.1*	*50.19*	*31.93*	*112.01*	*4,330,000 (high priority projects)*	*43,292,000**
Sebastopol	*53*	*0.36*	*5.58*	*3.95*	*12.81*	*4,542,250*	*6,291,671*
Sonoma	*26*	*0.629*	*4.8*	*3.39*	*8.82*		*1,103,436*
Windsor	*73*	*8.98*	*6.67*	*7.12*	*22.77*	*838,987*	*6,450,738*
County (unincorporated)	*289*	*193.79*	*388.96*	*187.47*	*770.22*		*247,802,286*
Total System	**1027**	**277.75**	**511.02**	**264.09**	**1051.53**	**8,180,075**	**384,778,320**

Notes:
Total estimated costs include pedestrian projects.
**Cost estimate derived from the 2010 Santa Rosa Bicycle and Pedestrian Master Plan*

Project Implementation Process

The actions necessary to complete infrastructure projects identified in this Plan will vary from project to project, but generally include:

1. Adoption of the Plan by resolution by each local agency.
    a. Programmatic level review and environmental clearance of the Plan.

2. Preparation of a Feasibility Study involving a conceptual design (with consideration of possible alternatives and environmental issues) and cost estimate for individual projects as needed.
3. Secure, as necessary, outside funding and any applicable environmental approvals.
4. Approval of the project by the Planning Commission and the City Council, including local commitments to provide for any unfunded portions of project costs.
5. Completion of final plans, specifications and estimates, advertising for bids, receipt of bids and award of contract(s).
6. Project construction.

Funding

This section provides an overview of funding mechanisms available to implement bicycle and pedestrian projects, such as those in this plan (see Appendix H). Due to its dynamic nature, transportation financing is complex and the implementation of bicycle and pedestrian facilities, improvements, and programs is made possible by a wide variety of funding sources including:

- Federal, State, Regional, and Local Government Sources
- Private Sector Development and Investment
- Community, Special Interest and Philanthropic Organizations

Federal, State, Regional, and Local Government Sources

The dollars used to fund transportation projects originate from a wide variety of government sources including federal and state fuel taxes, sales taxes, property taxes, transit fares, truck weight fees, vehicle registration fees, tolls, development fees, bonds, traffic fines, local general funds, and assessment districts, among others. As such, much transportation funding is closely tied to larger local, state, and national economic trends. The availability of these funds can fluctuate with economic upturns and downturns.

In the San Francisco Bay Area, the flow of revenues for bicycle and pedestrian projects from source to implementing entity most often involves the California Department of Transportation (Caltrans), the regional Metropolitan Transportation Commission (MTC), or the Bay Area Air Quality Management District (BAAQMD). Funding for bicycling and pedestrian projects is possible from various sources that SCTA facilitates. While the SCTA does not own or operate facilities or services, the agency supports implementation of projects and programs identified by the entities with whom SCTA collaborates.

At the federal, state, regional and local levels, transportation funds are divided into myriad funding programs. Each program is handled differently, depending on its size, eligible uses, and the agency responsible for making spending decisions. While some programs remain relatively consistent, the majority are dynamic, changing regularly with passage of legislation or as a result of administrative or programmatic adjustments. Moreover, many programs, especially at the regional level, are not funded from a single source; rather they are derived from a combination of funds. Government funding can fund both non-infrastructure and infrastructure projects. Examples of the former are the Safe Routes to School and Office of Traffic Safety grant programs; examples of the latter are roadway rehabilitation and construction of roadways, Class I multi-use pathways, and bicycle lanes.

In general, federal funds are used for capital projects, such as new roadway, highway, and rail construction. State funds are used for new capital projects too, but also cover maintenance costs, like street and highway resurfacing. State funds are

also used as matching funds for larger federal projects, and a small portion is used to cover operational costs. Regional and local funds are often the most flexible, and may be used for capital project, maintenance, operational costs, and programs.

Sonoma County has access to locally generated funding. The Sonoma County Transportation Authority (SCTA) administers revenues derived from a voter-approved transportation sales tax, named Measure M. Four percent of the Measure M funding goes to bicycle and pedestrian projects. The 2014 Measure M Strategic Plan details plans for spending that money on specific projects including bicycle and pedestrian improvements throughout the County.

The primary implementers of infrastructure projects are city and county public works departments. Project selection is typically based on planning processes involving public participation. Additionally schools and school districts can be the implementers of onsite bicycle and pedestrian infrastructure and amenities, such as sidewalks and bicycle racks; and for bicycle and pedestrian education programs and incentives. Other governmental partners are law enforcement agencies and parks and recreation departments. Such entities can sponsor enforcement and/or safety programs that are aimed at improving motorist, bicyclist and pedestrian behaviors to bring about greater community safety and security.

Table 5.6
Public Funding Sources for Bicycle and Pedestrian Projects/Programs
(guaranteed sources)
Fiscal Year 2013-2014

Measure M (Bicycle and Pedestrian Program)	*$1,037,000*	*Measure M funds specific bicycle and pedestrian projects detailed in the Measure, as well as to the Bicycle Safety and Education Program*
Transportation Development Act, Article 3 (TDA3)	*$376,243**	*TDA3 funds bicycle and pedestrian projects for each jurisdiction (Metropolitan Transportation Commission manages this program).*
Transportation Fund for Clean Air (TFCA)	*$572,306.18*	*TFCA funds projects that demonstrates a positive impact on air quality (bicycle, pedestrian, transit, ridesharing). Any jurisdiction within the Air District boundary may apply for funds.*
One Bay Area Grant (OBAG) *Congestion Mitigation and Air Quality (CMAQ)* *Safe Routes to Schools (SRTS)*	 *$6,834,000* *$1,379,000*	 *CMAQ funds projects that contribute to air quality improvements and provide congestion relief.* *SRTS will also fall under the TAP program starting FY 14/15.*
**new apportionment in FY 13/14*		

Private Sector Development and Investment

Private sector development and investment play an important role in funding non-motorized infrastructure. Many of the County's newer housing and retail developments have been planned, or required, to include sidewalks, pathways, and bicycle facilities. Private development is expanding its focus on "smart growth" and balanced transportation options. This inherently builds in orientation to the bicycle and pedestrian modes. Sometimes developers also fund such amenities as bicycle racks, bicycle storage, benches, lockers and shower facilities.

Additionally, in many locations improvements such as closure of gaps in sidewalks or road widenings are made only after a private land use change is approved. Improvements or right-of-way dedication can be made conditions of approval, allowing upgrades for bicyclists and pedestrians.

Both the government and private sectors also play important roles in providing employee programs that encourage walking and bicycling, as well as use of transit.

Community, Special Interest and Philanthropic Organizations

Other non-governmental sources of funding include the contributions of community-based organizations, such as the Sonoma County Bicycle Coalition, in carrying out programs that support bicycle usage. Examples include Bike to Work Day efforts, bicycle valet parking at events, and education programs. Special-interest groups have made contributions toward non-motorized improvements and programs if such are in alignment with group objectives. Sometimes the contribution is monetary; at other times in the form of volunteer efforts, such as path or trail upkeep programs.

Philanthropic entities including non-profit, foundation, and corporate organizations and individuals can fund programs, and at times facilities. Donations and grants have paid for community amenities such as pathways and trails; landscaping, fountains and other aesthetic improvements; and street furniture such as bicycle racks, lighting and seating benches. The later such "beautification" efforts create bicycle and pedestrian friendly environments.