

Rob Etter

Caltrans District 5 Bicycle Facility Inventory on SR 1



## **Table of Contents**

Acknowledgments	3
Introduction	3
Bicycle and Pedestrian Contacts List	7
Bicycle and Pedestrian Plans List	12
SR 192 Case Study	15
SR 1 Bicycle Facility Inventory	19
Works Cited	33
Appendix	34

## **Acknowledgements**

This project has been an extremely valuable for my internship at Caltrans District 5 and educational experience as it allowed me to improve my GIS and bicycle planning skills. The project also serves Caltrans in preparation for the District 5 Active Transportation Plan the following year. This project allows Caltrans to have a more developed bicycle GIS layer and bicycle and pedestrian contact and plan list. The project has already served District 5 employees doing Transportation Planning Scoping Information Sheets (TPSIS) by allowing them to have more information on existing bicycle and pedestrian infrastructure in the area. Transportation Planning Scoping Information Sheets are done for Caltrans projects on the State Highway System (SHS). TPSIS examine these projects to see if any bicyclist or pedestrian improvements can be made with the project as well. Finally, a big thank you to Melissa Streder, Kelly McClendon, Dario Moreno, and Adrienne Greve. Melissa is District 5's Bicycle and Pedestrian Coordinator and Kelly is a Senior Transportation Planner. Melissa and Kelly served as my internship supervisors at Caltrans District 5. I proposed doing a senior project focusing on bicycle and pedestrian in August of 2017 and they were both instrumental in helping me set up and organize the project, create a reasonable project workload, make adjustments during the project, and both were highly supportive of the project and me throughout the entire process. Dario is District 5's GIS Coordinator and throughout the project he helped to advise me on being compliant with District 5's current GIS methodology and structure. Dario also helped me create the State Route 1 (SR 1) Bikeways shapefile and later he helped me format it. Adrienne Greve is an Associate Professor in Cal Poly's City and Regional department and she served as my academic advisor. Adrienne has helped to make sure my project met the criteria necessary for a senior project. She also met with me throughout the project to make sure I was on track and provided countless edits and feedback to help me improve my project.

## **Introduction**

### **1.How project started**

Caltrans District 5 is made up of San Luis Obispo, Santa Barbara, San Benito, Monterey, and Santa Cruz counties. District 5's transportation division office is located in the city of San Luis Obispo. District 5 is famous for its amazing coastal and inland scenery, and the bicycle access available to residents to enjoy the scenery.

In July of 2017, I asked Melissa Streder if Caltrans had records for the classification of bikeways existing on the State Highway System (SHS). This gave the inspiration for this project as currently the Caltrans bikeways Geographic Information Systems (GIS) layers show whether portions of the SHS are Open or Prohibited for bicycling, but they do not show the classification of the bikeway facility. GIS is an interactive mapping tool utilized by Caltrans to display, store,

process, and analyze information and data relating to the SHS and nearby areas. This information and data are very useful in better writing various Caltrans documents. This is also be instrumental in supporting planning for complete streets to improve bicyclist facilities on the SHS, improve street accessibility for all users on main streets which are part of the SHS, and lower GHG's. This is especially important along SR 1 in District 5 as it is a highly popular bicycling facility for tourists and covers large segments of the California Coastal Trail (Caltrans District 5, 2017, pg. 14).

Within District 5, many Caltrans highways serve as main streets for cities, and five cities have SR 1 as a main street. Between the bicycling and walking infrastructure in District 5, and the many government organizations (cities, counties, and transportation agencies), there are many GIS layers existing. But, these bicycle layers are not always comprehensive or accurate. There is not always coordination between various levels of government when creating these layers. There also appears to be an overall lack of pedestrian facility GIS data available. I worked with Caltrans District 5 from August 2017-May 2018 on a complete streets (CS) project to help enhance complete streets (CS) data and the planning process pertaining to the state highway system (SHS). The focus of this project is verifying bicycle infrastructure on SR 1 through the creation of an existing and proposed bicycle GIS layer.

In collaboration with Kelly McClendon and Melissa Streder, a three-part project was devised lasting about a little under a year in length.

## 2.How project evolved

When the project started the objective was to complete all state highways in District 5. SR 192, because of its relatively small size was chosen as the first state highway in District 5 to test mapping methods as well as create a method for classifying bicycle infrastructure. After the SR 192 test, the scope of work was trimmed down to completing SR 1 on top of SR 192 due to time constraints.

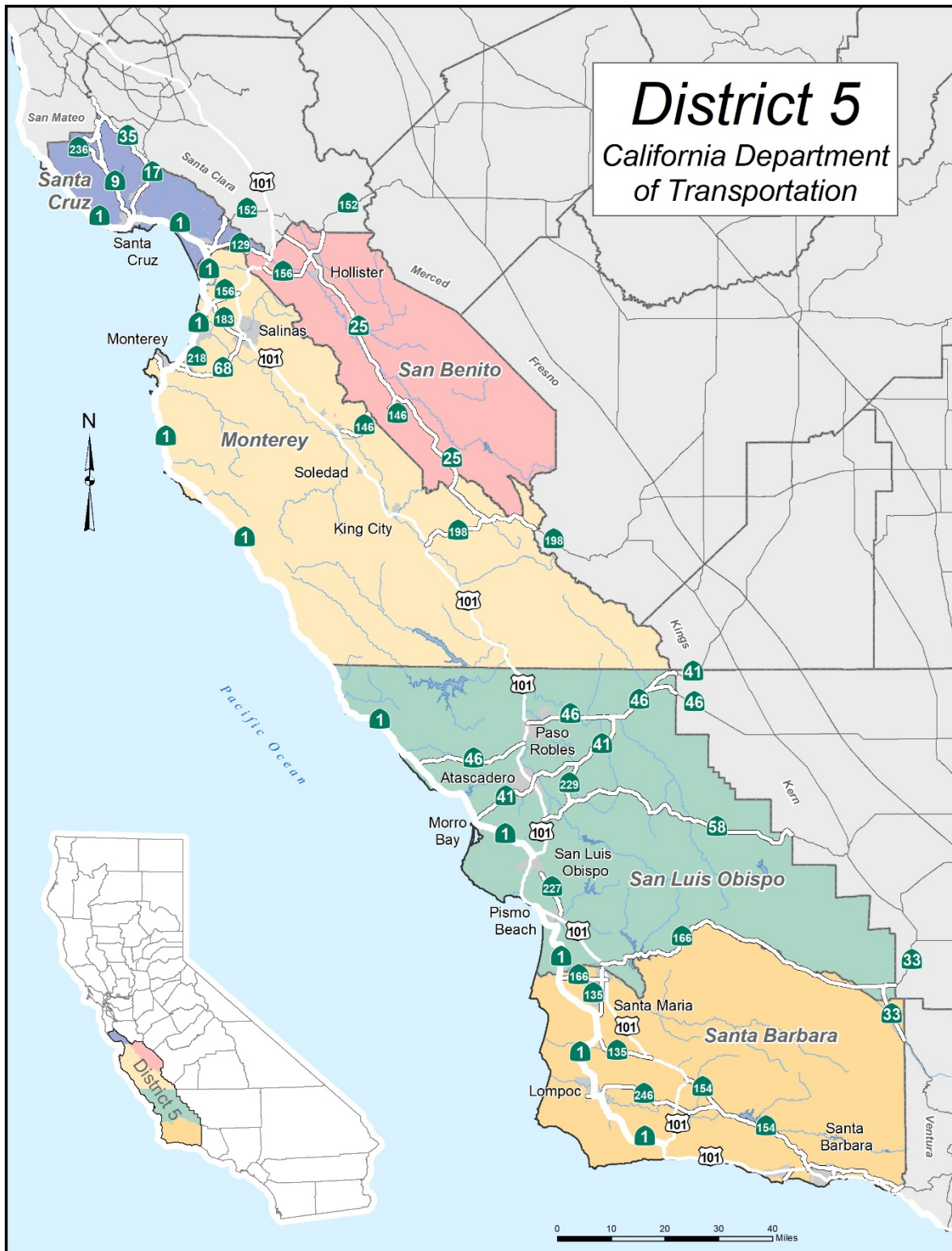


Figure 1: Map of SR 1 in District 5 limits in relation to the state of California with each county in District 5 highlighted

The project has three overarching goals:

- #1: to enhance Caltrans bicycle and pedestrian data;
- #2: to integrate local and regional bicycle and pedestrian data into the state planning process;
- #3: to analyze opportunities for Caltrans to better plan for and implement complete streets into its transportation planning process.

Additionally, this project helps to identify the bicycle and pedestrian needs in District 5 and include an assessment method to evaluate complete streets.

The developed classification assessment method helps to identify the bicycle and pedestrian needs in addition to cyclist/pedestrian areas, their condition, and other necessary considerations about them. The assessment method is based upon academic studies, peer reviewed research, and Caltrans policies and guidelines. This project also involves analyzing all current bicycle GIS data from Caltrans and various levels of government, and then creating a more comprehensive bicycle classification GIS layer for the SHS within District 5. These bicycle or potential bicycle facilities are classified in one of six ways: Class I, Class II, Class III, Class IV, Open No Designation, and Prohibited. District 5 highway locations that serve as main streets were also be analyzed in the District 5 Active Transportation Plan for pedestrian facility data and used to create a GIS layer that identifies sidewalks and gaps in connection within mainstreet corridors.

Overall Project Objectives:

The project is broken into four different phases: Literary Review/Plan Synthesis, Data Collection/Processing, Complete Streets District Assessment and Improvements, and the Final Report. Finally, this document serves as a good base and precursor to the D5 Complete Streets plan which is set to start upon completion of this project. It is the intent that the assessment method created in this project can be used in the complete streets plan, and the addition of biking and pedestrian data can support future complete streets needs analysis on the SHS.

#### 1. Plan Review:

The aim of Plan review was to overall have a better understanding of the existing bicycle and pedestrian contacts in District 5 as well as the existing and proposed bicycle plans. Because of the relatively large size of District 5, it's important District 5 has this information to best understand each of the sub-regions inside of it. These tasks organize all of the contacts and plans found so best understanding each of these sub-regions is possible.

- a. Task 1.1: Review and update District 5 bicycle and pedestrian contact list and check for any updates in the past few months since the list was last updated. This phase consists of reviewing the existing District 5 bicycle and pedestrian contact list, and any updates necessary were made. Local and Regional bicycle and

pedestrian plans were examined and an excel list identifying bicycle recommendations for the SHS was created.

- b. Task 1.2: Analysis of existing local and regional bicycle and pedestrian plan recommendations for the State Highway System(SHS).
  - c. Task 1.3: Technical Memo # summarized the key findings and outcomes of task 1.1 and 1.2.
2. Data Collection and Processing:
- a. Task 2.1: Collect and Georeference bicycle classification data for all SHS routes in D5.
  - b. Task 2.2: Merge existing and planned bicycle data into GIS layers. Once bicycle and pedestrian data and GIS layers are compiled and GIS layers are verified, they are merged into new GIS layers in the Caltrans database.
  - c. Task 2.3: Technical Memo #2 summarized key findings and outcomes of tasks 2.1 and 2.2.

The second phase consists of collecting and georeferencing bicycle classification data for all SHS routes in D5 and pedestrian facility data for SHS mainstreet corridors in D5. This compilation creates a more comprehensive bicycle and pedestrian infrastructure inventory.

1. Complete Streets District Assessment and Implementation
  - a. Task 3.1: Evaluate potential for improving existing Caltrans planning processes that involve complete streets and identify opportunities to improve upon or create new processes.
  - b. Task 3.2: Technical Memo #3: This memo identifies key findings and outcomes of task 3.1 and 3.2.

The final phase is about the creation of new GIS layers and the identification of potential bicycle and pedestrian improvements which could be made in D5. To identify areas for these improvements the GIS map shows areas on SR 1 where bicycle access is prohibited.

### **Bicycle contacts list**

When compiling a list of bicycle and pedestrian contacts for District 5, a previous list exists but needs to be updated. This list included all bicycle and pedestrian contacts, and related contacts for counties, cities, advocacy organizations, and cyclist groups within District 5, and Caltrans Headquarters and state advocacy organizations. Some organizations on the list have multiple contacts because of the scope of their work. To update the existing list all current contacts are reviewed and updated as necessary. If an incorporated city is missing from the list it is added and contact is designated for it. Contacts are also periodically added or updated over

time as necessary. A full list of all of the contacts is available below in Table 1. Finally, this list is important to have because it provides Caltrans District 5 employees with an easy reference to find bicycle and pedestrian contacts outside of Caltrans, but within District 5. The bicycle and pedestrian contact list is also be very useful during the 2018-2019 year while Caltrans District 5 creates an Active Transportation plan and needs to contact stakeholders for meetings and outreach events.

Table 1: This table contains all known bicycle and pedestrian contacts within District 5

<b>Organization</b>	<b>Name</b>
<b>Santa Barbara County</b>	
SBCAG	Mike Becker
SBCAG-Traffic Solutions	Kent Epperson
City of Santa Barbara	Dan Gullett
City of Santa Barbara	Rob Dayton
Fgu	Kent Epperson
Santa Barbara Bicycle Coalition	Ed France
Coalition for Sustainable Transport (COAST)	Eva Inbar
Santa Barbara County	Matt Dobberteen
City of Buellton	Andrea Olson Keefer
City of Carpintera	Paul Mede
City of Carpintera	Nick Bobroff
City of Guadalupe	Cruz Ramos
City of Lompoc	Michael Luther
City of Santa Maria	Neda Zayer
City of Santa Maria	Bill Scott
City of Solvang	Brynda Messer
Tailwinds Bicycle Club	Ken Dally
UCSB Cycling Club	Garrison Carter
Bike Santa Barbara County	Ralph Fertig
Echelon Cycling Club	Bill Sargent



Santa Barbara Car Free	
Colvento Cycling	Bob Albrecht
Lompoc Valley Bicycle Club	Al Olsen
Santa Barbara Cyclists & Goleta Valley Cycling Club	Doris Phinney
Santa Barbara Trails Council	Mark Wilkinson
<b>San Luis Obispo County</b>	
SLOCOG	James Worthley
SLOCOG	John Dinunzio
Rideshare (part of SLOCOG)	Stefanie Hicks
SLO County	Michelle Matson
SLO County	Shaun Cooper
SLO County	Dave Flynn
SLO County	Jeremy Ghent
SLO County Bicycle Advisory Committee	Michelle Matson
SLO County APCD	Andy Mutziger
SLO RTA	Geoff Straw
SLO RTA	Omar McPherson
City of SLO	Adam Fukushima
SLO City Mass Transportation Committee	Gamaliel Anguiano
SLO City Bicycle Advisory Committee (BAC)	Adam Fukushima
Bike SLO County (formerly SLO Bicycle Coalition)	Mike Bennett
Bike SLO County (formerly SLO Bicycle Coalition)	Robert Davis
San Luis Obispo Bicycling Advocates(SLOBA)	Lea Brooks
SLO Bike Club	Dale Sutliff
Bob Jones Trail Committee	Helene Finger
City of Arroyo Grande	Matt Downing
City of Atascadero	Nick DeBar
City of Grover Beach	Greg Ray
City of Morro Bay	Janeen Burlingame
City of Morro Bay	Rob Livick

Morro Bay Citizen's Bike Committee	Andrew Esau
Morro Bay Citizen's Bike Committee	Robert "Red" Davis
City of Paso Robles	Ditas Esperanza
City of Pismo Beach	Ben Fine
Cal Poly Cycling	Sean Bird
Templeton Active Seniors Committee	Emily Watje
SLO Nexus	
SLO Car Free	
Cal Poly Wheelmen	Tyler Mastromattei
<b>Monterey County</b>	
TAMC	Virginia Murillo
TAMC	Ariana Green
Monterey County	
City of Marina	Brian McMinn
City of Monterey	Andrea Renny
City of Salinas	James Serrano
City of Seaside	Rick Medina
Velo Club Monterey	
Bicycling Monterey	Mari Lynch
<b>Santa Cruz County</b>	
SCCRTC	Cory Caletti
Santa Cruz County	
Santa Cruz County	
Santa Cruz County	
Bike Santa Cruz County (formerly People Power)	Janneke Strause
Ecology Action	Piet Canin
City of Santa Cruz	Cheryl Schmitt
Bike Light Foundation	Peter Weng
Bike Santa Cruz	Janneke Strause
Cabrillo Bike Co-op	N/A
Community Traffic Safety Coalition	Leo Jed

Cyclists for Cultural Exchange	N/A
Ecology Action	Jeanne Lepage
El Bike Shack Watsonville	N/A
Green Ways to School	Tawn O. Kennedy
Mountain Bikers of Santa Cruz	John Leckrone
Move by Bikes	N/A
Open Streets Santa Cruz County	N/A
Project Bike Trip	N/A
Ride n' Stride Bicycle and Pedestrian Education Program	Kithy Chavez
Santa Cruz AIDS Ride	N/A
	<b>Catherine vanRhee</b>
Santa Cruz County Cycling Club	<b>Piet Canin</b>
Santa Cruz County Friends of the Rail & Trail	<b>Cory Caletti</b>
SCCRTC Bicycle Advisory Committee	N/A
Scotts Valley Educational Foundation	N/A
South County Bicycle and Pedestrian Work Group	Theresia Rogerson
The Bike Church	N/A
Trips for Kids Santa Cruz	John Fuchs
UCSC Bike Co-op	N/A
UCSC Transportation and Parking Services	Larry Pageler
City of Santa Cruz	TBD-Public Works
City of Santa Cruz	Claire Fliesler
Mission Pedestrian	Debbie Bulger
SCCRTC Elderly & Disabled Advisory Committee	Grace Blakeslee
City of Capitola	Ryan Safty
City of Scotts Valley	Majid Yamin
City of Watsonville	Steve Palmisano
UC Santa Cruz Cycling	
Santa Cruz Valley Bicycle Advocate Committee	Bill Adamson
<b>San Benito County</b>	
SBtCOG	Mary Gilbert
SBtCOG	Veronica Lezama
City of Hollister	Danny Hillstock
City of Hollister	Bryan Swanson
City of Hollister	Mary Paxton
San Benito County	James Polfer
San Benito County	Shandell Clark
Jovenes de Antano (San Benito County group that works of behalf of the elderly and disadvantaged)	Pauline Valdivia
City of San Juan Bautista	Roger Grimsley
AMBAG	Sasha Tepedelenova

AMBAG	Heather Adamson
San Benito RideShare	
<b>Caltrans HQ</b>	
Caltrans HQ Bicycle Facilities Unit	Paul Moore
Caltrans HQ Sustainable Community Planning	Ann Mahaney
Caltrans HQ	Dustin Foster
<b>State Government and Advocacy Organizations</b>	
California Bicycle Coalition	Dave Snyder
Adventure Cycling	Jennifer Milyko
Adventure Cycling	Laura Crawford
Cycle California Coast	Steve Bennett
California Coastal Commission	Tammy Grove
California Walks	Tony Dang
Amgen	
Aids/Life Cycle	

### **Bicycle and Pedestrian Plans list**

To create a list of plans documenting existing bicycle and pedestrian facilities, and proposed bicycle and pedestrian facilities an excel file is created. The excel file is organized by the five District 5 counties (Santa Barbara, San Luis Obispo, Monterey, San Benito, and Santa Cruz), Caltrans Headquarters, and State Advocacy Organizations. The plans are found by searching for other documents related to MPO's, Counties, Cities, and Advocacy Groups. For the plans to make the list they have to document existing or proposed bicycle and pedestrian infrastructure that is on the SHS or that come into contact with the SHS. In total there are 68 plans within the District 5 limits that met these requirements, and these are shown below in Table 2.

Table 2: This table contains all known bicycle and pedestrian plans within District 5

<b>Organization</b>	<b>Plan Name</b>
<b>County of Santa Barbara</b>	
SBCAG	Regional Active Transportation Plan
Santa Barbara County	County of Santa Barbara Draft Bicycle Master Plan
Santa Barbara	Bicycle Master Plan Santa Barbara
Santa Barbara	City of Santa Barbara Pedestrian Master Plan
Santa Maria	Santa Maria Bikeway Master Plan
Guadalupe	City of Guadalupe Bicycle & Pedestrian Master Plan
Lompoc	City of Lompoc Bicycle Transportation Plan
Goleta	2005 Interim Bicycle Transportation Plan City of Goleta
Buellton	The City of Buellton Bicycle and Pedestrian Master Plan Final
Buellton	The City of Buellton Safe Routes to School Plan Draft

County/City of Santa Barbara	Mission Park to Mission Canyon Multimodal Improvements Plan
Los Alamos	Los Alamos Pedestrian Circulation and Parking Plan
Carpinteria	City of Carpinteria California Bicycle Master Plan
Santa Ynez Valley	Santa Ynez Community Plan
Summerland	Summerland Community Plan
Toro Canyon	Toro Canyon Plan
Mission Canyon	Mission Canyon Community Plan
<b>County of San Luis Obispo</b>	
SLOCOG	Active Transportation Partnership Program Safe Routes to School
SLOCOG	Regional Transportation Plan/Sustainable Communities Strategy Connecting Communities
SLOCOG	US 101 Corridor Mobility Master Plan
San Luis Obispo County	2015/2016 County Bikeways Plan
San Luis Obispo	City of San Luis Obispo Bicycle Transportation Plan
San Luis Obispo	City of San Luis Obispo Bob Jones Pathway Octagon Barn Connection Study
Cal Poly	University Area Multi-Modal Access Plan
Bishops Peak and Pacheco Elementary Schools	Safe Routes to School Plan Bishops Peak and Pacheco Elementary Schools
Paso Robles	Bike Master Plan City of El Paso de Robles
Arroyo Grande	City of Arroyo Grande Bicycle & Trails Master Plan 2012
Morro Bay	2011 Morro Bay Bicycle and Pedestrian Master Plan
Pismo Beach	Pismo Beach Complete Street Plan
Pismo Beach	Pismo Beach Bicycle and Pedestrian Master Plan
Atascadero	Atascadero Bicycle Transportation Plan
Grover Beach	City of Grover Beach Bicycle Master Plan
Northern SLO County	Northern SLO County Coastal Trail Master Plan
Paso Robles	City of Paso Robles' Creston Road Complete and Sustainable Streets Corridor Plan
Atascadero	City of Atascadero's 2016 SR 41 Complete Streets Plan
Arroyo Grande	City of Arroyo Grande's Halcyon Complete Streets Plan
San Luis Obispo County	County of SLO's 2013 Oceano Community Revitalization
SLOCOG	SLOCOG's 2017 Park & Ride Lot Study
SLO County	Oceano Revitalization Plan
SLOCOG	Edna-Price Canyon Trail Feasibility Study
SLOCOG	Chorro Valley Trail Study for Web
<b>Monterey County</b>	
AMBAG	
TAMC	Pacific Grove Highway 68 Study

TAMC	Active Transportation Plan Draft
TAMC	2011 Bicycle and Pedestrian Master Plan
Monterey	Monterey on the Move: multi-modal mobility plan for the City of Monterey
CSU Monterey	Campus Master Plan 2016: Chapter 7-Mobility
Salinas	Salinas Bikeways Plan
Salinas	City of Salinas Pedestrian Plan
Salinas	Final Report for Marina-Salinas Multimodal Corridor Conceptual Plan
Marina	City of Marina Pedestrian and Bicycle Master Plan
<b>Santa Cruz County</b>	
SCCRTC	Santa Cruz County Bicycle Plan
SCCRTC	SCCRTC 2014 RTC Regional Plan
SCCRTC	Monterey Bay Sanctuary Scenic Trail Network Master Plan
SCCRTC	SCCRTC 2040 RTC Regional Plan
SCCRTC	Santa Cruz County Bicycle Route Signage Program 2015 IMPLEMENTATION PLAN
Sustainable Santa Cruz County	Sustainable Santa Cruz County Plan: Chapter 5 Transportation
Santa Cruz	City of Santa Cruz Bicycle Transportation Plan 2008
Santa Cruz	City of Santa Cruz Active Transportation Plan
Capitola	City of Capitola Bicycle Transportation Plan
Scott's Valley	City of Scott's Valley Bicycle Transportation Plan
Watsonville	City of Watsonville Trails & Bicycle Master Plan for the Watsonville Scenic Trails Network
Santa Cruz City School	Santa Cruz City Schools Complete Streets Master Plan
San Lorenzo Valley	Highway 9- San Lorenzo Valley Complete Streets Plan
SCCRTC	Highway 1 Mar Vista Bicycle/Pedestrian Overcrossing
City of Santa Cruz	Santa Cruz City Schools Complete Streets Master Plan: School Overview and Recommendations: Bay View Elementary
City of Santa Cruz	Santa Cruz City Schools Complete Streets Master Plan: School Overview and Recommendations Mission Hill Middle School
<b>San Benito County</b>	
San Benito County/COG	San Benito County Bikeway and Pedestrian Master Plan
Hollister	Complete Streets plan for Nash/Tres Pinos/Sunnyslope Roads a McCray Street
<b>Caltrans HQ</b>	
	Toward an Active California State Bicycle+Pedestrian Plan
<b>State Advocacy Organizations</b>	
California Coastal Trail	California Coastal Trail

## **SR 192 Case Study**

SR 192 was chosen a case study for the project methods because it is a relatively short state highway which starts and ends inside of District 5. SR 192 was analyzed for its existing bicycle infrastructure, as well as all proposed bicycle infrastructure. To create a universal process to classify bikeways on the Caltrans District 5 a rule convention is used. SR 192 was used in the creation of the four -step classification process.

### **Section 1: Rules**

To classify routes on the State Highway System (SHS), four steps were followed:

1. Choose routes in order going from South to North and West to East. This follows the orientation of the Caltrans Postmile system. Postmiles are a way to keep track of highway distance data and special locations on the SHS as, “Caltrans uses a postmiling system to track highway mileage and to identify unique locations along our State Highway System” (Caltrans, 2012, pg. 1).
2. Classify each bikeway segment by giving it one of the six bikeway classifications; Class I, Class II, Class III, Class IV, No Designation, or Prohibited. These classifications are explained in figure 2 below which describes each classification in relation to the SHS. Caltrans Postmiles from the Highway Log, GIS layer, online D5 bicycle GIS map, Transportation Concept Reports (TCR’s), and other previous Caltrans transportation planning documents make it possible to track these classified segments. Postmiles are specifically designated geographic points created by Caltrans which are used to maintain special points along the SHS. Because they are uniquely created they are not equal to in length to a normal mile.



Figure 2: District 4 Bikeway Classifications of Class I-IV Bikeways to follow for the SHS [Caltrans District 4: A Guide to Bikeway Classification]

3. Check for any proposed Caltrans bicycle routes that may alter the previous step. Any Caltrans documents which have recommendations for proposed future bicycle routes on the SHS were analyzed and compared with existing facilities and noted to allow a proposed bicycle facility GIS layer can be created.

4. Check for any other proposed bicycle routes that come into Caltrans jurisdiction and verify them. This consists of examining other regional transportation planning documents which propose bicycle facilities that could pertain to the SHS.

Adjacent Class I bicycle facilities that aren't part of the SHS are not included in this project. They can be considered an alternative facility to the SHS and will be further analyzed as part of the future District 5 Bicycle and Pedestrian Plan effort.

## Section 2: Applying the Rules to SR 192 Case Study

Step 1). SR 192 was selected for case study.



Step 2). SR 192 starts in the middle of the County of Santa Barbara where it branches off from SR 150 and then runs North until it turns in SR 154 near the northern city limits of the City of Santa Barbara. As described by Caltrans SR 192 TCR, SR 192 is 21 total miles and serves mainly local and commuter traffic. There are no bicycle restrictions throughout the entire route.

*SR 192 Existing Automobile Segments and Postmiles:*

Caltrans had just two segments on SR 192, and they are listed below. These segments are structured for automobiles, not bikeways.

Segment 1 (PM: R0.019 to 4.15)

Segment 2 (PM: 4.15 to 21.07)

These postmiles and segments provide geographic references for different portions of 192. This helps to provide context for people who are doing work on SR 192 and aren't familiar with it.

*SR 192 Existing Bikeways Segments and Postmiles:*

County of Santa Barbara

These segments are different than the existing two automobile segments as they were updated to be structured for bikeways. Rather than following the existing automobile segments, these three segments are each defined by the bikeway classification that occurs on them.

Segment 1 (PM: R0.019-8.3 No Designation)

Segment 2 (PM: 8.3-8.8 Class III)

Segment 3 (PM: 8.8-21.07 No Designation)

*SR 192 Proposed Bikeways Segments and Postmiles:*

County of Santa Barbara

Segment 1 (R0.019-3.5 Class II)

Segment 2 (3.5-4.15 No Designation)

Segment 3 (4.15-6.0 No Designation)

Segment 4 (6.0-10.7 Class II)

Segment 5 (10.7-15.8 No Designation)

Segment 6 (15.8-17.0 Class III)

Segment 7 (17.0-17.8 Class II)

Segment 8 (17.8-21.07 Class III)

Step 3). Caltrans recognizes that SR 192 is open to bicycles and identifies existing and proposed bicycle route designations from local and regional plans in the SR 192 Transportation Concept Report (TCR). These include: the SBCAG Regional Active Transportation Plan (2015), the Santa Barbara County Bicycle Master Plan (2012), City of Santa Barbara Bicycle Master Plan (2016), and the City of Carpinteria Bicycle Master Plan (2013).

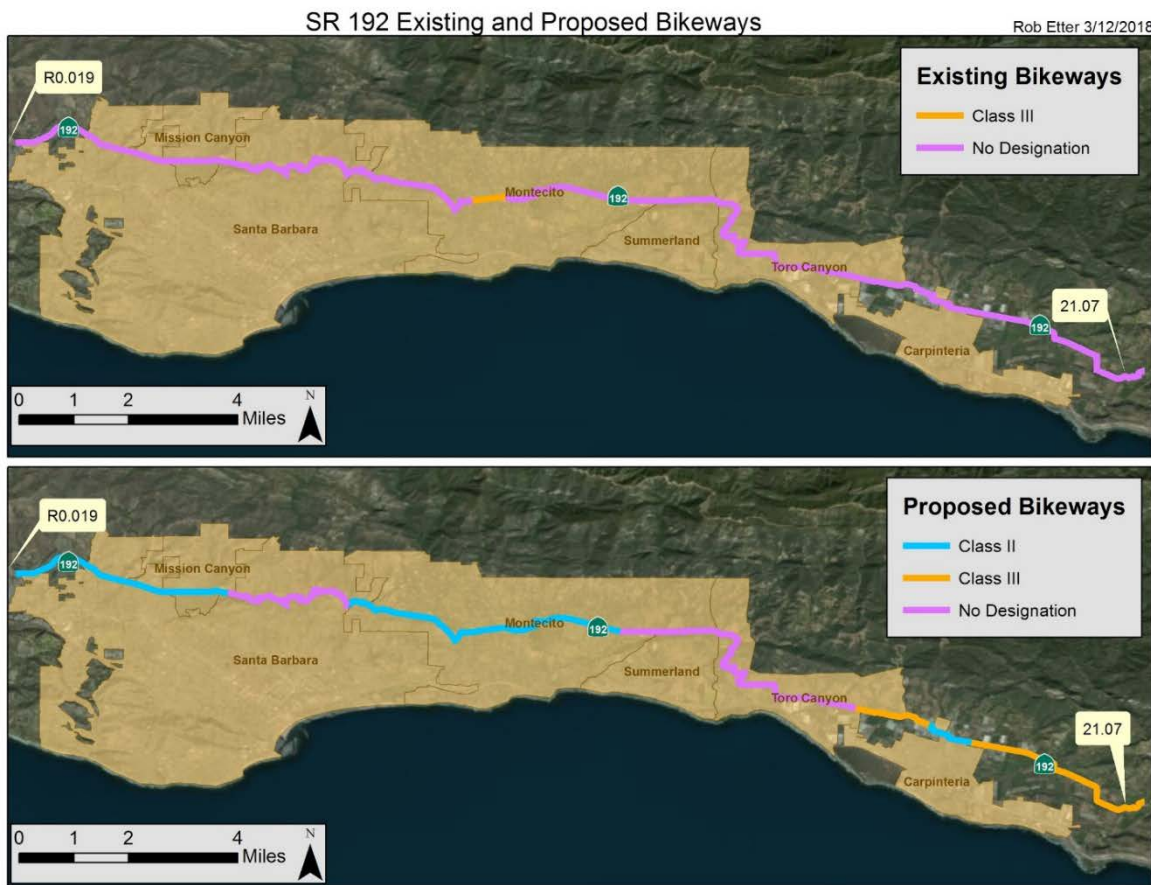


Figure 3: Existing and proposed bikeways on SR 192

Step 4). In addition to the SR 192 Transportation Concept Report (TCR), and the SBCAG Regional Active Transportation Plan, the Santa Barbara County Bicycle Master Plan, The City of Santa Barbara Bicycle Master Plan, and the City of Carpinteria Bicycle Master Plan identified in Step 3, other plans with recommendations for SR 192 that weren't previously found were searched for in Step 4. These plans consisted of local and regional plans from the following entities: SBCAG, SB County, Santa Barbara, Carpinteria, Summerland, Toro Canyon, and Mission Canyon.

## **SR 1**

SR 1 is a major route not only in District 5, but in the West Coast. SR 1 is a designated scenic route because of its proximity to the Pacific Ocean and the many other destinations and attractions located on it. SR 1 also serves as a mainstreet for five cities in District 5. These cities are Lompoc, Guadalupe, Oceano, San Luis Obispo, and Santa Cruz. To have a better understanding of the SR 1 mainstreet portions of these cities', a site visit was taken for all cities except for Santa Cruz. In each city, the existing bicycle and pedestrian infrastructure was closely observed. Figures 4, 5, & 6 show SR 1 in San Luis Obispo while Figure 7 shows it along SR 1 in Guadalupe.



Figure 4: Class II Bikeway on SR 1 in San Luis Obispo



Figure 5: Crosswalk on SR 1 in San Luis Obispo



Figure 6: Class II bikeway painted in green to standout on SR 1 in San Luis Obispo



Figure 7: Class II bikeway and marked ladder crosswalk in Guadalupe

The primary goal of the project is to classify the bikeways on SR 1. Bikeways refer to the class of bicycle infrastructure available on any given portion of SR 1. As previously described, bikeways can be Class I-IV, No Designation (Open), or Prohibited. The end product for classifying bikeways is a GIS shapefile. A shapefile is a way to display data in the form of a line, point, or polygon in software designed to display and analyze spatial data (e.g. GIS). This data is stored in an attribute table, which is a table with user inputted categories storing the information necessary to create a shapefile. The shapefile does not necessarily represent all of the data in an attribute table as select information can be queried out. Being queried out means data is specifically selected to be displayed and the other data is not visible, but remains in the attribute table.

The creation of the SR 1 bikeways shapefile lasted about eight months. The first step in creating the shapefile is to make an Excel document. GIS has the capability to import Excel files and feed them into an attribute table. Once an attribute table is populated, it is then relatively simple to use this data to create a shapefile. The Excel document used to create the SR 1 shapefile has

16 fields (categories). These fields were purposely identified to follow established Caltrans shapefile attribute table fields format. Other fields with important information or characteristics about the shapefile were added as necessary. In the case of the SR 1 shapefile, the fields are Route, Route Length, City, County, Segment, bPM, ePM, Existing LA Classification, Existing RA Classification, LA Proposed Classification, RA Proposed Classification, Plan Source, Plan Date, Plan Agency, and Proposed Change. These fields are further described in Table 1 3 on page 14. Criteria necessary are critical for making an Excel document compatible for import to GIS, such as the Excel file having ten characters or less and no spaces (an underscore is used instead of a space).

Table 3: GIS attribute table fields, fields defined and, fields corrected for GIS compatibility

<b>Field</b>	<b>Explanation/Description</b>	<b>GIS Field Name</b>
Route	SHS route number	Rte
Route Length	Length of the route	RtLength
City	City in which the route goes through	City
County	County in which the route goes through	CO
Segment	Segment of the route as referenced to in TCR	Segment
bPM	Beginning road marker limit	bPM
ePM	End of the road marker limit	ePM
Existing LA Classification	Existing left side classification of the SHS	EClass_Lt
Existing RA Classification	Existing right side classification of the SHS	EClass_Rt
LA Proposed Classification	Proposed left side classification of the SHS	PClass_Lt



RA Proposed Classification	Proposed right side classification of the SHS	PClass_Rt
Plan Source	The name of the most current plan that provided data	Plan_Source
Plan Date	Date of plan that provided data	Plan_Date
Plan Agency	Agency of plan that provided data	Plan_Agency
Proposed Change	Comment if yes	PChange

Table 3: GIS attribute table fields, fields defined and, fields corrected for GIS compatibility [Fields are abbreviated under the GIS Field Name column]

The information used to fill these fields was collected by analyzing all planning documents within the boundaries of the five District 5 counties that have bicycle recommendations for the California State Highway System. If there were limited recommendations or more information was needed, agencies were personally contacted with questions about the classification of SR 1 bikeways in their jurisdiction. A list of all these 68 planning documents was created as part of a separate task for Caltrans. Specific recommendations for SR 1 bikeways in these plans were sorted to create the SR 1 bikeways Excel table. Other sources of information for the SR 1 bikeways Excel table came internally from Caltrans and were the Caltrans District 5 online bike GIS map and the District 5 Postmile Log.

Once the SR 1 bikeways Excel table was completed and formatted properly so GIS could read it, the shapefile could be made. In total, 46 segments were identified in the final SR 1 bikeways Excel table. Because all of these segments are combined, the City, County, BPM, and ePM fields serve as a way to delineate segments. The SR 1 bikeways Excel table is converted into a DBF file so it is readable by GIS, and the Excel table was imported into GIS.

Caltrans is able to read the Postmile field in the Excel Table to create a shapefile based upon with their unique Postmile Reader tool. This process results in the creation of a line shapefile which displays SR 1 in its entirety from Santa Barbara to Santa Cruz Counties. Once the shapefile is created and the symbology is updated to display all 46 segments, the final five proposed maps need to be created. Figures 8, 9, 10, 11 show the final SR 1 existing and proposed bikeways maps. The maps are divided between the southern and northern counties in District 5 as Santa Barbara and San Luis Obispo are together and Monterey, San Benito, and

Santa Cruz are together. Each existing and proposed segment is shown below in detail and divided by its respective county.

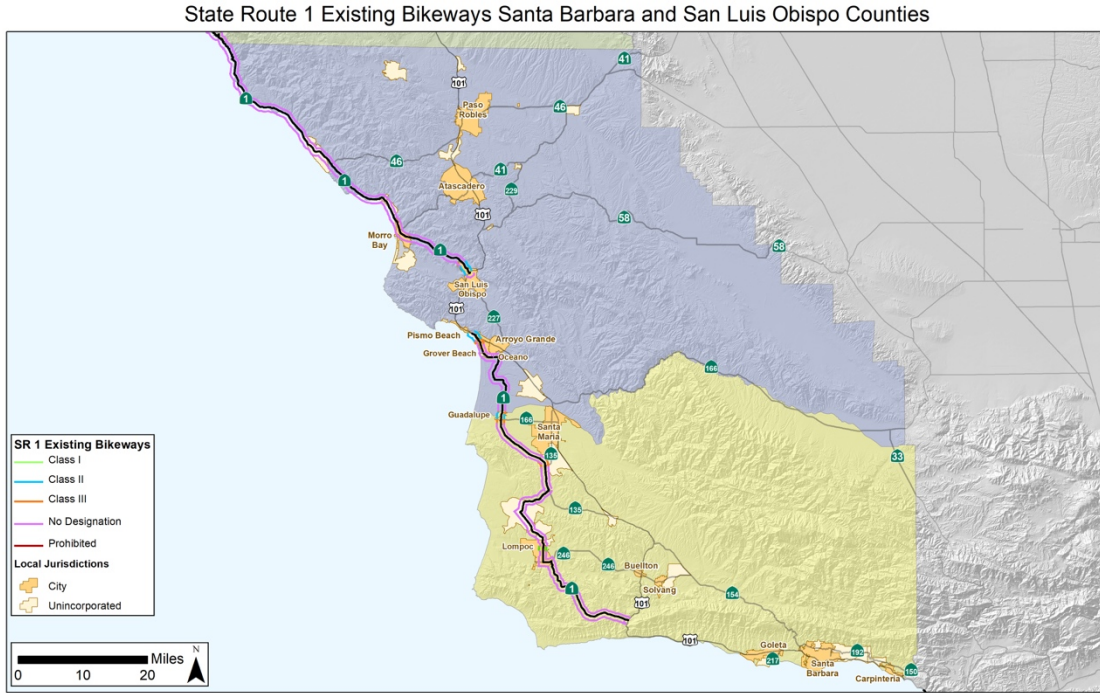


Figure 8: Existing Bikeways County of Santa Barbara and County of San Luis Obispo

State Route 1 Proposed Bikeways Santa Barbara and San Luis Obispo Counties



Figure 9: Proposed Bikeways County of Santa Barbara and County of San Luis Obispo

State Route 1 Existing Bikeways Monterey, Santa Cruz, and San Benito Counties

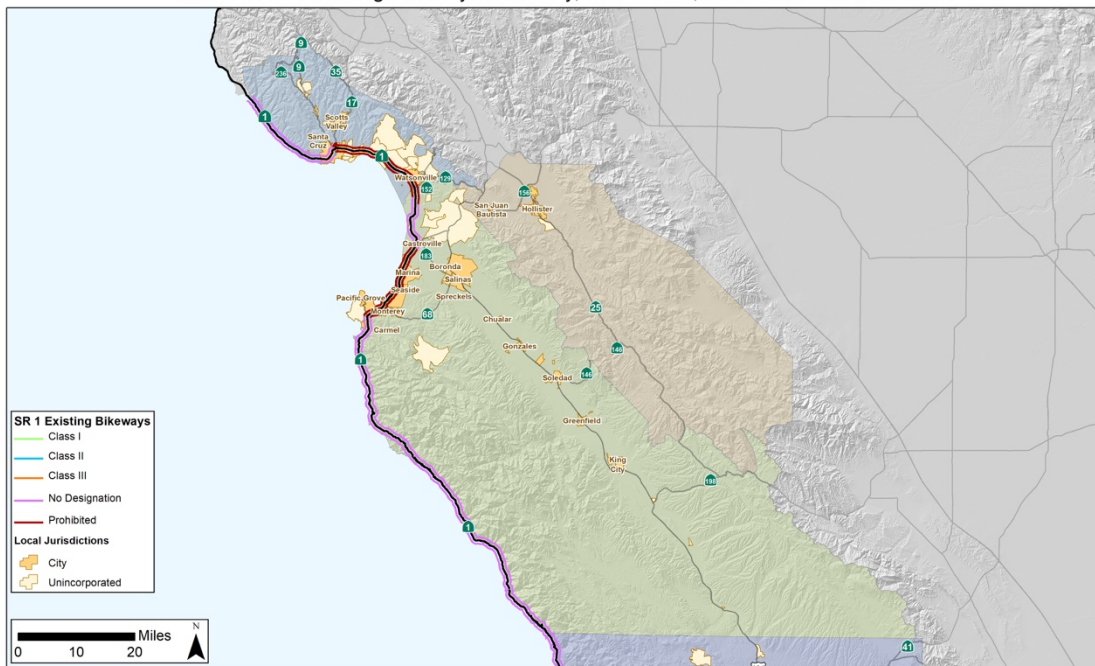


Figure 10: Existing Bikeways Monterey County, Santa Cruz County, and San Benito County

State Route 1 Proposed Bikeways Monterey, Santa Cruz, and San Benito Counties

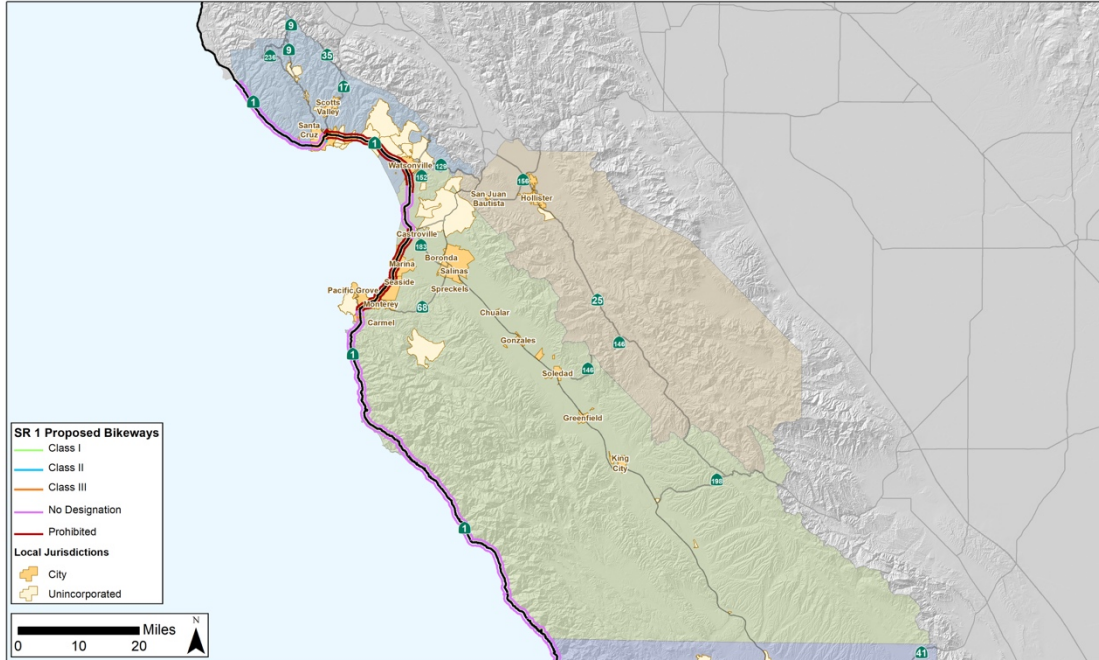


Figure 11: Proposed Bikeways Monterey County, Santa Cruz County, and San Benito County

*SR 1 Existing Bikeways Segments and Postmiles:*

County of Santa Barbara

Segment 1 (R0-21.5 No Designation)

Segment 2 (21.5-22.1 No Designation)

Segment 3 (22.1-22.3 No Designation)

Segment 4 (22.3-22.9 No Designation)

Segment 5 (22.9-R23.7 No Designation)

Segment 6 (22.3-23.0 Class I)

Segment 7 (R23.7-R34.8 No Designation)

Segment 8 (R34.8-R36.5 Class III)

Segment 9 (R35.5-41.8 No Designation)

Segment 10 (41.8-R48.6 No Designation)

Segment 11 (R48.6-49.3 Class III)

Segment 12 (49.3-50.3 Class II)

Segment 13 (50.3-50.606 Class III)

County of San Luis Obispo

Segment 14 (0-13.4 No Designation)

Segment 15 (13.4-15.3 No Designation)

Segment 16 (14.5-15.3 Class III)

Segment 17 (15.3-16.733 Class II)

Segment 18 (16.733-16.77 No Designation)

Segment 19 (16.77-18.6 Class II)

Segment 20 (18.6- 27.431 No Designation)

Segment 21 (27.431-30.33 No Designation)

Segment 22 (30.33-34.716 No Designation)

Segment 23 (34.716-R36.502 No Designation)

Segment 24 (R36.502-74.324 No Designation)

Monterey County

Segment 25 (0-73.6 No Designation)

Segment 26 (73.6-73.8 No Designation)

Segment 27 (73.8-74.92 No Designation)

Segment 28 (74.92-74.932 No Designation)

Segment 29 (74.92-74.932 Prohibited)

Segment 30 (74.92-74.932 No Designation)

Segment 31 (74.932-75.034 Prohibited)

Segment 32 (74.932-75.034 No Designation)

Segment 33 (75.034-R90.43 Prohibited)

Segment 34 (R90.43-R91.019 Prohibited)

Segment 35 (R90.43-R91.019 No Designation)

Segment 36 (R91.019-T92.213 Prohibited)

Segment 37 (R91.019-T92.213 No Designation)

Segment 38 (T92.213-99.92 No Designation)

Segment 39 (99.92-T101.184 No Designation)

Segment 40 (99.92-T101.184 Prohibited)

Segment 41 (T101.184-R101.443 Prohibited)

Segment 42 (R101.443-R102.031 Prohibited)

Santa Cruz County

Segment 43 (0-17.456 Prohibited)

Segment 44 (17.456-18.1 No Designation)

Segment 45 (18.1-18.2 Class II)

Segment 46 (18.2-37.451 No Designation)

*SR 1 Proposed Bikeways Segments and Postmiles:*

County of Santa Barbara

Segment 1 (21.5-22.1 Class II)

Segment 2 (22.1-22.3 Class III)

Segment 3 (22.9-R23.7 Class III)

Segment 4 (R35.5-41.8 Class II)

County of San Luis Obispo

Segment 5 (13.4-15.3 Class I)

Monterey County

Segment 6 (73.6-73.8 Class III)



## Works Cited

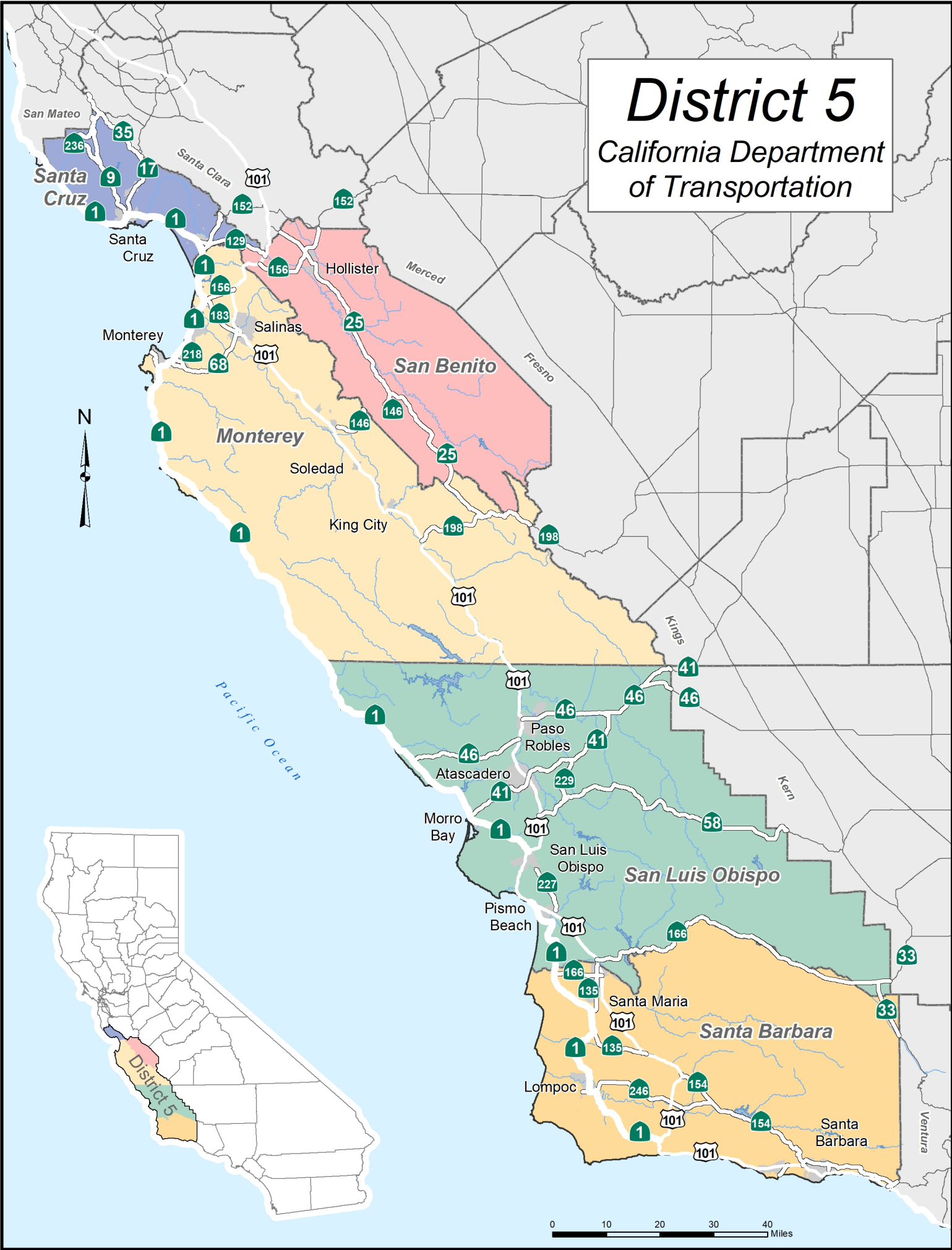
- Caltrans. (2018). *Caltrans Postmile System*. Retrieved from <https://postmile.dot.ca.gov/PMQT/documents/CALTRANS%20POSTMILE%20SYSTEM%2061016.pdf>
- Caltrans District 4. (2017). A Guide to Bikeway Classification. Retrieved from [http://www.dot.ca.gov/d4/bikeplan/docs/caltrans-d4-bike-plan\\_bikeway-classification-brochure\\_072517.pdf](http://www.dot.ca.gov/d4/bikeplan/docs/caltrans-d4-bike-plan_bikeway-classification-brochure_072517.pdf)
- Caltrans District 5. (2018). *Caltrans District 5 Bicycle Map*. Retrieved from <http://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=a746deb5c92b4275b89ab03013a8cda1>
- Caltrans District 5. (2016). *Transportation Concept Report California 192*. Retrieved from [http://www.dot.ca.gov/dist05/planning/sys\\_plan\\_docs/factsheets\\_datasheets/sr\\_192/192tcr.pdf](http://www.dot.ca.gov/dist05/planning/sys_plan_docs/factsheets_datasheets/sr_192/192tcr.pdf)
- City of Carpinteria. (2013). *City of Carpinteria, California Bicycle Master Plan 2013*. Retrieved from [http://www.carpinteria.ca.us/PDFs/pw\\_draft%20bicycle%20master%20plan.pdf](http://www.carpinteria.ca.us/PDFs/pw_draft%20bicycle%20master%20plan.pdf)
- City of Santa Barbara. (2016). *Bicycle Master Plan*. Retrieved from [https://www.santabarbaraca.gov/gov/depts/pw/transpark/master\\_plans/2016\\_bicycle\\_master\\_plan.asp](https://www.santabarbaraca.gov/gov/depts/pw/transpark/master_plans/2016_bicycle_master_plan.asp)
- Cuff, D. (2012). *Two-wheeling on Highway 1*. Retrieved from <https://www.mercurynews.com/2012/01/24/two-wheeling-on-highway-1/>
- Santa Barbara County. (2012). *Draft Bicycle Master Plan*. Retrieved from [http://cosb.countyofsb.org/uploadedFiles/pwd/Roads/BikePlan\\_COSB\\_DraftBicycleMasterPlan.pdf](http://cosb.countyofsb.org/uploadedFiles/pwd/Roads/BikePlan_COSB_DraftBicycleMasterPlan.pdf)
- SBCAG. (2015). *Regional Active Transportation Plan Santa Barbara County*. Retrieved from [http://www.sbcag.org/uploads/2/4/5/4/24540302/draft\\_may29.pdf](http://www.sbcag.org/uploads/2/4/5/4/24540302/draft_may29.pdf)
- Berkman, J., Ochoa-Monroy, O., Schneider, G., and Schudson, J.. (2017). *Transportation Concept Report State Route 1 District 5*. Retrieved from [http://www.dot.ca.gov/dist05/planning/sys\\_plan\\_docs/factsheets\\_datasheets/sr\\_1/sr\\_1.pdf](http://www.dot.ca.gov/dist05/planning/sys_plan_docs/factsheets_datasheets/sr_1/sr_1.pdf)

## Appendix

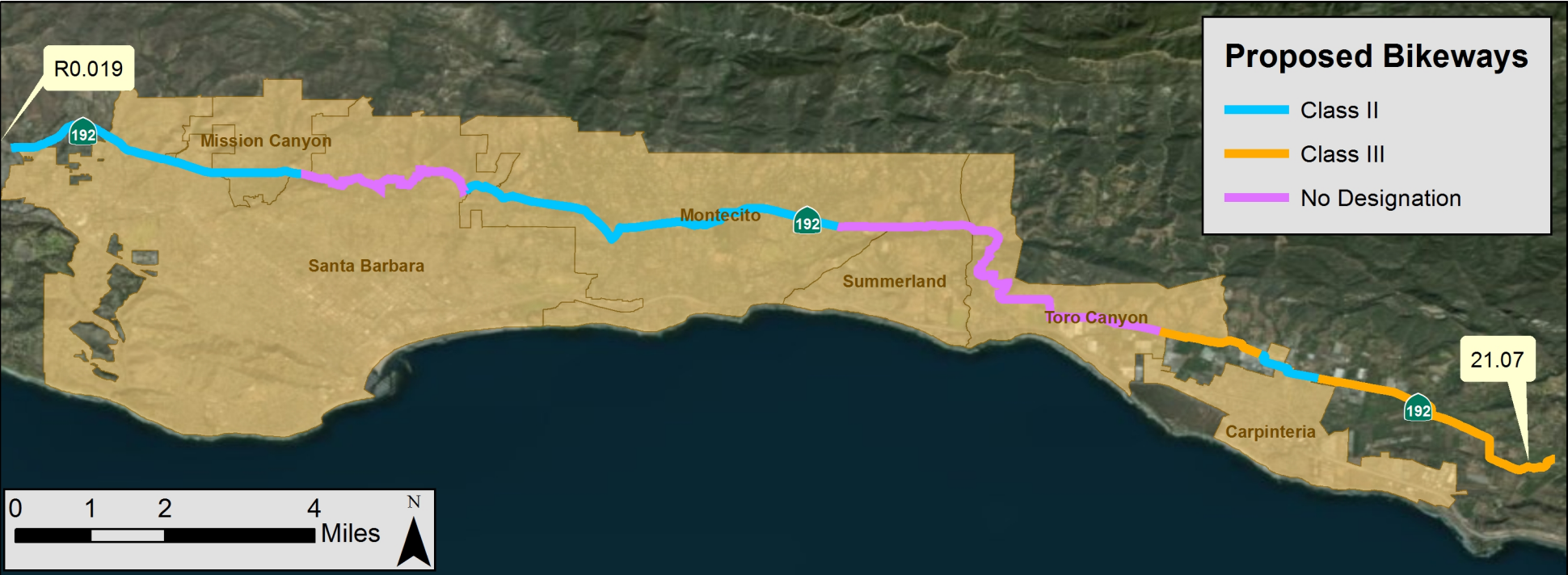
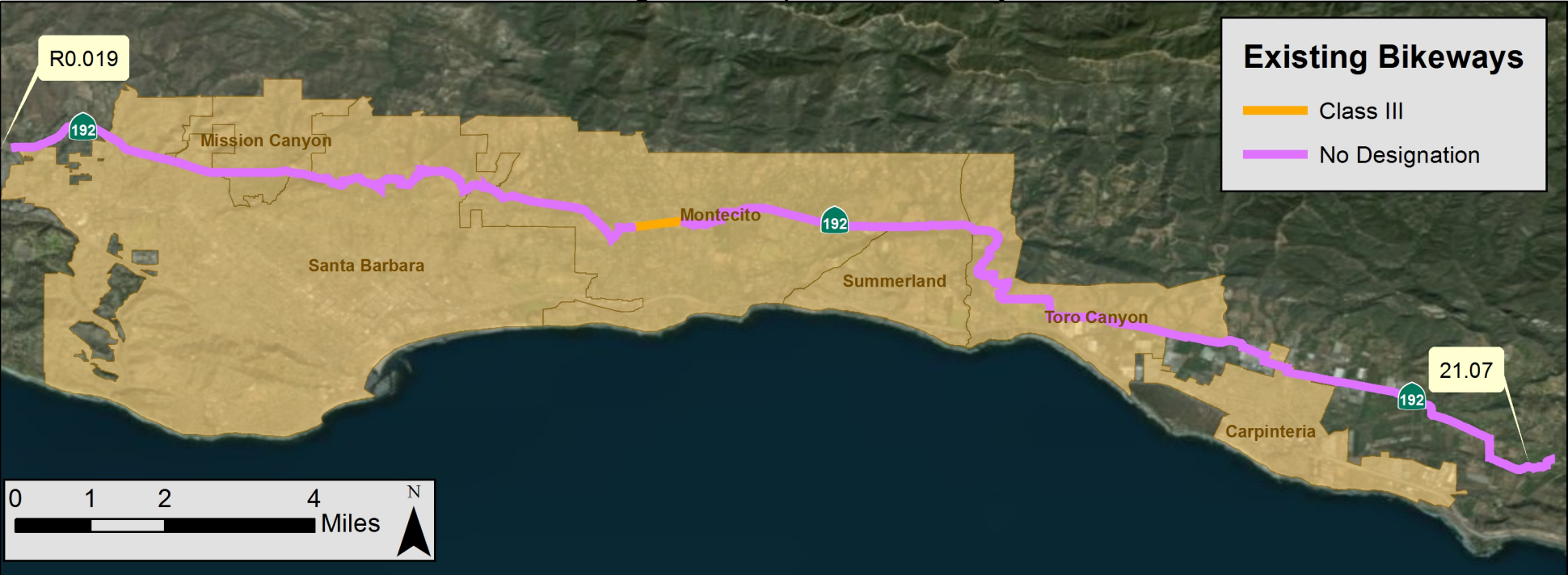
District 5 Overview	A1
SR 192 Existing and Proposed Bikeways	A2
State Route 1 Existing Bikeways Santa Barbara and San Luis Obispo Counties	A3
State Route 1 Proposed Bikeways Santa Barbara and San Luis Obispo Counties	A4
State Route 1 Existing Bikeways Monterey, Santa Cruz, and Santa Benito Counties	A5
State Route 1 Proposed Bikeways Monterey, Santa Cruz, and Santa Benito	A6

# District 5

California Department of Transportation



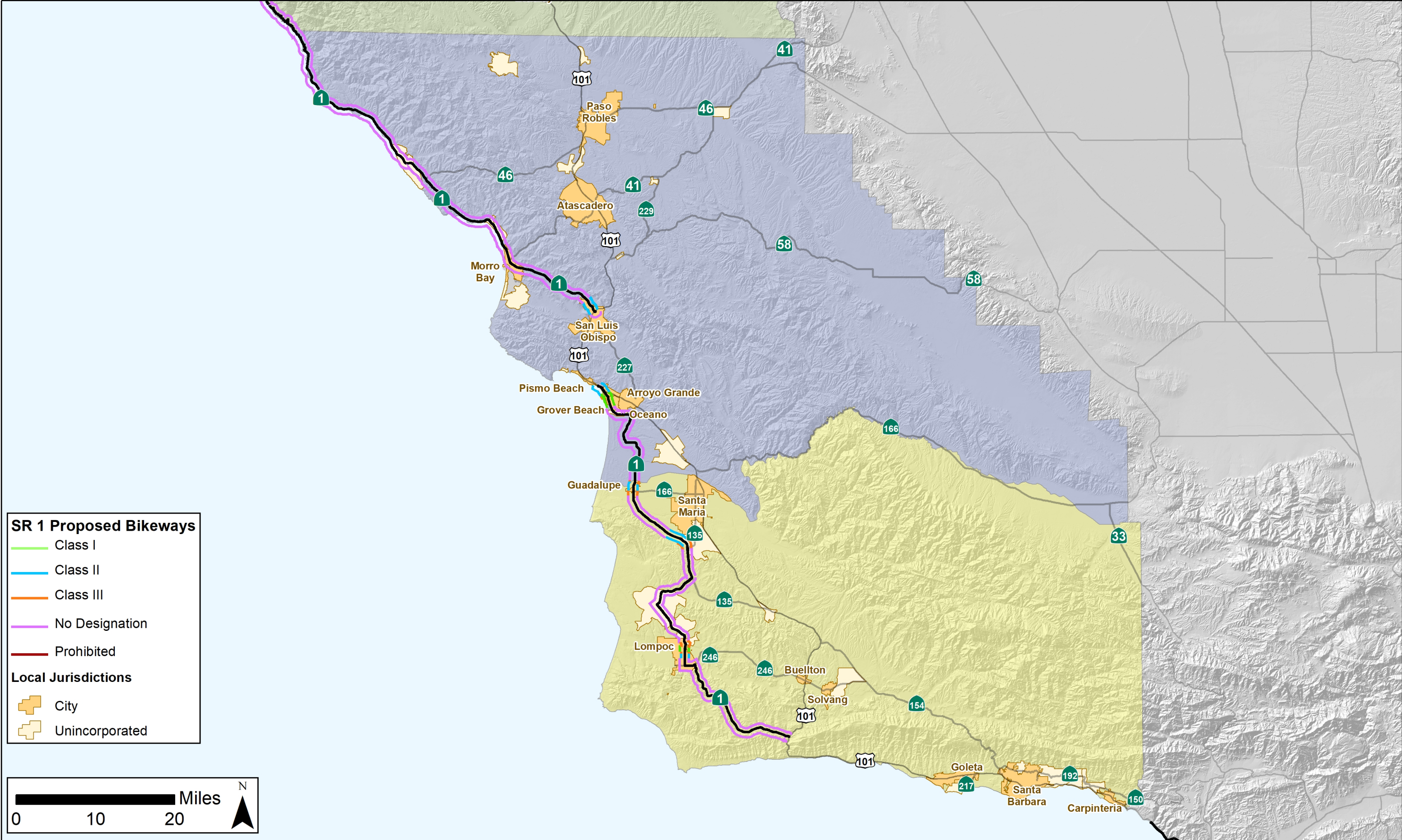
# SR 192 Existing and Proposed Bikeways



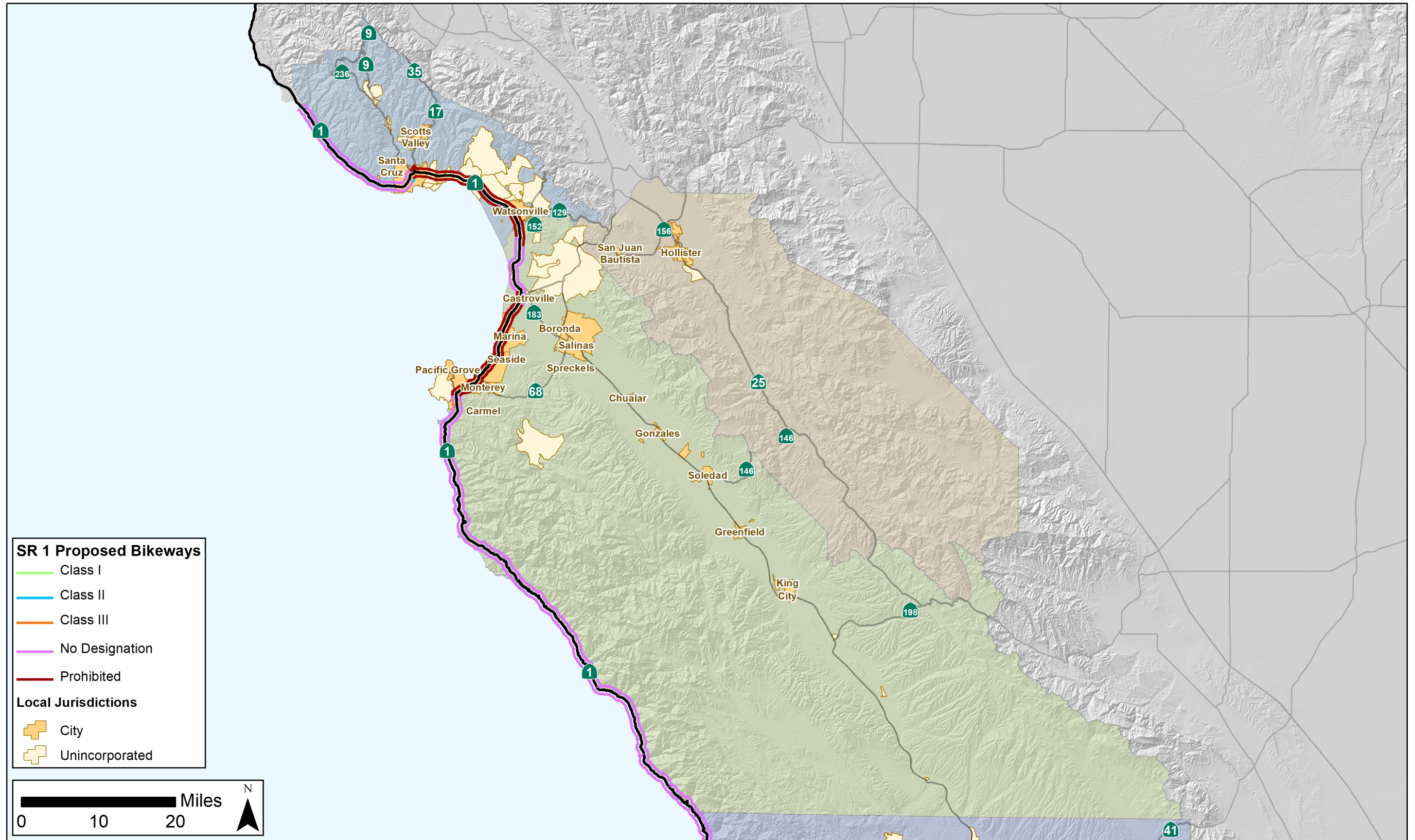
# State Route 1 Existing Bikeways Santa Barbara and San Luis Obispo Counties



# State Route 1 Proposed Bikeways Santa Barbara and San Luis Obispo Counties



# State Route 1 Proposed Bikeways Monterey, Santa Cruz, and San Benito Counties



# State Route 1 Existing Bikeways Monterey, Santa Cruz, and San Benito Counties

