**Updated:** 9/2017

# SHIFT SONOMA COUNTY

## LOW CARBON TRANSPORTATION ACTION PLAN

scta
SONOMA COUNTY TRANSPORTATION AUTHORITY

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# Acknowledgments


## Project Partners:

Sonoma County Transportation Authority (SCTA)
Regional Climate Protection Authority (RCPA)

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The SCTA/RCPA Board has representatives from all ten local jurisdictions in Sonoma County.

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# EXECUTIVE **SUMMARY**

Shift Sonoma County is a project that defines and evaluates several specific strategies to shift transportation choices away from single occupant internal combustion engine vehicles towards cleaner, healthier, and more efficient modes.

These strategies are transportation demand management programs, shared mobility, and electric vehicles.

The Shift Sonoma County is a collaboration between the ten local jurisdictions within Sonoma County, two regional agencies tasked with planning for transportation solutions – the Sonoma County Transportation Authority (SCTA) and the Regional Climate Protection Authority (RCPA) – and other local and regional partners.

The Shift Sonoma County Low Carbon Transportation Action Plan shows that it is possible to reduce our greenhouse gas (GHG) emissions from transportation by half while also making our air cleaner, reducing commuting costs, keeping our money in the local economy, and offering more mobility options to all Sonoma County residents.

## Primary Goals

1. **Reduce greenhouse gases from transportation.**
   Transportation causes over 53% of all GHGs in Sonoma County.[1]
2. **Reduce vehicle miles traveled**
   Congestion accounts for over 44,000 hours of time lost to sitting in traffic each year.[2]
3. **Promote safety and health**
   Accidents cause six injuries or fatalities per day, on average, in Sonoma County.[3]
4. **Promote economic vitality**
   The average Sonoma County household spends about $1,160 per month (or 22% of the household budget) on transportation.[4]

1 SCTA, *Moving forward 2040; Sonoma County's Comprehensive Transportation Plan (CTP)*, 2016.
2 SCTA, *CTP*, 2016.
3 SCTA, *CTP*, 2016.
4 SCTA, *CTP*, 2016.

The Shift Plan identifies strategies to implement transportation solutions that have previously been identified as priorities with SCTA's countywide Comprehensive Transportation Planand Regional Climate Action Plan.[5,6] This plan did not look at new land use, transit, or bicycle and pedestrian infrastructure planning; those are addressed through existing local efforts. The project website features tools that were developed to support implementation: http://scta.ca.gov/planning/shift/.

# Strategies

Sonoma County has invested in smart land use, preservation of open space, road and highway systems, public bus and rail transit, a network of bike lanes and paths, and publicly-accessible electric vehicle charging stations.

The Shift Plan builds from these foundations and promotes new mobility solutions to make the entire local transportation system more efficient, affordable, and clean. The plan explored barriers, opportunities, and actions to implement (or expand use of) the following in Sonoma County:

- **Car share**
- **Bike share**
- **Transportation demand management (TDM) measures**
- **Plug-in electric vehicles (EVs)**

The Shift Plan identifies specific, near-term strategies to implement each of these solutions that can be led by the SCTA and RCPA or by individual member governments. The following chapters present those strategies, along with links to various implementation tools and information resources intended to support new actions. The primary audience for these resources are the local government and agency partners working on transportation in Sonoma County, but the information may be useful to anyone working to shift transportation patterns regardless of which hat they wear.

5 SCTA, *CTP*, 2016.

6 RCPA, *Climate Action 2020 and Beyond (CA2020)*, 2016.

# Co-Benefits

Transportation is essential for economic vitality and quality of life. However, a dependence on personal vehicles comes with congestion, reduced air quality, public health and safety impacts, and higher transportation costs. The foundation of a healthy transportation system is smart land use that enables people to shift to making trips by foot, bicycle, or transit and allows for residents to avoid the need to drive.

For any remaining vehicle trips, it is necessary to switch to low or zero emission fuels, and improve vehicle and fuel efficiency. Within this framework (avoid, switch, improve), communities can see many co-benefits by promoting clean transportation options including:

- **Lower household transportation costs**
- **Cleaner air**
- **Energy independence**
- **Less congestion**
- **Safer roads**
- **Increased personal health**

# Equity

The transportation system allows people to access employment, goods and services, recreational opportunities, education, health care, and other destinations. As transportation costs rise due to increasing trip lengths and affordable housing becomes harder to find close to employment centers, accessibility and quality of life suffer. Larger and larger portions of household budgets must be spent on transportation and more time is spent away from home. The average household in Sonoma County spent 22% of the household budget on transportation in 2013, and this is expected to rise to 25% without investments to address the balance of housing and jobs and the affordability of transportation options.[7]

Barriers impacting low-income residents' ability to access clean transportation include: affordability of zero-emission and near-zero emission technologies and supporting charging and fueling infrastructure; the need for permanent, long-term funding sources; awareness of clean vehicles and supporting infrastructure including incentive programs; and the dynamic nature of transportation and mobility option needs of low-income residents.[8]

A goal of the Shift Plan is to make transportation solutions work for everyone, and reduce inequality in access to affordable, clean transportation. The solutions presented are important tools to help bring down the cost of transportation, by reducing dependency on vehicles that are expensive to fuel, maintain, and insure. Access to clean and affordable mobility will go up by implementing car share, bike share, and transportation demand management programs, linking them to transit systems, and making investments to make EVs more feasible for more drivers. This includes implementation recommendations focused on deploying new mobility strategies in ways that reach communities of concern and low income residents even if they may not be as productive as other areas.

The SCTA and RCPA will follow the recommendations provided by the Air Resources Board in the recently released a draft guidance document "Overcoming Barriers to Clean Transportation Access for Low-Income Residents" with recommendations to overcome barriers to access clean transportation and mobility options for low-income residents.

## Local Communities of Concern

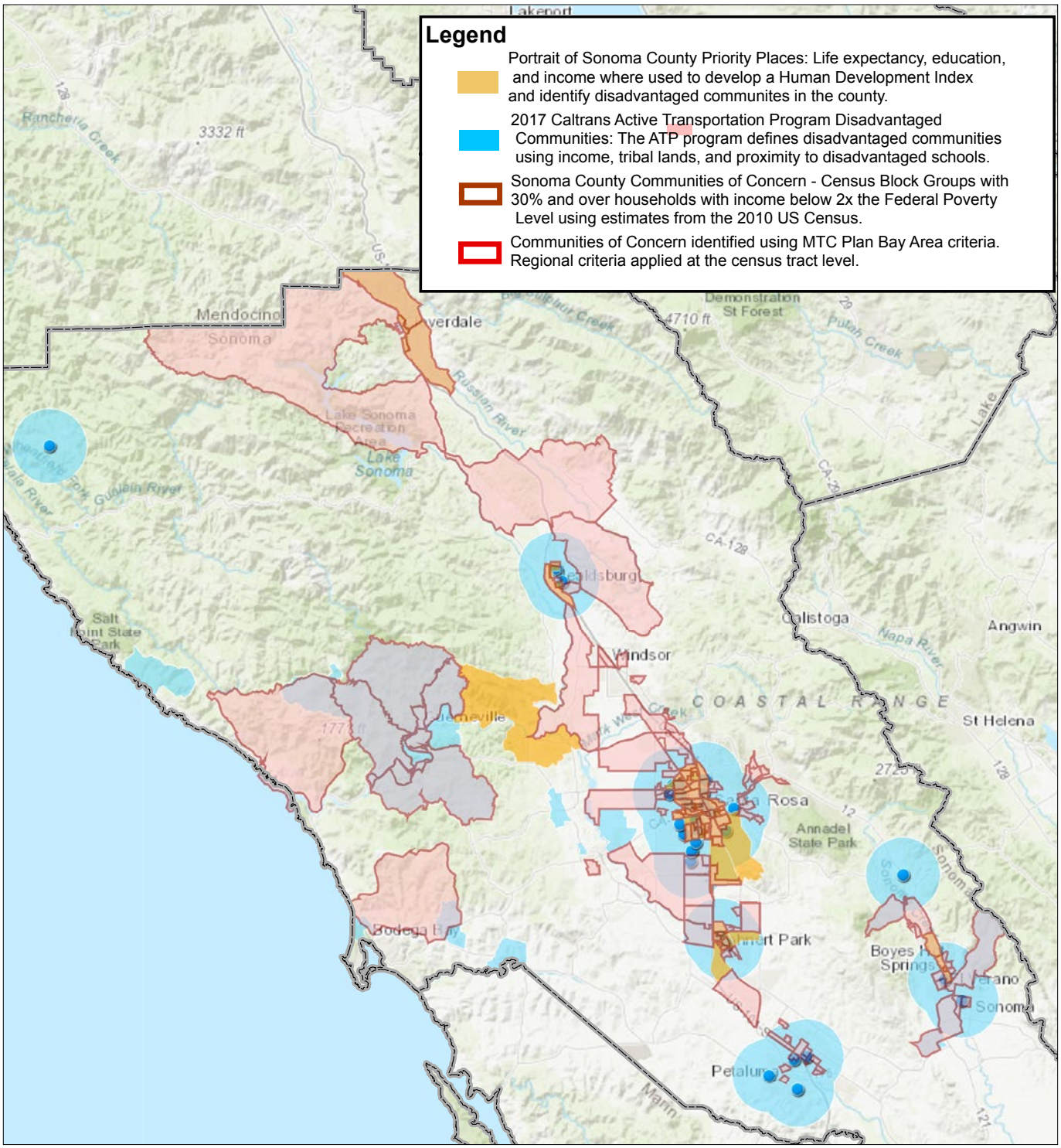
There are several ways to identify areas within Sonoma County that need more investment in affordable, clean transportation. The SCTA has historically used income as the primary metric to identify communities of concern. The California Environmental Protection Agency's CalEnviroScreen tool uses several socioeconomic metrics plus exposure to harmful pollutants, as does the Metropolitan Transportation Commission. The Sonoma County Department of Health Services produced another locally specific tool for thinking about inequity, its Portrait of Sonoma County Project that evaluated health, education, and income across census tracts throughout the county.

The SCTA has produced an online map that shows the results of each of these approaches to defining communities of concern. There are areas of overlap and disagreement, but each framework shows places in the community that have unmet need. The Shift implementation action recommendations include considerations to direct investments in diverse mobility towards these communities and towards households with greater need.

7 SCTA. *CTP*. 2016

8 California Air Resources Board, *Overcoming Barriers to Clean Transportation Access for Low-Income Residents*, 2017. https://www.arb.ca.gov/msprog/transoptions/draft_sb350_clean_transportation_access_guidance_document.pdf.

## Sonoma County Disadvantaged Communities[9]

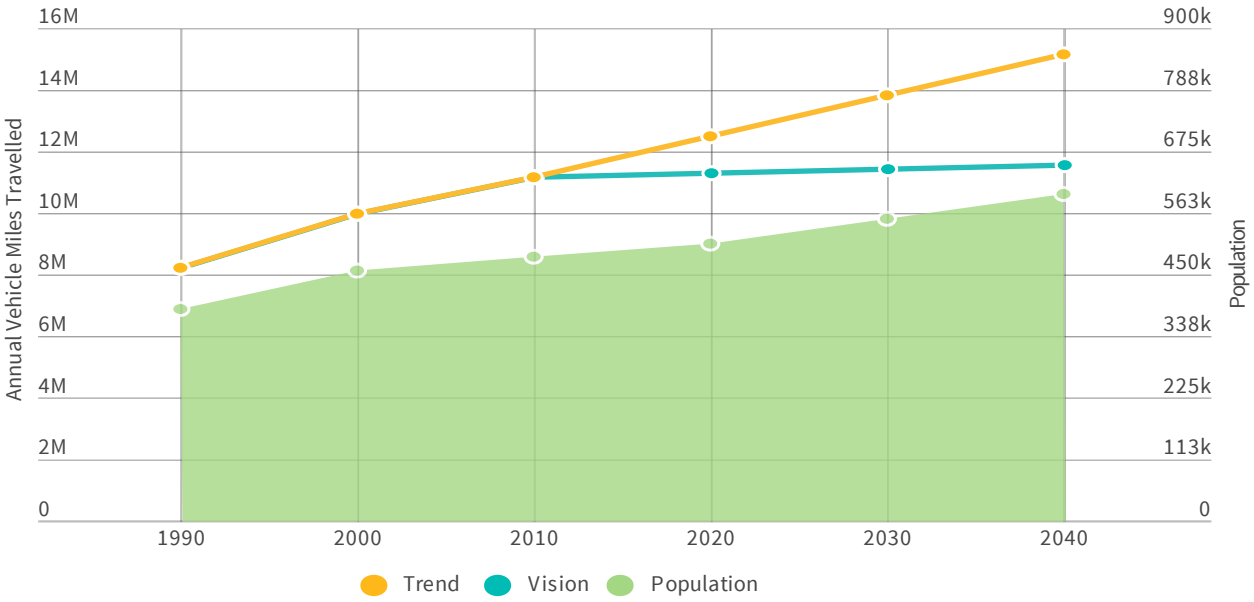



9 SCTA, Sonoma Disadvantaged Communities, 2017. http://scta.ca.gov/planning/comprehensive-transportation-plan/sonoma-disadvantaged-communities/.

# Sonoma County Transportation Facts

Here's what you need to know in order to better understand the strategies laid out in the plan. In auto-centric communities, vehicle miles traveled (VMT) tends to grow proportionally with population. The vision for Sonoma County is to decouple VMT from population by steadily reducing VMT per capita.

### Population Growth and VMT in Sonoma County[10]



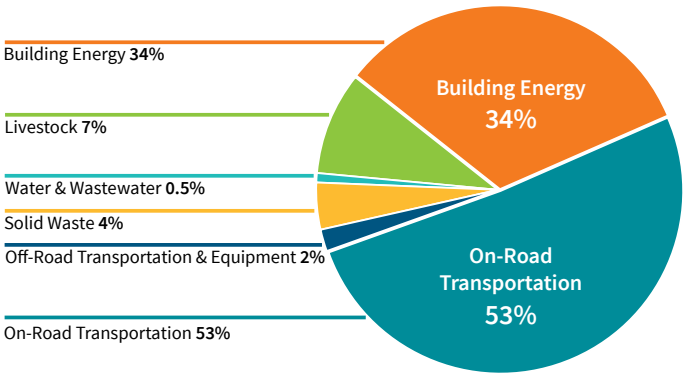

10 SCTA, *CTP*, 2016.

Transportation is the largest single source of greenhouse gas (GHG) emissions in the county, causing over 2 million tons of GHGs each year. This sector must be addressed to succeed in achieving local clean air goals.

Transportation generates GHGs because most trips are made by car, and most of those are internal combustion engine vehicles. Additionally, 45% of these trips are made alone.[11]

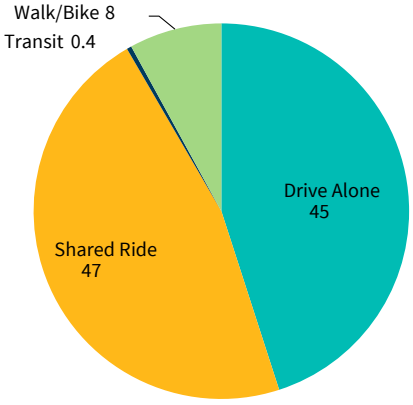
11 SCTA, CTP, 2016.

### Local Sources of Greenhouse Gas Emissions[12]




12 RCPA, CA2020, 2016.

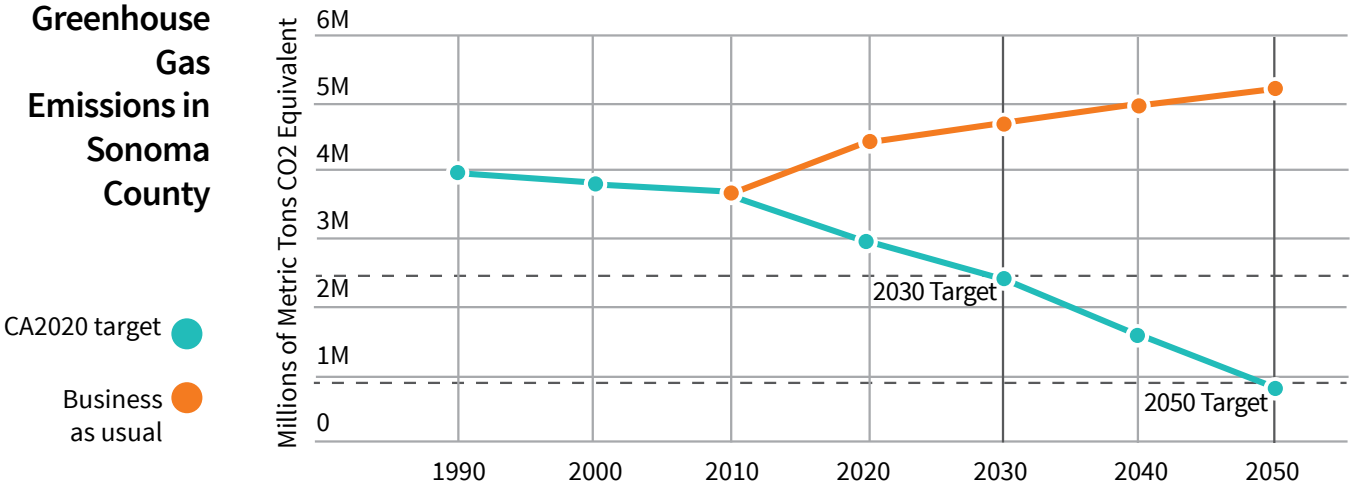
### Mode Share Breakdown of All Sonoma County Trips by Percentage[13]




13 SCTA, Sonoma County Travel Model, 2016.

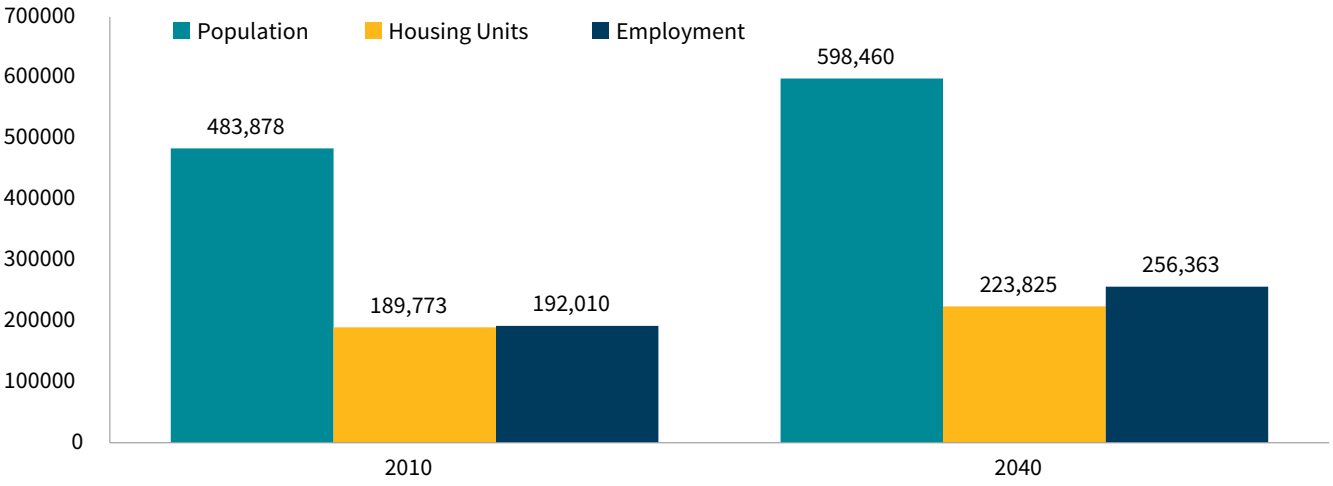
GHG emissions also tend to grow proportionally with population and economic growth. The vision for Sonoma County is to decouple growth and emissions, by providing for all energy needs with low or zero carbon sources.

## Measured and Forecasted GHG Emissions and Reduction Targets




Population is expected to grow by roughly 20% and employment is expected to grow by roughly 34% between 2010 and 2040,[14] heightening demand for housing and transportation. Focusing this growth in complete neighborhoods and investing in mobility options will be the pillars of long term success in transportation and climate goals.

## Sonoma County Growth Forecasts: 2010-2040[15]



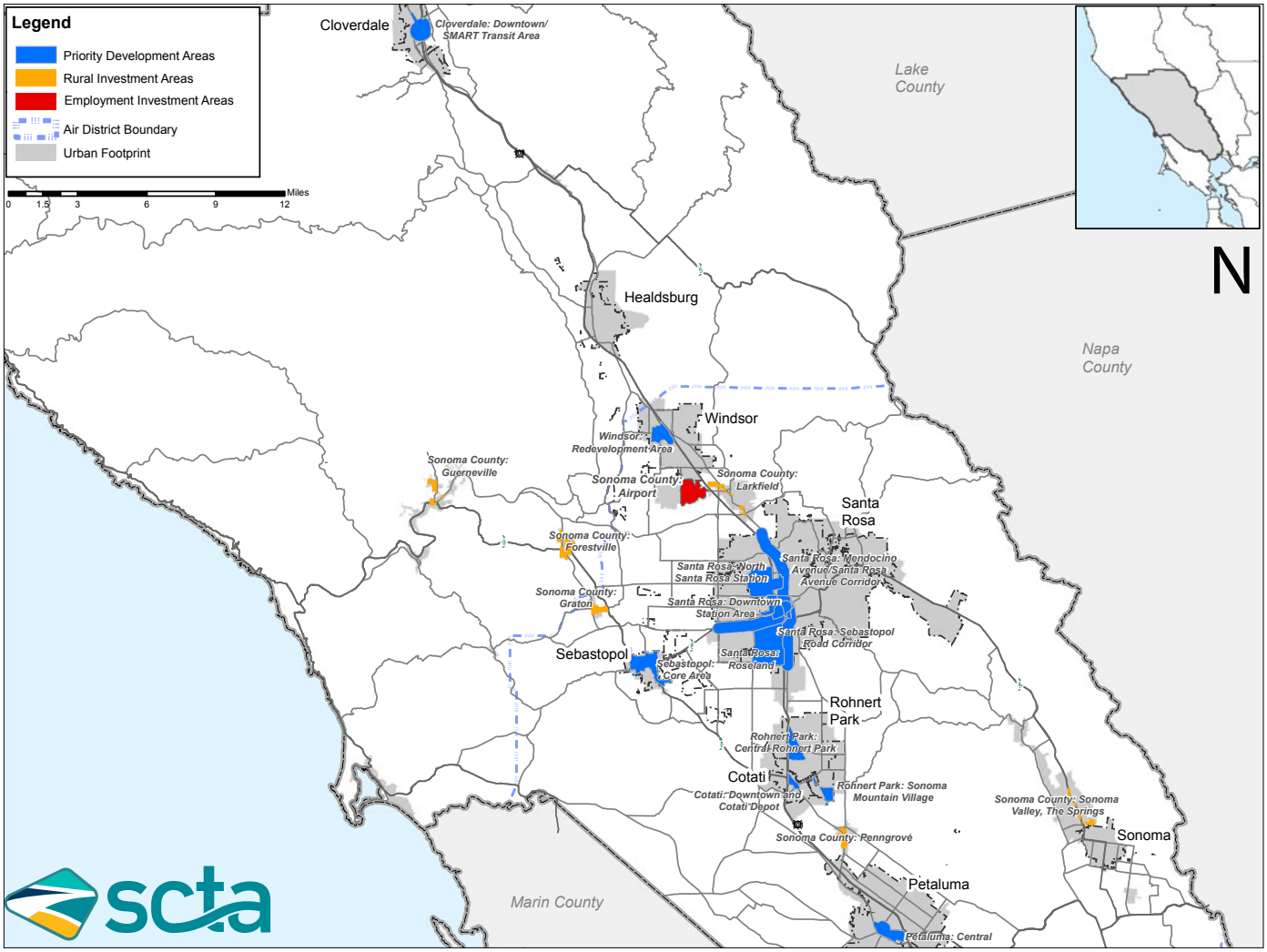

14 SCTA, *CTP*, 2016.

15 Association of Bay Area Governments. http://abag.ca.gov/.

# Existing Transportation Facts Continued

Land use is the foundation of community resource needs, and local investments in focused growth through Urban Growth Boundaries, smart General Plans, and participation in Plan Bay Area help make travel demands much lower than in areas with sprawl.

## Land Use Policies in Sonoma County

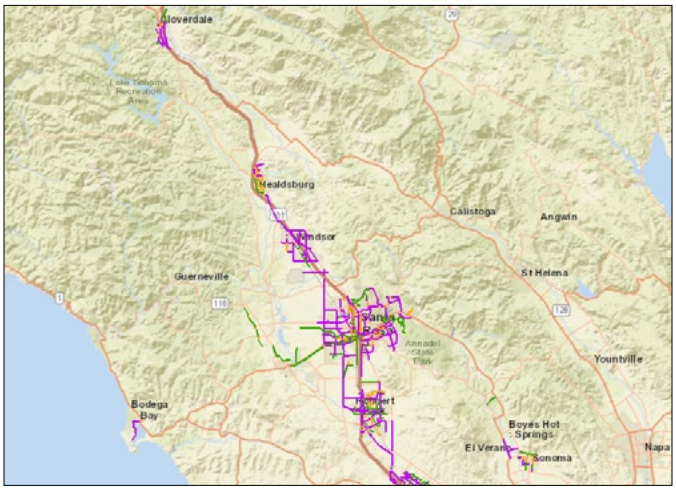



Full scale versions of these maps can be viewed at scta.ca.gov/shift.

A network of over 2,700 miles of roads and highways connect the communities of Sonoma County, but the transit and active transportation infrastructure networks are essential complements to enable shifts in transportation behaviors away from personal vehicles.[16]

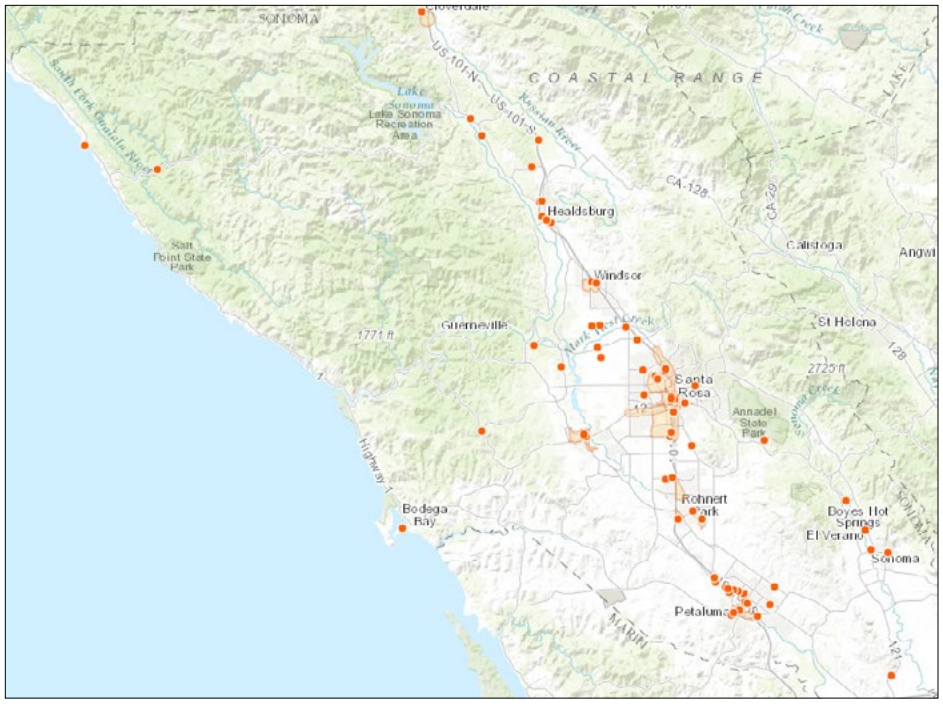
## Existing Transit Networks[17]

## Existing Bicycle Facilities[18]




For trips that must be made by car, EVs offer a transportation alternative that is much cleaner, more convenient, and affordable for many drivers. The infrastructure needed to support EV driving has emerged in the county but it needs to grow to support wide scale adoption of EVs.

## Existing EV Charging Stations[19]




16 California DOT, Highway Performance Monitoring Program, http://www.dot.ca.gov/hq/tsip/hpms/datalibrary.php.

17 Sonoma County Transportation Authority. Mode Shift Needs Assessment, 2016. http://scta.ca.gov/planning/shift/.

18 SCTA, ArcGIS, 2017.

19 Alternative Fueling Station Locator. https://www.afdc.energy.gov/locator/stations/.

# Developing the Shift Plan

The goals and priorities for Shift strategies emerged out of several, multi-year planning efforts led by the SCTA and RCPA, the Comprehensive Transportation Plan and the Climate Action 2020 Plan. Each of these efforts solicited feedback from hundreds of community members on transportation and climate related challenges and needs. Input was collected at public meetings, tabling at community events, presenting to community groups, and through online surveys. The four transportation solutions explored in Shift – transportation demand management (TDM), car share, bike share, and electric vehicles – were identified as important tools for which many implementation questions remained.

The Shift plan was intended to develop needs assessments and feasibility assessments for each, and recommendations for priority actions that local governments and partners can take to advance them. The SCTA and RCPA retained expert consulting support, established strategy specific working groups and steering committees, and solicited additional input from community members via online survey tools, public meetings, and presentations.

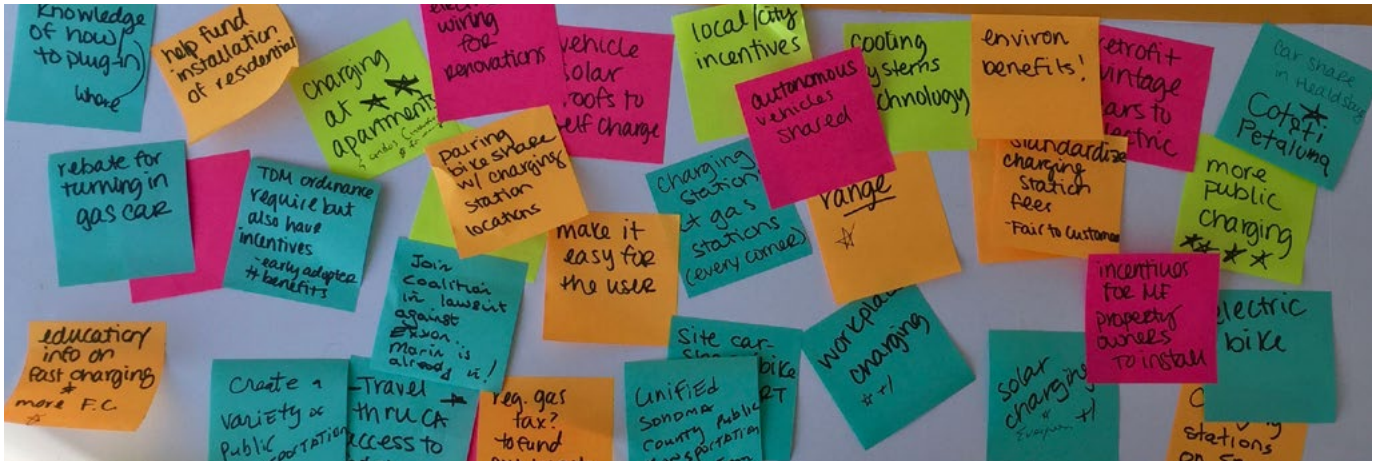
The Shift Plan was initially developed based on analysis and feedback received while developing the 2016 Sonoma County Transportation Plan and the Climate Action 2020 Plan. In those plans, several low-carbon transportation strategies were identified as particularly promising and were un-addressed in existing planning efforts:

- Transportation demand management
- Bike share
- Car share
- Electric vehicles (and related charging infrastructure)

In addition to a series of public and targeted workshops on the Shift Plan, a number of relevant surveys helped provide feedback:

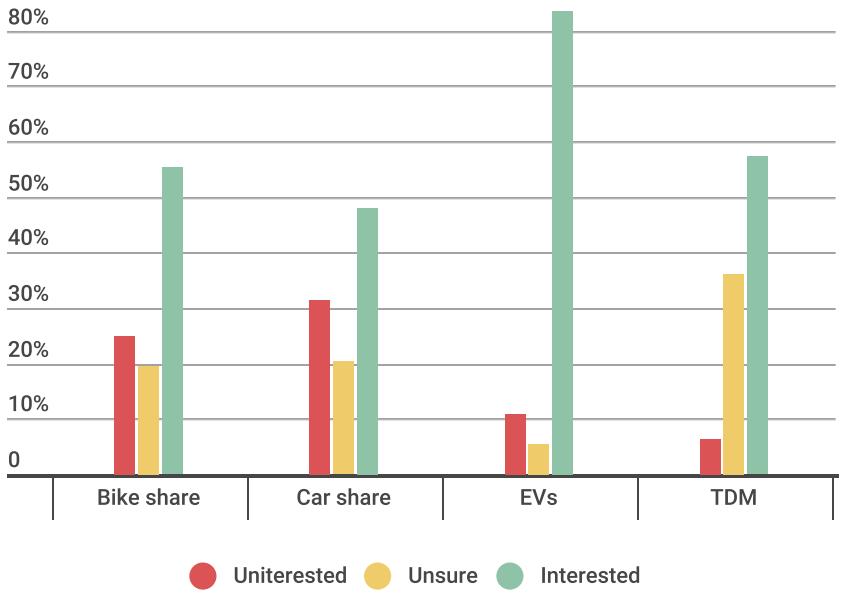
- Shift Sonoma County Strategy Survey (September 2017, 59 participants)
- Sonoma County Transportation Survey (Jan 2017, 327 participants)
- Shift Sonoma County Market Surveys (2016)
- Sonoma County Comprehensive Transportation Plan Survey (2015, 334 participants)

The feedback helped identify specific barriers that are addressed through the proposed actions in the Shift Plan. As the plan leads to implementation of these strategies, public awareness and understanding of new mobility options will continue to be a challenge and a priority.



While it is a snapshot of a particularly engaged segment of Sonoma County residents, the Shift Sonoma County Strategy Survey provided some insight into the level of interest and awareness of each strategy in the community.

## Interest in Using Strategies - 2017 Public Shift Survey[20]




The plan also includes evidence and recommendations from numerous regional and state best practice guides, which are cited and listed in the Resources section at the end of the plan.

20 Shift Sonoma County - Draft Plan Survey on PlaceSpeak. https://www.placespeak.com/shiftsonoma

# Shift Actions

There are many things local governments can do to expand access to and use of diverse mobility options. The Shift Plan evaluates solutions, local feasibility, and how to take near-term, high priority actions. Tools to support these actions have been developed or are in the process of being developed through Shift Sonoma County.

The following tables list the findings of the Shift Plan, each of which are presented in greater detail in later sections. Strategies and actions are categorized by Mode Shift - shifting from single occupant vehicles to shared and active modes, and Fuel Shift - shifting from internal combustion engine to electric vehicles.

## Future of the Shift Plan

The plan contains numerous actions that can be taken by local governments and partners. Some of these actions require little or no cost to implement, but rather a policy change or shift in how decisions are made. Other actions require funding or dedicated staff time. The SCTA and RCPA have developed tools to support some of the actions, such as model resolution and ordinance language, maps, and implementation recommendations. The detailed feasibility studies and siting frameworks can be used once funding is secured to direct investments as effectively as possible.

Strategies to encourage shifts in transportation behaviors will also have to evolve with transportation technology and cultural changes. The SCTA and RCPA recognize the need for more efforts to prepare for the future of transportation that is likely to become increasingly autonomous, connected, electric, and shared.

| **Transportation Demand Management (TDM)**<br>Reduce travel demand, make diverse modes more attractive, boost employee recruitment and retention, and reduce GHGs. | | Implementing Entities |
|---|---|---|
| Planning | 1. **Model effective commute programs** within local governments by designing programs tailored to local travel options and employee needs. | Local governments (human resources, sustainability) |
| | *The Shift Employer Commute Program Toolkit guides employers through process of developing or expanding commute programs and includes programs and resources that are available in Sonoma County. More info: scta.ca.gov/shift* | |
| Policy | 2. **Develop and adopt local TDM ordinances** to expand programs to more employers. | Local governments (planning and community development) |
| | 3. **Develop and adopt local TDM ordinances** that include infrastructure and programs considerations for developers. | Local governments (planning and community development) |
| | *The Shift Model TDM Ordinance was crafted as a template for local jurisdictions to consider. More info: scta.ca.gov/shift* | |
| | 4. **Adopt policies requiring any public partnerships** with TNCs to favor ridesharing over individual rides. | SCTA/RCPA, local governments (transit, planning and community development) |
| Coordination | 5. **Coordinate county-wide policy** actions. | SCTA/RCPA, local governments |
| | 6. **Coordinate with employers** on the development and implementation of commute programs by engaging with economic development entities, transit agencies, and shared mobility programs. | SCTA/RCPA, local governments, NGO partners: chambers of commerce, new/expanded employment centers, employers enrolled in 511.org commuter benefits program, transit agencies, car share operator, bike share operator |
| Deployment | 7. **Lead by example** with programs for municipal employees. | Local governments (human resources, sustainability) |
| | 8. **Pursue funding** to support expansion of TDM programs. | SCTA/RCPA, local governments, regional governments, NGO partners: employers, developers |
| Education and Awareness | 9. **Market TDM programs** to employers and developers through business assistance programs, green business certifications, and commute fairs. | SCTA/RCPA, local governments, NGO partners: chambers of commerce, County Green Business Program, Spare the Air Resources Team, employment centers |
| | 10. **Assist employers** with the development of commute programs and marketing alternative modes of transportation to employees. See *Employer Commute Program Toolkit* under *Planning* above. | SCTA/RCPA, local governments, NGO partners: chambers of commerce Spare the Air Employer Program |

| **Bike Share Actions**<br>Provide a first/last mile option to enable transit based travel, reduce the costs of biking for occasional and new cyclists, make short trips cheaper, easier, and more fun than driving, and boost economic development. | | Implementing Entities |
|---|---|---|
| Planning | 1. **Consider flexible bike share models** with zone-based service areas to minimize costs from start-up or relocating stations after initial implementation. | SCTA/RCPA, local governments, bike share operators |
| | 2. **Identify areas expected to have highest demand for initial implementation.** | SCTA/RCPA, local governments, bike share operators |
| | 3. **Consider siting in shared mobility hubs**, near transit centers and in peripheral neighborhoods with gaps in transit service. | SCTA/RCPA, local governments, bike share operators |
| | 4. **Consider siting bike share in communities of concern**. | SCTA/RCPA, local governments, bike share operators |
| | 5. **Consider siting bike share in areas with low transit coverage**, regardless of productivity. | SCTA/RCPA, local governments, bike share operators |
| | 6. **Review site requirements** for various site types identified as priorities. | SCTA/RCPA, local governments, bike share operators |
| | *The Shift Bike Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: scta.ca.gov/shift* | |
| Policy | 7. **Dedicate public space for hubs** in areas of high activity, near downtowns and transit hubs. | Local governments |
| | 8. **Require or encourage new bike share infrastructure** in conjunction with other public projects and new infrastructure and development. | Local governments (planning and community development) |
| | 9. **Consider reducing parking requirements** when bike share is included in new developments. | Local governments (planning and community development) |
| Coordination | 10. **Coordinate countywide implementation**. | SCTA/RCPA, local governments |
| | 11. **Include bike share information** on any web-based transit trip planning tools or informational sites. | SCTA/RCPA, local governments (transit), NGO partners, Spare the Air Resource Team, 511.org |
| | 12. **Consider multi-jurisdictional and/or public private partnerships** to serve travel across city or county lines and along the Sonoma Marin Area Rail Transit (SMART) corridor. | SCTA/RCPA, local governments |
| | 13. **Post wayfinding and signage** directing users between bike share and transit hubs. | Local governments, bike share operators |
| | 14. **Advertise bike share** at transit hubs and on transit vehicles. | Local governments (transit) |

| Bike Share Actions (continued) | | Implementing Entities |
|---|---|---|
| Deployment | 15. **Make discounted bike share memberships or payment plans available** for low income residents, coupled with solutions for customers without bank accounts. | SCTA/RCPA, local governments |
| | 16. **Ensure a way to utilize bike share service without a smart phone.** | SCTA/RCPA, local governments, bike share operators |
| | 17. **Establish more accurate local implementation cost estimates.** | SCTA/RCPA, local governments |
| | 18. **Secure funding for start-up costs** from grants, business sponsors, transit-operators, non-profits, or other partners. | SCTA/RCPA, local governments |
| | 19. **Launch bike share system** or expansion in conjunction with new bicycle infrastructure. | SCTA/RCPA, local governments |
| | 20. **Consider including various bicycle models** such as tricycles or cargo bikes to accommodate groceries, luggage, children, persons who cannot use a two-wheeled bicycle, etc. | SCTA/RCPA, local governments |
| Education and Awareness | 21. **Support and expand education, safety, and awareness campaigns** to include bike share users. | SCTA/RCPA, local governments, bike share operators, NGO partners |
| | 22. **Educate residents about how to use bike share** as a transportation alternative, especially in communities with lower incomes and non-English speakers. | SCTA/RCPA, local governments, bike share operators, NGO partners |
| | 23. **Partner with bike shops, tourism-related businesses, and business districts on promotions and discounts.** | SCTA/RCPA, local governments, bike share operators, NGO partners |
| | 24. **Advocate helmet use** in all education and awareness efforts and materials. | SCTA/RCPA, local governments, bike share operators, NGO partners |

| **Car Share Actions**<br>Make it easier for people not to own a car or for a household to avoid owning multiple cars by providing an option for occasional vehicle trips. It can support transit and multi-modal lifestyles, reduce household transportation costs, and flexibly connect transit users to broader destinations than transit or bicycling. | | Implementing Entities |
|---|---|---|
| Planning | 1. **Evaluate opportunities for new or expanded car share models**, including private operators or non-profit fleet based partnerships. | SCTA/RCPA, local governments, NGO partners |
| | 2. **Plan for initial implementation or expansion** in areas expected to have highest demand for initial implementation. | SCTA/RCPA, local governments, NGO partners |
| | 3. **Consider siting in shared mobility hubs, near transit centers and in neighborhoods with gaps in transit service.** | SCTA/RCPA, local governments, NGO partners |
| | 4. **Consider siting in communities of concern, regardless of productivity.** | SCTA/RCPA, local governments, NGO partners |
| | 5. **Consider opportunities to integrate plug-in electric vehicles.** | SCTA/RCPA, local governments, NGO partners |
| | *The Shift Car Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: scta.ca.gov/shift* | |
| Policy | 6. **Ensure parking regulations allow for designation of parking spaces** for round-trip fleet-based car share, or free and unlimited parking for one-way car share. | Local governments |
| | 7. **Commit to purchase memberships** for municipal employees, as an employee commute benefit or to replace fleet travel. | Local governments |
| | 8. **Consider reducing parking requirements** for developers who provide space for car share and include incentives for tenants to use car share. | Local governments |
| Coordination | 9. **Coordinate countywide implementation**. | SCTA/RCPA, local governments |
| | 10. **Partner with existing car share providers operating in Sonoma County.** | SCTA/RCPA, local governments |
| | 11. **Facilitate partnerships with large local businesses and employers.** | SCTA/RCPA, local governments |
| | 12. **Include car share information** on any web-based transit trip planning tools, employer, and tourism sites. | SCTA/RCPA, local governments (transit), tourism boards, chambers of commerce, NGO partners, Spare the Air Resource Team, 511.org |
| | 13. **Coordinate discounts or giveaways** on car share membership or transit passes with purchase of one of the two products. | Transit, car share operators |

| Car Share Actions (continued) | | Implementing Entities |
|---|---|---|
| Deployment | 14. **Include attractive in-kind services** within a request for proposals from car share providers. | SCTA/RCPA, local governments |
| | 15. **Provide free on-street or public parking lot spaces**, especially in areas with high visibility and at or near transit hubs. | Local governments |
| | 16. **Secure funding for start-up costs** from grants, business sponsors, transit-operators, non-profits, or other partners. | SCTA/RCPA, local governments, NGO partners |
| Education and Awareness | 17. **Develop an education and awareness campaign.** | SCTA/RCPA, local governments, NGO partners, car share operators |
| | 18. **Post wayfinding and signage** directing users between car share and transit hubs. | Local governments, transit agencies, car share operators |
| | 19. **Advertise car share** at transit hubs, on transit vehicles, and on tourism and business related sites. | Local governments, transit agencies, business districts, chambers of commerce, car share operators |

| **Electric Vehicle Actions**<br>With over half of Sonoma County's emissions related to transportation, EVs represent a large opportunity to reduce emissions. When charged with renewable energy EVs can nearly eliminate the pollution associated with driving. Not only are EVs are fun to drive, easy to maintain, quiet, and cheaper to fuel than gas or diesel vehicles, they can also help operate a clean and reliable utility grid. | | Implementing Entities |
|---|---|---|
| Planning | **1. Evaluate Sonoma County EV drivers' habits and attitudes about electric vehicles** to better inform EV investments and policy priorities. | SCTA/RCPA, Sonoma Clean Power (SCP) |
| | **2. Develop a fleet strategy** to increase EVs in municipal fleets. | Local governments (public works) |
| | *The Shift EV Fleet Guide can help inform decision making about EVs and fleets. More info: scta.ca.gov/shift* | |
| Policy | **3. Adopt an EV Ready Community Resolution, establish consistency in local government policies** in Sonoma County to support electric vehicle adoption. | SCTA/RCPA, local governments |
| | *The Shift EV Policy Toolkit provides a template for local policy consideration. More info: scta.ca.gov/shift* | |
| | **4. Incorporate EV readiness policies into general plans.** | Local governments (planning & community development) |
| | **5. Develop policy for electrification of fleets** and consider adopting an "electric first" policy. | Local governments (planning & community development) |
| Coordination | **6. Participate in regional and state collaborations** to share knowledge on EV technology and policy. | SCTA/RCPA, SCP |
| | **7. Coordinate with local EV program implementers** in Sonoma County. | SCTA/RCPA, SCP, Air Districts |
| | **8. Participate in the Sonoma County Local Government EV Partnership** and assign a jurisdictional representative to collaborate on policies and programs. | SCTA/RCPA, local governments, SCP |
| | **9. Create and convene a public EV Coordinating Council** for Sonoma County. | SCTA/RCPA, SCP |
| | **10. Participate in the West Coast Fleet Initiative** to access tools, technical assistance and a network of fleet managers working on deploying EVs. | Local governments (public works) |
| | **11. Coordinate with local car dealers and vehicle manufacturers** to increase EV deployment in Sonoma County. | SCTA/RCPA, SCP |

| Electric Vehicle Actions (continued) | | Implementing Entities |
|---|---|---|
| Deployment | 12. **Deploy electric buses into transit fleets.** | Local governments (public works) |
| | 13. **Leverage municipal fleet purchasing power** and participate in bulk EV procurement initiatives. | Local governments |
| | 14. **Develop and promote programs and incentives**, including re-leasing or vehicle buyback programs, to reduce the barriers to EVs for all (especially low-income populations and communities of concern). | SCTA/RCPA, local governments, NGO partners: dealers, electric utilities |
| | 15. **Seek opportunities to pilot/support electric autonomous vehicles.** | SCTA/RCPA, SCP |
| | 16. **Pursue funding** to support expansion of EVs in Sonoma County. | SCTA/RCPA, local governments, SCP |
| Education and Awareness | 17. **Promote EVs through a public education campaign, including a knowledge base with EV ombudsman and supporting Ride and Drive events.** | SCTA/RCPA |
| | 18. **Establish a staff education program** to increase EV awareness for local government employees, including public fleet EV drivers. | SCTA/RCPA, local governments (public works), SCP |

| | **EV Charging Infrastructure Actions**<br>Addressing current and forecast EV driver needs. Home charging is essential to make EVs viable for most drivers. Work and daytime charging enables longer commutes and aligns with solar energy production. Ubiquitous and visible public charging gives drivers comfort taking longer trips and helps drivers believe EVs can work for them. | Implementing Entities |
|---|---|---|
| Planning | 1. **Use local data, tools, knowledge and relationships to plan for the scale and geographic distribution of charging needed to accommodate 100,000 EVs by 2030.** | SCTA/RCPA, Sonoma Clean Power (SCP) |
| | 2. **Create a map that highlights priority areas for multi-family, workplace, and opportunity charging.** | SCTA/RCPA |
| | *The Shift EV Charging Infrastructure Siting Framework provides insights into priority charging areas in Sonoma County. More info: scta.ca.gov/shift* | |
| | 3. **Work with local utilities** to ensure that charging infrastructure has minimal grid impacts and can be used as a grid resource. | SCTA/RCPA, local governments (planning & community development), SCP |
| | 4. **Establish siting criteria** that affect the desirability of specific charging sites. | SCTA/RCPA, local governments (planning & community development), NGO partners: electric utilities, EV drivers, and other groups |
| | 5. **Conduct a survey of local EV drivers** to better understand charging habits. | SCTA/RCPA |
| | 6. **Create an online EV charging infrastructure siting database that tracks key potential charging locations.** | SCTA/RCPA |
| Policy | 7. **Adopt EV Ready Community Resolution, establish consistency in local government policies in Sonoma County** to encourage EV charging infrastructure development. | SCTA/RCPA, local governments, SCP |
| | 8. **Incorporate EV readiness policies into general plans.** | Local governments |
| | 9. **Develop policies and incentives that require or encourage Level 2 charging stations in new residential construction.** | Local governments, electric utilities |
| | 10. **Develop policies and incentives to support installation of Level 2 charging stations in existing residential properties.** | Local governments, electric utilities |
| | 11. **Adopt requirements that exceed CalGreen Building Code requirements for charging infrastructure** in multifamily and commercial buildings. | Local governments |
| | 12. **Adopt an expedited permit process for EV charging stations**, including a permitting checklist and guidelines for residential installations | Local governments (planning and community development) |
| | 13. **Allow EV parking to count towards minimum parking requirements.** | Local governments (planning and community development) |
| | 14. **Consider standardization of price structures** for publicly owned EV charging stations countywide. | SCTA/RCPA, local governments |
| | *The Shift EV Policy Toolkit includes model policies for consideration. More info: scta.ca.gov/shift* | |

| | EV Charging Infrastructure (continued) | Implementing Entities |
|---|---|---|
| Coordination | 15. **Participate in regional and state collaborations to share knowledge about EV charging infrastructure.** | SCTA/RCPA |
| | 16. **Participate in state agency proceedings** that affect the expansion of EV charging infrastructure. | SCTA/RCPA |
| | 17. **Participate in the Sonoma County Local Government EV Partnership** and assign a jurisdictional representative to collaborate on policies and programs. | SCTA/RCPA, local governments |
| | 18. **Engage utilities, charging network operators, and other third parties installing EV charging infrastructure** to maximize utility of the Sonoma County siting framework and site database. | SCTA/RCPA |
| | 19. **Engage with property developers** about installing charging stations in new residential and commercial construction, including promoting incentives available. | Local governments |
| Deployment | 20. **Develop and implement a municipal workplace charging program.** | Local governments |
| | 21. **Develop and implement a fleet charging program.** | Local governments |
| | 22. **Identify opportunities to install publicly accessible EV charging stations** in high priority locations. | SCTA/RCPA, Local governments, SCP |
| | 23. **Install EV charging stations in new and existing public parking lots and garages**. | Local governments |
| | 24. **Develop and promote programs and incentives** to reduce the barriers to EV charging infrastructure for all, especially low-income populations and communities of concern. | SCTA/RCPA, local governments, electric utilities, Air Districts |
| | 25. **Encourage local employers to offer workplace EV charging stations.** | SCTA/RCPA, electric utilities |
| | 26. **Encourage demand response, smart charging and facilitate use of renewable energy, including promoting solar panel carports to provide electricity for EV charging stations.** | SCTA/RCPA, local governments, electric utilities |
| | 27. **Investigate next-generation charging technologies and systems.** | SCTA/RCPA |
| | 28. **Pursue funding** to support expansion of EV charging infrastructure in Sonoma County. | SCTA/RCPA, local governments, SCP |
| | 29. **Consider public-private partnerships** to expand EV charging infrastructure in Sonoma County. | SCTA/RCPA, local governments, NGO partners: electric utilities, and other groups |

| EV Charging Infrastructure (continued) | | Implementing Entities |
|---|---|---|
| Education and Awareness | **30. Develop and share updated siting guidance for EV charging station installations.** | SCTA/RCPA |
| | **31. Train permitting and inspection officials in EV charging station installation.** | SCTA/RCPA, local governments (community development), Sonoma Clean Power |
| | **32. Increase public awareness of EV charging stations** through improved signage, marketing and outreach. | SCTA/RCPA, Sonoma Clean Power |
| | **33. Engage the building industry** and develop EV charging outreach and education materials and programs targeted to builders, architects, contractors and project managers. | SCTA/RCPA, Sonoma Clean Power |

## Plan Implementation

The actions recommended in the Shift Plan will require participation from various Sonoma County jurisdictions, non-governmental organizations (NGOs), and private industry.

Please visit scta.ca.gov/shift to learn more about ongoing coordination efforts to implement the Shift Plan or call the SCTA/RCPA office during business hours at 707-565-5373.

The following two chapters, Mode Shift and Fuel Shift, delve into the details of these recommended actions and make connections to the resources and tools available to support implementation.

# MODE SHIFT

The focus of the Mode Shift Plan was to explore new strategies to encourage biking, walking, transit, and carpools. The plan took a deeper look at how to implement the following in Sonoma County:

- Transportation demand management (TDM) measures
- Bike share
- Car share

These strategies have often been overlooked outside of dense urban environments. However, the Sonoma County Transportation Authority (SCTA) and Regional Climate Protection Authority (RCPA) found that they hold important potential to contribute to local transportation goals.

Each of the following sections provides information on how to move forward with local implementation. Detailed planning tools – such as feasibility studies, guidebooks, and model policies – were also created to facilitate action.

## Mode Shift Goals for 2040

- Reduce per capita vehicle miles traveled (VMT) by 10%[21]
- Shift 4% of single occupant vehicle trips to biking or walking
- Increase transit ridership by 4 times
- Reduce average household travel costs below 2010 levels[22]

21 MTC/ABAG, *Plan Bay Area*, 2013.
22 SCTA. *CTP*. 2016.

# Mode Shift Context

Mode Shift Plan recommendations and tools are intended to build from and maximize the benefit of ongoing local transportation efforts, and provide short-term solutions to complex transportation issues. Mode Shift transportation solutions are most viable when added to the necessary foundations for safe, affordable, and accessible transportation. Concentrated development patterns provide communities with ready access to the things necessary for day-to-day life, which foster high rates of bicycle, pedestrian, and transit travel. Safe and complete infrastructure including sidewalks and crossings, dedicated bike facilities, bus shelters, and smooth roads make people feel comfortable traveling by bike or on foot. Efficient and affordable transit systems provide access for people who depend on transit and encourage others to choose transit.

Each of these components of planning, building, and operating the transportation system in Sonoma County are evolving through other related efforts:

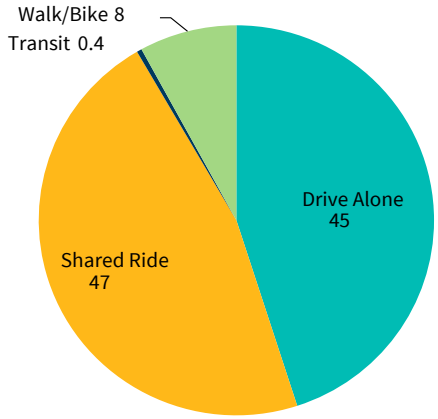
- **Focused growth** – priorities and policies are established by local jurisdictions through their general plans, and through regional participation in Plan Bay Area.
- **Transportation System Performance** – the overall efficacy of the transportation system is evaluated and planned for within the SCTA's Comprehensive Transportation Plan, updated every 5 years.
- **Road maintenance** – investments to repair roads, including potholes and eroding shoulders are financed through federal, state, regional, and local sources, including Sonoma County's Traffic Relief Act (Measure M).
- **Bicycle and pedestrian infrastructure** - improvements, documented in the Countywide Bicycle and Pedestrian Master Plan, are made by local jurisdictions as stand-alone projects or through implementation of complete streets policies during road rehabilitation projects.
- **Transit optimization** – route planning, operations, and maintenance are undertaken by local transit operators and documented in Short Range Transit Plans.

# Mode Shift Opportunities

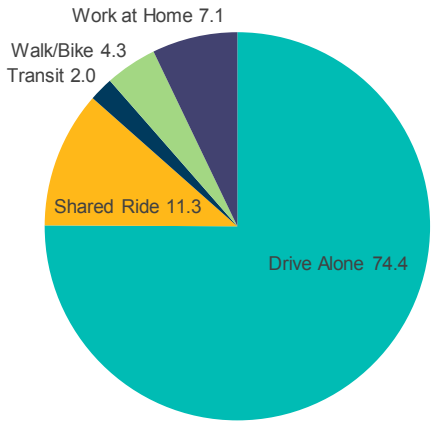
## Current Travel

Sonoma County is a large county with extensive swaths of rural land and a population of almost 500,000 people. The highest densities of population are located within the cities, and along the U.S. 101 corridor. Much travel is heavily oriented towards private passenger vehicles, with 91% of all trips taken by automobile.[23] In 2013, there were 342,000 licensed drivers and 456,000 registered vehicles in the county, roughly one per resident.[24]

**2010 Sonoma County Travel by Mode[25]**




**2010 Sonoma County Commute Trips by Mode**




Commute trips make up just under 15% of weekday trips, but have a high impact on the transportation system due to distance and time of day. Drivers travel roughly 11 million miles per day, most of which are within and between cities in the county.[26] Approximately 17% of workers in Sonoma County commute to jobs outside of the county,[27] which is significantly lower than in the Bay Area average of 35% of workers commuting out of county.[28] Sonoma County's out of county commute represents a steady decrease over the last few decades.

23 SCTA, *CTP*, 2016.
24 Department of Motor Vehicles, Registered Vehicles, 2014.
25 SCTA, Sonoma County Travel Model.
26 SCTA, *CTP*, 2016.
27 SCTA, Sonoma County Travel Model.
28 Metropolitan Transportation Commission (MTC), Vital Signs, http://mtc.ca.gov/tools-resources/vital-signs.

## Mode Shift Benefits

Mode Shift strategies to reduce dependence on vehicles – by making active transportation alternatives more attractive and affordable, incentivizing transit through last mile connections, and providing convenient alternatives through shared mobility – can provide myriad benefits to Sonoma County including:

- **Reduced household transportation costs** – owning and maintaining a car costs an average of $8,698 per year.[29] Households with access to multiple modes of transportation are less likely to own a car (or multiple cars) or use their car as much.[30] These savings are important considerations for both residents and employers.
- **Improved personal health** – every additional hour spent in the car is associated with a 6% increase in the likelihood of obesity, whereas every additional kilometer walked is associated with a 4.8% reduction.[31] Less time in traffic means more time for other activities and less stress.
- **Improved public safety** – more driving leads to greater risk of injury or death in a crash; there is a strong positive relationship between per capita annual vehicle mileage and traffic fatalities in U.S. states.[32]
- **Reduced pollution and greenhouse gas emissions (GHGs)** – the transportation sector is responsible for over half of the GHG emissions in Sonoma County[33] and 60% of smog in the Bay Area is created by motor vehicles.[34]
- **Reduced congestion** – shifting the targeted portion of single occupancy vehicle commute trips to transit, bicycle, and walking would cut congestion by up to 47% in 2040.[35] Reduced congestion makes trips that need to be made by car or truck encounter less delay, improving business operations and reducing stress.

29 AAA, "Your Driving Costs", 2015. http://exchange.aaa.com/wp-content/uploads/2015/04/Your-Driving-Costs-2015.pdf.

30 American Public Transportation Association, Shared Mobility and the Transformation of Public Transit, 2016. https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf.

31 L.D. Frank, et al, "Obesity Relationships and Community Design, Physical Activity, and Time Spent in Cars," American Journal of Preventative Medicine vol. 27, no.2, 2004, pp. 87-96. www.ajpmonline.org/article/S0749-3797(04)00087-X/fulltext.

32 T. Litman, et al., "Safe Travels: Evaluating Mobility Management Traffic Safety Benefits," Victoria Transport Policy Institute, 2006. http://www.vtpi.org/safetrav.pdf.

33 RCPA, *CA2020*, 2016.

34 Bay Area Air Quality Management District, "History of the Air District," 15 Sept. 2017. www.baaqmd.gov/about-the-air-district/history-of-air-district.

35 SCTA, *CTP*, 2016.

## Mode Shift Barriers

Efforts to encourage a shift in transportation modes must acknowledge and address or work within the constraints created by several important barriers to behavior change. These challenges are not the emphasis of the Mode Shift Plan, but are nonetheless important:

- **Land use** – suburban and rural development patterns in Sonoma County result in longer distances between destinations; the average daily commute is 16 miles one way.[36] ***Mode shift strategies are aligned with local and regional land use planning efforts to create focused and balanced development, by targeting Priority Development Areas, Rural Community Investment Areas, Employment Investment Areas, and communities of concern.***
- **Public transit gaps** – expansive networks are costly and infeasible with current funding, so transit operations are generally focused on main corridors and frequencies are concentrated around commute hours. ***Mode shift strategies are intended to increase ridership and revenue, and add connections for travelers to and from the existing network.***
- **Bicycle and pedestrian network gaps** – many neighborhoods and rural roads lack shoulders, sidewalks, or bike lanes needed for safe travel. ***Mode shift strategies will be more successful because of coordinated efforts to fix existing roadways and add bicycle and pedestrian capacity as outlined in the Countywide Bicycle and Pedestrian Master Plan and Measure M Expenditure Plan.***
- **Automobile culture** – personal vehicle ownership remains the most convenient option for most travelers and a social norm. ***Mode shift strategies attempt to make multi-modal lifestyles more feasible by increasing travel options and making them more convenient, more connected, more affordable, and more visible in the community.***

Policy makers, planners, engineers, and transportation service providers must continue to work creatively and collaboratively to overcome these barriers in pursuit of reducing vehicle miles traveled.

Adoption of Mode Shift strategies begin with coordination and support from local governments, employers, and property owners or managers. Communication and coordination strategies can encourage stakeholders to become leaders in green transportation, improve commute options, and attract visitors. Additional marketing and communication recommendations can be found online: www.scta.ca.gov/shift.

## Equity

Transportation demand management (TDM), car share, and bike share enhance mobility and provide options that are more affordable than owning, operating, and maintaining a car or a bike. While these solutions address some of the transportation barriers raised in low-income communities, various factors have favored implementation in higher-income areas.

To be financially viable, bike share and car share must have a high rate of utilization. This generally occurs in high-activity and high-density areas, which tend to also be areas with higher living expenses. The experience of several systems that have located stations in areas with lower income populations and/or areas with more dispersed destinations and land uses that are less supportive of bicycling and transit is that these hubs, although necessary and desired, have relatively low utilization rates and low productivity. Similarly, TDM measures that rely on a high level of transit availability and density can be challenging in less dense settings.

Other factors that challenge wide use of shared mobility and TDM include personal safety concerns, access to smart phone technology that enables convenient use, and financial deposits or membership fees. Bicycling or walking to transit or shared mobility hubs may pose safety concerns in areas lacking separated facilities, adequate lighting, or with high crime.

36 SCTA, *CTP*, 2016.

## Existing Transit and Active Transportation

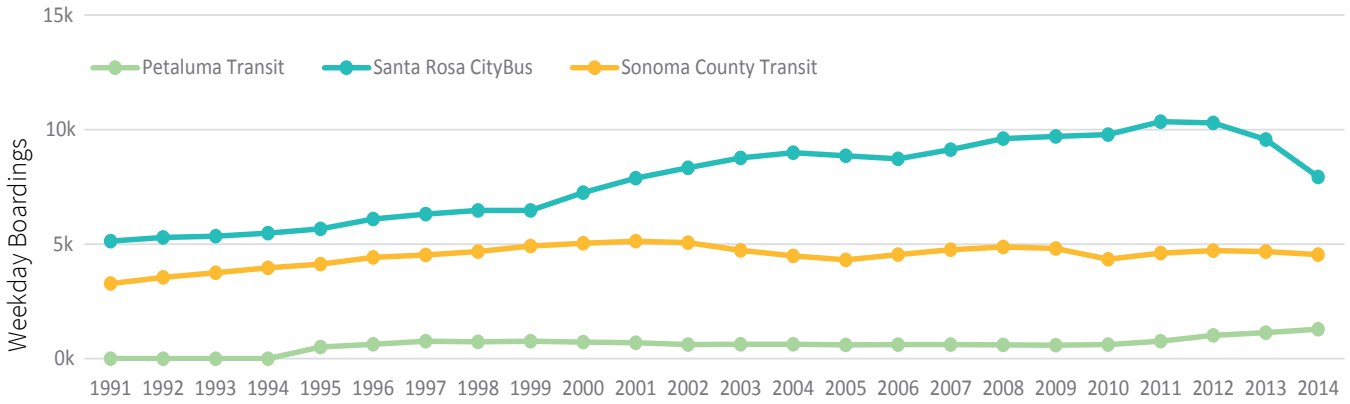
Sonoma County local governments have been investing in foundations for reducing single occupant vehicles for many years, through land use planning that promotes city centered growth, policies like Urban Growth Boundaries, transit, bicycle and pedestrian infrastructure development and planning through Bicycle and Pedestrian Plans, and participation in TDM program collaborations like the Safe Routes to School Program and Spare the Air Resource Team's Clean Commute Fairs. More information about existing resources can be found at the end of this Plan.

## Transit

Public transportation service is available in all cities and many unincorporated areas within the county, although service is very limited in some communities. Bus transit operators include Sonoma County Transit, Santa Rosa Transit (CityBus), Petaluma Transit, and Golden Gate Transit (which operates routes between Santa Rosa and San Francisco).

Transit accounted for only 0.41% of all trips and 2% of commute trips in 2010. Transit ridership has grown over the years; however, there has been some declination in recent years following national trends.[37]

### Historical Transit Ridership Trends in Sonoma County[38]




The Sonoma and Marin Area Rail Transit (SMART) passenger rail commenced service in August 2017. This addition is expected to boost transit use across all systems and change how many Sonoma County residents travel. Additionally, Santa Rosa CityBus has recently implemented systemwide route changes aimed at improving efficiencies and frequencies on high ridership routes. Sonoma County Transit has added new routes and Petaluma Transit has optimized routes to connect to SMART stations. The transit map in the Executive Summary shows existing transit service within Sonoma County and includes the planned Phase 2 SMART alignment and stations.

## Privately Operated Ridesharing and Ridesourcing Services

There is currently a small presence of privately operated ridesharing services in Sonoma County. The commuter vanpooling company vRide provides rides from San Francisco and Novato to Santa Rosa-based Medtronic, from Petaluma to Marin Municipal Water District, and at stops between Santa Rosa and San Francisco.

Ridesourcing through Transportation Network Companies (TNCs) like Uber and Lyft, which use online technology platforms to easily connect passengers with private drivers, have a small but growing presence in Sonoma County. In some communities TNCs offer shared ride services (e.g., Lyftline), which lowers individual fares and reduces trips through shared rides. Ridesharing services through TNCs have yet to appear in the Sonoma County market but are

37 SCTA, *CTP*, 2016.

38 MTC Vital Signs, and Petaluma Transit *(Note: Petaluma Transit ridership between 1995 and 2006 is estimated using available data).*

expected as transportation services become more ubiquitous and autonomous vehicles are introduced.

Ridesharing through TNCs can encourage reduced VMT by supporting transit use and multimodal lifestyles; however, ridesourcing individual rides can have the opposite effect and can increase VMT. Local governments can support TNC-based ridesharing services, and trip reduction, through policies that require any partnerships with TNCs to favor ridesharing over individual rides.

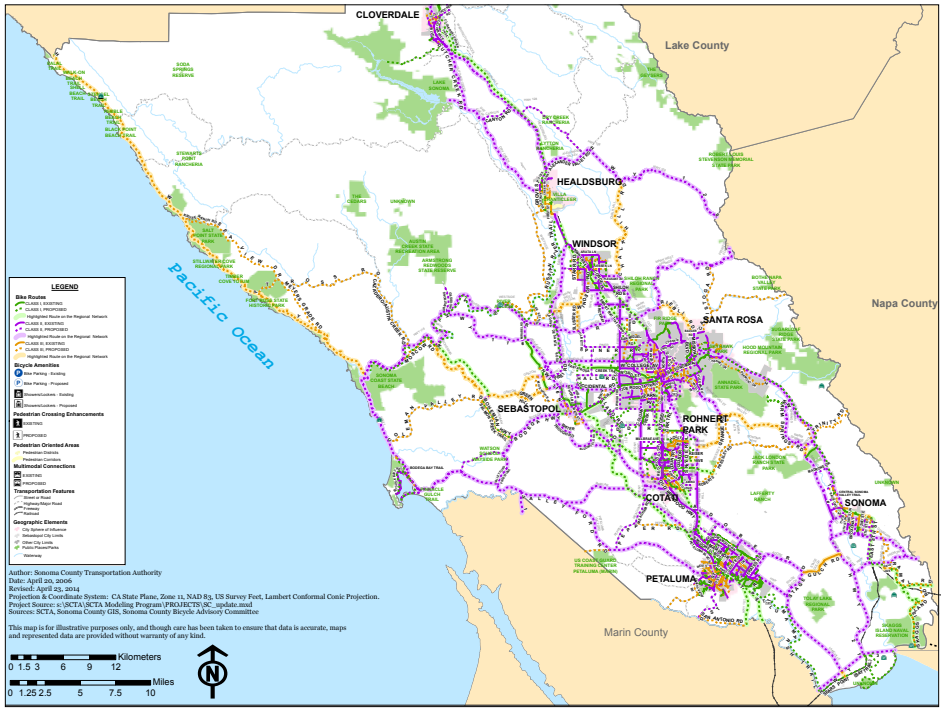
## Bicycle

There are more than 300 miles of on-street and separated bicycle facilities throughout the county.[39] While there are several well-used Class I facilities (off-street bikeways) along creeks and highways, most of the network is made up of Class II (on-street bicycle lanes) and Class III (bicycle routes marked with signage and sharrows) facilities which are concentrated within the cities. The 2014 Countywide Bicycle and Pedestrian Plan proposed an expanded bicycle network that includes over 1,000 miles of planned bicycle facilities, including the SMART Pathway, a new north-south multi-use Class I facility that will connect communities along the 70-mile corridor.

Biking accounted for only 1% of all trips in 2014, but is a vast improvement from the roughly 0.5% of trips taken by bicycle in 2000.[40]

These existing transit and active transportation networks will be relied on to reduce VMT along with implementation of TMD programs, bike share, and car share.

### Existing and Planned Bicycle Facilities[41]




39 SCTA, *Countywide Bicycle and Pedestrian Master Plan*, 2014. https://scta.ca.gov/wp-content/uploads/2016/07/BikePedPlanUpdate2014_final.pdf

40 SCTA, *CTP*, 2016.

41 SCTA, Countywide Bicycle and Pedestrian Master Plan, 2014.

# Transportation Demand Management

Transportation demand management (TDM) actions are based on the premise that current travel options and culture favor driving alone. TDM refers to any coordinated strategies to change travel behaviors and increase the attractiveness of various travel options, and contribute to an environment suitable for lower rates of vehicular travel. TDM programs are most commonly applied through employers to address commute trips, and can boost employee recruitment and retention. TDM programs can also be applied to multifamily housing complexes, business parks, citywide, or countywide.

Employer-based TDM programs can include a suite of tools to promote carpools, vanpools, transit, and biking, or allow for telecommuting. TDM can include many elements such as subsidized or free transit passes, bulk transit pass purchase programs for employers, expanded preferential parking for shared commute vehicles, bicycle storage, pedestrian access improvements, and parking cash out programs.

High-quality TDM programs can:

- Reduce single occupancy vehicle trips
- Improve access
- Reduce parking demand
- Boost employee recruitment and retention
- Reduce stress from commuting in traffic

Local governments are well positioned to encourage broader use of TDM programs by:

- Establishing TDM programs for their own employees
- Maintaining a policy impetus for TDM
- Promoting employer-based programs

A public survey gauging attitudes on the Shift strategies identified several opportunities to increase the use of employer-based commute programs. These included options that better fit commuter's schedule (46%), increased incentives (37%) and better awareness of coworkers already participating in commute programs (30%).

Barriers to employer-based commute programs identified in the survey focused around the lack of a guaranteed ride home (52%), lack of incentives (26%) and bad weather (24%).[42]

Additional suggestions to increase TDM programs, collected through Shift workshops and direct feedback, included the need to raise awareness of cost savings through alternatives to solo driving and accomodations from employers that could increase other modes of travel (e.g., showers at work or work schedules that fit with transit).

The following sections summarize local actions to advance TDM as identified in the Mode Shift Plan. In addition, the SCTA and RCPA have developed several implementation resources specific to TDM actions (available at scta.ca.gov/shift):

- Mode Shift Needs Assessment
- Employer Commute Program Toolkit
- Model TDM Ordinance

Additional resources related to TDM are available at the end of this plan.

42 Shift Sonoma County - Draft Plan Survey on PlaceSpeak. https://www.placespeak.com/shiftsonoma

## Planning for TDM

It is important that employer-based TDM programs are tailored to employee needs and local travel options. The Mode Shift Plan included a needs assessment that informed the local government actions recommended within this plan; it may also serve as an information resource for TDM program operators. Local governments can be role models for their communities by implementing effective commuter programs tailored to local travel options and employee needs.

**See Planning Action #1.**

## TDM Policy

Beginning in 2014, employers within the Bay Area Air Quality Management District (BAAQMD) with over 50 full-time employees are required to offer commuter benefits to their employees. In 2016, pre-tax commuter benefits became a permanent part of the Federal tax code, allowing the use of tax-free dollars to pay for commuting-related transit, bicycle, and parking expenses through employer-sponsored programs.

Sonoma County governments can extend or expand TDM requirements. TDM ordinances may include considerations for employers and developers and establish requirements for programs and infrastructure.

> The **Model TDM Ordinance** was developed for consideration as a regional template. It is important that local ordinances are tailored to local conditions and needs. The Model TDM Ordinance can be found online: www.scta.ca.gov/shift.

The rise in TNC or ridehailing activity in some large cities has resulted in increased VMT. Local governments can help curb this trend and support trip reduction through policies that require any partnerships with TNCs to favor ridesharing over individual rides.

**See Policy Actions #2, #3, and #4**.

## TDM Coordination

Many partners can be involved in an individual TDM program – including departments within an implementing organization, transit operators, rideshare companies, advocacy groups, and governments. Coordination can create a more consistent policy environment for developers or businesses that operate in multiple jurisdictions. It can increase the success of programs by making sure that all parties are sharing current program information, promoting programs broadly, or implementing partnership programs in common areas such as downtowns or business parks.

The SCTA and RCPA provide platforms for coordination between policy makers and implementing staff, and can convene future conversations about implementation of TDM. The Sonoma County Spare the Air Resource Team is also a good local venue for coordination on policies and opportunities for TDM.

**See Actions #5 and #6**.

## TDM Deployment

Local governments in Sonoma County employ thousands of people and are already implementing some TDM programs as employers. For example, the County of Sonoma has a One Day Clean Commute campaign that encourages employees to take an alternative to their car to work at least one day a week, and provides tools like employee carpool match making and free Sonoma County Transit use for employees.

Local governments and transit agencies are in a unique position to promote TDM for all residents in Sonoma County and have been doing so in a variety of ways. For example, discounted transit passes and marketing are provided by all of the transit operators. The City of Santa Rosa offers a trip reduction program where enrolled employees in Santa Rosa can receive financial incentives for commuting by alternative modes and a guaranteed ride home when an alternative mode is used to get to work but cannot be used to leave work due to an emergency.

Local governments in Sonoma County can also pursue funding to expand programs, either for internal programs or programs available to private sector employees as well.

**See Deployment Actions #7 and #8**.

## TDM Education and Awareness

The ultimate success of TDM programs depends upon awareness among potential implementers and participants. The SCTA and RCPA, and member jurisdictions, can market TDM requirements and voluntary opportunities to both covered and non-covered employers, and encourage broader participation. Employers experience direct benefits from TDM programs in the form of employee recruitment and retention, reduced parking burden and local peak hour congestion, and perhaps lower operating costs – for instance when transit passes cost less than parking.

Education on TDM requirements and resources can be integrated into existing business assistance programs and events such as those hosted by the Economic Development Board and Chambers of Commerce. The Sonoma County Green Business Program already includes TDM in its certification program and can continue to be a programmatic tool to promote expansion of TDM.

Some employers are required to comply with the Bay Area Commuter Benefits Program and others see it as an element of their work culture. In either case, employers often need guidance about how to develop or expand a program and where to begin. The SCTA and RCPA have developed a local Employer Commute Program Toolkit to assist with this outreach and education.

The **Employer Commute Program Toolkit** provides a step-by-step guide with resources for locally available transportation services, a sample survey, and sample flyers to promote programs. The full toolkit can be found online at scta.ca.gov/shift.

**See Education and Awareness Actions #9 and #10**.

In summary, the Shift Plan found the following key opportunities for Sonoma County local government actions to support expansion of TDM programs:

| **Transportation Demand Management (TDM)**<br>Reduce travel demand, make diverse modes more attractive, boost employee recruitment and retention, and reduce GHGs. | | Implementing Entities |
|---|---|---|
| Planning | **1. Model effective commute programs** within local governments by designing programs tailored to local travel options and employee needs. See *Employer Commute Program Toolkit* under *Education and Awareness* below. | Local governments (human resources, sustainability) |
| Policy | **2. Develop and adopt local TDM ordinances** to expand programs to more employers. | Local governments (planning and community development) |
| | **3. Develop and adopt local TDM ordinances** that include infrastructure and programs considerations for developers. | Local governments (planning and community development) |
| | *The Shift Model TDM Ordinance was crafted as a template for local jurisdictions to consider. More info: scta.ca.gov/shift* | |
| | **4. Adopt policies requiring any public partnerships** with TNCs to favor ridesharing over individual rides. | SCTA/RCPA, local governments (transit, planning and community development) |
| Coordination | **5. Coordinate county-wide policy** actions. | SCTA/RCPA, local governments |
| | **6. Coordinate with employers** on the development and implementation of commute programs by engaging with economic development entities, transit agencies, and shared mobility programs. | SCTA/RCPA, local governments, NGO partners: chambers of commerce, new/expanded employment centers, employers enrolled in 511.org commuter benefits program, transit agencies, car share operator, bike share operator |
| Deployment | **7. Lead by example** with programs for municipal employees. | Local governments (human resources, sustainability) |
| | **8. Pursue funding** to support expansion of TDM programs. | SCTA/RCPA, local governments, regional governments, NGO partners: employers, developers |
| Education and Awareness | **9. Market TDM programs** to employers and developers through business assistance programs, green business certifications, and commute fairs. | SCTA/RCPA, local governments, NGO partners: chambers of commerce, County Green Business Program, Spare the Air Resources Team, employment centers |
| | **10. Assist employers** with the development of commute programs and marketing alternative modes of transportation to employees. | SCTA/RCPA, local governments, NGO partners: chambers of commerce Spare the Air Employer Program |
| | *The Shift Employer Commute Program Toolkit guides employers through process of developing or expanding commute programs and includes programs and resources that are available in Sonoma County. More info: scta.ca.gov/shift* | |

# Bike Share

Bike share is a low-cost, flexible public transportation service that provides on-demand access to a network of rentable bicycles. Bike share offers the convenience of a bicycle when needed without the hassles of maintenance and storage. Due to the speed and distance limitations presented by bicycle travel, this form of public transportation usually replaces short auto and transit trips. In established systems, trip lengths typically average between one and three miles, and last between 15 and 30 minutes.[43] Bike share provides an alternative to short car trips and acts as a solution to first mile/last mile barriers, which may otherwise prevent the use of transit.

Bike share systems have emerged in over 70 U.S. cities and have proven to increase transit ridership in many suburban communities. Local governments are well positioned to encourage bike share by:

- Implementing a pilot program
- Pursuing funding and partnerships to expand bike share over time

The following sections summarize local actions to advance bike share as identified in the Mode Shift Plan. Detailed research and findings related to bike share implementation can be found in the Shift Bike Share Feasibility Study, which is available online: scta.ca.gov/shift.

A public survey gauging attitudes on the Shift strategies identified several opportunities to increase bike share. These included providing safe bike lanes or pathways (59%), locating bike share stations close to transit stops (48%) and making the system relatively cheap to use (41%).

Barriers to bike share identified in the survey focused around bicycle safety and the availability of bike paths or dedicated bike lanes (59% of survey respondents), as well as the need for larger vehicles (14% of survey respondents).[44]

Additional suggestions to increase bike share usage, collected through Shift workshops and direct feedback, included encouraging the use of helmets through bike share messaging and through incentives for purchasing helmets. Additional bike options could also help, especially if they had storage to fit more than a typical front basket. There was also interest in dockless, flexible, bike share systems.

## Planning for Bike Share

A primary goal of the Mode Shift Plan was to evaluate the feasibility of bike share in Sonoma County and to address the most critical questions before proceeding with a pilot program. By its nature, bike share is suited to markets where short trips are feasible and bicycle infrastructure provides for safe, comfortable riding. The SCTA and RCPA completed a feasibility study that considered employment centers with residential density and locations immediately surrounding high-volume transit stops, along with presence of a bicycle network, slopes, parks, retail, and universities. The analysis identified three general areas in the county with the highest potential for bike share that are recommended for an initial phase:

- Santa Rosa
- Petaluma
- Rohnert Park/Cotati

43 Sonoma County Transportation Authority, Bike Share Feasibility Study, 2016. http://scta.ca.gov/wp-content/uploads/2016/11/SCTA-Bike-Share-Feasibility_Final.pdf.

44 Shift Sonoma County - Draft Plan Survey on PlaceSpeak. https://www.placespeak.com/shiftsonoma

**Bike share systems** are relatively low-cost and quick to implement compared to transit and roadway improvements, especially with vendors that offer movable stations and turn-key operations. It increases both bicycle and transit mode share by solving the last mile/first mile barrier to many transit trips. It attracts visitors and can boost economic development by making short trips easier in downtown business districts where parking is challenging. Bike share also encourages new riders by reducing barriers such as owning, transporting, and storing a bicycle. It typically costs between $50 and $100 per year, or a few dollars a ride, making it not only a clean, healthy, and fun, but also affordable way to get around.

Source: Sonoma County Transportation Authority, Bike Share Feasibility Study, 2016

Santa Rosa, particularly the zone surrounding downtown and Santa Rosa Junior College with connections to both SMART rail stations, demonstrated the highest potential bike share demand of the three locations identified. Potential sites for bike share were identified in the high priority locations listed above, as well as in locations recommended for a second phase. The recommended areas and locations are listed in the complete Bike Share Feasibility Study.

The **Bike Share Feasibility Study** was created to answer critical planning questions about bike share in Sonoma County. It includes hot spot maps, specific site possibilities, operating model considerations, siting considerations, and recommendations for how to move forward with implementation. The full feasibility study can be found online at scta.ca.gov/shift.

The feasibility study teed up additional planning considerations for implementing agencies as they work to establish an effective bike share program. These include consideration of bike share model, service areas, and siting.

**See Planning Actions #1-6.**

## Bike Share Policy

Sonoma County local governments and transit operators can support implementation of bike share where it is needed most by dedicating space for bike share hubs in public spaces with high activity, such as downtowns and near transit hubs. Local governments can also require or encourage developers to participate in expansion of bike share networks.

Local governments in Sonoma County can also work to ensure equitable access to services. Utilization of bike share among low-income and minority residents appears to lag proportional use in the population at large, despite the potential for using bike share to reduce the cost of transportation. Implementing governments can require or encourage stations or shared bikes to be available in communities of concern regardless of productivity.

**See Policy Actions #7-9.**

## Bike Share Coordination

Bike share can be most successful if coordinated and integrated with existing transit. Such integration communicates clear multi-modal accessibility. Integration should include siting near Sonoma-Marin Area Rail Transit (SMART) stations and transit hubs, inclusion of bike share on any web-based trip planning tools or information sites like GoSonoma.org, wayfinding and signage directing users between transit stops and bike share stations, advertisements at stops or on transit vehicles, and coordinated membership promotions.

- Bike share implementation can be coordinated with the completion of other bike facilities or wayfinding improvements, or investments in areas that have high potential but currently lack adequate bicycle infrastructure. Doing so requires that bike share implementers are informed about opportunities to expand by tracking related opportunities across organizations or jurisdictions.

Implementation models may also include public private partnerships and regional networks that serve areas where people travel across city or county lines. In Sonoma County, a system along the SMART corridor could provide last-mile connections at multiple destinations, and serve a larger member base with a common system.

- The SCTA and RCPA provide platforms for coordination between policy makers and implementing staff, and can convene future conversations about implementation of bike share programs, including with peer agency staff in surrounding counties.

Coordinated marketing and information about bike share, including web-based information, advertisement and wayfinding, can ensure the success of a system.

**See Coordination Actions #10-14.**

## Bike Share Deployment

The feasibility study confirmed that bike share is suitable in several areas of Sonoma County, for a Phase 1 program that focuses on areas with the highest expected demand. The estimated start-up cost for a 50-bike system could range from $0 to $1M depending on the system type and vendor. Turn-key operations typically cost around $1,800 per bike per year. [45]

The SCTA and RCPA and member governments can pursue startup funding from grants, sponsorships, and local business or non-profit partners. A request for proposal (RFP) could be used to refine local implementation costs and needs, and to determine the most appropriate operating model.

As experience with implementation grows, local governments may consider operating strategies to ensure that access to bike share is most effectively serving people who can benefit the most from access to shared bicycles such as:

- Making discounted bike share memberships or payment installment plans available, along with solutions for unbanked customers or those without credit cards, and
- Ensuring a way to utilize the bike share service that does not require a smart phone.

**See Deployment Actions #15-20.**

45 Sonoma County Transportation Authority, Bike Share Feasibility Study, 2016

## Bike Share Education and Awareness

A robust education and awareness campaign should accompany implementation of bike share to change the perception that automobiles are needed for short trips and to eliminate intimidation as a factor for new riders. Press releases and coordinating implementation with other projects or events are good ways to spread awareness of new systems. Tourism related businesses can mutually benefit from increased travel options and sustainable tourism by promoting bike share.

Most bike share operators include bike safety information in all of their membership materials, which could be further promoted by implementing agencies. The Sonoma County Bicycle Coalition offers classes on safe biking that could be promoted along with bike share. To promote the use of helmets and support local bike shops, partnerships can be arranged to offer discounted helmets for bike share members at local bike shops.

**See Education and Awareness Actions #21-24.**

In summary, the Shift Plan found the following key opportunities for local government actions to implement bike share in Sonoma County:

| | **Bike Share Actions**<br>Provide a first/last mile option to enable transit based travel, reduce the costs of biking for occasional and new cyclists, make short trips cheaper, easier, and more fun than driving, and boost economic development. | Implementing Entities |
|---|---|---|
| Planning | 1. **Consider flexible bike share models** with zone-based service areas to minimize costs from start-up or relocating stations after initial implementation. | SCTA/RCPA, local governments, bike share operators |
| | 2. **Identify areas expected to have highest demand for initial implementation.** | SCTA/RCPA, local governments, bike share operators |
| | 3. **Consider siting in shared mobility hubs**, near transit centers and in peripheral neighborhoods with gaps in transit service. | SCTA/RCPA, local governments, bike share operators |
| | 4. **Consider siting bike share in communities of concern**. | SCTA/RCPA, local governments, bike share operators |
| | 5. **Consider siting bike share in areas with low transit coverage**, regardless of productivity. | SCTA/RCPA, local governments, bike share operators |
| | 6. **Review site requirements** for various site types identified as priorities. | SCTA/RCPA, local governments, bike share operators |
| | *The Shift Bike Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: scta.ca.gov/shift* | |
| Policy | 7. **Dedicate public space for hubs** in areas of high activity, near downtowns and transit hubs. | Local governments |
| | 8. **Require or encourage new bike share infrastructure** in conjunction with other public projects and new infrastructure and development. | Local governments (planning and community development) |
| | 9. **Consider reducing parking requirements** when bike share is included in new developments. | Local governments (planning and community development) |
| Coordination | 10. **Coordinate countywide implementation**. | SCTA/RCPA, local governments |
| | 11. **Include bike share information** on any web-based transit trip planning tools or informational sites. | SCTA/RCPA, local governments (transit), NGO partners, Spare the Air Resource Team, 511.org |
| | 12. **Consider multi-jurisdictional and/or public private partnerships** to serve travel across city or county lines and along the Sonoma Marin Area Rail Transit (SMART) corridor. | SCTA/RCPA, local governments |
| | 13. **Post wayfinding and signage** directing users between bike share and transit hubs. | Local governments, bike share operators |
| | 14. **Advertise bike share** at transit hubs and on transit vehicles. | Local governments (transit) |

| Bike Share Actions (continued) | | Implementing Entities |
|---|---|---|
| Deployment | 15. **Make discounted bike share memberships or payment plans available** for low income residents, coupled with solutions for customers without bank accounts. | SCTA/RCPA, local governments |
| | 16. **Ensure a way to utilize bike share service without a smart phone.** | SCTA/RCPA, local governments, bike share operators |
| | 17. **Establish more accurate local implementation cost estimates.** | SCTA/RCPA, local governments |
| | 18. **Secure funding for start-up costs** from grants, business sponsors, transit-operators, non-profits, or other partners. | SCTA/RCPA, local governments |
| | 19. **Launch bike share system** or expansion in conjunction with new bicycle infrastructure. | SCTA/RCPA, local governments |
| | 20. **Consider including various bicycle models** such as tricycles or cargo bikes to accommodate groceries, luggage, children, persons who cannot use a two-wheeled bicycle, etc. | SCTA/RCPA, local governments |
| Education and Awareness | 21. **Support and expand education, safety, and awareness campaigns** to include bike share users. | SCTA/RCPA, local governments, bike share operators, NGO partners |
| | 22. **Educate residents about how to use bike share** as a transportation alternative, especially in communities with lower incomes and non-English speakers. | SCTA/RCPA, local governments, bike share operators, NGO partners |
| | 23. **Partner with bike shops, tourism-related businesses, and business districts on promotions and discounts.** | SCTA/RCPA, local governments, bike share operators, NGO partners |
| | 24. **Advocate helmet use** in all education and awareness efforts and materials. | SCTA/RCPA, local governments, bike share operators, NGO partners |

# Car Share

Car share is a model through which vehicles are made available to program members for hourly or daily use. Vehicles are typically picked up and dropped off at designated parking locations within the community, and are made available to provide flexible access to a vehicle. Car share is supportive of transit use and an overall multi-modal lifestyle, and can reduce the rate of private vehicle ownership or use. Families that cannot afford (or choose not to buy) a car (or second car) can access a vehicle when necessary, but otherwise rely on transit, carpooling, or active transportation. Drivers who may wish to purchase an electric vehicle but worry about range for longer but infrequent trips can use a car share vehicle as needed.

Car share is increasingly common in urban centers, but there are opportunities to expand this form of shared mobility in Sonoma County. Local governments are well positioned to encourage expansion of local car share by:

- Implementing a pilot program
- Pursuing funding and partnerships to expand car share over time
- Providing free designated parking for car sharing

A public survey was conducted to gauge attitudes on the Shift plan. Opportunities identified in the survey to increase car share usage included cars located close to home or work (51% of survey respondents) as well as a broader selection of vehicles, such as pickups (40% of survey respondents).[46]

Barriers to car share identified in the survey focused around using convenient locations (15% of survey respondents) and perceived needs for a private automobile, such as transporting children (also 15% of survey respondents).

Additional suggestions to increase car share usage, collected through Shift workshops and direct feedback, included public education about car sharing services and locations of vehicles, targeting SMART riders or EV drivers, and serving residents in low-income or multi-family housing developments.

**Car sharing** can save families and individuals hundreds of dollars every month in car payments, insurance, gas, registration and repairs by enabling members to avoid owning a personal vehicle or additional vehicles. Car sharing can encourage individuals to choose alternative commute options by providing short-term car rentals near work or school for shorter trips such as errands and business meetings. Car sharing reduces the need for vehicle ownership and reliance on single-occupancy vehicle travel, thereby reducing vehicle miles traveled and greenhouse gas (GHG) emissions.

The following sections summarize local actions to advance car share as identified in the Mode Shift Plan. Detailed research and findings related to car share implementation can be found in the Shift Car Share Feasibility Study, which is available online: scta.ca.gov/shift.

46 Shift Sonoma County - Draft Plan Survey on PlaceSpeak. https://www.placespeak.com/shiftsonoma

## Planning for Car Share

A primary goal of the Mode Shift Plan was to evaluate the feasibility of car share in Sonoma County and to address the most critical questions before proceeding with a pilot program.

The SCTA and RCPA completed a feasibility study that considered best practices in car share operations and a spatial analysis of Sonoma County using land use, demographics, and community travel choices. The analysis produced heat maps that show a range of feasibility throughout the county. Specific site recommendations were established in areas with the highest near-term demand for Phase 1 including several locations in Santa Rosa, Rohnert Park, and Petaluma. Additional locations were identified for Phase 2 to serve broader geographies within the county. The full list of potential sites are listed in the Car Share Feasibility Study.

The **Car Share Feasibility Study** was created to answer critical planning questions about car share in Sonoma County. It includes hot spot maps, specific site possibilities, operating model considerations, siting considerations, and recommendations for how to move forward with implementation. The full feasibility study can be found online at scta.ca.gov/shift.

The feasibility study teed up additional planning considerations for implementing agencies as they work to establish an effective car share program. These include consideration of car share model, vehicle types, and siting.

**See Planning Actions #1-5.**

## Car Share Policy

Parking regulations must allow for designation of car share parking spaces that are reserved for the exclusive use of car share vehicles. These regulations may include requirements for signs or markings designating the parking spaces and car share permits issued by the public works department. Free floating models require permission for unlimited free parking for car share vehicles in all public spaces within the designated zone.

Local governments can also promote car share through internal policies. They can provide incentives to employees to use car share for personal travel by purchasing memberships for municipal employees. They may also consider replacing or supplementing fleet or reimbursable work trips with car share. Providing free parking for car share vehicles for an initial period may incentivize expansion of services.

**See Policy Actions #6-8.**

## Car Share Coordination

Car share is most successful in higher density areas where people are already likely to use non-automobile modes of transportation. Integration in transit rich areas supports multi-modal accessibility that makes it easier to change travel behavior. Promotion of car share by local businesses, events, and tourism shows that there are multiple ways to access destinations and reaches potential users in the immediate geographic area.

Local governments in Sonoma County may also partner with existing car share operators, local businesses, and large employers to coordinate marketing and work together to maximize use. Two car share providers are currently operating in Sonoma County, including Turo – which has vehicles available in multiple parts of the county – and Zipcar – which has recently added vehicles in Santa Rosa and at Sonoma State University. Business networks, such as the Green Business Program, can be used to promote car share as a mobility tool for employee focused TDM.

Lastly, the SCTA and RCPA provide platforms for coordination between policy makers and implementing staff, and can convene future conversations about implementation of car share programs.

**See Coordination Actions #9-13.**

## Car Share Deployment

Local governments in Sonoma County may opt to implement a publicly-run system or partner with a private partner organization. A private or non-profit model allows for a partner organization to take on much of the staffing and capital costs, while a publicly-run system can present significant staffing and capital costs to the implementing agency. Issuing a request for proposals (RFP) is a good way to identify and evaluate potential car share partners.

Fully market-led expansion may lead to a lack of control over vehicle selection and fleet locations, but partnerships can be supported through in-kind services and incentives. Incentives can be used to encourage partners to invest in communities of concern with gaps in access to transportation.

**See Deployment Actions #14-16.**

## Car Share Education and Awareness

A successful car share service would benefit from a robust marketing campaign that takes into consideration a community that may be unfamiliar with the concept. The campaign should focus on simplifying how car share works and changing the perception that personal automobiles are needed for all trips or all households. Promotions such as free annual memberships are also typical in new service areas to attract new users.

**See Education and Awareness Actions #17-19.**

In summary, the Shift Plan found the following key opportunities for local government actions to implement Car Share in Sonoma County:

| | **Car Share Actions**<br>Make it easier for people not to own a car or for a household to avoid owning multiple cars by providing an option for occasional vehicle trips. It can support transit and multi-modal lifestyles, reduce household transportation costs, and flexibly connect transit users to broader destinations than transit or bicycling. | Implementing Entities |
|---|---|---|
| Planning | 1. **Evaluate opportunities for new or expanded car share models**, including private operators or non-profit fleet based partnerships. | SCTA/RCPA, local governments, NGO partners |
| | 2. **Plan for initial implementation or expansion** in areas expected to have highest demand for initial implementation. | SCTA/RCPA, local governments, NGO partners |
| | 3. **Consider siting in shared mobility hubs, near transit centers and in neighborhoods with gaps in transit service.** | SCTA/RCPA, local governments, NGO partners |
| | 4. **Consider siting in communities of concern, regardless of productivity.** | SCTA/RCPA, local governments, NGO partners |
| | 5. **Consider opportunities to integrate plug-in electric vehicles.** | SCTA/RCPA, local governments, NGO partners |
| | *The Shift Car Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: scta.ca.gov/shift* | |
| Policy | 6. **Ensure parking regulations allow for designation of parking spaces** for round-trip fleet-based car share, or free and unlimited parking for one-way car share. | SCTA/RCPA |
| | 7. **Commit to purchase memberships** for municipal employees, as an employee commute benefit or to replace fleet travel. | Local governments |
| | 8. **Consider reducing parking requirements** for developers who provide space for car share and include incentives for tenants to use car share. | Local governments |
| Coordination | 9. **Coordinate countywide implementation** via the SCTA/RCPA. | SCTA/RCPA, local governments |
| | 10. **Partner with existing car share providers operating in Sonoma County.** | SCTA/RCPA, local governments |
| | 11. **Facilitate partnerships with large local businesses and employers.** | SCTA/RCPA, local governments |
| | 12. **Include car share information** on any web-based transit trip planning tools, employer, and tourism sites. | SCTA/RCPA, local governments (transit), tourism boards, chambers of commerce, NGO partners, Spare the Air Resource Team, 511.org |
| | 13. **Coordinate discounts or giveaways** on car share membership or transit passes with purchase of one of the two products. | Transit, car share operators |

| Car Share Actions (continued) | | Implementing Entities |
|---|---|---|
| Deployment | 14. **Include attractive in-kind services** within a request for proposals from car share providers. | SCTA/RCPA, local governments |
| | 15. **Provide free on-street or public parking lot spaces**, especially in areas with high visibility and at or near transit hubs. | Local governments |
| | 16. **Secure funding for start-up costs** from grants, business sponsors, transit-operators, non-profits, or other partners. | SCTA/RCPA, local governments, NGO partners |
| Education and Awareness | 17. **Develop an education and awareness campaign.** | SCTA/RCPA, local governments, NGO partners, car share operators |
| | 18. **Post wayfinding and signage** directing users between car share and transit hubs. | Local governments, transit agencies, car share operators |
| | 19. **Advertise car share** at transit hubs, on transit vehicles, and on tourism and business related sites. | Local governments, transit agencies, business districts, chambers of commerce, car share operators |

# FUEL SHIFT

The focus of the Shift Sonoma County Low Carbon Transportation Action Plan was to explore new strategies to support and accelerate the transition to electric vehicles (EVs) in Sonoma County. Through the Fuel Shift Plan, the Sonoma County Transportation Authority (SCTA) and Regional Climate Protection Authority (RCPA) developed a countywide local government strategy to make EVs more accessible and attractive, by investing in and promoting:

- Increased EV adoption
- Expanded EV charging infrastructure

## Fuel Shift Goals for 2030

- Reduce countywide petroleum use by 50%
- Increase EVs to 100,000
- Increase number of charging stations to at least 11,000, at workplaces and in public settings
- Increase access to electric transportation options in low-income households and communities of concern
- Continue municipal leadership through integration of EVs into fleets and installation of workplace and publicly accessible charging at government facilities

Each of the following sections provides information on how to move forward with local implementation. Several planning tools have been developed or are under development to support action including:

- A countywide EV Charging Infrastructure Siting Framework
- A local EV policy toolkit
- Updated guidance for integrating EVs into fleets

The SCTA and RCPA will work with member jurisdictions and other implementers, such as electric utilities, community groups, charging station providers, auto manufacturers and dealerships, property owners, and employers to implement the recommended low carbon transportation actions.

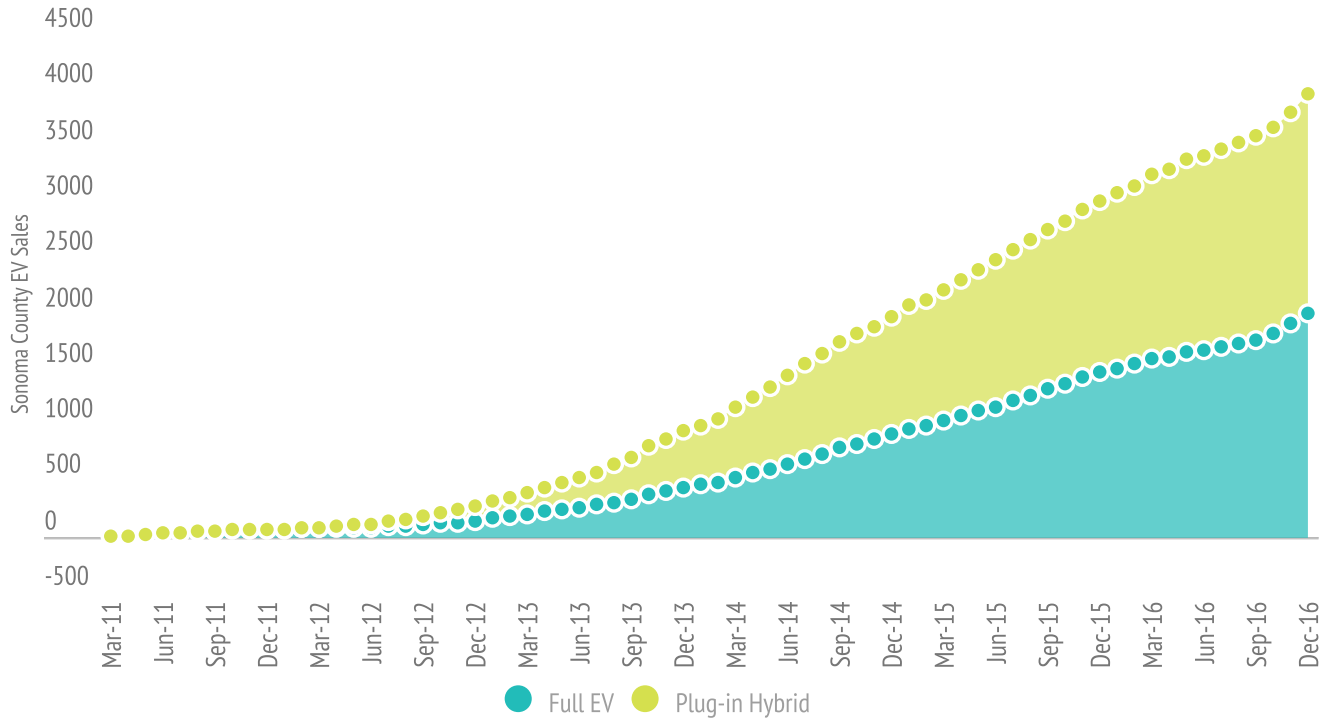
# Electric Transportation Context

Current EVs are particularly suited to shorter trips in urban environments. To the degree that Sonoma County residents live in focused-growth communities with shorter trip lengths, more people will find that EVs can help meet the travel needs not already being met by walking, biking or transit. The average one way commute in Sonoma County is about 16 miles, very suitable for the different types of EVs described below, but typically longer than other Bay Area counties.[47]

Battery electric vehicles (BEVs) like the Nissan LEAF are powered solely by energy from the battery. BEVs today have a range of 80-235 miles, based primarily on the size of the battery pack. Plug-in hybrid electric vehicles (PHEVs) like the Chevy Volt have an internal combustion engine and a battery pack that is designed to be charged from the electrical grid. PHEVs on the market today have an electric range of 10-80 miles.

There are now many makes and models of EVs on the market, and many drivers in Sonoma County have embraced them. The number of EVs in Sonoma County have grown steadily since the first mass market EVs were sold in 2011. Sales of EVs have accounted for roughly 4% of new car sales in Sonoma County since 2014 (higher than the national average of 1%), with over 4,000 electric vehicles bought or leased in the county through 2017.[48]

### Total Sonoma County EV Sales




By 2020, it's forecasted that an additional 75,000 new vehicles will be added in Sonoma County and 350,000 new vehicles by 2030.[49] Reducing future emissions will depend on powering these vehicles using clean electricity.

47 SCTA, *CTP*, 2016.

48 Department of Motor Vehicles, Registered Vehicles, 2017.

49 Charging Infrastructure Forecasted Needs, http://scta.ca.gov/wp-content/uploads/2017/07/Draft-EVSE-Forecasted-Needs.pdf

**Types of EV Charging**

Electric vehicles are equipped to charge at various speeds depending on the infrastructure available. There are three common levels of EV charging infrastructure:

- **Level 1** charging uses the standard 120 volt (V), 15- or 20-amp (A), grounded wall outlet. Level 1 charging requires no new electrical service for a building operating on an existing circuit. A typical EV would add 4.5 miles of range per hour of charging using Level 1.
- **Level 2** charging is used for EV charging at less than or equal to 240 V. If 240 V service is not already installed at the charging site, a new service drop will be required from the utility. A typical EV would add 24 miles of range per hour of charging using Level 2.
- **Direct Current Fast Charging** (DC Fast Charging or Level 3) provides power much faster than Level 1 and Level 2 charging. However, DC fast chargers are more expensive to build and operate due to the equipment and necessary electrical upgrades; plus not all EVs are equipped with hardware for DC fast charging. A typical EV would add up to 40 miles of range per 10 minutes of charging using DC fast charging.

While 80% of EV charging typically happens at home,[50] charging at multiple types of locations is needed. Residential charging occurs at home and can occur at Level 1 or Level 2. Workplace charging would typically be provided by an employer to employees via on-site charging facilities at Level 1 and Level 2.

Opportunity charging is a broad category that captures non-residential charging that is not workplace charging. It can occur at retail locations or other areas with dwell times that match driver behavior. Level 1, Level 2, and DC Fast Charging are suitable for opportunity charging, depending on the location and type of site host. Fleet charging refers to the charging of EVs in a commercial or government fleet, which is assumed to occur at some fleet-owned location.

A public survey gauging attitudes on the Shift strategies identified several opportunities to popularize EVs in Sonoma County. These included promoting the environmental impact of driving an EV (73%), offering purchase incentives (67%) and promoting fuel savings (65%).

Barriers to becoming an EV driver identified in the survey focused around the concerns over vehicle driving range (71%), the higher up-front price of EVs (67%) and access to charging stations (60%).[51]

Additional suggestions to increase EV adoption, collected through Shift workshops and direct feedback, include pairing with a car share service to provide as a secondary vehicle when needed.

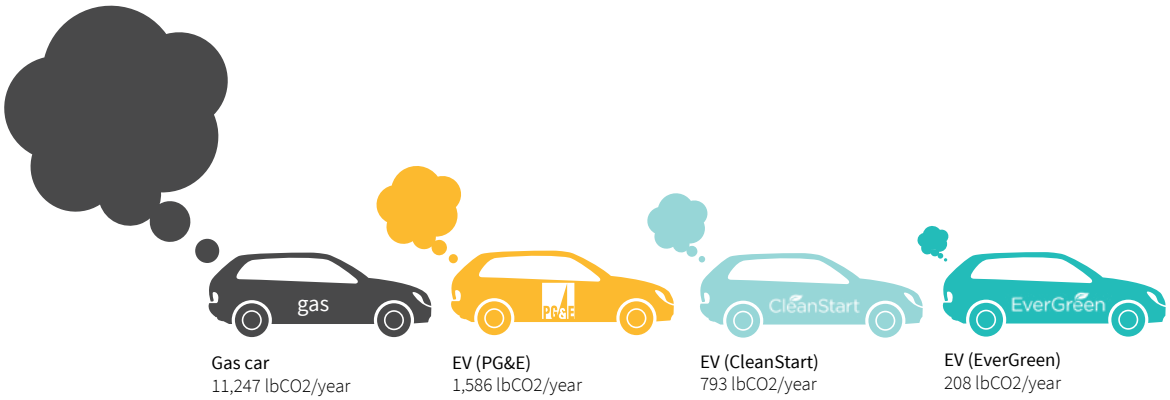
50 PlugInsights, *U.S. PEV Charging Study*, 2013. http://assets.fiercemarkets.net/public/smartgridnews/PlugInsights_U.S._PEV_CHARGING_STUDY_2013_media_copy.pdf

51 Shift Sonoma County - Draft Plan Survey on PlaceSpeak. https://www.placespeak.com/shiftsonoma

# Electric Transportation Opportunities

EVs powered with clean renewable energy represent a huge opportunity to reduce greenhouse gas (GHG) emissions from transportation while keeping money spent on fuel in the local economy, reducing pollution, and saving drivers money. EV technologies are commercially viable and the infrastructure necessary to use electricity as transportation fuel is mostly in place in the form of the existing electricity grid (in contrast with hydrogen, which holds great promise as a transportation fuel, but requires entirely new distribution infrastructure).

### Annual CO2 emissions from average Sonoma County vehicles[52]




## Benefits of EVs

EVs have many benefits over combustion vehicles. They are:

- **Great to drive** – EVs are typically quick to accelerate, compared to conventional cars, and nearly silent to operate.
- **Healthier** – Compared to combustion vehicles, EVs make it easier for residents to breathe by eliminating nitrogen oxides, particulate matter, and toxic air contaminants that cause significant local human health risks.
- **Better for the environment** – In Sonoma County, switching to an EV represents a 98% reduction in greenhouse gas reduction when using 100% renewable energy (available through Sonoma Clean Power's EverGreen option, PG&E's Solar Choice program, or Healdsburg's Green Rate). Even considering the embedded energy from producing the car, EVs are better for the environment than gas cars over their lifetime.
- **Cheaper to operate** – Charging an EV typically costs $500/year, compared to a gas car that can cost $1,500 to $2,400 to fuel every year (depending on fuel efficiency and gas prices).[53] EVs also have fewer maintenance concerns, with most drivers only needing to replace tires and windshield wipers as needed.
- **Ready for the future** – As EVs mature, it could be possible to integrate vehicles with the electric grid to time charging with the cleanest power available, as well as to provide power when there are disruptions to the grid.

52 Sonoma Clean Power, 2016, https://sonomacleanpower.org/drive-evergreen-drive-on-evergreen/.

53 US DOE, Costs Associated With Non-Residential Electric Vehicle Supply Equipment, https://www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf

## Barriers to EVs

Efforts to encourage a shift in transportation fuel choices must acknowledge and address or work within the constraints created by several important barriers to behavior change including:

- **Awareness of EVs is limited** – Recent surveys have shown that the majority of drivers are unaware that electric vehicles are an option for drivers, while even more are unaware of EVs benefits and incentives.[54] ***Fuel Shift actions attempt to make EVs more visible and accessible, including through education and incentive programs.***
- **Multi-family housing** – Apartments can be a difficult place to charge an EV. Residents are often reliant on the property owner to install charging stations, which can be difficult to install due to a reduction in overall spaces along with billing issues for the power provided. ***Fuel Shift actions intended to expand access to infrastructure focus on home and workplace charging.***
- **Availability of compelling vehicles** – Customer preference can be limited by the type of electric vehicles currently manufactured (many EVs are compact cars) as well as price and stock at local dealerships. ***Local partnerships with dealers and manufacturers can help to promote available choices, and governments can aggregate their buying power through bulk procurement initiatives.***
- **Availability of incentives** – Incentives are often dependent on location, while many incentives are all limited in time and total number. ***Fuel shift actions seek to promote and expand participation in incentive programs.***
- **Significant unknown installation costs** – EV drivers might not know what it takes to install home chargers , which includes potential panel upgrades, added circuits, additional conduit as well as selecting and affording the right charger. ***Fuel Shift actions strive to increase the availability of trusted information about EVs.***
- **Unknown future needs of EV owners** – The unknown future generates some doubt when it comes to installing charging infrastructure. ***Ongoing engagement with EV drivers and potential EV drivers will inform implementation.***

Policy makers, planners, dealerships, vehicle manufacturers, property developers, employers, and utilities must continue to work creatively and collaboratively to overcome these barriers to make EVs a predominant transportation technology. The recommendations made within the Fuel Shift Plan attempt to address these barriers as appropriate through local actions.

## Equity

Early adoption of electric vehicles has been dominated by high income individuals. In a survey of Clean Vehicle Rebate Project participants from September 2012 to May 2015 conducted by the Center for Sustainable Energy, 45% of respondents in Sonoma County had annual household income between $100,000 and $199,000[55]. Lower income individuals have experienced more barriers to EV adoption. This includes the higher up front purchase price of early EV models, lack of access to financing, and lack of access to charging in rental housing. The Fuel Shift plan includes a number of actions aimed at reducing barriers for low income drivers.

### EVs

The current EV market is dominated by financing vehicles through leasing, which has spurred record sales of new vehicles in the US (in 2016, the national market hit record levels at 31% of new sales linked to leasing, and 35% in California).[56] Consumers tend to favor leasing for lower monthly rates compared to financing a purchase. In the survey of Clean Vehicle Rebate Project participants, 57% of respondents statewide and 55% of respondents in Sonoma County were leasing an EV.[57]

54 Altman Vilandrie & Company, Survey, http://www.businesswire.com/news/home/20161208005809/en/

55 Center for Sustainable Energy (2016). California Air Resources Board Clean Vehicle Rebate Project, EV Consumer Survey Dashboard. Retrieved August 2017.

56 Edmunds, Lease Market Report, January 2017.

57 Center for Sustainable Energy (2016). California Air Resources Board Clean Vehicle Rebate Project, EV Consumer Survey Dashboard. Retrieved August 2017.

The market for EV's is changing as result of increased manufacturer competition, lower battery prices, and overall reduced vehicle pricing. Additionally, used EVs are now becoming more commonly available. The result may be that incentive, financing, and re-lease programs could become viable tools to help more low income drivers adopt EVs.

**Combining electric vehicles with car share service** has become a successful model for putting the benefits of electric vehicles into the hands of more people in urban environments. Electric vehicles are more reliable and have lower operating costs. Using EVs in a car share setting allows users to take advantage of the benefits of EVs without the higher upfront cost.

BlueLA is the latest iteration of a system of low-cost EVs built for car sharing that started in Paris. The system on Los Angeles launched with 40 stations and 100 EVs. The system offers discounts for low-income users.

In Sacramento, the local air quality management district has started an EV car sharing program in partnership with Zipcar to offer affordable housing communities free memberships and up to 9 hours/week in free drive time.

**EV Charging Infrastructure**

One of the primary benefits of EVs is that electricity is (typically) cheaper than gasoline and prices have historically been less volatile. The higher costs of EVs compared to conventional gasoline vehicles are offset by lower fuel prices. Unfortunately, that depends on the ability to charge where electricity prices are cheapest, usually at home. Opportunity charging tends to include a higher price, including for parking fees or host site cost recovery. Low income drivers may be more likely to live in rental or multifamily housing, where it can be difficult to install the Level 2 charging infrastructure needed for fully charging batteries quickly. Actions to expand charging in rental housing or at workplaces, with pricing structures that keep fuels costs low, are needed to accomodate more low income drivers. Additionally, programs and policies that reduce installations costs in all applications may also help keep fuel costs lower for all drivers.

## Fuel Shift Outreach Strategy

Engaging public education and useful tools will help increase EV adoption among stakeholders. Providing resources to key sectors that play a role in EV readiness in the region will be crucial for effective implementation of the Shift Plan.

The Fuel Shift Outreach Strategy vision is to establish Sonoma County as a leader in mass EV deployment for all supported by robust EV education and engagement; a convenient and equitable network of charging infrastructure; streamlined charger installation; standardization of codes; and widespread use of renewable energy resources.

**Outreach Goals:**

- **Facilitate Resource Development** – Through the Shift plan, the SCTA and RCPA will act as a clearinghouse and "attractor" of federal, state, regional, and private investments and initiatives. As a centralized forum for organizations in the county, the SCTA and RCPA will leverage collaborative partnerships to acquire grants and other sources of funding to aid in the mass deployment of EVs and charging infrastructure.
- **Coordinate Stakeholder Engagement and Build Awareness** – The SCTA and RCPA will organize a centralized space in the county for strategy development, coordination, and input. The SCTA and RCPA will continue to proactively engage local and regional planning agencies, public and private fleets, and the community to develop an actionable plan.
- **Promote a Countywide EV Charging Network** – The SCTA and RCPA will provide centralized planning resources to establish an efficient, context-sensitive, and user-friendly EV charging network for the county and prioritized transportation corridors. The SCTA and RCPA will coordinate, facilitate, and monitor the implementation of this plan.

# Electric Vehicles

In 2012, California Governor Brown issued Executive Order B-16-2012 to encourage zero-emission vehicles (ZEVs - which include battery EVs and fuel cell vehicles powered by hydrogen) in California and set a long-term goal of reaching 1.5 million ZEVs on California's roadways by 2025. Since then, the state has published the 2013[58] and 2016[59] ZEV Action Plans, listing state agency actions to encourage ZEVs.

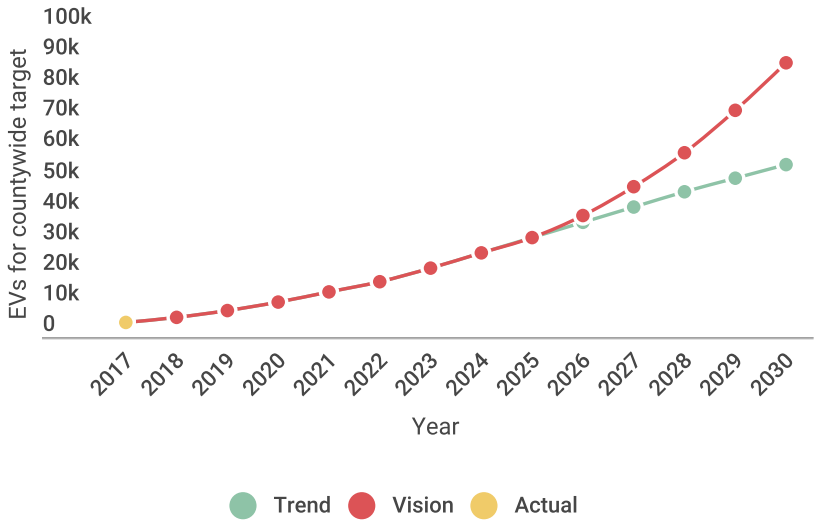
Locally, EVs are continuing to grow as a percent of new car sales and it's likely that EVs will take at least 35% of the market for new vehicles by 2040. Existing forecasts include:

- Annual US Electric vehicle sales are expected to quadruple from 2016 to 2020.[60]
- Goldman Sachs expects EVs to make up 22% of the new car market by 2025.[61]
- Electric vehicles are expected to be 35%, and up to 50%, of global new car sales by 2040.[62]

Shift Sonoma County proposes a goal to reduce petroleum use in transportation by 50% by 2030. This target could be met by a combination of overall fleet fuel efficiency gains and replacing at least 87,000 internal combustion engine vehicles with plug-in electric cars, as modeling completed for this project found.

The Shift Plan therefore establishes a countywide target to facilitate 100,000 EVs in Sonoma County by 2030. To achieve this, EVs will need to make up an increasingly large share of new vehicle sales over time, representing 65% of all sales by 2030.[63]

### Sonoma County EV Sales Needed for 2030 Goal




58 Governor's Interagency Working Group on Zero-Emission Vehicles, *2013 ZEV Action Plan: A roadmap toward 1.5 million zero-emission vehicles on California roadways by 2025*. https://www.opr.ca.gov/docs/Governor's_Office_ZEV_Action_Plan_(02-13).pdf.

59 Governor's Interagency Working Group on Zero-Emission Vehicles, *2016 ZEV Action Plan: An updated roadmap toward 1.5 million zero-emission vehicles on California roadways by 2025*. https://www.gov.ca.gov/docs/2016_ZEV_Action_Plan.pdf.

60 Bloomberg New Energy Finance, 2017. https://about.bnef.com/blog/electric-vehicles-accelerate-54-new-car-sales-2040/.

61 Electric Vehicles As Distributed Energy Resources, http://www.rmi.org/Content/Files/RMI_Electric_Vehicles_as_DERs_Final_V2.pdf

62 Bloomberg New Energy Finance, 2017.

63 Charging Infrastructure Forecasted Needs, http://scta.ca.gov/wp-content/uploads/2017/07/Draft-EVSE-Forecasted-Needs.pdf

Achieving or exceeding these EV sales forecasts largely depend on two key factors:

- **Price of oil** - High oil prices have been shown to increase the demand for fuel efficient cars - though analysis suggests a rapid increase in EVs could cause a drop in gasoline demand (and lower oil prices).
- **Battery costs** - The key driver of vehicle cost is the battery. Increased scale of battery production and new methods have reduced battery costs since 2011 and are expected to continue.[64]

While the price of oil and battery costs are controlled by larger market and production forces, there are additional factors that can be influenced locally:

- **Charging availability** - While over 80% of charging is typically done at home, the perceived ability to charge at work or while taking longer trips can hold back sales. Workplace charging holds promise to shift the load for charging into the middle of the day when renewable power is plentiful, and serve drivers unable to install a charger at home.
- **Charging accessibility** – Compliance with the Americans with Disabilities Act (ADA) has proven to be a costly barrier to more widespread deployment of charging infrastructure in Sonoma County. Improved guidance from the state and coordination within Sonoma County will help advise installations.
- **Vehicle incentives** - Vehicle incentives can motivate car buys, especially in the early market while EVs carry a price premium over conventional vehicles.
- **Vehicle-grid integration** – EVs have the potential to serve as a resource for the entities that operate the electrical grid, providing a load that can take up excess renewable energy production and one day feed power back to the grid. Utilities are getting into the EV charging market and making big investments.
- **Consumer awareness** - A 2014 survey in California showed that most car buyers were not even aware that electric vehicles were an option.[65] Educational campaigns and partnerships with dealerships can improve upon this.
- **Carsharing** - EV sales could go up to 50% by 2040 in an increased carsharing and ridesharing scenario.[66]

64 Bloomberg New Energy Finance, *Electric Vehicle Outlook 2017*. https://data.bloomberglp.com/bnef/sites/14/2017/07/BNEF_EVO_2017_ExecutiveSummary.pdf.

65 I Am Not An Environmentalist Wacko! Getting From Early Plug-in Vehicle Owners to Potential Later Buyers, UC Davis

66 Bloomberg New Energy Finance, 2017.

# Local Government Actions

Local governments in Sonoma County have an important role in encouraging EVs in their communities through planning, policy, coordination, deployment and education and awareness. Many different departments within the jurisdiction are involved with these efforts, including city managers, planning, public works, inspections, fleet management, public affairs, and sustainability. Local government actions on charging infrastructure to support EVs is discussed in the following strategy chapter.

Local governments are well positioned to encourage broader use of EVs by:

- Establishing an EV Ready Community Resolution
- Adopting a Municipal EV Fleet Strategy
- Encouraging the electrification of private vehicles through incentives, education, and partnerships.

The following sections summarize local actions to advance EVs as identified in the Fuel Shift Plan. In addition, the SCTA and RCPA are developing implementation resources specific to EV actions (available online at scta.ca.gov/shift):

- EV Policy Toolkit
- EV Fleet Guide

EVs strategies can:

- Reduce GHG emissions
- Reduce lifecycle transportation costs
- Improve air quality

Additional resources related to EVs are available at the end of this plan.

## EV Planning

The purchase and use of EVs is growing, representing a shift in vehicle technology and a shift in where and how people fuel their vehicles. Local government planning plays an important role in supporting that shift. Planning action recommendations are two-fold: focusing on the community at large and on municipal operations.

By monitoring market trends and sales, local governments can assure EV efforts are tailored to Sonoma County needs. Knowing Sonoma County EV driver attitudes and needs will allow jurisdictions to implement actions most needed and desired. The SCTA and RCPA can assess EV driver attitudes and needs through surveys.

Local governments in Sonoma County have varying degrees of experience with EVs in their fleet. The Sonoma County EV Fleet Guide incorporated local government experiences to date and includes applicable guidance to help plan for and evaluate opportunities to electrify fleet vehicles.

EVs in municipal fleets have many benefits for local jurisdictions:

- Lower fuel costs
- Fewer maintenance concerns
- Reduced environmental impacts
- Increased employee EV awareness

Planning the transition to an electric fleet requires a variety of considerations. The Sonoma County EV Fleet Guide provides local governments and staff with information and recommendations that are necessary for a smooth integration.

The **EV Fleet Guide** examines opportunities for municipal fleets in Sonoma County and provides recommendations to enhance the sustainability of fleet operations while also enabling financial efficiencies. Five main recommendations for fleet are suggested:

1. Create an integrated fleet strategy
2. Expand fleet electrification
3. Maintain consistent fleet databases
4. Use available metrics to track opportunities and performance
5. Establish staff education program

More information and supporting documents are provided in the guide, which can be found online at scta.ca.gov/shift.

**See Planning Actions #1 and #2.**

## EV Policy

Local policies can accelerate EV adoption by providing a vision for a low-carbon transportation system, and establishing clarity in the commitment to pursue the economic and environmental value from electric transportation. Many Sonoma County local governments have adopted policies relating to EVs and reducing transportation greenhouse gas emissions throughout the years. Fuel Shift policy considerations offer a great opportunity to update policies and create consistency throughout the county. These Fuel Shift policy considerations are two-fold: to establish a communitywide framework for personal vehicles, and to establish internal policies for municipal fleets.

Sonoma County local governments are encouraged to adopt an EV Ready Community Resolution and the corresponding implementation policies. Establishing regional consistency in Sonoma County local government policies would continue jurisdictions' commitments to EVs and align efforts encouraging effective coordination for implementation. Additionally, local governments can consider incorporating previously adopted and new EV readiness policies into comprehensive plans, such as general or transportation plans. This is a critical first step in building consensus among policymakers and the public in support of more specific implementation measures. This also makes it easier to allocate funding toward EV plans and projects.

Internal policy can establish an impetus behind electrifying municipal fleets. An effective way for local governments to increase EVs in fleet operations is to implement purchasing policies including "electric first" guidelines when purchasing vehicles, making EVs the default alternative for suitable operations.

The SCTA and RCPA have developed a model EV Ready Community Resolution and supporting policy tools to help jurisdictions consider policies. Policy tools will be developed on an ongoing basis and added to the EV policy toolkit.

The Model EV Ready Community Resolution is provided in the **EV Policy Toolkit**, which can be found online at scta.ca.gov/shift.

**See Policy Actions #3, #4, and #5.**

## EV Coordination

On behalf of the local governments in Sonoma County, the SCTA and RCPA coordinate with many organizations and government entities at the state, regional, and local level. Continued coordination will ensure information sharing of best practices and lessons learned, increasing the success of EV implementation in Sonoma County.

The SCTA and RCPA will continue to participate in broader collaborations such as the Bay Area EV Coordinating Council and the West Coast Fleet Initiative, and utilize the existing SCTA/RCPA Board and committee structures to disseminate knowledge about EV technology and policies.

The Sonoma County Local Government EV Partnership has served as an important forum for local government staff working to implement EV policies and programs. This partnership can continue to serve as the working group for local government EV efforts to collaborate on policies and programs. Sonoma County local governments should consider designating a jurisdictional representative to participate in the Local Government EV Partnership and collaborate on policies and programs.

Stronger coordination between local governments and the public, including community and business members, will increase participation in EV charging and fleet opportunities. Through the SCTA and RCPA, Sonoma County jurisdictions should create and convene a public EV Coordinating Council with non-governmental partners to increase EV adoption locally.

Transitioning vehicles to electric options will require outreach, training, and education relating to vehicle sales, charging services and infrastructure. It will be important for local governments and local EV program implementers in Sonoma County to coordinate with local car dealers and vehicle manufacturers.

**See Coordination Actions #6-11.**

**Vehicle automation and shared mobility**

Electrification, shared mobility and autonomous vehicles have the potential to remake our transportation system. Three Revolutions in Urban Transportation is a 2017 report about the potential synergies of these technologies and their impact on GHG emissions.

The report out of UC Davis looks at strategies to achieve the full potential of vehicle electrification, automation and shared mobility in urban transportation systems around the world by 2050. The study examines layering these strategies in urban environments, where the combination could result in an 80% cut in CO2 emissions and a 40% reduction in the cost of vehicles, infrastructure, and transportation system operation by 2050. More information: https://3rev.ucdavis.edu/

## EV Deployment

Local governments in Sonoma County can continue to lead by example, incorporating EVs and PHEVs into their public fleets. There is still a great opportunity within the county to increase the deployment of EVs within municipal fleets and reduce GHG emissions and particle emissions, improving local air quality. By implementing the previously suggested actions of adopting a fleet strategy and consider purchasing policies, local governments can increase deployment of EVs in municipal fleets.

**The Sonoma County Local Government Electric Vehicle Partnership** (Partnership), a local EV coordination forum, was formed in 2008 with the goal of bringing 1,000 EVs to Sonoma County. The Partnership collaborated with Nissan to provide input on the LEAF design as a fleet vehicle, then began pursuing funding sources to install infrastructure and purchase vehicles.

The Sonoma County EV Fleet Guide includes discussions of EV suitability assessments and when and where to deploy EVs in the most cost effective way. Municipal fleets should leverage fleet purchasing power and participate in EV bulk-procurement initiatives which can yield lower pricing. A dual benefit of a municipal EV fleet is sharing the benefits of EV technology with the community and perhaps encourage individuals to consider purchasing an EV.

Transit vehicles can also be good candidates for electrification. Several local transit operators are introducing electric buses or pursuing grant funds to introduce electric buses into transit fleets and should continue to deploy EVs into transit fleets.

**Sonoma County Transit** is adding a 30-foot electric-powered bus to their route, with plans to add a second. Purchased with Low-Carbon Transit Operations Program funds and local transportation funding, the first electric bus is expected to launch in December 2017. Sonoma County Transit has applied for funding for a second bus to serve local shuttle routes operated in the Santa Rosa area and within the cities of Windsor, Sebastopol, Rohnert Park and Cotati, respectively.

In addition to public fleet deployment, local incentives, programs, and partnerships can be created to reduce the barriers to EVs and encourage greater private use of electric cars. Several local incentive programs have already launched to further incentivize the purchase of an EV, including the Sonoma Clean Power Drive EverGreen program and the Northern Sonoma County Air Pollution Control District's 3-2-1 Go Green! program, both of which offered additional rebates for the purchase or lease of an EV. By promoting local incentive programs, local governments in Sonoma County can increase electrification of the transportation sector.

**Drive EverGreen**, a Sonoma Clean Power (SCP) program, provides discounts on vehicles and charging equipment providing customers more affordable and clean mobility options. 206 eligible EVs were purchased or leased through the successful pilot EV incentive program which ran from October 2016 to January 2017. For this pilot, SCP negotiated significant price discounts of $10,000 with participating dealers, BMW and Nissan, and further reduced the cost of EVs by issuing discount certificates to applicants ($5,000 for customers participating in California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) and $2,500 for other applicants).

For current program information, please visit https://sonomacleanpower.org/drive-evergreen/.

**3-2-1 Go Green** offers grants and rebates to Sonoma County residents who live within the Northern Sonoma County Air Pollution Control District (NSCAPCD) boundaries. Transitioning to EVs protects air quality, reducing fine particulates and pollutants that form smog and fights climate change. Rebates of up to $3,000 are offered after purchase or lease of EVs, hydrogen fuel cell vehicles (HFCV), plug-in electric vehicles and home chargers, with additional low-income assistance available to qualifying applicants.

Community grants of up to $5,000 are also offered for public EV charger hardware and installation. For current program information, please visit http://sonomacounty.ca.gov/Air-Quality/Electric-Vehicle-Rebates/.

Local governments should consider extending or expanding on models that make access to an EV easier, including financing strategies, integration into car share programs, re-leasing used EVs, or other innovations. This could include encouraging or requiring other transport fleets such as tour vehicles, government contractors, taxis, and transportation network companies to electrify their vehicles.

Transportation is evolving rapidly, and local governments can also pursue innovative models related to transportation electrification, such as autonomous vehicles. Sonoma County local governments should seek opportunities to support and pilot electric autonomous vehicles.

**See Deployment Actions #12-16.**

## EV Education and Awareness

EV owners report high levels of satisfaction with their vehicle, but a large portion of drivers are unaware that EVs are a viable option.[67] Education and awareness efforts will be needed to close this gap.

Some aspects of EV ownership and use are different from gas vehicles, such as vehicle pricing, fuel pricing, maintenance requirements, range, and refueling options. Increasing education and awareness creates a positive experience and improves driver's familiarity with EVs and the benefits.

Local governments can lead and expand on numerous efforts to support driver awareness of EVs, including within their own operations. Local government employees may be unfamiliar with EVs deployed in municipal fleets and would benefit from staff education programs. Local governments in Sonoma County can also give employees direct experiences with EVs, such as ride and drive events, and provide information to drivers through local information resources and support for decisions.

67 I Am Not An Environmentalist Wacko! Getting From Early Plug-in Vehicle Owners to Potential Later Buyers, UC Davis

Creating an EV "concierge service" for Sonoma County to serve as a one-stop-shop for EV questions would greatly increase the education and awareness of Sonoma County residents. This would serve as a central location for consumers to get information from a neutral third-party. To support this "concierge service", an online help desk with comprehensive EV information could be created. The SCTA and RCPA can create this knowledge base to provide reliable useful information on EVs to the Sonoma County community.

For the community, local governments can increase awareness of EVs by leading or supporting Ride and Drive events.

The **Experience Electric** program was launched in 2014 to influence the attitudes of San Francisco Bay Area residents toward electric vehicles (EV) through free EV test-drive events. The program held 27 free EV test-drive events in urban, community and workplace locations that resulted in 5,284 test drives during an 18-month period. There were two events held in Sonoma County:

- 9/28/14 - Sonoma Valley Vintage Festival, 165 test drives
- 3/19-20/16 - Sonoma County Home and Garden Show, 152 test drives

Out of a survey given to all participants, more than three-quarters (79%) indicated immediately following their test drive that the experience improved their overall opinion of electric vehicles; while 70% of survey respondents indicated that they were more likely to buy an EV.

Source: Center for Sustainable Energy, *Experience Electric Campaign Report*. https://energycenter.org/sites/default/files/docs/nav/transportation/experience-electric/MTC_EXEL_Final_Report.pdf

**See Education and Awareness Actions #17 and #18.**

In summary, the Shift Plan found the following key opportunities for local governments to encourage EVs in Sonoma County:

| **Electric Vehicle Actions**<br>With over half of Sonoma County's emissions related to transportation, EVs represent a large opportunity to reduce emissions. When charged with renewable energy EVs can nearly eliminate the pollution associated with driving. Not only are EVs are fun to drive, easy to maintain, quiet, and cheaper to fuel than gas or diesel vehicles, they can also help operate a clean and reliable utility grid. | | Implementing Entities |
|---|---|---|
| Planning | 1. **Evaluate Sonoma County EV drivers' habits and attitudes about electric vehicles** to better inform EV investments and policy priorities. | SCTA/RCPA, Sonoma Clean Power (SCP) |
| | 2. **Develop a fleet strategy** to increase EVs in municipal fleets. | Local governments (public works) |
| | *The Shift EV Fleet Guide can help inform decision making about EVs and fleets. More info: scta.ca.gov/shift* | |
| Policy | 3. **Adopt an EV Ready Community Resolution, establish consistency in local government policies** in Sonoma County to support electric vehicle adoption. | SCTA/RCPA, local governments |
| | *The Shift EV Policy Toolkit provides a template for local policy consideration. More info: scta.ca.gov/shift* | |
| | 4. **Incorporate EV readiness policies into general plans.** | Local governments (planning & community development) |
| | 5. **Develop policy for electrification of fleets** and consider adopting an "electric first" policy. | Local governments (planning & community development) |
| Coordination | 6. **Participate in regional and state collaborations** to share knowledge on EV technology and policy. | SCTA/RCPA, SCP |
| | 7. **Coordinate with local EV program implementers** in Sonoma County | SCTA/RCPA, SCP, Air Districts |
| | 8. **Participate in the Sonoma County Local Government EV Partnership** and assign a jurisdictional representative to collaborate on policies and programs. | SCTA/RCPA, local governments, SCP |
| | 9. **Create and convene a public EV Coordinating Council** for Sonoma County. | SCTA/RCPA, SCP |
| | 10. **Participate in the West Coast Fleet Initiative** to access tools, technical assistance and a network of fleet managers working on deploying EVs. | Local governments (public works) |
| | 11. **Coordinate with local car dealers and vehicle manufacturers** to increase EV deployment in Sonoma County. | SCTA/RCPA, SCP |

| Electric Vehicle Actions (continued) | | Implementing Entities |
|---|---|---|
| Deployment | 12. **Deploy electric buses into transit fleets.** | Local governments (public works) |
| | 13. **Leverage municipal fleet purchasing power** and participate in bulk EV procurement initiatives. | Local governments |
| | 14. **Develop and promote programs and incentives**, including re-leasing or vehicle buyback programs, to reduce the barriers to EVs for all (especially low-income populations and communities of concern). | SCTA/RCPA, local governments, NGO partners: dealers, electric utilities |
| | 15. **Seek opportunities to pilot/support electric autonomous vehicles.** | SCTA/RCPA, SCP |
| | 16. **Pursue funding** to support expansion of EVs in Sonoma County. | SCTA/RCPA, local governments, SCP |
| Education and Awareness | 17. **Promote EVs through a public education campaign, including a knowledge base with EV ombudsman and supporting Ride and Drive events.** | SCTA/RCPA |
| | 18. **Establish a staff education program** to increase EV awareness for local government employees, including public fleet EV drivers. | SCTA/RCPA, local governments (public works), SCP |

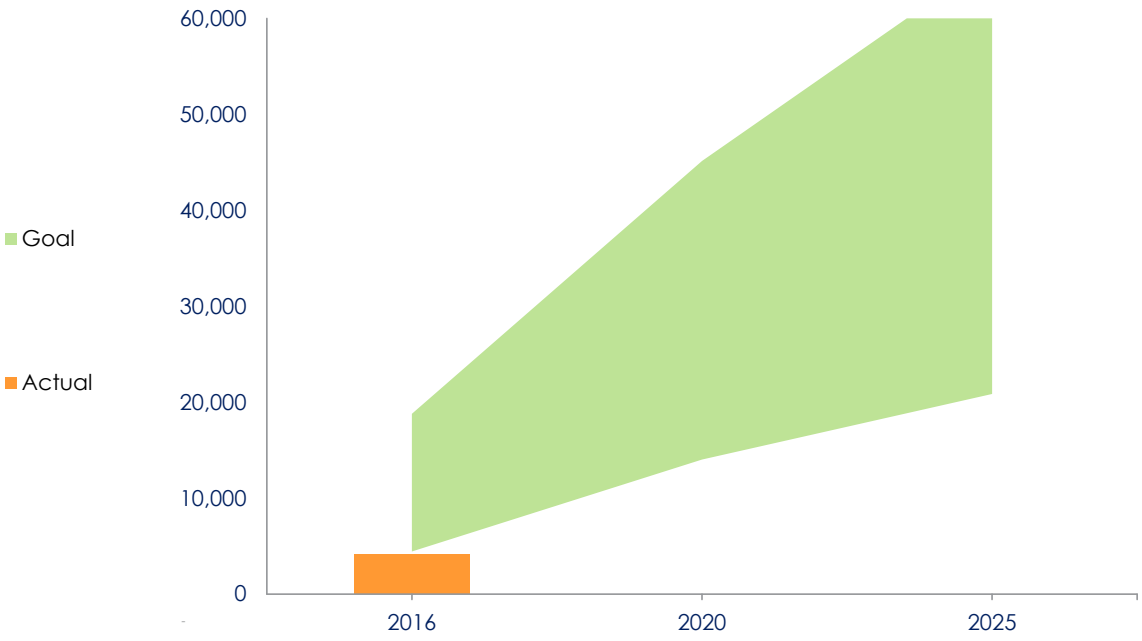
# Electric Vehicle Charging Infrastructure

Significantly more electric vehicle (EV) charging infrastructure is needed to accommodate existing driver needs and enable rapid growth in EVs. Home charging is essential to make EVs viable for most drivers. Ubiquitous, visible, and publicly accessible charging stations give drivers comfort in using vehicles for longer or unique trips, and help the early majority believe that EVs can work for them.

Sonoma County, and the entire region, needs more charging infrastructure to support expected growth in EVs, let alone encourage more rapid adoption. The Bay Area Plug-in Electric Vehicle Readiness Plan forecasts the need for a range of publically accessible chargers to accommodate growth in EVs. The forecast need is framed as a range because of uncertainty regarding the behaviors and technologies that will dominate the market (e.g. longer range vehicles and plug-in hybrids may tilt behaviors towards home dominant charging). Regardless, the region needs a forecast minimum of 20,000 chargers to support the 2025 goal of 250,000 vehicles.

Unfortunately, ongoing evaluation of the Readiness Plan progress led by the Bay Area Air Quality Management District (BAAQMD) has found that while EV adoption is on pace or ahead of regional targets, the installation of charging stations has lagged even below the low end of the range of projected need, as represented by the figure below.

### Bay Area Public EV Infrastructure Needs[68]




The following sections summarize local actions to increase EV charging infrastructure as identified in the Fuel Shift Plan. Additional resources related to EV charging infrastructure are available in ***Resources***.

The **EV Charging Infrastructure Siting Framework** was developed to prioritize locations for EV charging. The framework, with an interactive map, is available online at scta.ca.gov/shift.

68 Bay Area Air Quality Management District, *Bay Area Plug-In Electric Vehicle Readiness Plan*, 2013. http://www.baaqmd.gov/plans-and-climate/bay-area-pev-program/bay-area-pev-ready

# Local Government Actions

Local governments play a major role in reducing barriers to EV charging infrastructure within their communities, through planning, policy, coordination, deployment and education and awareness. Many different departments within the jurisdiction are involved with these efforts, including city managers, planning, public works, inspections, fleet management, public affairs, and sustainability. This strategy focuses on the charging infrastructure needed to support EVs.

Local governments are well positioned to reduce barriers to EV charging infrastructure by:

- Establishing an EV Ready Community Resolution
- Installing publicly available EV charging stations

The following sections summarize local actions to encourage EV charging infrastructure as identified in the Fuel Shift Plan. In addition, the SCTA and RCPA are developing implementation resources specific to EV charging infrastructure actions, which are available online at scta.ca.gov/shift.

- EV Policy Toolkit
- EV Fleet Guide
- EV Charging Infrastructure Siting Framework

EV charging infrastructure actions can:

- Increase use of EVs by more drivers
- Facilitate vehicle-grid integration and managing electric utility challenges

Additional resources related to EV charging infrastructure are available at the end of this plan.

## EV Charging Infrastructure Planning

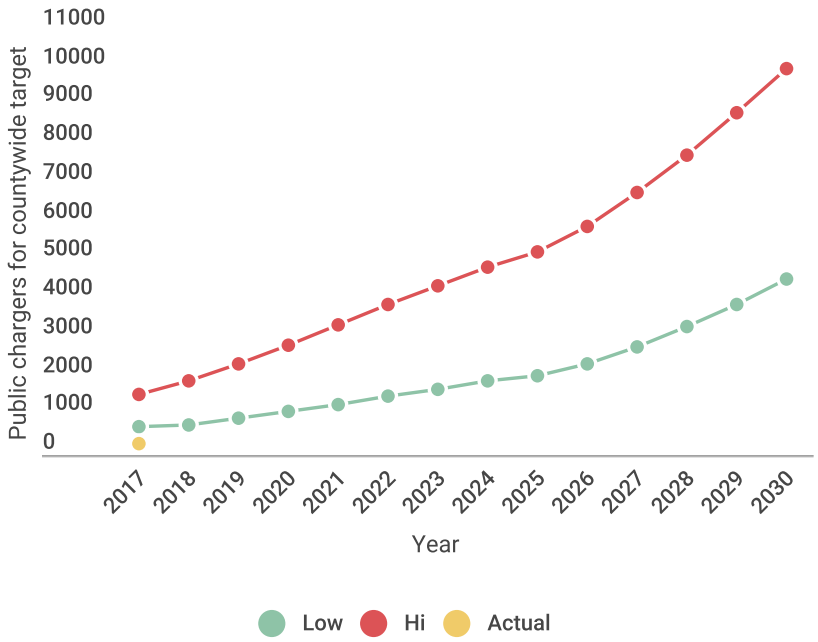
Local governments in Sonoma County can support the development of charging infrastructure by using local data, tools, knowledge, and relationships to plan for the scale and geographic distribution of charging needed. Planning tools built by local governments and partners will facilitate smart investments, by focusing charging infrastructure in areas where drivers need it most, where communities want to focus development, and where new infrastructure can be deployed most cost effectively (e.g. during new construction, or in areas where the electrical distribution grid can accommodate new load without costly upgrades).

The SCTA and RCPA developed an EV charging infrastructure siting framework through the Fuel Shift Plan that can serve as a resource to inform future charging needs in Sonoma County. It included:

- A forecast range of charging need to bracket the magnitude of new infrastructure Sonoma County needs to reduce 50% of petroleum used in transportation by 2030.
- An online, GIS based map of “hot spots” in the community where EVs are most likely to be used: at home, at work, and for fast charging.

The framework is posted online, but it needs to be accessed, utilized, and updated to make sure that priority charging needs are met. Sonoma County local governments can use this local data, tools, knowledge and relationships to plan for the scale and geographic distribution of charging needed to accommodate 100,000 EVs by 2030.

### Sonoma County Public EV Infrastructure Needs[69]




Jurisdictions can work with planning departments, electric utilities, EV drivers, and other groups to establish siting criteria that affect the desirability of specific charging sites. To better understand charging habits and inform local investments, the SCTA and RCPA can conduct a survey of local EV drivers.

During planning, it is important to work with local utilities to ensure that EV charging infrastructure has minimal grid impacts, can be used as a grid resource, and facilitates the use of renewable energy.

**See Planning Actions #1-6.**

## EV Charging Infrastructure Policy

Local governments in Sonoma County are well positioned to increase EV adoption through local policies to expand charging infrastructure. At every step of the planning process, local governments have opportunities to prepare to accomodate greater numbers of EVs. These include establishing a policy framework for EV readiness as well as adopting standards, guidelines, and requirements for EV parking and charging stations.

Throughout the years, local governments in Sonoma County adopted policies that encourage or require new developments to provide charging opportunities through a variety of plans and processes including design guidelines, general plans, building codes, and climate action plans. Sonoma County local governments are encouraged to adopt an EV Ready Community Resolution to establish regional consistency and update policies. Incorporating these EV readiness policies into comprehensive plans will increase the effectiveness of the policies implementation.

The State of California is leading on electric vehicle charging infrastructure, integrating requirements for EV charging into the state building code and local governments play an important role in implementation. The 2016 California Green Building Standards Code (CALGreen) new residential and commercial developments are required to be “EV Capable”,

69 Charging Infrastructure Forecasted Needs, http://scta.ca.gov/wp-content/uploads/2017/07/Draft-EVSE-Forecasted-Needs.pdf

meaning they fulfill certain basic requirements that provide for future electric vehicle infrastructure installations.[70] In order to better support Sonoma County's existing EV ownership levels as well as promote further EV adoption, local governments can consider fuel shift actions including adopting EV reach codes that goes beyond the CALGreen mandatory measures.

Local governments in Sonoma County can set policies in many applications important to expand charging access for diverse drivers including:

- New and existing single family properties
- New and existing multifamily properties
- Workplaces
- Public parking lots and garages
- Publicly accessible sites with high occupancy time like shopping centers

Streamlining local permitting and inspection processes for EV charging stations will support EV charging infrastructure in Sonoma County. State law requires local jurisdictions to adopt a process to streamline the installation of EV charging infrastructure.[71] The SCTA and RCPA partnered with the Redwood Empire Association of Code Officials (REACO) to assemble template language that all local governments can use to encourage regional consistency. Local jurisdictions have adopted the required ordinance and are in process of implementation.[72]

Currently, there is not a standard price for publicly owned and operated EV charging stations in Sonoma County, which has caused confusion among some EV drivers. To address this issue, local governments can work together and consider standardization of price structures for publicly owned EV charging stations countywide.

Model policies to support EV charging infrastructure will be provided through the **EV Policy Toolkit**, which can be found online at scta.ca.gov/shift.

**See Policy Actions #7-14.**

**The switch away from fossil fuels used for transportation** will result in less money collected from the gas taxes and reduced spending on priorities, like transportation infrastructure, that rely on this revenue. States have tried to address this trend in the short term with additional registration fees for EVs (California's SB1 will add $100/year starting in 2020).

In the long term, many have suggested replacing the gas tax with a Vehicle Miles Traveled (VMT) fee which would collect revenue on a per-mile basis (similar to the gas tax). California concluded a road charge pilot project in 2017 that tested methods for collecting a VMT fee. Oregon launched a VMT fee in 2015 but has capped participation until the legislature approves a wider rollout.

70 California Building Standards Commission, Part 11: California Green Building Standards Code (CALGreen), 2016. https://codes.iccsafe.org /public/document/details/toc/657.

71 Assembly Bill 1236, 2016, (Chiu, 2016), https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB1236

72 Redwood Empire Association of Code Officials. Electric Vehicle Charging Station Permitting and Inspection Streamlining Guidance for Sonoma County. 2017. https://docs.wixstatic.com/ugd/54a0a1_65b931202d934bc597030580411b3360.pdf.

## EV Charging Infrastructure Coordination

Many stakeholders are involved in the expansion of charging infrastructure, including local government staff throughout departments, electrical utilities, building owners, planning and building departments, private charging station companies, EV drivers, and others. Coordination can help align the thinking and actions of many parties, accelerating the deployment of charging infrastructure where it is most needed and most cost effective. The SCTA and RCPA are well positioned to continue to provide for coordination between local government members and between non-governmental partnerships, such as regional forums, state agency proceedings, and private entity investments in infrastructure, such as utilities and charging providers.

SCTA and RCPA will continue to participate in regional and state collaborations to share knowledge about EV charging infrastructure with local jurisdictions. Local governments, through the SCTA and RCPA, should consider participating in state agency proceedings that affect the expansion of EV charging infrastructure.

The Sonoma County Local Government EV Partnership has provided a forum for collaboration and best practice sharing among local government implementers, sharing knowledge about state regulations, grant funding opportunities, public private partnerships, and implementation challenges. The Partnership has also pooled its purchasing power in coordination with other regional agencies to demonstrate fleet EVs and install public charging. This Partnership can continue to serve as the working group for local government EV efforts to collaborate on policies and programs. Sonoma County jurisdictions should designate a representative to participate in the Local Government EV Partnership.

Sonoma County local governments can engage utilities, charging network operators, and other third parties installing EV charging infrastructure to maximize the Sonoma County siting framework and site database. Local governments can also consider engaging property developers about installing charging stations in new residential and commercial construction.

**See Coordination Actions #15-19.**

## EV Charging Infrastructure Deployment

The deployment of charging stations is integral to supporting the growth of EVs in Sonoma County and the entire Bay Area region. Deploying charging infrastructure at home, at work, and on the road, is important to accelerate the utilization of electric vehicles and contribute to a cleaner environment.

Nearly every local government in Sonoma County has installed and operates at least one charging station. These publicly available charging stations have been well-utilized for the most part, and are an important way for the jurisdictions to promote EVs through visible charging opportunities. Focusing on installing charging stations in parking garages and lots is a high priority action that local governments in Sonoma County can take.

Charging infrastructure is needed at workplaces (for employees and fleets), single family and multifamily residences including mobile home parks, and public locations. Local governments can enhance deployment of chargers through their own fleet by developing and implementing a fleet charging infrastructure strategy. As an employer, local governments can install chargers that employees can utilize for their personal vehicles. Encouraging large employers in their jurisdictions to do the same will benefit the citizens that are employed locally.

Jurisdictions also hold the key to installing signage that allows drivers to locate public charging stations, which are sometimes tucked away in back corners of the parking lot. Installing noticeable and consistent wayfinding signage will increase the utilization of chargers that are installed. State agencies often have grant solicitations for funding public charger installations. Local governments can be well poised to apply for this funding, with the local siting analysis and regional coordination, installing charging infrastructure on public sites in high priority locations.

Local incentives, programs, and partnerships can be created to encourage greater installation of private EV charging infrastructure. Several local incentive programs have already launched to further incentivize the purchase of a charging station, including the Sonoma Clean Power Drive EverGreen program and the Northern Sonoma County Air Pollution Control District's 3-2-1 Go Green! program. Additionally, by promoting local incentive programs to their employees, local governments can increase participation.

See the box on the Drive EverGreen and 3-2-1 Go Green programs (page 57) for local examples.

Lastly, local governments should encourage charging installations aligned with renewable energy use (including solar carports), intelligent time of use charging, and eventually enable vehicle-grid-integration.

**See Deployment Actions #20-29.**

## EV Charging Infrastructure Education and Awareness

Deployment of charging infrastructure alone won't increase usage, if drivers are unfamiliar with the technology. Through enhancing education and awareness of electric vehicle charging infrastructure location and usage, drivers can become more comfortable and enthusiastic about electric vehicles.

Currently most parking spaces, and therefore opportunities for charging, are located at existing private developments. Local governments have little influence over these developments, so incentives and outreach will likely be necessary to create sufficient charging opportunities in many locations.

Also, many public and private candidate sites may not pursue funding opportunities to install EV charging without better information about the process, costs, and benefits to a host. The SCTA and RCPA could work with members and partners to provide up to date guidance on installing EV charging stations, and to educate property developers and employers about the tools available to help install EV charging stations.

> In 2011, Sonoma County worked with a group of 50 people from agencies across the county and Bay Area to develop the Electric Vehicle Charging Station and Installation Guidelines, the first document of its kind in California. These guidelines established the initial effort for the consistent and effective deployment of electric vehicle charging stations and infrastructure in Sonoma County, and were adopted by the Sonoma County Board of Supervisors in August 2011. The Guidelines would go on to be used as the base of several other state reports over the years, including Ready, Set, Charge California!, an electric vehicle readiness guide released by the Association of Bay Area Governments and the Bay Area Climate Collaborative.

Local governments can help promote workplace charging programs to employers, as well as ensure they train permitting and inspection officials in the installation of EV charging infrastructure. Local governments that anticipate a significant number of EVSE installations should consider having electrical inspection officials be certified in EV installation through an educational program that includes hands-on installation, instruction in relevant electric codes, and load calculation testing.

**See Education and Awareness Actions #30-33**

In summary, the Shift Plan found the following key opportunities for local government actions to encourage EV charging in Sonoma County:

| | **EV Charging Infrastructure Actions**<br>Addressing current and forecast EV driver needs. Home charging is essential to make EVs viable for most drivers. Work and daytime charging enables longer commutes and aligns with solar energy production. Ubiquitous and visible public charging gives drivers comfort taking longer trips and helps drivers believe EVs can work for them. | Implementing Entities |
|---|---|---|
| Planning | **1. Use local data, tools, knowledge and relationships to plan for the scale and geographic distribution of charging needed to accommodate 100,000 EVs by 2030.** | SCTA/RCPA, Sonoma Clean Power (SCP) |
| | **2. Create a map that highlights priority areas for multi-family, workplace, and opportunity charging.** | SCTA/RCPA |
| | *The Shift EV Charging Infrastructure Siting Framework provides insights into priority charging areas in Sonoma County. More info: scta.ca.gov/shift* | |
| | **3. Work with local utilities** to ensure that charging infrastructure has minimal grid impacts and can be used as a grid resource. | SCTA/RCPA, local governments (planning & community development), SCP |
| | **4. Establish siting criteria** that affect the desirability of specific charging sites. | SCTA/RCPA, local governments (planning & community development), NGO partners: electric utilities, EV drivers, and other groups |
| | **5. Conduct a survey of local EV drivers** to better understand charging habits. | SCTA/RCPA |
| | **6. Create an online EV charging infrastructure siting database that tracks key potential charging locations.** | SCTA/RCPA |
| Policy | **7. Adopt EV Ready Community Resolution, establish consistency in local government policies in Sonoma County** to encourage EV charging infrastructure development. | SCTA/RCPA, local governments, SCP |
| | **8. Incorporate EV readiness policies into general plans.** | Local governments |
| | **9. Develop policies and incentives that require or encourage Level 2 charging stations in new residential construction.** | Local governments, electric utilities |
| | **10. Develop policies and incentives to support installation of Level 2 charging stations in existing residential properties.** | Local governments, electric utilities |
| | **11. Adopt requirements that exceed CalGreen Building Code requirements for charging infrastructure** in multifamily and commercial buildings. | Local governments |
| | **12. Adopt an expedited permit process for EV charging stations**, including a permitting checklist and guidelines for residential installations | Local governments (planning and community development) |
| | **13. Allow EV parking to count towards minimum parking requirements.** | Local governments (planning and community development) |
| | **14. Consider standardization of price structures** for publicly owned EV charging stations countywide. | SCTA/RCPA, local governments |
| | *The Shift EV Policy Toolkit includes model policies for consideration. More info: scta.ca.gov/shift* | |

| EV Charging Infrastructure (continued) | | Implementing Entities |
|---|---|---|
| Coordination | 15. **Participate in regional and state collaborations to share knowledge about EV charging infrastructure.** | SCTA/RCPA |
| | 16. **Participate in state agency proceedings** that affect the expansion of EV charging infrastructure. | SCTA/RCPA |
| | 17. **Participate in the Sonoma County Local Government EV Partnership** and assign a jurisdictional representative to collaborate on policies and programs. | SCTA/RCPA, local governments |
| | 18. **Engage utilities, charging network operators, and other third parties installing EV charging infrastructure** to maximize utility of the Sonoma County siting framework and site database. | SCTA/RCPA |
| | 19. **Engage with property developers** about installing charging stations in new residential and commercial construction, including promoting incentives available. | Local governments |
| Deployment | 20. **Develop and implement a municipal workplace charging program.** | Local governments |
| | 21. **Develop and implement a fleet charging program.** | Local governments |
| | 22. **Identify opportunities to install publicly accessible EV charging stations** in high priority locations. | SCTA/RCPA, local governments, SCP |
| | 23. **Install EV charging stations in new and existing public parking lots and garages**. | Local governments |
| | 24. **Develop and promote programs and incentives** to reduce the barriers to EV charging infrastructure for all, especially low-income populations and communities of concern. | SCTA/RCPA, local governments, electric utilities, Air Districts |
| | 25. **Encourage local employers to offer workplace EV charging stations.** | SCTA/RCPA, electric utilities |
| | 26. **Encourage demand response, smart charging and facilitate use of renewable energy, including promoting solar panel carports to provide electricity for EV charging stations.** | SCTA/RCPA, local governments, electric utilities |
| | 27. **Investigate next-generation charging technologies and systems.** | SCTA/RCPA |
| | 28. **Pursue funding** to support expansion of EV charging infrastructure in Sonoma County. | SCTA/RCPA, local governments, SCP |
| | 29. **Consider public-private partnerships** to expand EV charging infrastructure in Sonoma County. | SCTA/RCPA, local governments, NGO partners: electric utilities, and other groups |

| EV Charging Infrastructure (continued) | | Implementing Entities |
|---|---|---|
| Education and Awareness | **30. Develop and share updated siting guidance for EV charging station installations.** | SCTA/RCPA |
| | **31. Train permitting and inspection officials in EV charging station installation.** | SCTA/RCPA, local governments (community development), Sonoma Clean Power |
| | **32. Increase public awareness of EV charging stations** through improved signage, marketing and outreach. | SCTA/RCPA, Sonoma Clean Power |
| | **33. Engage the building industry** and develop EV charging outreach and education materials and programs targeted to builders, architects, contractors and project managers. | SCTA/RCPA, Sonoma Clean Power |

# Resources

## Shift Sonoma County Tools

- **Model Transportation Demand Management (TDM) Ordinance** - The Model TDM Ordinance was developed for consideration as a regional template. It is important that local ordinances are tailored to local conditions and needs.
- **Employer Commute Program Toolkit** - The Employer Commute Program Toolkit provides a step-by-step guide with resources for locally available transportation services, a sample survey, and sample flyers to promote programs.
- **Bike Share Feasibility Study** - The Bike Share Feasibility Study was created to answer critical planning questions about bike share in Sonoma County. It includes hot spot maps, specific site possibilities, operating model considerations, siting considerations, and recommendations for how to move forward with implementation.
- **Car Share Feasibility Study** - The Car Share Feasibility Study was created to answer critical planning questions about car share in Sonoma County. It includes hot spot maps, specific site possibilities, operating model considerations, siting considerations, and recommendations for how to move forward with implementation.
- **EV Charging Infrastructure Siting Framework** - The EV Charging Infrastructure Siting Framework prioritizes locations for EV charging areas in Sonoma County and includes an interactive map.
- **EV Fleet Guide** - The EV Fleet Guide examines opportunities for municipal fleets in Sonoma County and provides recommendations to enhance the sustainability of fleet operations while also enabling financial efficiencies.
- **EV Policy Toolkit** - The EV Policy Toolkit includes model policies for consideration, including a template for an EV Ready Community Resolution. Policy tools will be developed on an ongoing basis and added to the EV policy toolkit to help support local governments in Sonoma County.

  Available at http://scta.ca.gov/planning/shift/

## Other Resources

3 Revolutions Policy Initiative, https://3rev.ucdavis.edu/policybriefs/.

511 Employer Assistance - including ride-matching, worksite events, and vanpool and incentive programs: https://511.org/employers/services/overview.

American Automobile Association, AAA Exchange, http://exchange.aaa.com/

Provides an online calculator to determine the cost of driving with a number of variables including location, types of vehicle. The site also provides information on “Going Green”, Electric Vehicles and driving habits that help conserve fuel.

Association of Bay Area Governments, Bay Area Climate Collaborative, Clean Fuel Connection, EV Communities Alliance, and LightMoves Consulting. Ready, Set, Charge California: A Guide to EV-Ready Communities. 2016. http://www.prospectsv.org/wp-content/uploads/2016/11/Ready-Set-Charge-California-EV-Communities-Guide.pdf.Association of Bay Area Governments, www.abag.ca.gov.

Regional forecasts, information on Plan Bay Area, Priority Development and Conservation Areas. ABAG also produces a variety of useful regional reports.

Association of Pedestrian and Bicycle Professionals, Bike Parking Guidelines, http://www.apbp.org/?page=publications.

Bay Area Air Quality Management District, Bay Area Commuter Benefits Program, http://www.baaqmd.gov/rules-and-compliance/commuter-benefits.

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City of Portland Electric Vehicle Strategy, 2017. https://www.portlandoregon.gov/bps/article/619275.

County of Sonoma, General Services Department. County of Sonoma Electric Vehicle Charging Station Program and Installation Guidelines. 2011.
http://www.sonoma-county.org /prmd/docs/misc/ev_prog_guidelines.pdf.

Economic Development Board of Sonoma County, http://edb.sonoma-county.org/.
Census data focused on Sonoma County, forecasts and other economic reporting.

Frontier Group. A New Way Forward. 2016. http://frontiergroup.org/reports/fg/new-way-forward.

Global Workplace Analytics, www.globalworkplaceanalytics.com.

GoSonoma, http://gosonoma.org.
Information and tools encouraging 'driveless' commute modes.

Gould, B., Orford, A., Ramos, W., Rybka, G., "Electric Vehicles in Sonoma County". May 2016.

## Other Resources (continued)

Governor's Office of Planning and Research. Zero-Emission Vehicles in California: Community Readiness Guidebook. 2013. https://www.opr.ca.gov/docs/ZEV_Guidebook.pdf.

Institute for Transportation & Development Policy, The Bike-Sharing Planning Guide.https://www.itdp.org/who-we-are/for-the-press/the-bike-share-planning-guide/.

Metropolitan Transportation Commission/Association of Bay Area Governments, Plan Bay Area 2040. 2017. http://www.planbayarea.org/plan.

National Association of Transportation Officials, http://nacto.org/2015/04/28/walkable-station-spacing-is-key-to-successful-equitable-bike-share/.

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Sonoma County Transportation Authority. Moving Forward 2040: Sonoma County's Comprehensive Transportation Plan. http://scta.ca.gov/planning/comprehensive-transportation-plan/.

Spare the Air Commute Tips – Resources for commuting by county: http://www.stacommutetips.org/.

Spare the Air Resource Team, Clean Commute Fairs, http://sparetheair.org/get-involved/your-community/resource-teams/marin-and-sonoma.

U.S. Census, http://www.census.gov/data.html.

# For More Information

Visit scta.ca.gov/shift for information and tools related to the Shift Sonoma County Low Carbon Transportation Action Plan.