

# 2040 Santa Cruz County Regional Transportation Plan

## Table of Contents

**Executive Summary** .....ES-1

### **Chapter 1 - Why Sustainability?**

2040 Regional Transportation Plan ..... 1-1

Why Sustainability? ..... 1-1

System Preservation ..... 1-2

Safety ..... 1-4

Congestion ..... 1-6

Environmental and Public Health..... 1-6

    Greenhouse Gas Emissions..... 1-6

    Air Pollutants ..... 1-8

    Obesity ..... 1-8

Economy ..... 1-10

Energy ..... 1-10

Transportation Funding..... 1-11

Equity ..... 1-11

Public Input is a Critical Component..... 1-12

### **Chapter 2 - Transportation Network**

Setting .....2-1

Transportation System .....2-1

State Highways .....2-2

    Highway 1 Corridor .....2-2

    Past Highway 1 Projects..... 2-3

    Highway 1 Corridor Improvement Project .....2-4

    Highway 17 Corridor .....2-5

    Highway 9.....2-6

Highways 236 and 35.....	2-6
Highways 129 and 152.....	2-6
Local City and County Street Network.....	2-7
Transit.....	2-8
Specialized Transportation.....	2-9
Other Providers.....	2-10
Identifying Needs.....	2-10
Rail.....	2-10
Local Corridor.....	2-10
2018 California State Rail Plan.....	2-12
High Speed Rail Plans.....	2-14
Active Transportation.....	2-16
Bike Network.....	2-16
Pedestrian Facilities.....	2-17
Identifying Needs.....	2-17
Bicycle and Pedestrian Projects Underway.....	2-19
Transportation Demand Management.....	2-20
Park and Ride.....	2-21
Transportation System Management.....	2-21
Intelligent Transportation Systems.....	2-22
Aviation.....	2-22

## **Chapter 3 - Travel Patterns**

Population.....	3-1
Employment Opportunities.....	3-3
Where Are We Traveling?.....	3-4
High Use Routes.....	3-6
How Much Are We Traveling?.....	3-10
Vehicle Miles Traveled.....	3-10
Visitors.....	3-11
Goods Movement.....	3-11
How Are We Getting Around?.....	3-14
Bicycle Use.....	3-16
School Trips.....	3-17

Less Trips.....	3-17
Transportation Equity .....	3-17

## **Chapter 4 - Vision for 2040**

Goals and Policies.....	4-1
Why Do Policies Matter?.....	4-1
Sustainable Rating System.....	4-4
Key Considerations .....	4-5
GHG Emissions, Senate Bill 375 and Senate Bill 32.....	4-5
GHG Emissions and California Transportation Plan.....	4-5
National Transportation Performance Measures .....	4-5
Complete Streets.....	4-6
Health and Assembly Bill 441 .....	4-7
Social Equity and Environmental Justice .....	4-7
Targets.....	4-8

## **Chapter 5 – Funding Our Transportation System**

Introduction .....	5-1
Available Funds .....	5-2
Restricted versus Flexible Funds .....	5-3
New Revenues.....	5-4
Funding Uncertainties.....	5-5
Funding Shortfalls – A Local, State, and Federal Challenge .....	5-6
Potential Future Revenues.....	5-7
Methodology for Projecting Available Funds.....	5-7

## **Chapter 6 - Transportation Investments**

Identifying Needs .....	6-1
Prioritizing Projects .....	6-1
Within Projected Funds (Constrained) Project List.....	6-2
Summary of Constrained Projects .....	6-2
Goal 1 – Access and Environment.....	6-2
Goal 2 – Improve Safety .....	6-5
Goal 3 - Maintain the Existing Transportation System and Provide Access Equitably .....	6-6
Fund Distribution.....	6-8
The Need New Funds (Unconstrained) Project List .....	6-8

Implementing the Investment Program .....	6-8
Project Cost .....	6-9
Funding Decisions .....	6-11

## Chapter 7 - System Performance

GOAL 1. Establish livable communities that improve people's access to jobs, schools, recreation, healthy lifestyles and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.....	7-1
Improve people's ability to meet most of their daily needs without having to drive.....	7-1
Reduce smog-forming pollutants and greenhouse gas emissions.....	7-1
Improve health by increasing the percentage of trips made using active transportation options, including bicycling, walking and transit.....	7-6
GOAL 2. Reduce transportation related fatalities and injuries for all transportation modes.....	7-8
Improve transportation safety, especially for the most vulnerable users.....	7-8
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.....	7-10
Maintain the existing system and improve the condition of transportation facilities.....	7-10
Increase transportation revenues.....	7-12

## Chapter 8 – Environmental and Air Quality Review

CEQA Required Environmental Review.....	8-1
Biological and Natural Resources .....	8-2
Cultural Resources .....	8-2
Environmental Mitigation .....	8-2
Regional Mitigation .....	8-3
Advanced Mitigation.....	8-3
Stormwater .....	8-4
Greenhouse Gas Emissions .....	8-6
Air Quality Conformity .....	8-6

## Chapter 9 - What's Next?

Climate Adaptation .....	9-1
Automated Vehicles .....	9-3
Definitions.....	9-3
Implementation and Timeline.....	9-4
Infrastructure and Planning.....	9-4
State and Federal Policy.....	9-5

**Transportation Glossary and Acronym Guide**.....GA-1

**Appendices**

Appendix A – Public Outreach ..... A-1

Appendix B – Regional Transportation Commission and Partner Agency Coordination ..... B-1

Appendix C – 2040 RTP Goals, Policies and Targets ..... C-1

Appendix D – 2014 RTP Performance Measure Analysis .....D-1

Appendix E – Funding Projections 2018-2040 ..... E-1

Appendix F – Project List ..... F-1

Appendix G – Escalated Project Costs.....G-1

Appendix H – Regional Transportation Plan Checklist ..... H-1

Appendix I – Resolutions .....I-1



# Figures

Figure 1.1 – Local Jurisdiction Annual Pavement Maintenance Budget versus Annual Need .....	1-3
Figure 1.2 – Santa Cruz County Bicycle and Pedestrian Injuries and Fatalities from 2007 through 2016.....	1-5
Figure 1.3 – Obesity Prevalence and Rates of Active Transportation in Countries of Europe, North America, and Australia .....	1-9
Figure 1.4 – Public Participation Procedures Based on State and Federal Laws .....	1-12
Figure 2.1 – Santa Cruz County Primary Transportation Network .....	2-3
Figure 2.2 – Average Pavement Condition for Local Jurisdictions .....	2-7
Figure 2.3 – Transit Service Provided by Santa Cruz Metropolitan Transit District (METRO).....	2-8
Figure 2.4 – Santa Cruz Branch Rail Line .....	2-11
Figure 2.5 – Regional Rail Network Surrounding Santa Cruz County .....	2-13
Figure 2.6 – Proposed California High Speed Rail Line.....	2-15
Figure 2.7 – Monterey Bay Sanctuary Scenic Trail Network Map.....	2-19
Figure 2.8 – Park and Ride Lots Serving Santa Cruz County .....	2-20
Figure 3.1 – Historical and Projected Santa Cruz County Population.....	3-1
Figure 3.2 – Population Data for Santa Cruz County by Jurisdiction .....	3-2
Figure 3.3 – 2010 Population Density Map .....	3-2
Figure 3.4 – Historical and Projected Number of Jobs in Santa Cruz County.....	3-3
Figure 3.5 – Unemployment Rates by Jurisdiction within Santa Cruz County .....	3-3
Figure 3.6 – Job Destinations in Santa Cruz County .....	3-4
Figure 3.7 – Commute Patterns .....	3-5
Figure 3.8 – Commute Patterns Into and Out of Santa Cruz County .....	3-6
Figure 3.9 – Average Daily Traffic Volumes at Most Traveled Segments on State Highways in Santa Cruz County .....	3-7
Figure 3.10 – Local ADT: Average Daily Traffic Volumes on Selected Local Roadways .....	3-8
Figure 3.11 – METRO Weekday School Year Average Ridership by Route.....	3-9
Figure 3.12 – Total Transit Ridership for Santa Cruz County Fixed Route Service .....	3-10
Figure 3.13 – 2015 Daily Truck Volumes on Highways in Santa Cruz County .....	3-12
Figure 3.14 – Mode Share for All Trips in California .....	3-14
Figure 3.15 – Mode Share for All Trips in Santa Cruz County .....	3-14
Figure 3.16 – Mode Share for Work Trips in Santa Cruz County.....	3-15

Figure 3.17 – Mode Share for Work Trips by City of Residence .....	3-16
Figure 3.18 – Countywide Bicycle Counts from 2003-2016 .....	3-16
Figure 3.19 – Minority, Low Income and Poverty Areas in Santa Cruz County.....	3-18
Figure 3.20 – Distribution of Senior and Youth Populations in Santa Cruz County.....	3-19
Figure 3.21 – Historical Trends in Licensed Drivers and Registered Vehicles in Santa Cruz County.....	3-19
Figure 3.22 – Population Projections for Seniors Age 70 and Over.....	3-20
Figure 4.1 – Goals of the 2040 Regional Transportation Plan.....	4-2
Figure 4.2 – Policies of the 2040 Regional Transportation Plan and Outcomes they Advance.....	4-4
Figure 4.3 – 2040 Regional Transportation Plan Performance Targets and Relationship to Triple Bottom Line.....	4-11
Figure 5.1 – 22-Year Revenue Forecast – \$3.75 Billion .....	5-2
Figure 5.2 – Major Transportation Revenues in California .....	5-3
Figure 5.3 – Funding Restrictions by project type.....	5-3
Figure 5.4 – Measure D Investment Categories.....	5-4
Figure 6.1 – Cost of Road Maintenance.....	6-7
Figure 6.2 – Fund Distribution by Mode (\$3.75 billion - Includes Dedicated and Discretionary Funds) .....	6-8
Figure 6.3 – Typical Stages of Transportation Project Development .....	6-10
Figure 7.1 – Daily Vehicle Miles Traveled (Total and Per Capita) .....	7-2
Figure 7.2 – Model Results of Santa Cruz County Daily Vehicle Miles Traveled (Total and Per Capita).....	7-3
Figure 7.3 – Historic and Target Santa Cruz County Greenhouse Gas Emissions from Transportation.....	7-4
Figure 7.4 – Total Modeled CO2 Emissions from Transportation in Santa Cruz County .....	7-5
Figure 7.5 – Percentage of Vehicle Miles Traveled from Electric Vehicles by Year Assumed in California Air Resources Board Emissions Factor Model (EMFAC2014).....	7-5
Figure 7.6 – 2016 CO2 lbs/capita/day based on fuel sales .....	7-6
Figure 7.7 – Santa Cruz County Commute Trips Mode Share .....	7-7
Figure 7.8 – Santa Cruz County Mode Share for All Trips .....	7-8
Figure 7.9 – Injury and Fatal Collisions – Motor Vehicle, Bicycle and Pedestrian.....	7-9
Figure 7.10 – 2005 to 2017 Pavement Condition Indices for Jurisdictions in Santa Cruz County .....	7-10
Figure 7.11 – Comparison of Santa Cruz County Pavement Condition Index with other California Counties.....	7-11
Figure 7.12 – Santa Cruz Metro Bus Condition.....	7-11



Figure 9.1 – Relationship of Transportation Planning Timeframe and Infrastructure Service Life to Increasing Climate Change Impacts .....	9-3
Figure A.1 – Public Outreach .....	A-4
Figure B.1 – Summary Information for the Regional Transportation Commission, Advisory Committees, and other related agencies .....	B-6
Figure D.1 – Reliability measures capture the benefits of traffic management.....	D-3
Figure D.2 – Summary of 2014 Project List Performance for Advancing Targets.....	D-14
Figure D.3 – Key Destinations in Santa Cruz County, the Maximum Travel Buffer and the 2035 Travel Buffer .....	D-16
Figure D.4 – Total 2010 (baseline) population within 30 minutes of key destinations based on existing bicycle, pedestrian and transit infrastructure.....	D-19
Figure D.5 – Total 2010 (baseline) aggregate population within 30 minutes of any key destinations based on existing transit, bicycle and pedestrian infrastructure .....	D-19
Figure D.6 – Total 2010 Maximum* Population within 30 Minutes of Key Destinations.....	D-20
Figure D.7 – Total 2010 Maximum* Aggregate Population within 30 Minute Walk and Bicycle Trips of Key Destinations.....	D-20
Figure D.8 – Population within 30 minutes of Key Destinations in 2035 based on 2014 RTP Project List .....	D-21
Figure D.9 – Aggregate Population within 30 Minutes of Key Destination in 2035, based on the 2014 RTP Project List.....	D-21
Figure D.10 – Walk and Bicycle Access Improvements Near Key Destinations for Total Population.....	D-22
Figure D.11 – CO <sub>2</sub> Emissions versus Average Vehicle Speed .....	D-24
Figure D.12 – Per Capita Reductions of Vehicle Miles Traveled and Greenhouse Gas Emissions for 2014 RTP relative to 2005 for Passenger Vehicles .....	D-25
Figure D.13 – Postprocessing Reductions of Vehicle Miles Traveled and Greenhouse Gas Emissions for 2014 RTP relative to 2005 .....	D-26
Figure D.14 – 2035 per capita VMT and GHG reductions compared to 2005 .....	D-26
Figure D.15 – Total 2035 VMT and GHG emissions relative to 2005 .....	D-30
Figure D.16 – Per Capita Vehicle Miles Traveled Versus Fuel Economy (mpg) Necessary to Reduce GHG Emissions by 80% from 1990 levels by 2050 .....	D-30
Figure D.17 – Economic Benefit to Santa Cruz County based on reduction in VMT and Fuel Consumption .....	D-32
Figure D.18 – Travel Time and Travel Time Reliability for Highway 1 Northbound from Watsonville (Hwy 129) to City of Santa Cruz (Ocean St) .....	D-34
Figure D.19 – Baseline Travel Time Reliability Results.....	D-35

Figure D.20 – The Study Area That Defines the Arterial Roads That Will Be Included in the Countywide Travel Time Reliability Calculation .....	D-36
Figure D.21 – 2035 Travel Time Reliability Results .....	D-37
Figure D.22 – 2035 No Project Travel Time Reliability Results .....	D-38
Figure D.23 – Pedestrian MMNQ Score.....	D-41
Figure D.24 – Pedestrian Network in Downtown Watsonville.....	D-41
Figure D.25 – 2012 Baseline of Pedestrian Network in Downtown Watsonville with MMNQ Score.....	D-42
Figure D.26 – 2035 Pedestrian Network in Downtown Watsonville and the MMNQ Score* .....	D-43
Figure D.27 – Watsonville Composite MMNQ Score.....	D-43
Figure D.28 – Bike Score: Bicycle MMNQ Score .....	D-44
Figure D.29 – Bicycle Network Identified for City of Watsonville.....	D-45
Figure D.30 – 2012 Baseline of Bicycle Network in City of Watsonville with MMNQ Score.....	D-46
Figure D.31 – 2035 Scenario of Bicycle Network in City of Watsonville with MMNQ Score* .....	D-47
Figure D.32 – Santa Cruz County Collision Data .....	D-50
Figure D.33 – 2008 and 2012 Pavement Condition Index Estimates for Counties in California .....	D-51
Figure D.34 – Pavement Deterioration Curve - Cost per Mile to Maintain Local Roads .....	D-52
Figure D.35 – 2012-2013 Pavement Condition Index for Jurisdictions in Santa Cruz County .....	D-53
Figure D.36 – Pavement Condition Index Relative to Level of Local Street and Road Maintenance Funding through 2035 ....	D-54
Figure D.37 – Transportation Disadvantaged Population within 30 Minutes of Key Destinations – Baseline Conditions .....	D-57
Figure D.38 – Total Transportation Disadvantaged Population within 30 Minutes of any Key Destination – Baseline Conditions .....	D-57
Figure D.39 – Minority and Transportation Disadvantaged Population within 30 Minutes of Key Destinations – Maximum Possible.....	D-58
Figure D.40 – Maximum Total Minority and Transportation Disadvantaged Population within 30 Minutes of any Key Destination .....	D-58
Figure D.41 – Transportation Disadvantaged Population within 30 Minutes of Key Destinations based on 2014 RTP Project List .....	D-59
Figure D.42 – Total Transportation Disadvantaged Population within 30 Minutes of any Key Destination based on 2014 RTP Project List .....	D-60
Figure D.43 – Walk and Bicycle Access Improvements near Key Destinations for Transportation Disadvantaged Population .	D-60

