



CHAPTER 6 HIGHLIGHTS

Reaching Plan Goals—Creating a Transportation Vision for Sonoma County 6-2

CHAPTER 6

EVALUATING PLAN PERFORMANCE

Decisions and actions that are made today will impact future generations. The future is never certain, but tools are available that give us an idea of how our county may look in the next 5, 10, 20, or even 25 years.

Land use and transportation models use historical growth and travel data to predict future growth, travel demand, and traffic. By using these tools to look at different visions of the future, or transportation scenarios, we can gain insights into what may or may not help us to achieve our transportation related goals.

REACHING PLAN GOALS — CREATING A TRANSPORTATION VISION FOR SONOMA COUNTY

The Comprehensive Transportation Plan has become progressively more goals-oriented and focused on measuring performance. CTP performance can be assessed by quantifying what it will take to meet the goals identified in the plan. The 2009 CTP identified four performance targets that were loosely related to plan goals. A broad scenario-based assessment was included in the 2009 plan that demonstrated how implementation of CTP projects and transportation policies would impact transportation metrics such as vehicle miles traveled (VMT), congestion, and greenhouse gas (GHG) emissions. None of the broad scenarios tested in the 2009 CTP met all of the identified performance targets or demonstrated an ability to meet all of the plan goals.

As part of this update, individual performance measures have been identified for each of the CTP goals. A deeper assessment of individual transportation projects, policies, technologies, and strategies was included in this plan, to demonstrate how different projects or approaches help Sonoma County move closer towards meeting performance targets, achieving goals, and improving the countywide transportation system. Information gathered as part of this assessment has been used to assemble a future scenario, or vision, which meets most of the plan's performance targets. A few of the performance targets have been difficult to meet because of limitations in the tools used to assess performance, due to inelasticities in the metric, or because meeting the target is challenging given current and imagined travel conditions, technologies, and behavior.

The CTP performance assessment and scenario analysis consisted of a number of phases. First, existing conditions and progress made since the 2009 CTP were summarized in order to assess any progress made since the last plan and in order to set a current baseline that future scenarios could be compared to. Projects were then evaluated in order to determine the impact constructing some or all of the project list would have on CTP goals and targets. The policy assessment then evaluated how different policies, technologies, or behavioral changes could help SCTA meet CTP goals and performance targets. Results from the project and policy assessment were then used to construct a future "vision" or financially unconstrained scenario which achieved most of the CTP targets. The Vision Scenario was then compared to a number of transportation scenarios in order to demonstrate how close each scenario would come to meeting the plan goals and performance targets.

Spotlight — CTP TRANSPORTATION SCENARIOS

Existing conditions/2010 Baseline: This scenario represents current conditions as of 2010 and serves as a baseline to measure future progress or changes.

No Build/No Action: This scenario represents a future in which only currently committed projects, or projects which are currently in the delivery or construction pipeline, are completed by 2040. Population and employment growth are assumed to occur as forecasted by ABAG for the regional Sustainable Communities Strategy as described in **Chapter 2**. For this analysis, travel behavior is assumed to stay the same as it is today.

Constrained Plan: The constrained scenario includes capital highway and transit improvements listed in the Measure M Strategic Plan, constrained projects and programs identified in Plan Bay Area, and other capital improvements that have other identified funding sources. This scenario represents an approximation of a financially constrained scenario, in which no new funding sources or mechanisms are identified in the future. Population and employment growth are assumed to occur as forecasted by ABAG for Plan Bay Area and travel behavior is to stay the same as it is today for this analysis.

Vision: A “vision” scenario was developed which meets all CTP goals and performance targets. This scenario is not financially constrained and assumes that an expanded list of large capital road and highway projects are completed, that all CTP transit projects are completed and operate a maximum capacity, future population and employment growth is focused on Priority Development Areas, county jobs-housing balance is maintained and improved. Trip reduction measures are implemented, travel behavior is altered, and a significant shift to non-motorized travel takes place. The existing and future transportation system is made much more efficient by implementing technological improvements such as vehicle fuel economy improvements and autonomous vehicle technologies being implemented.

The results of the scenario analysis are meant to serve as a decision support tool to aid local decision makers in the prioritization of transportation projects and policies. This analysis or performance assessment provides an idea of what types of projects and policies will provide the greatest ability to reach SCTA’s goals and objectives.

Testing Project Impacts

The CTP includes a range of transportation projects including regional highway and freeway projects, local streets and roads projects, road and transit maintenance, system improvement projects, and bicycle and pedestrian projects. These projects have been submitted by project sponsors, generally local jurisdictions or transit providers, as future transportation priorities. Projects may address system condition and maintenance, improve roadway or transit system capacity or efficiency, provide additional mobility, or improve safety and operations.

The first major phase of the CTP performance assessment focused on project performance. This was intended to provide information on how effective different types of transportation projects could be at helping SCTA reach plan goals and targets.

Initial tests of project impacts suggested that individual projects could provide congestion reduction, but benefits or impacts in other countywide performance areas would be small when considered at a countywide scale. Projects could have significant benefits or impacts at the local neighborhood or corridor level, but when considered at a regional level, any changes (positive or negative) are largely overshadowed by existing travel conditions or by population and employment impacts.

Because of these findings, SCTA staff selected a cross-section of large CTP projects that represent different major project types in order to assess how different types of projects could help SCTA meet performance targets. These sample projects included:

- Highway interchange improvements
 - » Hearn Ave/Highway 101
 - » Railroad Avenue/Highway 101
 - » Fulton Rd/ Highway 12
- Highway improvement projects
 - » Highway 101/Marin Sonoma Narrows: Phase 2
 - » Highway 116 widening and rehabilitation between Sebastopol and Cotati
 - » State Route 37 corridor improvements
- Transit improvement projects
 - » SMART: Airport Boulevard in Santa Rosa to Cloverdale extension
 - » Santa Rosa CityBus service expansion
- Non-motorized projects
 - » SMART pathway
- Local road improvements
 - » Airport Blvd widening
 - » Petaluma Crosstown connector

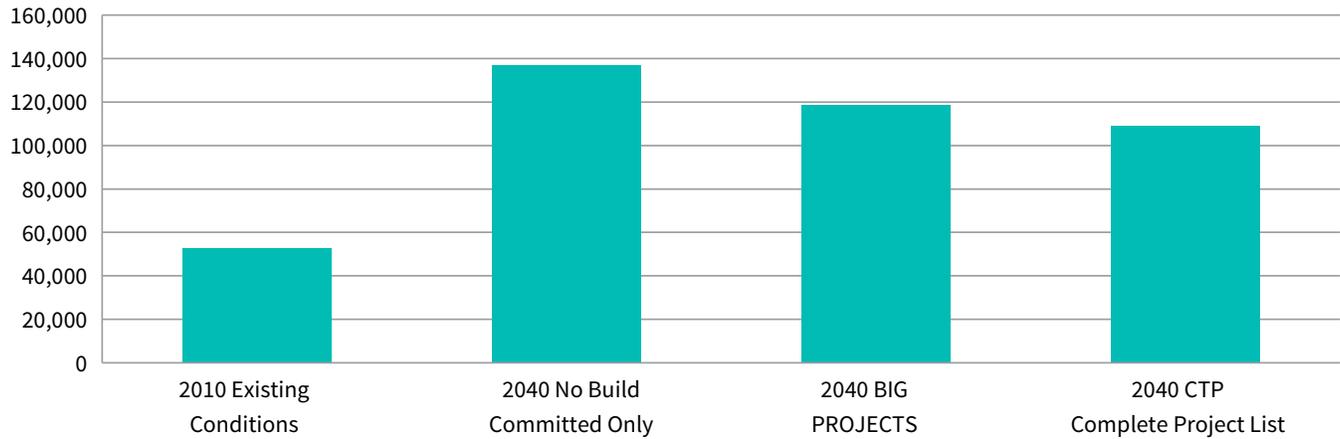
These projects are only a small sample of the full CTP project list but represent a cross-section of regionally significant projects.

Sample big projects were tested and compared to 2010 existing conditions and 2040 no build conditions as shown in **Figure 6-1**. The 2040 no build scenario included committed projects only, or projects that are fully funded or underway, and forecasted housing and employment growth. Although funding will not likely be available to construct all submitted CTP projects by 2040, a scenario which included the entirety of the CTP project list (all road, highway, transit, and bike/pedestrian) was analyzed for comparison purposes.

This more detailed performance assessment suggested again that projects could provide congestion reduction benefits, with the highest congestion reduction benefits, from a countywide perspective, being provided by large highway improvement projects. Completing all proposed CTP projects could reduce 2040 projected daily congestion by 20% and reduce 2040 PM peak hour travel times by 17%. Completing all large sample projects could reduce 2040 projected daily congestion by 13% and 2040 PM peak hour travel times by 10%. Individual projects which were shown to provide the largest future congestion reductions include projects such as the SMART pathway and improvements in the Highway 101 and Highway 37 corridors as illustrated in **Table 6-1**. The analysis indicated that project impacts in other performance areas would not be significant¹ at the countywide scale.

¹ Individual projects, sample projects, and the entire CTP project list improvements where less than 1% in non-congestion related performance areas when considered at the countywide level.

**Figure 6-1 CTP Project Performance Assessment — Project Congestion Reduction
Sonoma County 2040 Daily Countywide Congestion (Person Hours of Delay)**



Source: Sonoma County Travel Model

Spotlight — CTP Project Modeling Process:

1. Projects were coded into the travel model using submitted project descriptions and with clarifications from project sponsors.
2. Model general assumptions were set:
 - » land use: 2010 base year, Plan Bay Area land use
 - » travel costs assumed to stay the same (keep pace with inflation)
 - » no technological breakthroughs or significant changes to travel behavior.
3. Model run for 2040 No Build conditions, All CTP Projects, and selected large CTP projects as identified above.
4. Travel model based metrics extracted and summarized.
5. Post processing tools used to estimate GHGs (EMFAC²), collision rates (SmartGAP³), and traveler costs (SmartGAP and American Automobile Association cost factors).
6. Performance metrics were summarized and compared to performance scoring criteria.

Table 6-1 2040 Congestion Reduction for Selected Large CTP Projects

Project	Congestion Reduction in 2040	
	Daily reduction	PM peak hour reduction
SMART Pathway	1.6%	1.4%
Highway 101	6.5%	7.0%
Highway 37	6.8%	2.9%
SMART — Larkspur to Cloverdale	0.4%	1.3%
Santa Rosa CityBus Service Enhancements	0.3%	2.5%

Source: Sonoma County Travel Model

2 EMFAC is California’s model for estimating emissions from on-road vehicles operating in California. It is built on decades of vehicle testing and analysis, and is informed by DMV registration data, the Smog Check program, and many other data sources. EMFAC is used as a starting point for developing plans to meet air quality standards, and for assessing the impact of motor vehicle emissions regulations on emissions and air quality. From California Air Resources Board http://www.arb.ca.gov/msei/emfac2011-faq.htm#emfac2011_qstn01

3 SmartGAP is a sketch planning tool developed as part of the SHRP2 process to provide transportation planning agencies with a means to assess how land development and growth management activities impact transportation.

Testing Policy Impacts

Analyzing proposed CTP projects demonstrate that countywide CTP goals and performance targets cannot be achieved by building projects alone. Sonoma County residents will need to change how they travel including how far and how often they make trips, what travel modes they use, and how efficiently they travel if these goals are to be met in the future. To this end, SCTA explored how possible policy approaches, technologies, and behavioral changes could help meet CTP goals and performance targets. This assessment provides information for decision makers and project sponsors on what types of actions provide benefits in CTP goal areas. Policies, technologies, and behavioral approaches were tested using the tools and research available and do not represent a full array of all possible solutions. New policy approaches and technological advances will continue to be developed that could have a significant impact on how people travel in Sonoma County or how travel impacts mobility, the environment, health and safety, and the economy.

Innovations in transportation technologies, changes to how people travel, and transportation policies could reduce VMT, reduce GHG, improve air quality, and provide other benefits that would help SCTA reach performance targets. The performance impacts of a variety of policy approaches, technologies, and changes to travel choice and behavior were tested in order to explore benefits they could provide in CTP goal/performance areas. These are summarized in **Figure 6-2** with more detail provided in **Appendix 9**.

Figure 6-2 CTP Performance Assessment — Tested Policies

Transportation Pricing	Trip Reduction Techniques	Land Use	Mode Shift	System Efficiency
<ul style="list-style-type: none"> • Per mile driving increase • Parking charges • Free Transit Fares 	<ul style="list-style-type: none"> • Household trip making reduction • Increased ridesharing, vanpooling, and carpooling • Maximized use of HOV lanes 	<ul style="list-style-type: none"> • No development outside of UGBs • All future growth in Priority Development Areas • Improved jobs-housing balance 	<ul style="list-style-type: none"> • Implement transit improvements • Maximize ridership of existing system • Maximize ridership of vision transit system • 5% shift to walking and biking 	<ul style="list-style-type: none"> • Increased road capacity • Improved vehicles • Improved freight network

The results of the policy performance assessment indicated that a variety of different policy approaches, advancements in technology, and changes in travel behavior will be necessary to address the goals, objectives, and performance targets that have been identified in the CTP.

High performing approaches were identified for each performance target and used to develop a 2040 scenario, the 2040 Vision Scenario, which meets the performance targets and provides improvement in CTP performance areas. Policies that increase the efficiency of the existing transportation system or which shift travel onto more efficient modes were generally the most effective at helping meet CTP goals and targets.

Meeting CTP Goals and Performance Targets — Assembling the 2040 Vision Scenario

High performing projects and policies from the project and policy analyses were included in a future 2040 Vision Scenario, which demonstrates how CTP performance targets for each of the plan goals could be met. Funding has not been currently identified for the projects, policies, strategies, or technologies that were identified as high performers and included in this scenario. Some high performing policy levers that were analyzed in the policy level performance assessment were omitted based on feedback from local jurisdictions and the SCTA. These approaches were identified as having negative impacts or undesirable social effects and were therefore not considered in the 2040 Vision Scenario.

The Vision Scenario was assembled iteratively by adding high performing projects or policy approaches until the scenario was able to reach most CTP performance targets. Recommendations for reaching our goals include securing sustainable funding sources, continue our focus on improving the land use connection, increase efficiencies in vehicles, fuels and implement technological improvements. For details, see the Implementation section of **Chapter 7** Funding and Implementation.