SHIFT
SONOMA COUNTY
LOW CARBON TRANSPORTATION ACTION PLAN

scta rcpa
SONOMA COUNTY TRANSPORTATION AUTHORITY REGIONAL CLIMATE PROTECTION AUTHORITY
Acknowledgments

Project Partners:
Sonoma County Transportation Authority (SCTA)
Regional Climate Protection Authority (RCPA)

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The SCTA and RCPA would also like to thank the advisory committees that reviewed the Plan.

With support from:
Nelson Nygaard
ICF
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Shift Sonoma County is a project to define and evaluate strategies to shift transportation choices away from single occupant vehicles towards cleaner, healthier, and more efficient modes of transportation.

The Shift Project 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 and the Regional Climate Protection Authority – and other local and regional partners.

This plan shows that it’s possible to cut our greenhouse gas emissions from transportation in 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.

Shift identifies strategies to implement transportation solutions that have previously been identified as priorities with SCTA’s countywide Comprehensive Transportation Plan and Regional Climate Action Plan. This plan provides context for those strategies and the project website features tools that were developed to support implementation: http://scta.ca.gov/planning/shift.

**Primary Goals**

1. **Reduce greenhouse gases from transportation.** Transportation causes over 53% of all GHGs in Sonoma County.
2. **Reduce vehicle miles traveled.** Congestion accounts for over 44,000 hours of time lost to sitting in traffic each year.
3. **Promote safety and health.** Accidents cause six injuries or fatalities per day, on average, in Sonoma County.
4. **Promote economic vitality.** The average Sonoma County household spends about $1,160 per month (or 22% of the household budget) on transportation.
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 project builds from these foundations and promotes new mobility solutions to make the entire local transportation system more efficient, affordable, and clean. Shift explored barriers, opportunities, and actions to implement (or expand use of) the following in Sonoma County:

- Car share
- Bike share
- Employer based commute programs
- Plug-in electric vehicles (EVs)

The Shift project identifies specific, near-term strategies to implement each of these solutions that can be led by the SCTA/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.

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 allows for residents to limit the need to drive, and enables people to shift to making trips by foot, bicycle or transit.

For any remaining vehicle trips, it is necessary to improve the technologies used by making them more fuel efficient and shifting to zero emission fuels. Within this framework (avoid, shift, 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 spent 22% of the household budget on transportation in 2013, but this is expected to rise to 25% without investments to address the balance of housing and jobs and the affordability of transportation options.

A goal of the Shift project 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, and 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.
Sonoma County Transportation Facts

Here’s what you need to know in order to better understand the strategies laid out in the plan. Transportation, measured in 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

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.

Sources of Greenhouse Gas Emissions

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.

Mode Share Breakdown of All Trips

[Diagram showing mode share breakdown]
Greenhouse gas 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 and employment are expected to grow by roughly 24% between now and 2040, driving heightened demand for housing and transportation. Focusing this growth and investing in mobility options will be the pillars of long term success in transportation and climate goals.
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

To view the details of land uses within the county or a particular jurisdiction, visit the detailed map 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.

**Existing Transit Networks**  

**Existing Bicycle Facilities**

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

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 is beginning to emerge in the county but it needs to grow to support wide scale adoption of EVs.

**Existing EV Charging Stations**
Summary of Shift Actions

There are a number of things local governments can do to expand access to and use of diverse mobility options. The Shift project evaluates solutions, local feasibility, and how to take near-term, high priority actions. It also set out to create tools in support of those actions. The following tables summarize the findings of the Shift project, each of which are presented in greater detail in later sections.

Mode Shift Strategies

**Transportation Demand Management (TDM)** - Reduce travel demand, make diverse modes more attractive, boost employee recruitment and retention, and reduce GHGs.

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<tr>
<th>Planning</th>
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<tbody>
<tr>
<td>1. <strong>Model effective commute programs</strong> within local governments by designing programs tailored to local travel options and employee needs.</td>
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*The Mode Shift Needs Assessment provides information on Sonoma County barriers and needs. More info: scta.ca.gov/shift*

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<tr>
<td>2. <strong>Develop and adopt local TDM ordinances</strong> to expand programs to more employers.</td>
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*The Shift Model TDM Ordinance was crafted as a template for local jurisdictions to consider. More info: scta.ca.gov/shift*

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<tr>
<th>3. <strong>Include considerations</strong> for employers and developers, infrastructure and programs.</th>
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<tr>
<td>4. <strong>Coordinate county-wide policy</strong> actions via the SCTA/RCPA.</td>
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<tr>
<td>5. <strong>Coordinate with employers</strong> on the development and implementation of commute programs by engaging with employers, transit agencies, and share mobility programs.</td>
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<th>Deployment</th>
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<tr>
<td>6. <strong>Lead by example</strong> with programs for municipal employees.</td>
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<td>7. <strong>Pursue funding</strong> to support expansion of TDM programs.</td>
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<th>Education and Awareness</th>
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<tr>
<td>8. <strong>Market TDM programs</strong> to employers and developers through business assistance programs, green business certifications, and commute fairs.</td>
</tr>
<tr>
<td>9. <strong>Assist employers</strong> with the development of commute programs and marketing alternative modes of transportation to employees.</td>
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*The Shift Employer Commute Program Toolkit was drafted to support education & implementation. More info: scta.ca.gov/shift*
**Bike Share** - 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.

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<tr>
<td>1. Consider <strong>flexible bike share models</strong> with zone-based service areas to minimize costs from start-up or relocating hubs after initial.</td>
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<tr>
<td>2. <strong>Identify areas expected to have highest demand</strong> for initial implementation.</td>
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<tr>
<td>3. <strong>Consider siting</strong> in shared mobility hubs, near transit centers and in peripheral neighborhoods with gaps in transit service.</td>
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<tr>
<td>4. <strong>Consider siting bike share in communities of concern.</strong></td>
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<tr>
<td>5. <strong>Consider siting bike share in areas with low transit coverage</strong>, regardless of productivity.</td>
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<tr>
<td>6. <strong>Review site requirements</strong> for various site types identified as priorities.</td>
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*The Shift Bike Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: [scta.ca.gov/shift](http://scta.ca.gov/shift)*

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<tr>
<td>7. <strong>Dedicate public space for hubs</strong> in areas of high activity, near downtowns &amp; transit hubs.</td>
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<tr>
<td>8. <strong>Require or encourage new bike share infrastructure</strong> in conjunction with other public projects and new infrastructure and development.</td>
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<tr>
<td>9. <strong>Coordinate countywide implementation</strong> via the SCTA/RCPA.</td>
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<tr>
<td>10. <strong>Include bike share information</strong> on any web-based transit trip planning tools or informational sites.</td>
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<tr>
<td>11. <strong>Consider multi-jurisdictional and/or public private partnerships</strong> to serve travel across city or county lines and along the Sonoma Marin Area Rail Transit (SMART) corridor</td>
</tr>
<tr>
<td>12. <strong>Post wayfinding and signage</strong> directing users between bike share and transit hubs.</td>
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<tr>
<td>13. Advertise bike share at transit hubs and on transit vehicles.</td>
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<tr>
<td>14. Make <strong>discounted bike share memberships or payment plans</strong> available for low income residents, coupled with solutions for unbanked customers</td>
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<tr>
<td>15. <strong>Ensure a way to utilize bike share service without a smart phone.</strong></td>
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<tr>
<td>16. <strong>Establish more accurate local implementation cost estimates.</strong></td>
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<tr>
<td>17. <strong>Secure funding for start-up costs</strong> from grants, business sponsors, transit-operators, non-profits, or other partners.</td>
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<tr>
<td>18. <strong>Launch bike share system</strong> or expansion in conjunction with new bicycle infrastructure.</td>
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<tr>
<td>19. <strong>Support and expand education, safety, and awareness campaigns</strong> to include bike share users.</td>
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**Car Share** - 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 bike share.

<table>
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<tbody>
<tr>
<td>1. <strong>Evaluate opportunities for new or expanded car share models</strong>, including private operators or non-profit fleet based partnerships.</td>
</tr>
<tr>
<td>2. <strong>Plan for initial implementation or expansion</strong> in areas expected to have highest demand for initial implementation.</td>
</tr>
<tr>
<td>3. <strong>Consider siting in shared mobility hubs, near transit centers and in neighborhoods with gaps in transit service.</strong></td>
</tr>
<tr>
<td>4. <strong>Consider siting in communities of concern, regardless of productivity.</strong></td>
</tr>
<tr>
<td>5. <strong>Consider opportunities to integrate plug-in electric vehicles.</strong></td>
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*The Shift Car Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: scta.ca.gov/shift*

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<tr>
<td>6. <strong>Ensure parking regulations allow for designation of parking spaces</strong> for round-trip fleet-based car share, or free and unlimited parking for one-way cars share.</td>
</tr>
<tr>
<td>7. <strong>Commit to purchase memberships</strong> for municipal employees, as an employee commute benefit or to replace fleet travel.</td>
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<tr>
<td>8. <strong>Coordinate countywide implementation via the SCTA/RCPA.</strong></td>
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<tr>
<td>9. <strong>Partner with existing car share providers operating in Sonoma County.</strong></td>
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<tr>
<td>10. <strong>Facilitate partnerships with large local businesses and employers.</strong></td>
</tr>
<tr>
<td>11. <strong>Include car share information</strong> on any web-based transit trip planning tools, employer, and tourism sites.</td>
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<tr>
<td>12. <strong>Coordinate discounts or giveaways</strong> on car share membership or transit passes with purchase of one of the two products.</td>
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<tr>
<td>13. <strong>Include attractive in-kind services</strong> within a request for proposals from car share providers.</td>
</tr>
<tr>
<td>14. <strong>Provide free on-street or public garage parking spaces</strong>, especially at or near transit hubs.</td>
</tr>
<tr>
<td>15. <strong>Secure funding for start-up costs</strong> from grants, business sponsors, transit-operators, non-profits, or other partners.</td>
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<tr>
<td>16. <strong>Develop an education and awareness campaign.</strong></td>
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<tr>
<td>17. <strong>Post wayfinding and signage</strong> directing users between car share and transit hubs.</td>
</tr>
<tr>
<td>18. <strong>Advertise car share</strong> at transit hubs and on transit vehicles.</td>
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</table>
**Electric Vehicles** - EVs using renewable power can nearly eliminate the pollution associated with driving. They are fun to drive, easy to maintain, quiet, and cheaper to fuel than gas or diesel vehicles. EVs can also help operate a clean and reliable utility grid.

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<tbody>
<tr>
<td>1. Evaluate Sonoma County drivers’ habits and attitudes about electric vehicles.</td>
</tr>
<tr>
<td>2. Develop a strategy to increase EVs in municipal fleets.</td>
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*The Shift EV Fleet Guide can help inform decision making about EVs and fleets. More info: scta.ca.gov/shift*

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<tr>
<td>4. Establish a countywide goal of 100,000 EVs by 2030.</td>
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<tr>
<td>5. Establish consistency in local government policies in Sonoma County to support electric vehicle adoption.</td>
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*The Shift EV Policy Toolkit provides a template for local policy consideration. More info: scta.ca.gov/shift*

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<tr>
<td>6. Incorporate EV readiness policies into general plans</td>
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<tr>
<td>7. Establish EV purchasing policy that directs the jurisdiction to purchase EVs for fleet applications compatible with EVs.</td>
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<tr>
<td>11. Lead by example by incorporating EVs into local government fleets.</td>
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<tr>
<td>12. Implement “electric first” guidelines when purchasing vehicles.</td>
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<tr>
<td>13. Deploy EVs into transit fleets.</td>
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<tr>
<td>14. Leverage fleet purchasing power and participate in bulk procurement initiatives.</td>
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<tr>
<td>15. Promote and expand local incentive programs such as Sonoma Clean Power’s Drive EverGreen and the Northern Sonoma County Air Pollution Control District’s 3-2-1 Go Green!</td>
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<tr>
<td>16. Create an EV ombudsman service for Sonoma County.</td>
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<tr>
<td>17. Create a local EV knowledge base and website.</td>
</tr>
<tr>
<td>18. Increase knowledge of EVs and local opportunities through local government trainings.</td>
</tr>
<tr>
<td>19. Increase community awareness of EVs by leading or supporting Ride and Drive events.</td>
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<tr>
<td>20. Coordinate with local car dealers.</td>
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</table>
Charging Infrastructure - Necessary to accommodate current and forecast EV driver needs. Home charging is essential to make EVs viable for most drivers. Charging at work enables longer commutes and daytime charging aligned with solar energy production. Ubiquitous and visible publicly accessible charging stations give drivers comfort in taking longer trips and help more drivers believe EVs can work for them.

### 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.
2. Create a map that highlights priority areas for multi-family, workplace, and opportunity charging.

    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 planning departments, electric utilities, EV drivers, and other groups to establish siting criteria that affect the desirability of specific charging sites.
4. Conduct a survey of local EV drivers to better understand charging habits.
5. Create an online Electric Vehicle Supply Equipment (EVSE) siting database that tracks key potential charging locations.

### Policy

6. Establish consistency in local government policies in Sonoma County to facilitate EV charging, including for access to publicly owned charging stations.
7. Incorporate EV readiness policies into general plans.
8. Adopt policies that require or encourage Level 2 EVSE in new residential construction.
9. Develop policies and incentives to support installation of Level 2 EVSE in existing residential properties.
10. Adopt requirements that exceed CalGreen Building Code requirements for charging infrastructure in multifamily and commercial buildings.
11. Adopt an expedited permit process for EVSE, including a permitting checklist and guidelines for residential installations.
12. Allow EV parking to count towards minimum parking requirements.

The Shift EV Policy Toolkit includes model policies for consideration. More info: scta.ca.gov/shift
Charging Infrastructure (continued)

### Coordination

13. Participate in regional and state collaborations to share knowledge about EV charging infrastructure.
14. Participate in state agency proceedings that affect the expansion of EV charging infrastructure.
15. Encourage utilities, charging network operators, and other third parties installing EVSE to utilize the Sonoma County siting framework and site database.

### Deployment

16. Develop and implement a municipal workplace and fleet charging program.
17. Install EVSE on public sites in high priority locations.
18. Promote local incentive programs such as Sonoma Clean Power’s Clean Charge, the Northern Sonoma County Air Pollution Control District’s 3-2-1 Go Green, and the Bay Area Air Quality Management District’s Charge! Program.
19. Encourage smart charging and facilitate use of renewable energy.
20. Investigate next-generation charging technologies and systems.

### Education and Awareness

21. Develop and share updated siting guidance for charger installations.
22. Educate property developers about incentives for EVSE in new residential construction.
23. Promote workplace charging to employers.
24. Train permitting and inspection officials in EVSE installation.

### Implementation

The actions recommended in the Shift Sonoma County Low Carbon Transportation Action Plan will require a number of actors from various Sonoma County jurisdictions, non-governmental partners and private industry.

Please visit [scta.ca.gov/shift](http://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 focus of the Mode Shift project was to explore new strategies to encourage biking, walking, transit, and carpools. Shift took a deeper look at how to implement the following in Sonoma County:

- Expanded transportation demand management (TDM) programs
- Bike share
- Car share

These strategies have often been overlooked outside of dense urban environments. However, the SCTA and 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 Context**

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.

**Mode Shift Goals for 2040**

- Reduce per capita VMT by 10%
- 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.
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.

The Mode Shift Project recommendations and tools are intended to build from and maximize the benefit of these ongoing local transportation efforts, and provide short-term solutions to complex transportation issues.

### 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. In 2013, there were 342,000 licensed drivers and 500,000 registered vehicles in the county, roughly one per resident.

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. Approximately 17% of workers in Sonoma County commute to jobs outside of the county, which represents a steady decrease over the last few decades.

74% of commute trips are in single occupant vehicles.
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. Households with access to multiple modes of transportation are less likely to own a car (or multiple cars) or use their car as much.

» **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.

» **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.

» **Reduced pollution and GHGs.** The transportation sector is responsible for over half of the GHG emissions in Sonoma County and 75% of smog in the Bay Area is created by motor vehicles.

» **Reduced congestion.** Shifting the targeted portion of single occupancy vehicle commute trips to transit, bicycle, and walking would cut congestion by 69% in 2040.

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 Project, 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. 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 operations are 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 lower vehicle miles traveled (VMT).

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 Mode Shift Strategy.
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. In line with national trends, transit ridership in Sonoma County has decreased in recent years.

Transit Ridership Trends

The addition of the Sonoma and Marin Area Rail Transit (SMART) passenger rail service is expected to increase transit use across all systems. Phase 1 of the planned 70-mile SMART system, commencing in the summer of 2017, is expected to 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 is adding new routes and Petaluma Transit is optimizing routes to connect to SMART stations. The transit map shows existing transit service within Sonoma County and includes Phase 1 and Phase 2 SMART alignment and stations.

Privately Operated Ridesharing 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 Water, and at stops between Santa Rosa and San Francisco. While Transportation Network Companies (TNCs) like Uber and Lyft have growing use in Sonoma County, the use of TNC carpooling services (e.g., Lyftline) that reduce trips through shared rides have yet to appear.
Bicycle

There are more than 300 miles of on-street and separated bicycle facilities throughout the county. 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.

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
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.

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, and
- Promoting employer-based programs

The following sections summarize local actions to advance TDM as identified in the Mode Shift Project. In addition, the SCTA/RCPA have developed several implementation resources specific to TDM actions, which are available online: scta.ca.gov/shift

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

Citations for these and additional resources related to TDM are available at the end of this section.

High-quality TDM programs can:

- Reduce single occupancy vehicle trips
- Improve access
- Boost employee recruitment and retention

Planning for TDM

It is important that employer-based TDM programs are tailored to employee needs and local travel options. The Mode Shift Project 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. 

See Policy Actions #2 and #3.

TDM Coordination

Many partners can be involved in an individual TDM program – including departments within an implementing organization, transit operators, rideshare companies, and government. 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 #4, #5 and #6.

TDM Deployment

Local governments employ thousands of people in Sonoma County and are already implementing some TDM programs as employers. For example, 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 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 employees within the city financial incentives for commuting by alternative modes and a guaranteed ride home for employees if they took the bus, a bike, or a carpool to work but encountered an emergency that requires immediate departure.

Local government 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.

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
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.
TDM Actions
In summary, the Shift project found the following key opportunities for local government actions to support expansion of TDM programs:

**Transportation Demand Management (TDM)** - Reduce travel demand, make diverse modes more attractive, boost employee recruitment and retention, and reduce GHGs.

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<th>Planning</th>
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<tbody>
<tr>
<td>1. <strong>Model effective commute programs</strong> within local governments by designing programs tailored to local travel options and employee needs.</td>
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<th>Policy</th>
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<tr>
<td>2. <strong>Develop and adopt local TDM ordinances</strong> to expand programs to more employers.</td>
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<tr>
<td><em>The Shift Model TDM Ordinance was crafted as a template for local jurisdictions to consider. More info: scta.ca.gov/shift</em></td>
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<tr>
<td>3. <strong>Include considerations</strong> for employers and developers, infrastructure and programs.</td>
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<td>4. <strong>Coordinate county-wide policy</strong> actions via the SCTA/RCPA.</td>
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<tr>
<td>5. <strong>Coordinate with employers</strong> on the development and implementation of commute programs by engaging with employers, transit agencies, and share mobility programs.</td>
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<tr>
<td>6. <strong>Lead by example</strong> with programs for municipal employees.</td>
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<tr>
<td>7. <strong>Pursue funding</strong> to support expansion of TDM programs.</td>
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<th>Education and Awareness</th>
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<tr>
<td>8. <strong>Market TDM programs</strong> to employers and developers through business assistance programs, green business certifications, and commute fairs.</td>
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<tr>
<td>9. <strong>Assist employers</strong> with the development of commute programs and marketing alternative modes of transportation to employees.</td>
</tr>
<tr>
<td><em>The Shift Employer Commute Program Toolkit was drafted to support education &amp; implementation. More info: scta.ca.gov/shift</em></td>
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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. 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 US 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 Project. 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.

Planning for Bike Share

A primary goal of the Mode Shift project 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

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.
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 above. Potential bike share locations were identified for each of the Phase 1 areas above, as well as recommended Phase 2 areas. 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, 2, 3, 4, 5 and 6.

Bike Share Policy

Local jurisdictions 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. Governments can also require or encourage developers to participate in expansion of bike share networks.

Governments 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 and #8.

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 SMART rail 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 implementation 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 #9-13.

**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.

The SCTA and RCPA and member governments can pursue startup funding from grants, sponsorships, and local business or non-profit partners. An 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
» Ensuring a way to utilize the bike share service that does not require a smart phone.

See Deployment Actions #14-18.

**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. The Bicycle Coalition operates classes on safe biking that could be promoted along with bike share.

Press releases and coordinating implementation with other projects or events are good ways to spread awareness of new systems. Most bike share operators include bike safety information in all of their membership materials, which could be further promoted by implementing agencies.

See Education and Awareness Action #19.
Bike Share Actions

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

**Bike Share** - 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.

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<tr>
<td>1. <strong>Consider flexible bike share models</strong> with zone-based service areas to minimize costs from start-up or relocating hubs after initial.</td>
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<tr>
<td>2. <strong>Identify areas expected to have highest demand</strong> for initial implementation.</td>
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<td>3. <strong>Consider siting</strong> in shared mobility hubs, near transit centers and in peripheral neighborhoods with gaps in transit service.</td>
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<td>4. <strong>Consider siting in communities of concern</strong>.</td>
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<td>5. <strong>Consider siting in areas with low transit coverage</strong>, regardless of productivity.</td>
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<tr>
<td>6. <strong>Review site requirements</strong> for various site types identified as priorities.</td>
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*The Shift Bike Share Feasibility Study recommends operating models, priority initial locations, and site design considerations. More info: scta.ca.gov/shift*

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<tr>
<td>7. <strong>Dedicate public space for hubs</strong> in areas of high activity, near downtowns &amp; transit hubs.</td>
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<td>8. <strong>Require or encourage new bike share infrastructure</strong> in conjunction with other public projects and new infrastructure and development.</td>
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<tr>
<td>9. <strong>Coordinate countywide implementation via the SCTA/RCPA</strong>.</td>
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<tr>
<td>10. <strong>Include bike share information</strong> on any web-based transit trip planning tools or informational sites.</td>
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<tr>
<td>11. <strong>Consider multi-jurisdictional and/or public private partnerships</strong> to serve travel across city or county lines and along the Sonoma Marin Area Rail Transit (SMART) corridor</td>
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<tr>
<td>12. <strong>Post wayfinding and signage</strong> directing users between bike share and transit hubs.</td>
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<tr>
<td>13. Advertise bike share at transit hubs and on transit vehicles.</td>
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<tr>
<td>14. <strong>Make discounted bike share memberships or payment plans</strong> available for low income residents, coupled with solutions for unbanked customers</td>
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<td>15. <strong>Ensure a way to utilize bike share service without a smart phone</strong>.</td>
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<tr>
<td>16. <strong>Establish more accurate</strong> local implementation cost estimates.</td>
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<tr>
<td>17. <strong>Secure funding for start-up costs</strong> from grants, business sponsors, transit-operators, non-profits, or other partners.</td>
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<tr>
<td>18. <strong>Launch bike share system</strong> or expansion in conjunction with new bicycle infrastructure.</td>
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<tr>
<td>19. <strong>Support and expand education, safety, and awareness campaigns</strong> to include bike share users.</td>
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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 car 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

The following sections summarize local actions to advance Car Share as identified in the Mode Shift Project. 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.

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 GHG emissions.

Planning for Car Share

A primary goal of the Mode Shift project 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 carshare 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 and #7.

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 may also partner with existing car share operators, local businesses, and large employers to coordinate marketing and work together to maximize use. Several car share providers have history operating in Sonoma County, including Turo – which has vehicles available in multiple parts of the county – and Zipcar – which has a presence 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 #8-12.
Car Share Deployment

Local government 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 #13-15.

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 #16-18.
Car Share Actions
In summary, the Shift project found the following key opportunities for local government actions to implement Car Share in Sonoma County:

**Car Share** - 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 bike share.

### Planning

1. Evaluate opportunities for new or expanded car share models, including private operators or non-profit fleet based partnerships.
2. Plan for initial implementation or expansion in areas expected to have highest demand for initial implementation.
3. Consider siting in shared mobility hubs, near transit centers and in neighborhoods with gaps in transit service.
4. Consider siting in communities of concern, regardless of productivity.
5. Consider opportunities to integrate plug-in electric vehicles.

*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 cars share.
7. Commit to purchase memberships for municipal employees, as an employee commute benefit or to replace fleet travel.

### Coordination

8. Coordinate countywide implementation via the SCTA/RCPA.
9. Partner with existing car share providers operating in Sonoma County.
10. Facilitate partnerships with large local businesses and employers.
11. Include car share information on any web-based transit trip planning tools, employer, and tourism sites.
12. Coordinate discounts or giveaways on car share membership or transit passes with purchase of one of the two products.

### Deployment

13. Include attractive in-kind services within a request for proposals from car share providers.
14. Provide free on-street or public garage parking spaces, especially at or near transit hubs.
15. Secure funding for start-up costs from grants, business sponsors, transit-operators, non-profits, or other partners.

### Education and Awareness

17. Post wayfinding and signage directing users between car share and transit hubs.
18. Advertise car share at transit hubs and on transit vehicles.
FUEL SHIFT

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

» Increased electric vehicle (EV) adoption
» Expanded EV charging infrastructure

Each of the following sections provides information on how to move forward with local implementation. Several planning tools – including a countywide EV charging infrastructure planning framework, fleet guidance, and policy tools – have been developed to facilitate action.

The Shift project also focused on practical implementation needs to support electric transportation and several tools were developed or are under development to support action including:

» A countywide EV Charging Infrastructure Siting Framework
» A local policy toolkit
» Updated guidance for integrating electric vehicles into fleets

The SCTA and RCPA will work with member jurisdictions and other implementers, such as electric utilities, community groups, charging providers, auto manufacturers and dealerships, property owners, and employers.

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
Electric Transportation Context

Current electric vehicles 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 typical commute in Sonoma County is over 16 miles, still suitable for BEV and PHEV, but typically longer than other Bay Area counties.

Battery electric vehicles (BEVs) like the 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 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 EVs on the market, and many drivers in Sonoma County have embraced them. The number of electric vehicles 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.

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. Reducing future emissions will depend on powering these vehicles using clean electricity.

Total Sonoma County EV Sales
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 electric vehicle 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, charging at multiple 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. Workplace charging would typically occur 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 electric vehicles in a commercial or government fleet, which is assumed to occur at some fleet-owned location.

**Electric Transportation Opportunities**

Electric vehicles powered with clean renewable energy represent a huge opportunity to reduce greenhouse gas 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 needed 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**

<table>
<thead>
<tr>
<th>Type</th>
<th>CO2 Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas car</td>
<td>11,247 lbCO2/year</td>
</tr>
<tr>
<td>EV (PG&amp;E)</td>
<td>1,586 lbCO2/year</td>
</tr>
<tr>
<td>EV (CleanStart)</td>
<td>793 lbCO2/year</td>
</tr>
<tr>
<td>EV (EverGreen)</td>
<td>208 lbCO2/year</td>
</tr>
</tbody>
</table>
Benefits of EVs

Electric vehicles 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 to all residents through Sonoma Clean Power’s EverGreen option). 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). EVs also have fewer maintenance costs, with most drivers only needing to replace tires and windshield wipers as needed.
- **Ready for the future.** As electric vehicles mature, it could be possible to integrate your vehicle with the electric grid to time your charging with the cleanest power available, as well as to provide power when there are disruptions to the grid.

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. *Fuel shift actions attempt to make EVs more visible and accessible, including through education and incentive programs.*
- **Multi-family housing** 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** can be limited by the type of vehicle (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** is 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** for installing home chargers include 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** 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, 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 project attempt to address these barriers as appropriate through local actions.
Electric Vehicles

In 2012, California Governor Brown issued Executive Order B-16-2012 to encourage zero-emission vehicles (ZEVs) 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 and 2016 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.
- Goldman Sachs expects EVs to make up 22% of the new car market by 2025.
- Electric vehicles are expected to be 35%, and up to 50%, of global new car sales by 2040.

Sonoma County EV Sales Needed for 2030 Goal

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 is EVs could cause a drop in gasoline demand (and lower oil prices).
- **Cost of batteries** - 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.

While the price of oil and cost of batteries 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 complicated the installation of EV chargers. Site hosts typically need to reduce overall parking spaces to comply with requirements for charging station accessibility.
- **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.

» **Diversity of models** - Current EVs are primarily compact cars, while most US sales are SUVs and pickups. As automakers release more EVs, more buyers will find models that suit their tastes.

» **Carsharing and autonomous vehicles** - EV sales could go up to 50% by 2040 in an increased carsharing/autonomous scenario.

Local governments play a major role in encouraging electric vehicles in their communities. Jurisdictions have a role in 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 governments are well positioned to encourage broader use of EVs by:

» Establishing a countywide goal of 100,000 EVs by 2030

» Adopting a Municipal EV Fleet Strategy

» Encouraging the electrification of private vehicles through incentives, education, and partnerships.

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

» EV Policy Toolkit

» EV Fleet Guide

Citations for these and additional resources related to EVs are available at the end of this section. EVs strategies can:

» Reduce GHG emissions

» Reduce lifecycle transportation costs

» Improve air quality

**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 and leading that shift. Planning actions are two-fold, focusing on the community at large and on municipal operations.

By monitoring market trends and sales, local governments can assure electric vehicle efforts are tailored to Sonoma County needs. Knowing Sonoma County driver attitudes and needs will allow jurisdictions to implement actions most needed and desired. The SCTA/RCPA can assess these driver attitudes and needs through surveys. Planning for charging infrastructure to support electric vehicles is discussed in the following strategy chapter.

All local jurisdictions in Sonoma County have some experience with fleet EVs, including the County of Sonoma which has won numerous awards for its fleet including the National Green Fleet Award (2015). The lessons learned from experiences to date were integrated into a guidance document to help plan for and evaluate opportunities to electrify fleet vehicles.
EV planning in municipal operations has many benefits for local jurisdictions:

» Lower operating and maintenance costs
» Environmental benefits
» Employee experience

Using a plan to integrate more and more EVs into fleets over time is an important way to make sure it is a beneficial and positive experience.

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.

The EV Fleet Guide highlights the most important first step for municipal fleets to maintain a fleet database and track metrics of performance.

See Planning Actions #1-3.

EV Policy

Local policies accelerate EV adoption by providing 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, beginning in 2008 when the County of Sonoma added a General Plan Policy to encourage ZEV use. Between 2009 and 2017, the cities of Sebastopol, Rohnert Park, Petaluma and the Town of Windsor would go on to adopt city policies to encourage ZEV use and reduce fleet fuel use, respectively.

New Fuel Shift policy considerations are two-fold: to establish a communitywide framework for private personal vehicles, and to establish internal policies for municipal fleets. Countywide, the SCTA and RCPA have proposed a Shift 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 project 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.
Sonoma County local governments are encouraged to adopt an EV Ready Community Resolution to further support electric vehicle adoption. Regional consistency in Sonoma County local government policies would continue jurisdictions’ commitments to EVs and align efforts encouraging effective coordination for implementation.

The SCTA and RCPA have developed a model EV Ready Community Resolution and supporting policy tools to help jurisdictions consider policies. Additionally, incorporating previously adopted EV readiness policies into general or transportation plans, will increase the effectiveness of the policy’s implementation.

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

Local policy can establish an impetus behind electrifying municipal fleets by creating purchasing policies and guidance on “electric-first” vehicle use. Local jurisdictions should consider establishing EV purchasing policies that direct the jurisdiction to purchase EVs for fleet applications compatible with EVs.

See Policy Actions #4-7.

**EV Coordination**

Continued coordination between the many organizations and local governments at the state, regional and local level will improve EV implementation for Sonoma County. The SCTA and RCPA will continue to participate in broader collaborations such as the Bay Area EV Coordinating Council, 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, a local EV coordination forum created in 2009, 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 jurisdictions should consider designating representatives to participate in the Local Government EV Partnership.

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.

See Coordination Actions #8-10.

**EV Deployment**

Local governments have been deploying electric vehicles within municipal fleets for many years. Increasing the deployment of EVs within municipal fleets can be accomplished through implementing the suggested planning and policy actions outlined in the previous sections.

Local governments can lead by example adopting an EV Fleet Guide, incorporating EVs into local government fleets. Not only does this lower the emissions from the jurisdiction’s fleet but deploying EVs within fleets increases familiarity with EVs in the community.
An effective way for local governments to increase EVs in fleet operations is to implement “electric first” guidelines when purchasing vehicles, making EVs the default alternative for suitable operations. Fleet managers should identify the segments of their operations that can be adequately served with available EV models, and incorporate this information into their procurement process.

Fleet managers should also stay abreast of vehicle options, how they perform, and how-well their capabilities align with various fleet applications. Municipal fleets should leverage fleet purchasing power and participate in bulk-procurement initiatives – like the West Coast Fleet Initiative – which can yield lower pricing.

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.

**Sonoma County Transit** is adding a 30-foot electric-powered buses 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.

Local governments can also create incentives, programs, and partnerships to encourage greater private use of electric cars. Several local incentive programs have already been created 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. Additionally, by promoting local incentive programs to their employees, local governments can increase program participation.

**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/](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/](http://sonomacounty.ca.gov/Air-Quality/Electric-Vehicle-Rebates/)
Pursuing innovative models to increase access to EVs is a critical action that local governments can participate in. 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.

See Deployment Actions #11-16.

**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. 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. Most drivers are not aware of electric vehicles as a feasible option, even for very appropriate driver behaviors. 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 education and awareness outreach. Local governments should focus on giving employees direct experiences with EVs, such as ride and drive events, and on providing information to drivers through local information resources and support for decisions.

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 could 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.

See Education and Awareness Actions #18-21.
Electric Vehicle Actions

In summary, the Shift project found the following key opportunities for local government actions to encourage EVs in Sonoma County:

**Electric Vehicles** - EVs using renewable power can nearly eliminate the pollution associated with driving. They are fun to drive, easy to maintain, quiet, and cheaper to fuel than gas or diesel vehicles. EVs can also help operate a clean and reliable utility grid.

### Planning

1. Evaluate Sonoma County drivers’ habits and attitudes about electric vehicles.
2. Develop a strategy to increase EVs in municipal fleets.

*The Shift EV Fleet Guide can help inform decision making about EVs and fleets. More info: scta.ca.gov/shift*

### Policy

4. Establish a countywide goal of 100,000 EVs by 2030.
5. Establish consistency in local government policies in Sonoma County to support electric vehicle adoption.

*The Shift EV Policy Toolkit provides a template for local policy consideration. More info: scta.ca.gov/shift*

6. Incorporate EV readiness policies into general plans
7. Establish EV purchasing policy that directs the jurisdiction to purchase EVs for fleet applications compatible with EVs.

### Coordination

8. Participate in regional and state collaborations to share knowledge on EV technology and policy
9. Continue to convene and participate in the Sonoma County Local Government EV Partnership to collaborate on policies and programs.
10. Create and convene a public EV Coordinating Council for Sonoma County.

### Deployment

11. Lead by example by incorporating EVs into local government fleets.
12. Implement “electric first” guidelines when purchasing vehicles.
13. Deploy EVs into transit fleets.
14. Leverage fleet purchasing power and participate in bulk procurement initiatives.
15. Promote and expand local incentive programs such as Sonoma Clean Power’s Drive EverGreen and the Northern Sonoma County Air Pollution Control District’s 3-2-1 Go Green!

### Education and Awareness

16. Create an EV ombudsman service for Sonoma County.
17. Create a local EV knowledge base and website.
18. Increase knowledge of EVs and local opportunities through local government trainings.
19. Increase community awareness of EVs by leading or supporting Ride and Drive events.
20. Coordinate with local car dealers.
Electric Vehicle Charging Infrastructure

Significantly more electric vehicle charging infrastructure is needed to accommodate existing driver needs and enable rapid growth in electric vehicles. 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 PEV 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 (i.e. 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 Plan progress led by the Bay Area Air Quality Management District (BAAQMD) has found that while PEV adoption is on pace or ahead of regional targets, the installation of chargers has lagged even the low end of the range of projected need.

Bay Area Public EV Infrastructure Needs

The following sections summarize local actions to increase EV charging infrastructure as identified in the Fuel Shift Project. Citations for these and additional resources related to EV charging infrastructure are available in Resources.

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

Local governments 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 (i.e. during new construction, or in areas where the electrical distribution grid can accommodate new load without costly upgrades).

The SCTA and RCPA developed a siting framework through the Fuel Shift project that can serve as a resource to inform Electric Vehicle Supply Equipment (EVSE) siting. 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. 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, jurisdictions can conduct a survey of local EV drivers.

Sonoma County Public EV Infrastructure Needs

See Planning Actions #1-5.
EV Charging Infrastructure Policy

Local governments are well positioned to influence EV adoption by using local policy to expand charging infrastructure. Policy can remove barriers to charging and create a policy environment that encourages or even requires expanded charging. Throughout the years, local governments in Sonoma County have been adopting 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.

2012 Bay Area PEV Readiness Plan Recommendations:

» Encourages local governments to update building codes to include standards for EVSE and pre-wiring,
» Expedite and streamline local permitting and inspection process,
» Adopt PEV-friendly zoning, parking rules, and local ordinances to help facilitate the PEV market.

A leading Fuel Shift action for jurisdictions is to consider establishing consistency in local government policies in Sonoma County to facilitate EV charging, including for access to publicly owned charging stations. Local jurisdictions should consider incorporating updated EV readiness policies into general plans, or other applicable plans for improved implementation.

The State of California is leading on electric vehicle charging infrastructure, integrating requirements for electric vehicle charging into the state building code. The 2016 California Green Building Standards Code (CALGreen) addressed electric vehicles and increased requirements for EVSE, now requiring all new and most additions and alterations of building types to be “EV Capable”. CALGreen establishes the minimum mandatory requirements and includes voluntary “reach” standards. All local governments in Sonoma County have adopted CALGreen’s mandatory measures, and can further encourage EV acceleration through “reach” standards.

» Adopt policies that require or encourage Level 2 charging stations in new residential construction,
» Develop policies and incentives to support installation of Level 2 charging stations in existing residential properties, and
» Adopt requirements that exceed CalGreen for multifamily and commercial buildings.

Another opportunities to enhance local EV policy include implementing state requirements that have not yet been met for streamlined permitting. State law (AB 1236, passed in 2016) requires local jurisdictions to adopt a process to streamline the installation of EV charging infrastructure. Most local jurisdictions have not yet completed this requirement. The SCTA and RCPA partnered with the Redwood Empire Association of Code Officials (REACO) to assemble template language from streamlining that all local governments can use to encourage regional consistency.

Local governments can also consider allowing EV parking to count towards minimum parking requirements.

See Policy Actions #6-12.
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 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 consider designating representatives to participate in the Local Government EV Partnership.

Sonoma County local governments should also encourage utilities, charging network operators, and other third parties installing EVSE to utilize the Sonoma County siting framework and site database.

See Coordination Actions #13-15.

EV Charging Infrastructure Deployment

The deployment of charging stations is integral to supporting the growth of EVs in Sonoma County and the entire region. Deploying charging infrastructure at home, at work, and on the road, is important to accelerate the utilization of electric vehicles. Electric vehicle service equipment installers and local governments play a key role in EV adoption and deployment of charging infrastructure.

Nearly every local government in Sonoma County has installed and operates at least one charging station. These publicly available chargers have been well-utilized for the most part, and are an important way for the jurisdictions to promote EVs through visible charging opportunities.

Charging infrastructure is needed at workplace (for employees and fleets), single family and multifamily residences, 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 governments can also create incentives, programs, and partnerships to encourage greater installation of private EV charging infrastructure. Several local incentive programs have already been created 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 for local examples.

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

See Deployment Actions #16-20.

**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, and to educate property developers and employers about the tools available to help install EV charging.

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.

See Education and Awareness Actions #21-24.
**Electric Vehicle Charging Actions**

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

<table>
<thead>
<tr>
<th>Charging Infrastructure</th>
<th>Necessary to accommodate current and forecast EV driver needs. Home charging is essential to make EVs viable for most drivers. Charging at work enables longer commutes and daytime charging aligned with solar energy production. Ubiquitous and visible publicly accessible charging stations give drivers comfort in taking longer trips and help more drivers believe EVs can work for them.</th>
</tr>
</thead>
</table>

**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.
2. Create a map that highlights priority areas for multi-family, workplace, and opportunity charging.

*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 planning departments, electric utilities, EV drivers, and other groups to establish siting criteria that affect the desirability of specific charging sites.
4. Conduct a survey of local EV drivers to better understand charging habits.
5. Create an online EVSE siting database that tracks key potential charging locations.

**Policy**

6. Establish consistency in local government policies in Sonoma County to facilitate EV charging, including for access to publicly owned charging stations.
7. Incorporate EV readiness policies into general plans.
8. Adopt policies that require or encourage Level 2 EVSE in new residential construction.
9. Develop policies and incentives to support installation of Level 2 EVSE in existing residential properties.
10. Adopt requirements that exceed CalGreen for multifamily and commercial buildings.
11. Adopt an expedited permit process for EVSE, including a permitting checklist and guidelines for residential installations.
12. Allow EV parking to count towards minimum parking requirements.

*The Shift EV Policy Toolkit includes model policies for consideration. More info: scta.ca.gov/shift*
### Charging Infrastructure (continued)

<table>
<thead>
<tr>
<th>Coordination</th>
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<tbody>
<tr>
<td>13. Participate in regional and state collaborations to share knowledge about EV charging infrastructure.</td>
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<tr>
<td>14. Participate in state agency proceedings that affect the expansion of EV charging infrastructure.</td>
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<tr>
<td>15. Encourage utilities, charging network operators, and other third parties installing EVSE to utilize the Sonoma County siting framework and site database.</td>
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<th>Deployment</th>
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<td>16. Develop and implement a municipal workplace and fleet charging program.</td>
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<tr>
<td>17. Install EVSE on public sites in high priority locations.</td>
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<tr>
<td>18. Promote local incentive programs such as Sonoma Clean Power's Drive EverGreen, the Northern Sonoma County Air Pollution Control District's 3-2-1 Go Green, and the Bay Area Air Quality Management District's Charge! Program</td>
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<tr>
<td>19. Encourage smart charging and facilitate use of renewable energy.</td>
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<tr>
<td>20. Investigate next-generation charging technologies and systems.</td>
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<table>
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<tr>
<th>Education and Awareness</th>
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<tr>
<td>21. Develop and share updated siting guidance for charger installations.</td>
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<tr>
<td>22. Educate developers about incentives for EVSE in new residential construction.</td>
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<tr>
<td>23. Promote workplace charging to employers.</td>
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<tr>
<td>24. Train permitting and inspection officials in EVSE installation.</td>
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</tbody>
</table>
Resources

Shift Sonoma County Tools

- Employer Commute Program Toolkit
- Model TDM Ordinance
- Bike Share Feasibility Study
- Car Share Feasibility Study
- EV Charging Infrastructure Siting Framework
- EV Policy Toolkit
- EV Fleet Guide
- Available at http://scta.ca.gov/planning/shift/

Other Resources


For More Information
Visit scta.ca.gov/shift for information and tools related to the Shift Plan and to provide feedback on the Public Review Draft.