CHAPTER 7

System Performance

The performance of the 2014 RTP has been analyzed to determine how well the constrained list of transportation projects and programs advance the goals established for this RTP and affect the region’s future. RTP performance can be assessed by setting targets (Chapter 4) and developing methodologies for forecasting how the projects on the constrained list, if implemented by 2035, will advance these targets. The adopted targets were intended to be aggressive, but reasonably obtainable.

The plan makes progress towards and meets many of the targets set forth for the RTP, though funding constraints make it impossible to fully meet all of the targets. The greenhouse gas emissions target as well as the economic benefit target have not only been met but exceeded. The discussion below describes how well the Santa Cruz County 2014 RTP performs for each of the targets. Please refer to Chapter 4 for background on the goals and performance measures/targets. More detailed information on the analysis used to determine target performance can be found in Appendix C. A summary of the performance results are outlined in Figure 7.2. Performance in year 2035 is measured against base years as noted below.

GOAL 1. Improve people’s access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.

Improve people’s ability to meet most of their daily needs without having to drive. Improve access and proximity to employment centers.

Target 1A. Increase the percentage of people that can travel to key destinations within a 30-minute walk, bike or transit trip by 20 percent by 2020 and 40 percent by 2035.1

Base year: 2010
Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate & Energy

By improving people’s ability to meet most of their daily needs without having to drive, this plan is improving access. New multimodal facilities placed near key destinations, which include residential, employment, and commercial centers, have the greatest potential to replace vehicle trips with walk, bicycle and transit trips. Bicycle and pedestrian facility improvements can create a safer environment for biking and walking. Placing these improvements near key destinations makes biking and walking more convenient for short trips. Projects that close the gaps in the bicycle and pedestrian network and shorten
biking and walking routes provide the greatest benefit in advancing this target. Transit projects that increase service frequency will also advance this target.

The percentage of the total county population within a 30 minute walk, bike or transit trip from a key destination in 2010 was already significant (73.9% for bike, 32.7% for walk, 54.6% for transit). This plan increases the population that is within a 30 minute bike or walk of key destinations to 74.3% for bike and 33.8% for walk but does not meet the established target of 75.9% of population with 30 minute bike access and 39.2% of the population with 30 minute walk access to key destinations. The gap between the 2010 baseline and the maximum population was closed by 9% for bike and 6% for walk compared to the 40% target (Appendix C).

Re-invest in the local economy by reducing transportation expenses from vehicle ownership, operation and fuel consumption. Reduce smog-forming pollutants and greenhouse gas emissions.

**Target 1B.** Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020 and 5 percent by 2035.

*Base year: 2005*

*Outcomes Advanced: Access & Mobility, Health, Equity, Economic Benefit, Climate & Energy*

A reduction in greenhouse gas emissions from transportation will help to alleviate the effects of transportation on climate change. GHG emission reductions of 5% per capita by 2035 through land use and transportation investments have been mandated for the AMBAG region through the California Air Resources Board (CARB) and Senate Bill 375. The target identified for the Santa Cruz County 2014 RTP is a voluntary target of 5% per capita GHG emissions reduction based on transportation improvements that was developed to be consistent with regional efforts. The average Santa Cruz County resident travels approximately 15.3 miles per day. A five percent reduction by 2035 equates to shifting approximately 1 mile per day of motor vehicle travel to active transportation or reducing trip distances. Through prioritization of projects that promote transit use, biking, and walking, as well as changes in land use that shorten the distance people travel from home to work and home to shopping, per capita CO2 emissions are reduced by 17.9% by 2035. Assuming that half of this reduction is due to transportation improvements (9.0%), this result not only meets but surpasses the Santa Cruz County 2014 RTP 5% reduction target.

**Target 1C.** Re-invest in the local economy $5 million/year by 2020 and $10 million/year by 2035 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled.

*Base year: 2005*

*Outcomes Advanced: Access & Mobility, Economic Benefit, Cost Effectiveness, Climate & Energy*

Local economies benefit from less fuel consumption. A significantly greater proportion of household income is spent on transportation now than in the previous decade as a result of increases in vehicle,
gasoline, and vehicle maintenance costs. By reducing fuel consumption by reducing trip distances, idling, and through greater use of transit, bicycling and walking, and carpooling, the proportion of household income that is spent on transportation is reduced. Money otherwise spent on fuel is available for other expenditures. Research suggests that seventy three cents for every dollar not spent on fuel is reinvested locally. Projects that provide travelers with convenient, safe, and competitive alternatives to the private automobile help advance this target. The plan exceeds the economic benefit target by reducing per capita fuel consumption by 17.9% allowing for $13 million/year to be reinvested in the local economy by 2035.

**Improve the convenience and quality of trips, especially for walk, bicycle, transit, freight and carpool/vanpool trips.**

**Target 1Di.** Improve travel time reliability for vehicle trips, especially for transit, freight, carpool/vanpool.

**Base year:** 2010

**Outcomes** Advanced: Access & Mobility, Economic Benefit, Climate & Energy

The 2014 RTP strives to minimize congestion challenges in our region through a travel time reliability target. Travel time reliability is a measure of how consistent the time is to drive from your origin to your destination and is an important measure of transportation service quality. Travel time reliability matters since being late to work, an appointment, or for a delivery have substantial repercussions for travelers and businesses. Improvements in travel time reliability for autos and transit allow people to better predict how long their trip will take even on regularly congested routes. For example, traffic management and operations projects and programs can significantly improve travel time reliability while improvements in average travel times from these types of projects may be modest (Figure 7.1). Reliability measures will show a much greater improvement because they show the effect of improving the worst few days of unexpected delay.

![Figure 7.1 – Reliability measures capture the benefits of traffic management](source: Federal Highway Administration)

Projects in this plan that can improve travel time reliability include traffic signal synchronization, transit signal priority and queue jumps, incident management, and traveler information services. The performance analysis evaluated travel time reliability countywide, as well as for individual segments of Highway 1 and Highway 17. Forecasts of travel time reliability for 2035 based on project implementation do not improve the travel time reliability relative to the existing conditions but does make improvements...
relative to a no project alternative. The auxiliary lane projects planned for Highway 1 will allow vehicles more room to merge into traffic, smoothing the traffic flow. Although the full list of Highway 1 Corridor Program projects are not on the constrained list for the 2014 RTP, continual progress towards HOV lanes that allow for carpool and transit service to reduce travel times on Highway 1 will likely bring the greatest benefit to travel time reliability in the future.

**Target 1Dii.** Improve multimodal network quality for walk and bicycle trips to and within key destinations.

*Base year: 2012*

*Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate & Energy*

While the network of bicycling and walking facilities throughout much of Santa Cruz County is substantial, improvements to the quality of this network could promote greater use. Separated or buffered bicycle facilities, wider bike lanes, lanes designed outside of the door zone of parked cars, all encourage use of bicycles as a means of travel. Sidewalks exist in much of the more populated areas of Santa Cruz County but there are gaps, which limit access for people with disabilities and are not always attractive due to proximity to heavy automobile volumes or speeds with little or no buffer between pedestrians and traffic. The quality of the multimodal network for bicycles and pedestrians, referred to as Multimodal Network Quality (MMNQ), provide both a qualitative and quantitative measure for the degree to which the active transportation options are safe and enjoyable (Appendix C). The projects in this plan improve the MMNQ and thus advance the target for both walk and bicycle trips within key destinations by designing facilities that are safe, convenient and comfortable to the user.

**Improve health by increasing the percentage of trips made using active transportation, including bicycling, walking and transit.**

**Target 1E.** Decrease single occupancy vehicle (SOV) mode share by 4 percent by 2020 and by 8 percent by 2035.

*Base year: 2010*

*Outcomes Advanced: Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate & Energy*

Replacing trips traditionally made in a vehicle with walking or bicycling can lead to regular physical activity. Regular physical activity leads to improved public health and reduced obesity rates. Since the regional travel demand model can provide a more accurate percent reduction in single occupancy vehicle (SOV) mode share rather than a percent increase in active transportation mode share, the target is written as a reduction in SOV. This plan invests in bicycle and pedestrian trails that are separate from vehicle traffic to promote use by the beginning rider as well as increases/improvements in bicycle lanes, sidewalks and transit. While these investments do forecast an increase in the number of trips and miles people are walking and biking, forecasts predict a SOV mode share reduction of 6.4% based on vehicle miles traveled which falls short of the public health target of 8% reduction in SOV by 2035.
GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes.

Improve transportation safety, especially for the most vulnerable users.

**Target 2A.** Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 50 percent by 2035.

*Base year:* 2009-2011 average

*Outcomes Advanced:* Health, Safety, Equity, Economic Benefit

**Target 2B.** Reduce total number of high collision locations.

*Outcomes Advanced:* Health, Safety, Equity, Economic Benefit

Improving the safety of transportation users, especially for the most vulnerable users, such as bicyclists and pedestrians, is a priority for Santa Cruz County as well as across California and the nation. Because approximately half of collisions nationwide take place at intersections, emphasis was placed on investing in transportation projects that would improve intersections with consideration for bicyclists and pedestrians. State Highway Operation and Protection Program (SHOPP) projects which are implemented by Caltrans on Santa Cruz County Highways (1, 9, 17, 129, 152, 236) focus on reducing collisions. Extra enforcement on Highway 17 through the Safe on 17 program, as well as separated or buffered bicycling and pedestrian facilities implemented by local jurisdictions have also been prioritized in this plan to improve safety. Although it has not been forecast how the projects will advance the safety target, the Statewide Integrated Traffic Records System (SWITRS) collision database will allow the RTC to monitor the number of collisions over time to assess how the investment of projects are advancing this target.

GOAL 3. Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.

Maintain the existing system and improve the condition of transportation facilities.

**Target 3A.** Increase the average local road pavement condition index (PCI) to 57 by 2020 and 70 by 2035.

*Base year:* 2013

*Outcomes Advanced:* Safety, Economic Benefit, Cost Effectiveness

**Target 3B.** Reduce the number of transportation facilities in “distressed” condition by 3 percent by 2020 and 5 percent by 2035.

*Base Year:* 2013

*Outcomes Advanced:* Safety, Economic Benefit, Cost Effectiveness
A key focus of this RTP is on preserving the existing transportation infrastructure. Unfortunately, even with a significant share of the discretionary funding allocated for maintenance of local streets and roads (an increase of 10 million per year above typical status quo budget of $13 million), there are insufficient funds to bring the entire system into a state of good repair. Pavement, bicycle lanes, sidewalks, street lights, buses, and rail lines all require ongoing maintenance. The current pavement condition index of 53 (“At Risk” rating) for local streets and roads in Santa Cruz County indicates the need for substantial investment in maintenance. The transit system is also in need of maintenance and/or replacement to ensure continued and cost-effective service. This plan invests in pavement repairs, sidewalk and bicycle lane maintenance, bus replacements, transit centers in need of renovation, bus stops, transit service vehicles, and physical plants that need upgrades and maintenance. Despite these investments in maintaining existing transportation facilities or other maintenance activities, the local street and road pavement condition index is forecasted to drop to 43 by 2035 and thus the PCI target of 70 is not met. If only the status quo amount of the budget is spent on pavement maintenance, the PCI is expected to drop as low as 28 by 2035. This plan improves the PCI relative to status quo budget. See Appendix C for details on analysis and additional information on costs required for maintenance to advance target. Although it has not been forecast how the projects will reduce the number of transportation facilities in “distressed” condition, the local jurisdictions and the METRO track the condition of their facilities which will allow the RTC to monitor how the investment of projects are advancing this target.

**Enhance healthy, safe access to key destinations for transportation-disadvantaged populations.**

**Target 3C.** Reduce travel times and increase travel options for people who are transportation disadvantaged (TD) due to income, age, race, disability or limited English proficiency by increasing the percentage that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 40% by 2035 (relative to population in maximum buffer).  
**Base year:** 2010  
**Outcomes Advanced:** Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness, Climate & Energy

In advancing the goals of the RTP, the RTP works to ensure that diverse members of the region are able to equitably benefit from transportation investments. One measure analyzed was the percentage of transportation disadvantaged individuals (e.g. youth, elderly, minorities or low income) that can walk, bike, or take transit to key destinations within 30-minutes. Transportation-disadvantaged individuals are
oftentimes unable to provide their own transportation or have difficulty accessing public transportation and are overrepresented in households without access to a vehicle. Lack of transit service, curb ramps or safe street crossings can create extra barriers that may prevent individuals from accessing jobs, housing, medical services, groceries, and other key destinations. Bicycle, pedestrian and transit facility improvements close to and within key destination areas will make biking, walking and riding transit safer, more convenient and thus more accessible to transportation disadvantaged populations.

The percentage of the transportation disadvantaged population within a 30 minute walk, bike or transit trip from a key destination in 2010 was already significant (78.7% for bike, 38.5% for walk, 58.8% for transit) and is greater than the total population by approximately 4 to 6% (Appendix C).

This plan increases the population that is within a 30 minute bike or walk of key destinations to 78.9% for bike (5.9% increase) and 39.6% for walk (6.4% increase) but does not meet the established target of 80.8% of population with 30 minute bike access (40% increase) and 45.2% of the population with 30 minute walk access (40% increase) to key destinations (Appendix C).

**Target 3D.** Ensure transportation services (and impacts) are equitably distributed to all segments of the population.

**Outcomes Advanced:** Access & Mobility, Health, Safety, Equity, Economic Benefit, Cost Effectiveness

A key component of development and evaluation of the RTP was inclusion and consideration of the entire community to determine if the plan has the potential to affect certain neighborhoods and population groups in a disproportionate manner. Consistent with Title VI of the federal Civil Rights Act of 1964, Section 11135 of the California Government Code, and Executive Order 12898 on Environmental Justice, RTPs are required to ensure that any planned regional transportation improvements do not have a disproportionate adverse impact on low income or other under-represented groups and that minority and low-income populations receive equal benefits, on an equally timely basis, as other populations.

Planned regional transportation improvements were evaluated to ensure that they were equitably distributed to all segments of the population. Greater than 80% of the regional projects were found to benefit areas of the county with low income and minority populations. This analysis showed that new investments in transportation services are equitably distributed to all segments of the population and thus the target has been met.
Solicit Broad Public Input

Target 3E. Maximize participation from diverse members of the public in RTC planning and project implementation activities.

Outcomes Advanced: Equity

The inclusion of the entire range of community interests in the development of the RTP is both best practice and required by both federal and state law. In order to ensure that transportation planning and projects reflect community interests, the RTC makes consistent efforts to include all county residents in the transportation discussions and decisions. The RTC joined AMBAG, Monterey and San Benito Counties to develop a public participation plan for the region that identifies options and opportunities for extensive outreach. Components of the plan include, but are not limited to:

- Contacts for community-based groups throughout the county, including neighborhood, health, senior, faith, environmental, low-income, and other social support groups
- Consultation with citizen and advisory committees
- Wide spread and easy access to transportation planning activities, including sections of the RTP as developed, through the RTC’s website and social media
- Notifications about public hearings
- Bulletins to media partners
- Making documents available at local libraries
- Bilingual translation of materials, as appropriate

Development of the 2014 RTP has included participation by individuals and groups that represent our diverse community, consistent with the adopted Public Participation Plan, available online at www.ambag.org. At every juncture in developing the RTP, public participation was sought. This planning process meets the target for maximizing participation from the public. Appendix A provides a sample of the extensive public outreach done in developing the RTP.
## ACCESS and ENVIRONMENT

**GOAL 1.** Improve people’s access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.

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<thead>
<tr>
<th>Target</th>
<th>Projects on Constrained List that can Advance Target</th>
<th>Findings</th>
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| **Target 1A** - Increase the percentage of people that can travel to key destinations within a 30-minute walk, bike or transit trip by 20 percent by 2020 and 40 percent by 2035. | ✓ Bicycle and pedestrian facilities near major activity centers with emphasis on filling gaps in the network  
✓ Bicycle and pedestrian bridges over Highway 1  
✓ Transit level of service improvements  
✓ Curb ramps | The percentage of the population that are within a 30 minute bike or walk of key destinations increase with implementation of the RTP but falls short of the target. | ![Plan falls short of target] |
| **Target 1B** - Reduce per capita fuel consumption and greenhouse gas emissions by 1 percent by 2020 and 5 percent by 2035. | ✓ Bicycle, pedestrian, and transit facility improvements with emphasis on separated facilities  
✓ Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps, bike parking  
✓ Bus rapid transit, such as transit priority  
✓ Educational and incentive programs to encourage and facilitate shifts to carpool, bike, walk, transit, telecommuting  
✓ Park and ride lots  
✓ Intersection Improvements that reduce idling | A reduction in per capita GHG emissions of 9% by 2035 from transportation improvements (assuming half of the 17.9% per capita GHG reductions from both land use and transportation improvements) has met and surpassed the 5% target. | ![Plan meets target] |
| **Target 1C** - Re-invest in the local economy $5 million/year by 2020 and $10 million/year by 2035 from savings resulting from lower fuel consumption due to a reduction in vehicle miles traveled. | ✓ Bicycle, pedestrian, and transit facility improvements with emphasis on separated facilities  
✓ Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps, bike racks  
✓ Bus rapid transit, such as transit priority  
✓ Educational and incentive programs to encourage shifts to carpool, bike, walk, transit  
✓ Park and ride lots | A reduction in fuel consumption allows $13 million to be re-invested into the local economy and thus the target has been met. | ![Plan meets target] |
**Target 1Di - Improve travel time reliability for vehicle trips.**

- Hwy 1 Auxiliary Lanes
- Intersection operational improvements
- Roadway improvements such as merge lanes, transit turnouts
- Signal synchronization
- HOV signal priority and queue jumps
- Bus rapid transit, such as transit priority
- Freeway Service Patrol

Travel time reliability has decreased relative to existing conditions but has improved in comparison to 2035 no project.

**Target 1Dii - Improve multimodal network quality for walk and bicycle trips to and within key destinations.**

- Bicycle and pedestrian facilities in key destination areas with emphasis on filling gaps in the network
- Two bicycle and pedestrian bridges over Highway 1
- Bicycle/pedestrian separated facilities
- Bicycle and pedestrian treatments at intersections (e.g. crossing islands, painted boxes, bike signals etc)
- Wider sidewalks buffered from automobile traffic
- Traffic calming and greenways
- Curb ramps

Bicycle and pedestrian network quality has improved with this plan.

**Target 1E - Decrease single occupancy mode share by 4 percent by 2020 and by 8 percent by 2035.**

- Bicycle, pedestrian, and transit facility improvements
- Bus rapid transit, such as transit priority
- Educational and incentive programs to encourage shifts to carpool, bike, pedestrian and, transit
- Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps, bike parking

Single occupancy vehicle mode share has decreased with this plan by 6.4% but falls short of the 8% target.
## SAFETY

### GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes

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| **Target 2A** - Reduce injury and fatal collisions by mode by 20 percent by 2020 and by 50 percent by 2035. | ✓ Auxiliary lanes on Highway 1  
✓ Intersection improvements with consideration for bicyclists and pedestrians  
✓ Bicycle and pedestrian treatments at intersections (e.g. crossing islands, painted boxes and bike signals)  
✓ Bicycle and pedestrian facility improvements with emphasis on separated facilities  
✓ Two bicycle and pedestrian bridges over Highway 1  
✓ Traffic calming and greenways  
✓ Pedestrian crossings near schools and high pedestrian traffic areas | Due to the challenge of being able to forecast injuries and fatalities based on projects implemented, the number of injuries and fatalities for each mode can be monitored over time to assess progress. | |
| **Target 2B** - Reduce total number of high collision locations. | ✓ Auxiliary lanes on Highway 1  
✓ Intersection improvements with consideration for bicyclists and pedestrians  
✓ Bicycle and pedestrian treatments at intersections (e.g. crossing islands, painted boxes and bike signals)  
✓ Bicycle and pedestrian facility improvements with emphasis on separated facilities  
✓ Traffic calming and greenways  
✓ Pedestrian crossings near schools and high pedestrian traffic areas | Due to the challenge of being able to forecast injuries and fatalities based on projects implemented, the number of injuries and fatalities for each mode can be monitored over time to assess progress. | |
## Maintenance and Equity

**GOAL 3.** Deliver access and safety improvements cost effectively, within available revenues, equitably and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.

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</table>
| **Target 3A** - Increase the average local road pavement condition index to 57 by 2020 and 70 by 2035. | ✓ Maintenance, repair and operation of local roadways  
✓ Caltrans SHOPP projects  
✓ Road rehabilitation and reconstruction | The pavement condition index (PCI) has decreased to 43 relative to existing PCI of 53 but is improved in comparison to status quo budget that could bring PCI down to 28. Target has not been met. | ![Measure has improved in comparison to status quo budget but has decreased relative to existing conditions](image) |
| **Target 3B** - Reduce the number of transportation facilities in “distressed” condition by 3 percent by 2020 and 5 percent by 2035. | ✓ Maintenance, repair and operation of local roadways  
✓ Bus replacements  
✓ Upgrades to transit facilities  
✓ Caltrans SHOPP projects  
✓ Road rehabilitation and reconstruction | The number of transportation facilities in “distressed” condition can be monitored over time. | ![Measure will be monitored over time to assess progress](image) |
| **Target 3C** - Increase the percentage of people who are transportation disadvantaged due to income, age, race, disability, or limited English proficiency that are within a 30-minute walk, bike or transit trip to key destinations by 20% by 2020 and 40% by 2035. | ✓ Bicycle and pedestrian facility improvements near schools and other transportation disadvantaged destinations with emphasis on filling gaps in the network and ADA improvements  
✓ Transit improvements such as increased service on high ridership routes  
✓ Curb ramps  
✓ Rail transit | The percentage of the transportation disadvantaged population that is within a 30 minute bike or walk of key destinations are increased but plan falls short of the target. | ![Plan falls short of target](image) |
### Target 3D - Ensure transportation services (and impacts) are equitably distributed to all segments of the population.

- Bus rapid transit, such as transit priority
- Transit improvements such as increased service on high ridership routes
- Auxiliary lanes on Highway 1
- Monterey Bay Sanctuary Scenic Trail
- Rail transit

The regional projects that are identified in the plan provide an equitable distribution to low income and minority populations and thus the target has been met.

### Target 3E - Maximize participation from diverse members of the public in planning and project implementation activities.

- Public participation plan
- Workshops
- Web and social media outreach
- Email distributions
- Surveys
- Press releases
- Project sponsor board approvals

Public participation was solicited in developing the plan at every juncture and thus the target has been met.

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**Figure 7.2 – Summary of 2014 Project List Performance for Advancing Targets**

*Source: Santa Cruz County Regional Transportation Commission*
Notes for Chapter 7

1 The targets are relative to the 2010 maximum population within the key destinations and will close the gap between the baseline population and maximum population by 20% by 2020 and 40% by 2035.


