

CHAPTER 4 HIGHLIGHTS

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CHAPTER 4

TRANSPORTATION PLAN GOALS

The 2015 CTP uses five main goals:

1. Maintain the System
2. Relieve Congestion
3. Reduce Greenhouse Gas Emissions
4. Plan for Safety and Health
5. Promote Economic Vitality

Goal #1 (Maintain the System) and Goal #2 (Relieve Congestion) have been included in many previous Comprehensive Transportation Plans and continue to be countywide priorities. Goal #3 (Reduce Greenhouse Gas Emissions) and Goal #5 (Plan for Safety and Health) were added as goals and countywide priorities in the 2009 CTP. The goal to Promote Economic Vitality is new in this CTP.

Performance Measures and Targets have been identified for each of the plan goals. These quantifiable measures of progress provide information on how well our community is doing at meeting plan goals. The performance measures can help identify further actions that may help us make additional progress towards meeting the goals and may help identify and prioritize actions that would be particularly effective in each goal area.

A number of transportation scenarios were evaluated as part of the CTP update in order to set a baseline for each plan goal and performance measure, and in order to evaluate how different sets of transportation improvements and policies would support plan goals and help meet performance targets. These scenarios were tested using SCTA's Sonoma County Travel Model (SCTM).¹

GOALS

Goals	Performance Targets
1. Maintain the System	<i>Roadway Condition</i> — Improve countywide Pavement Condition Index (PCI) for arterial and collector streets to 80 (very good condition) by 2040. Improve countywide PCI for residential streets to 65 (good condition) by 2040. <i>Transit System Condition</i> — Reduce the average transit fleet age by 25% below 2010–2012 average fleet age by 2040 (7.5 years for 2010–2012).
2. Relieve Traffic Congestion	<i>Congestion Reduction</i> — Reduce Person Hours of Delay (PHD) by 20% below 2005 levels by 2040
3. Reduce Greenhouse Gas Emissions	Reduce GHG emissions to 60% below 1990 levels by 2040. This target has been updated based on targets proposed in Climate Action 2020 Sonoma County's countywide greenhouse gas emissions reduction plan.
4. Plan for Safety and Health	<i>Active Transportation</i> — Increase active transportation mode share (bike, walk, and transit) to 15% by 2040 (2010 — 8.38%). <i>Safety</i> — Reduce total daily collisions by 1 by 2040.
5. Promote Economic Vitality	<i>Reduce transportation costs for business and residents</i> — Reduce average peak period travel time per trip by 10% by 2040 (2010 — 11.31 minutes). Prioritize investments in Communities of Concern. Reduce average household travel costs below 2010 levels by 2040.

Goal 1. Maintain the system

Maintaining transportation road infrastructure includes many activities from keeping ditches clear to purchasing new buses and keeping bike lanes free of debris. The transportation infrastructure is the most expensive asset owned by many jurisdictions who often respond to funding shortages by deferring preventative maintenance for roads. This has drastic consequences on the condition of pavement. The 25 year planning horizon must also account for replacement of the bus fleet, rail cars, paratransit buses, vans and cars.

Local jurisdictions complete road condition field surveys for Metropolitan Transportation System to be included in the Regional Pavement Management System. Roadways are assigned a Pavement Condition Index (PCI) Score from 1–100 and MTC compiles weighted pavement condition scores. Transit operators provide information on fleet condition as part of Short Range Transit Planning processes, and provide system operation and vehicle age data to the Federal Transit Administration (which is included in the National Transit Database).

¹ See **Appendix 8** for more information on the Sonoma County Travel Model.

TARGETS FOR 2040: (a) PCI of 80 for arterial and collector roads (b) PCI of 65 for residential roads (c) reduce the average transit fleet age by 25% below 2010–2012 average fleet age.

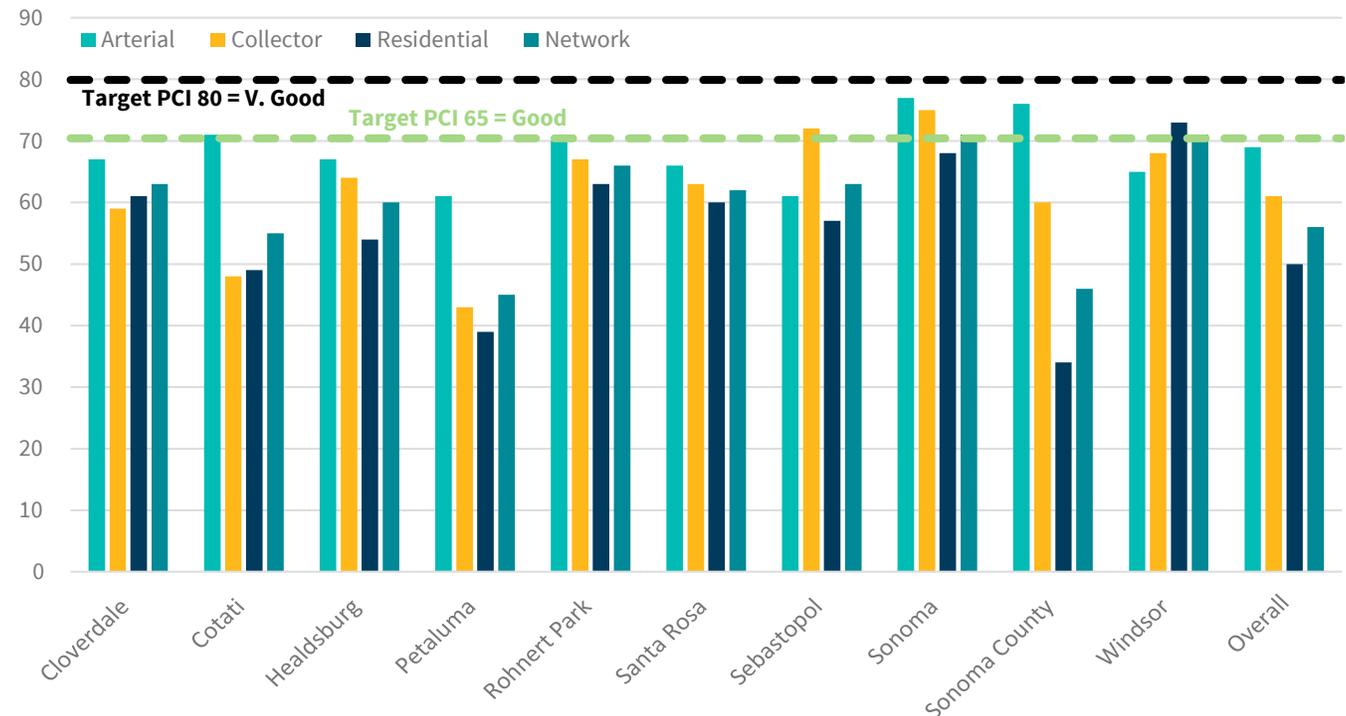
Funding available for maintaining streets and roads in Sonoma County is limited and has been prioritized by setting a target for maintaining major roadways, including arterial and collector roads, in very good condition (PCI 80). Smaller residential roads carry much lower traffic loads and SCTA has set a target for maintaining these roads in fair condition (PCI 65). As the transit fleet ages, delays and transit service disruptions may become more frequent. Improving the average age of transit fleets in Sonoma County will improve transit service by making it more comfortable and reliable. SCTA has set a target of reducing the average fleet age of the Sonoma County transit fleet by 25 percent below 2010–2012 average fleet age (7.57 years) by 2040.

Since the 2009 CTP

The average condition of the Sonoma County roadway network has hovered around 53 (out of 100) over the past 10 years, which is considered in the “at risk” category. MTC has estimated that it will cost \$5 billion to improve and maintain the Sonoma County road system at a PCI of 75, or “good” condition, through 2040.² Approximately \$2.7 billion of this maintenance cost is currently unidentified. MTC has also estimated that it will cost \$278 million through 2040 to maintain Sonoma County bridges — of which \$162 million is currently unfunded.

Because of maintenance funding shortfalls, Sonoma County jurisdictions and the SCTA have prioritized maintaining the major roadways at a higher PCI than local residential streets. Reaching the CTP goal of maintaining arterial and collector roadways at a PCI of 80, or “very good” condition, and residential roadways at a PCI of 65, or “fair” condition, will require additional unidentified funding.

Figure 4-1. Sonoma County Pavement Condition Index by Road Type and Jurisdiction, 2013



Source — Metropolitan Transportation Commission, Pavement Management Program

Sonoma County’s transit system provides an important travel option for county residents and serves as a transportation “lifeline” for many people in the county. Aging vehicles and equipment can increase maintenance costs and breakdown rates, which in turn negatively impacts transit service and quality of the countywide transit

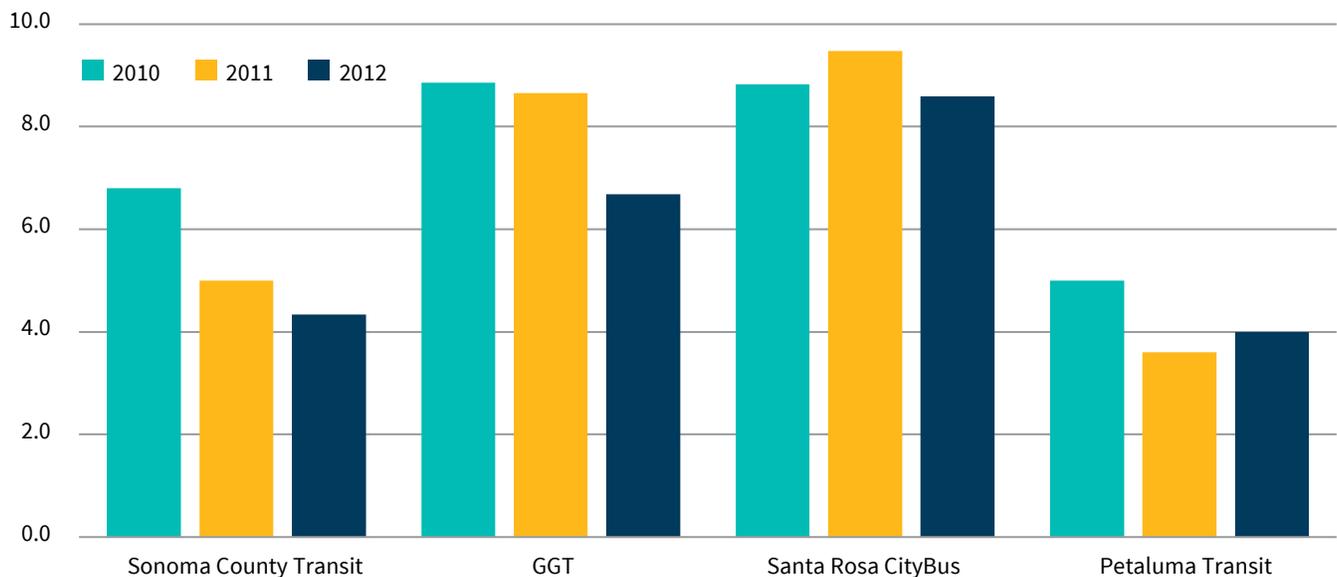
² MTC, *Plan Bay Area, Local Street and Roads Needs and Revenue Assessment*.

system. SCTA has prioritized improving the physical condition of the countywide transit system and has set a goal of improving the average transit fleet age by 25 percent by 2040.

Local transit agencies provide yearly estimates of average transit fleet age to the Federal Transit Administration which are summarized in the National Transit Database. The Federal Transit Administration estimates that the average useful life of transit buses varies between 4-12 years depending on vehicle size and type. The average age of the transit fleet in Sonoma County has slowly improved, dropping from an average fleet age of 8.3 years in 2010 to 7.2 years in 2014.

This improvement is encouraging but adequate funding will be needed to ensure that older transit vehicles are replaced in a timely manner and that the overall fleet age can continue to be improved. Sonoma County transit providers have budgeted \$160 million through 2040 to replace aging vehicles in the existing fleet, and \$95 million to expand fleets in order to improve service. Aging vehicles will need to be replaced more frequently and more funds will be needed in order to meet the CTP target for average transit fleet age.

Figure 4-2. Average Age of Bus Fleets for Sonoma County Transit Providers



Source — Federal Transit Administration, National Transit Database

Moving forward, what is required to meet the 2040 Goal?

Additional funding will be required to maintain road, highway, and other transportation infrastructure. Additional funding will be required to improve the condition of transit fleets, stops, and other capital assets and to improve the transit system by adding service and increasing frequencies.

Goal 2. Relieve Traffic Congestion

Congestion has been consistently identified as an important public concern in Sonoma County. Traffic congestion has significant impacts on the county’s economic performance and quality of life. Travel demand routinely exceeds highway capacity during peak periods in many areas of the county. Traffic flow is also often impacted by accidents, vehicle breakdowns, road work, adverse weather conditions, and local operational issues. Person Hours of Delay (PHD) is a common aggregate measure of congestion. PHD represents the average number of hours that travelers are stuck in traffic due to recurring (due to demand) and non-recurring (due to incidents, construction, etc.) congestion.

Highway congestion in Sonoma County is most severe during the morning and afternoon peak periods, with congested periods beginning as early as 5:30 am and lasting until 6:30 p.m. in the evening. Highway congestion

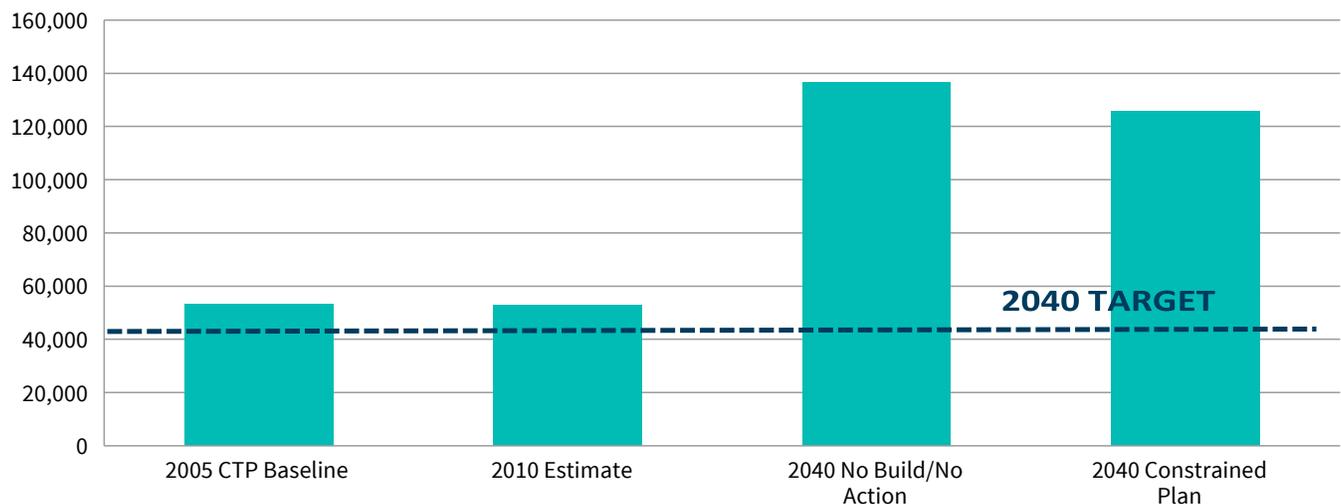
is most severe within Santa Rosa on Highway 101 and Highway 12, and in Petaluma on Highway 101 between Petaluma Boulevard South to Washington Street. Two lane sections of Highway 12 in Sebastopol and in the Sonoma Valley also experience congested periods on both weekdays and weekends.

Arterials are also showing signs of strain. Arnold Drive, Main Street (Penngrove), River Road, Old Redwood Highway, Bodega Highway, Lakeville Highway, and Petaluma Hill Road experience heavy weekday traffic³. Todd Road, Llano Road, Crane Canyon Road have congested conditions on weekdays and many roads within incorporated cities experience severe recurring congestion during afternoon and evening commute periods, and around schools during school drop-off and pick-up periods.

Target for 2040 — Reduce Person Hours of Delay (PHD) by 20% below 2005 levels by 2040

Congestion and recurring delay on Sonoma County roads has consistently been identified as a major transportation issue in previous transportation plans, public outreach, and transportation surveys. SCTA has targeted reducing PHD by 20 percent below 2005 levels by 2040 in order to reduce congestion related impacts to the Sonoma County transportation system.

Figure 4-3. Daily Person Hours of Delay (PHD)



Sources — Caltrans/SCTA

Since the 2009 CTP

Daily PHD has remained relatively static since the adoption of the 2009 CTP. PHD dropped slightly in 2010 to 52,938 from the 2005 estimate of 53,226. Estimated PHD 2012 was slightly higher, at 55,535. Recent congestion measurements suggest that congestion is staying relatively constant in Sonoma County, and that no observable progress has been made towards reducing countywide congestion levels.⁴

Moving forward, what is required to meet the 2040 Goal?

Caltrans estimates that over 50,000 hours were lost each day because of traffic congestion in Sonoma County in 2010. Congestion is predicted to nearly triple by 2040. Most of this increase can be attributed to increased travel because of population and employment growth. The project performance assessment indicated that certain projects provide some congestion relief in 2040. Projects that improve highway capacities such as Marin Sonoma Narrows project, Phase 2 and Hwy 37 improvement projects reduce congestion in heavily traveled corridors and provide countywide congestion reduction benefits. If funding were available to complete all proposed CTP

³ Sonoma County Travel Model, SCTA Traffic Count Database.

⁴ Caltrans Performance Measurement System (PeMS), SCTM

projects, projects would provide an almost 20 percent congestion reduction benefit in 2040 when compared to no build, BAU or “Business as Usual”, 2040 conditions. Transportation policies such as system efficiency improvements, pricing, trip reduction, and freight improvements could reduce 2040 congestion levels by up to 50 percent depending on the policy improvement.

Travel Demand Management programs and new technologies are promising methods for reducing traffic delay. Shifting travelers to different travel modes (transit, car/vanpools, bicycles, walking and car-sharing), different times to avoid peak congested periods (flextime, compressed work week), and avoiding trips altogether (telecommuting, etc.) also have the potential to reduce traffic congestion.

Implementing projects and policies included in the constrained plan would reduce 2040 delay by over 10,000 hours per day. This reduction represents a step in the right direction and an improvement over no build conditions in 2040, but does not meet the CTP performance target. Implementing an ambitious package of unfunded transportation projects, policies, and technologies described in the vision scenario would reduce 2040 daily PHD to 41,625 and meet the performance target of reducing daily PHD by 20 percent below 2005 levels by 2040.

Goal 3. Reduce Greenhouse Gas Emissions

In Sonoma County the transportation sector contributes over half of all county greenhouse gas emissions. Transportation greenhouse gas emissions are a factor of total travel of vehicles, speed of travel, and characteristics of the vehicle fleet. Emissions from this sector could be reduced by reducing the amount of travel, lowering travel speeds, and improving the efficiency of the vehicle fleet. Transportation related greenhouse gas emissions in Sonoma County have steadily increased since 1990.

Rising greenhouse gas emissions and their impact on the climate could negatively impact countywide transportation infrastructure, quality of life, the economy, and accessibility. More frequent and intense storms and sea level rise could accelerate roadway deterioration, cause transportation facilities to close completely, and increase congestion because of temporary closures. Sonoma county jurisdictions have committed to facing this challenge head on and have made significant progress towards reducing countywide greenhouse gas emissions from the transportation and other sectors. One important step forward has been the development of the Regional Climate Protection Authority, and work on the countywide climate action plan, Climate Action 2020.

Climate Action 2020 has identified the following greenhouse gas reduction targets:

- Reduce greenhouse gas emissions to 25% below 1990 levels by 2020
- Reduce greenhouse gas emissions to 40% below 1990 levels by 2030
- Reduce greenhouse gas emissions to 80% below 1990 levels by 2050

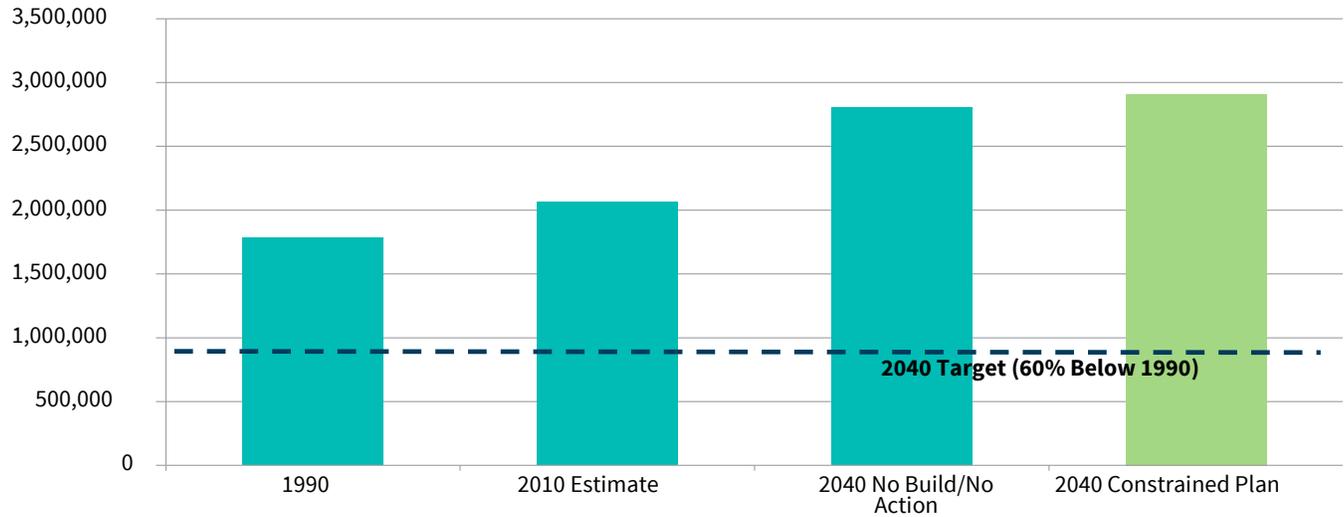
The CTP planning horizon and forecast year has been set at 2040 to be consistent with regional transportation and land use planning efforts. No CA 2020 GHG emissions reduction target has been set for 2040. The CTP 2040 greenhouse gas reduction target has been set at the midpoint between 2030 and 2050 targets, representing a reduction of transportation GHG emissions to 60 percent below 1990 levels by 2040.

Target for 2040 — Reduce greenhouse gas emissions 60% below 1990 levels by 2040 by working with government agencies and the public.

Since the 2009 CTP, new estimates for past, current, and future greenhouse gas emissions have been developed for Climate Action 2020. New GHG estimates are lower than estimates previously developed by SCTA and the Sonoma County Climate Protection Campaign as a result of using updated tools including the California Air Resources Board air quality measurement tool EMFAC 2011,⁵ which considers vehicle speeds in GHG emissions calculations. EMFAC 2011 also includes more detailed vehicle fleet information.

⁵ The California Air Resources Board Emission Factors (EMFAC) model is used to calculate emission rates from all motor vehicles in California.

Figure 4-4. GHG Emissions Sonoma County Estimated GHG Emissions



Source — Climate Action 2020/SCTA

Moving forward, what is required to meet the 2040 Goal?

Greenhouse gas emissions are expected to increase by roughly 39 percent during the period from 2010–2040 under no build conditions. This is largely a factor of increased travel due to population and employment growth, and assumes that the vehicle fleet makeup and vehicle fuel economy stays about the same as it is currently in the future. State mandated fuel economy standards (Pavley, AB 1493) are expected to provide a large GHG reduction by 2040, reducing GHG emissions by around 8 percent below 2010 levels. Individual projects do not have a large impact on countywide emissions, but projects focused on shifting travel to active transportation modes, or that focus on reducing traffic congestion and making travel more efficient provide the largest GHG reductions.

Additional reductions including even more ambitious fuel economy and vehicle efficiency improvements, and VMT or total travel reductions coming from projects and policy approaches included in the Vision Scenario analyzed as part of the CTP will be required to meet the CTP GHG reduction target by 2040. SCTA could reach the 2040 greenhouse gas reduction target by implementing the vision scenario including an increase of 2040 vehicle fleet fuel economy to 55 miles per gallon.

Spotlight — Meeting Sonoma County Transportation Greenhouse Gas Reduction Goals — What Will it Take?

Sonoma County jurisdictions have set ambitious Greenhouse Gas (GHG) Reduction goals through the current and previous countywide climate action planning processes including Climate Action 2020 (CA 2020) and other GHG reduction efforts. CA 2020 has set 2030 (reduce countywide GHG emissions to 40 percent below 1990 levels by 2030) and 2050 (reduce countywide GHG emissions to 80 percent below 1990 levels by 2050) GHG reduction targets that are in sync with statewide GHG reduction targets.⁶ The CTP GHG reduction target has been updated to be consistent with CA 2020 and statewide GHG reduction goals. The new CTP GHG target aims to *reduce 2040 GHG emissions from transportation to 60 percent below 1990 levels by 2040.*



Reaching this target will require a combination of efforts to reduce overall travel, or reduce vehicle miles traveled (VMT), and making travel that does occur cleaner and more efficient. Implementing the projects, programs, strategies, and policies included in the CTP high performing scenario could reduce travel (VMT) by almost one-third (32 percent) in 2040 when compared to a future in which no efforts are made to reduce travel or address future travel impacts.⁷ This VMT reduction will help meet the 2040 GHG reduction target, but won't get us all the way there.

SCTA estimates that the vehicle fleet will need to change significantly if targeted transportation GHG reductions are to be met. Analysis has shown that average countywide vehicle fleet fuel economy will need to increase to 55 miles per gallon in order to reach the 2040 GHG reduction target.⁸ This fuel economy increase could be achieved by:

- Increasing the average fuel economy of the conventionally fueled light duty vehicle/hybrid vehicle fleet (cars, SUVs, light trucks) to 32 mpg. This increase could be achieved by increasing the share of hybrid vehicles in use and improving the efficiency of conventional vehicles (lighter weights, improved drive trains, and other design improvements).
- Increase the zero emissions vehicle (ZEV)⁹ share of light duty vehicles to 40-50 percent of the total fleet (approximately 110,000–140,000 vehicles in 2040).¹⁰ The total share would depend on the efficiency of ZEV vehicles.
- Heavy truck fuel efficiency increase by 50 percent, increasing from 6 mpg to 9 mpg.
- Electrification of transit fleets.
- Double motorcycle fuel economy (43.5 mpg to 87 mpg)

The California Air Resource Board (CARB) has estimated that a 20 percent VMT reduction and even more aggressive shift to ZEVs will be required to meet statewide GHG reduction targets. CARB estimates that 87 percent of the statewide vehicle fleet will need to be made up of ZEVs, BEVs, and PHEVs to meet the 2050 GHG reduction target. CTP estimates of fleet turnover and ZEV fleet share are consistent with statewide estimates of fleet turnover and conversion, and are actually somewhat less aggressive due to the larger VMT reduction associated with the CTP high performing scenario.

⁶ AB 32, and 2005 Executive Order target direct California to reduce GHG emissions to 1990 levels by 2020 and 80% below 1990 levels by 2050. Executive Order B-30-15 directs California to reduce GHG emissions to 40% below 1990 levels by 2030.

⁷ The CTP high performing scenario was compared to a 2040 baseline or business as usual scenario that estimates future travel conditions assuming travel behavior, technology, and the transportation network are the same in 2040 as they are today.

⁸ Sonoma county average vehicle fuel economy was 23 mpg in 2010.

⁹ ZEVs could include battery powered electric vehicles, fuel cell powered vehicles, or vehicles powered other non-emitting power sources.

¹⁰ The Center for Sustainable Energy estimated that there were 2229 electric vehicles in Sonoma County in 2015.

The Sonoma county vehicle fleet will need to change drastically in order for CTP and state GHG reduction goals to be met. Increasing the share of electric vehicles in the countywide fleet will require:

- Improved charging infrastructure — private and public
- Vehicle development — improved vehicle efficiency and manufacturing, increased vehicle range
- Vehicle distribution — Manufacturing, distribution, and sales network will need to continue to be improved and expanded.
- Vehicle cost competitiveness with conventionally fueled vehicles
- Continue to develop and expand renewable electric power generation
- Retail sales training

Spotlight — Vehicle Miles Traveled (VMT)

VMT is a measure of miles traveled by vehicles in a specific geographic area for a given time period. The Sonoma County Travel Model generates VMT estimates at the county, jurisdiction, traffic analysis zone, and road segment level for average weekdays. VMT is a function of population, vehicle ownership rates, how often people travel, and where they are travelling to. The Association of Bay Area Governments has estimated that the Sonoma County population will grow by approximately 18 percent from 2010–2040, and that employment will grow by approximately 26 percent during this 30 year time period. This growth is generally predicted to follow growth distributions outlined in local general and area specific plans with an increased focus on Priority Development Areas which were identified as part of the Regional Sustainable Communities Strategy process. The Sonoma County Travel Model uses projected housing, population, and employment growth forecasts while considering predicted demographic changes to estimate VMT.

The SCTM estimates a 36 percent increase in VMT from 2010–2040. In raw numbers this represents 11 million VMT per day in 2010 and 15 million VMT per day in 2040. VMT is predicted to grow at a greater rate than population and employment because of the aging Sonoma County workforce and a need to import labor for a growing number of jobs from outside of the County. VMT was not identified as a separate performance measure in the 2015 CTP, but was analyzed since many of the performance measures are VMT based and VMT is commonly used as a measure of travel activity.

Goal 4. Planning for Safety and Health

There is a growing trend among transportation planners and health professionals to focus on the link between a healthy community and safe transportation options as a means to improving public health. Transportation is intimately related to public health issues on a variety of fronts, be it that traffic accidents are the leading cause of death for teenagers or that fatality and injury accidents impact the community or that air quality effects asthma suffers, or that safe bicycle and pedestrian routes can benefit transportation and health.

Safety

According to the Statewide Integrated Traffic Records System (SWITRS) the number of collisions resulting in injuries or fatalities per day in Sonoma County has varied between 5–8 per day since 2004. The number of average daily accidents dropped from 2004–2008 and has leveled out to a daily average of around 6 injury and fatality collisions per day from 2008 onward. Only 1–2 percent of these collisions resulted in fatalities during this time period.

Future daily countywide accident rates have been estimated using the SMARTGAP transportation and land use post-processing tool developed with funding from the Transportation Research Board. SMARTGAP was developed as part of the Strategic Highway Research Program (SHRP 2) and explores the effect of smart growth policies on travel demand, and the relationships among households, businesses, and travel behavior and conditions. SMARTGAP estimates future collision rates by factoring VMT, road lane miles, transit revenue service hours, and travel mode shares. Fatality, injury, and property damage incident rates are included in the estimates. Crash estimates are based purely on total travel activity and size of the transportation system and do not consider targeted safety improvements or localized improvements that could provide significant safety enhancements.

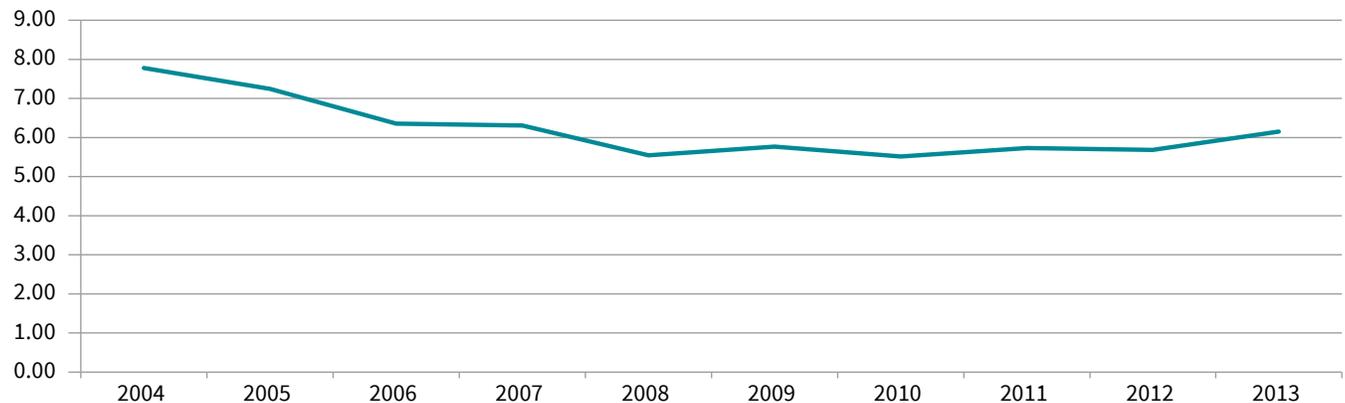
TARGET FOR 2040: Reduce total daily fatality and injury collision rates by 1 accident per day below 2010 levels by 2040.

Ultimately the goal for fatalities and injuries is zero, however, for the task of benchmarking progress SCTA has targeted reducing total daily collisions by 1 accident per day below 2010 levels by 2040. Daily traffic collision rates is a new performance target that has been added to the 2015 CTP. CTP projects and policies considered as part of the CTP performance assessment indicated that these countywide approaches are estimated to provide only minor collision rate reductions through 2040 and that the traffic safety performance target would not be met by applying these improvements alone.

Since the 2009 CTP

Sonoma County daily collisions have remained relatively constant according to traffic records since 2009 hovering at on average just under 6 per day. Daily collision rates have risen slightly since 2010. This increase can be attributed to increased travel which could be tied to improved economic conditions in Sonoma County.

Figure 4-5. Sonoma County Collisions (Fatal and Injury) - Daily



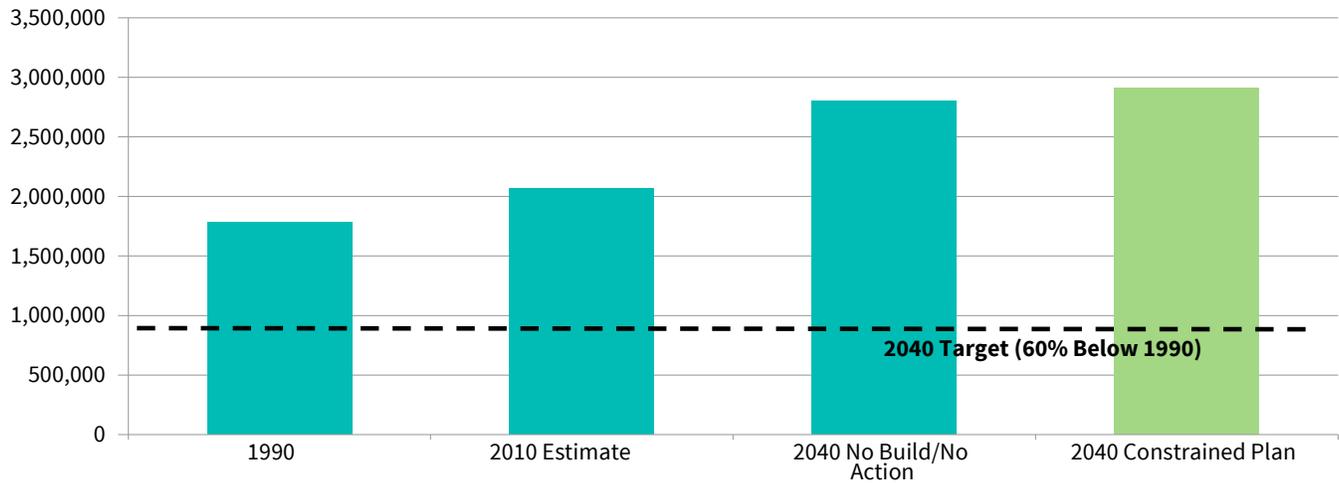
Source: California Statewide Integrated Traffic Records System/SWITRS

Moving forward, what is required to meet the 2040 Goal?

As Sonoma County continues to recover from the economic recession of the last decade countywide travel and collisions have started to rise. Continued population and employment growth will only exacerbate this problem and increase VMT and traffic injuries and fatalities. Projects focused on improving traffic safety and reducing the consequences of crashes that do occur have been included in the CTP, but the tools used to perform this analysis were not sufficiently sensitive to capture the safety benefits these projects could provide. Many of these projects are focused on improving safety at the local level or are focused on reducing the number or severity of traffic collisions and not VMT. SMARTGAP, the tool used to estimate countywide collision rates, estimates collisions based on VMT and the size of the transportation system and does not consider local safety improvement measures. Other tools or methods for assessing traffic incident rates should be investigated. These methods should consider targeted safety enhancements and local improvements and how different actions could improve traveler safety and reduce collision rates. In addition to improving analysis tools for measuring safety impacts SCTA should continue

to focus on reducing exposure and the amount of travel that occurs in potentially unsafe conditions, reducing the risk of traffic collisions, and reducing the consequences of collisions that do occur.

Figure 4-6. Traffic Collisions per day



Sources: SWITRS, SCTA

Health impacts

Shifting travel to active transportation modes such as walking, biking, or riding transit can help decrease obesity, improve neighborhood air quality conditions, and improve overall community health. Active transportation mode share or the percentage of trips being made by bike, transit, or foot has been used to estimate how CTP projects, and transportation programs can improve or degrade health conditions in Sonoma County.

Spotlight — In 2013, Dr. Neil Maizlish and colleagues at the California Department of Public Health, used the Integrated Transport and Health Impacts Model to quantify health benefits of transportation strategies aimed at reducing greenhouse gas emissions.¹¹ They found that increased physical activity associated with active transport could generate a large net improvement in population health, especially when combined with strategies to reduce risk of traffic injury. Study results showed that increasing median daily walking and bicycling from 4 to 22 minutes reduced the burden of cardiovascular disease and diabetes by 14% (32,466 Disability Adjusted Life Years), and decreased GHG emissions by 14%. Increasing active transport to these levels could reduce the estimated \$34 billion in California’s annual costs from cardiovascular disease,¹² and other chronic conditions such as obesity, and achieve the US Surgeon General’s recommendation that adults engage in 150 minutes of moderate to vigorous physical activity weekly.¹³

Since the 2009 CTP

Specific metrics were not identified in the 2009 CTP for improving health, however, in 2010 8.38 percent of all trips (including commute, school, recreation, shopping, and other trip purposes) were made using active transportation modes. Mode share for active transportation modes is expected to decrease slightly by 2040 in Sonoma County if current trends continue.

11 Maizlish, N., Woodcock, J., Co, S., Ostro, B., Fanai, A., & Fairley, D. (2013). Health Cobenefits and Transportation-Related Reductions in Greenhouse Gas Emissions in the San Francisco Bay Area. *American Journal of Public Health*, 103(4), 703–709. <http://doi.org/10.2105/AJPH.2012.300939>

12 Roger VL, Go AS, Lloyd-Jones DM. et al. Heart disease and stroke statistics—2011 update: a report from the American Heart Association. *Circulation*. 2011;123(4):e18–e209 [PMC free article] [PubMed]

13 Office of the Surgeon General The Surgeon General’s Vision for a Healthy and Fit Nation. Rockville, MD: US Department of Health and Human Services; 2010

Bay Area average non-automobile mode share for all trip purposes is 16 percent with countywide averages ranging from a high of 45 percent in San Francisco, through a low of just over 8 percent in Sonoma County. North Bay county active transportation mode shares range from 15 percent in Marin County, 12 percent in Napa County, 11 percent in Solano County, through just over 8 percent in Sonoma County.¹⁴

Table 4-1 Regional mode shares for all trip purposes

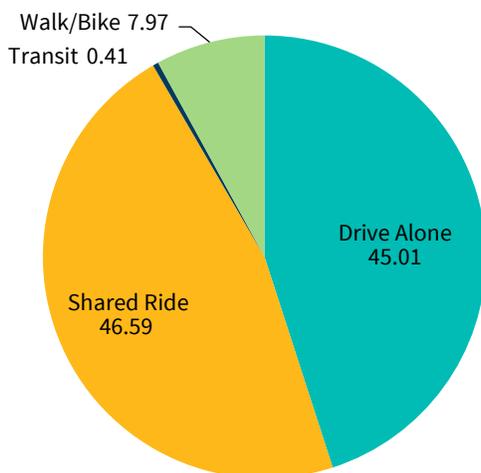
	Non-auto Mode Share
Alameda	22.00%
Contra Costa	12.20%
Marin	14.60%
Napa	11.70%
San Francisco	45.00%
San Mateo	14.70%
Santa Clara	11.10%
Solano	10.60%
Sonoma	8.36%
Bay Area Region	16.00%
Sacramento Region	7.40%

Source: Bay Area Travel Survey

Moving forward, what is required to meet the 2040 Goal?

Implementing policies focused on maximizing transit ridership, increasing bicycle and pedestrian travel, increasing land use densities, and making driving more costly could increase bicycle and pedestrian mode shares by up to 5 percent based on results of the CTP performance assessment. Implementing the vision CTP scenario which includes transit improvements and selected policies and projects shown to be effective at encouraging mode shift away from auto travel could increase 2040 active mode share to just over 15 percent in Sonoma County, achieving the CTP performance target.

Figure 4-7. Percentage of Travel by Mode in Sonoma County — 2010



Sources: Sonoma County Travel Model

¹⁴ California Statewide Travel Survey (2010–2012), Sonoma County Travel Model.

Goal 5: Promote Economic Vitality

SCTA recognizes that transportation is an important component of countywide economic health and has made promoting economic vitality a goal for the 2015 CTP. Two performance measures have been identified which can help assess transportation’s role in improving countywide economic conditions.

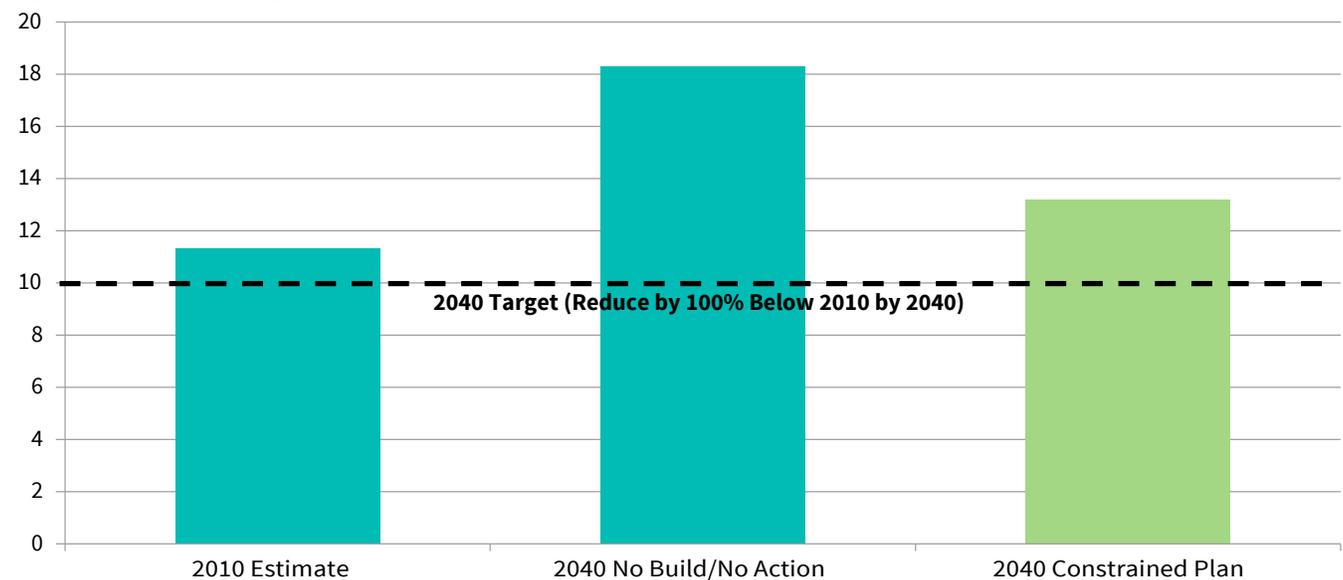
Reduce Commute congestion

Increased and unreliable travel times and congestion can have a negative impact on job creation, tourism, commerce, and goods movement, while an efficient and effective transportation system can help improve local economic conditions and make working and doing business in Sonoma County more profitable.

SCTA has identified evening, or PM, peak period average travel time as a performance measure that can be used to assess the transportation related cost of doing business in Sonoma County. This measure provides an estimate of transportation system efficiency and can indicate how easy, or difficult, it is to conduct business, move goods, and attract employees to Sonoma County. Increases in peak period congestion make doing business in the county more difficult, increase delivery and shipping costs, and make it difficult for workers to get to and from work sites and employment locations.

Target for 2040: Reduce 2010 Average PM Peak Period Travel Time per Trip by 1 minute by 2040.

Figure 4-8. PM Average Travel Time (minutes)



Sources: Sonoma County Travel Model, MTC

Since the 2009 CTP

Evening peak period travel time was not included as a performance measure in the 2009 CTP but according to commute data collected by the US Census Bureau, commute travel times in Sonoma County have stayed relatively flat since 2009, decreasing to 24.9 minutes in 2014 from 25.5 minutes in 2009. This data is collected for work or commute trips only, which are typically longer than other types of trips and are higher than the estimates considered in the CTP performance assessment and estimates that were used to set the performance target. Nevertheless, the reduction in commute trip travel time is encouraging and would be expected to also apply to non-work trips as well.

PM peak period average travel time is predicted to increase from around 11 minutes per trip in 2010 to over 18 minutes per trip in 2040. Population, housing, and employment growth are the primary causes of this increase in congestion and travel time. CTP projects are expected to provide some congestion relief and peak period travel time benefit in the future. Policies that maximize system efficiencies and encourage a shift to transit and non-motorized travel modes are effective at reducing PM peak period travel times. The performance target could be met by implementing the CTP vision scenario which would reduce average evening peak period travel time to under 9 minutes per trip.

Moving forward, what is required to meet the 2040 Goal?

Thousands of hours are lost each year due to congestion and travel delay. Implementing projects and policies which reduce peak period travel times and improve countywide mobility will reduce the cost of doing business in Sonoma County and make it easier for local businesses to attract and maintain an appropriate labor force.

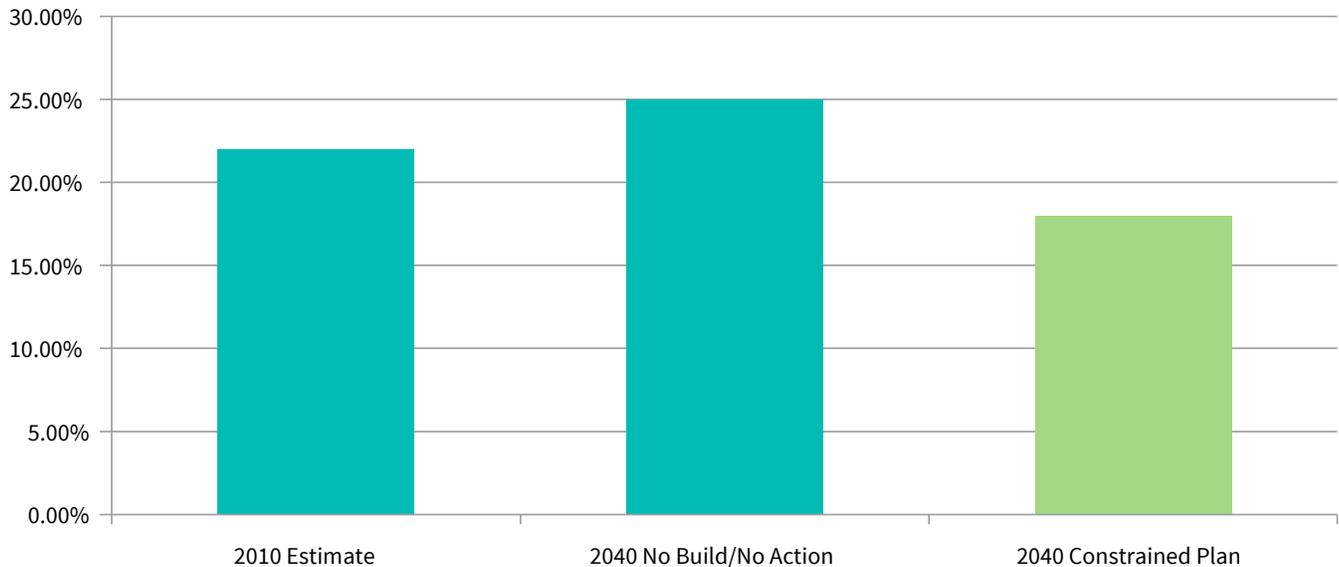
Transportation Equity

SCTA supports policies that help make transportation choices available and affordable for all households and county residents. Transportation affordability is linked to economic vitality. The transportation system allows people to access employment, goods and services, recreational opportunities, education, and other destinations. As transportation costs rise, accessibility and quality of life suffer as larger and larger portions of household budgets must be spent on transportation. Low and moderate income households are hit the hardest by rising transportation costs. Future monthly household travel costs are estimated to increase from roughly \$1,160 per month (2013) to just under \$1,340 per month in 2040 because of increased congestion, increased regional commuting, and longer average travel times. An average household in Sonoma County spent roughly 22 percent of the household budget on transportation costs in 2013 with this percentage estimated to increase to 25 percent by 2040 because of increased congestion and travel times.

Vulnerable communities, or Communities of Concern, have been identified by highlighting census block groups in which 30 percent or more of households have incomes between 0–200 percent of the federal poverty level (\$21,600 - \$74,020 total household income depending on family size). Transportation improvements can help improve conditions and provide transportation options and improved mobility in these areas. **Figure 2-3** in **Chapter 2** of the CTP shows the location of Sonoma County Communities of Concern. SCTA has prioritized these areas and has indicated that CTP projects wherever possible should serve these disadvantaged communities.

TARGET FOR 2040: Prioritize investments in Communities of Concern. Reduce average household travel costs below 2010 levels by 2040.

Figure 4-9. Percentage of Household Budget Spent on Transportation



Sources: SCTA, Center for Neighborhood Technology, AAA

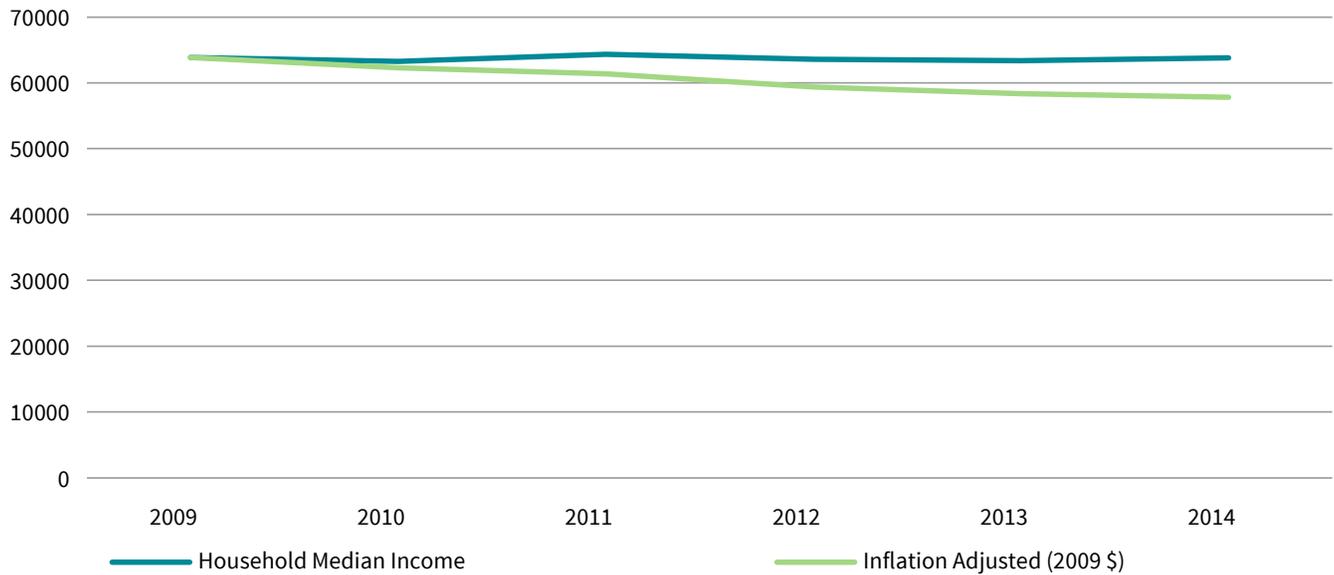
Transportation improvements that serve communities of concern can improve accessibility and potentially improve conditions in these vulnerable areas. Rising transportation costs continue to impact household incomes and affordability in Sonoma County. The Center for Neighborhood Technology estimates that housing and transportation are already unaffordable for many Sonoma County households. Reducing household transportation costs will increase countywide affordability and improve quality of life in Sonoma County.

Since the 2009 CTP

Specific metrics were not identified in the 2009 CTP for reducing household travel costs but has been identified as a metric in the current CTP. AAA estimates that the cost of driving has increased by 5 percent since 2009 from an average cost of operating a personal vehicle of 45 cents per mile in 2009 to 48 cents per mile in 2014.¹⁵ Most of this increased cost can be attributed to increased insurance and maintenance costs, with fuel costs actually decreasing over this same five year period. During this five year period median incomes in the county have stagnated and actually declined when corrected for inflation (see **Figure 4-11**). Rising transportation costs and flat or declining income will continue to put pressure on Sonoma County households if this trend continues. Low income households will be hit the hardest if this trend continues.

¹⁵ American Automobile Association, Cost of Driving Estimates, 2009 and 2014.

Figure 4-10. Sonoma County Median Household Income 2009- 2014



Sources: US Census Bureau — American Community Survey, Bureau of Labor Statistics — Consumer Price Index.

Moving forward, what is required to meet the 2040 Goal?

Transportation costs will need to be reduced and/or household incomes will need to increase in order to meet the 2040 Goal of reducing household transportation costs. Transportation investments and improvements that provide travel options that are less costly than private automobile use have the potential to lower travel costs and will benefit disadvantaged communities in Sonoma County and provide travel alternatives for all countywide travelers. Reducing the number of trips each household is required to make, and how far they must travel will also reduce travel costs. Vulnerable communities which are highlighted by Communities of Concern are especially vulnerable to rising transportation costs and transportation improvements in Communities of Concern should be prioritized where possible.

Spotlight — Transportation Pricing and Affordability

Travel demand reduction policies which seek to control travel by increasing transportation costs significantly increase household travel costs. Per mile VMT or congestion fees could increase travel costs to 35 percent of an average household budget and parking pricing policies could increase household travel costs to 37 percent of the household budget in 2040. This could represent an increase in average household travel costs by around \$500 per month. Implementing the CTP vision scenario would reduce average household travel expenses to around \$1000/month or 19 percent of an average household budget in Sonoma County.