

Silicon Valley Bicycle Coalition

Protected Bike Lanes on El Camino Real

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Introduction



Figure 1 Concept of Protected Bike Lanes on El Camino Real in Redwood City (City of Redwood City, 2017. “El Camino Real Corridor Plan. CAG meeting #3” <http://www.redwoodcity.org/home/showdocument?id=10199>)

In the last couple of decades of transportation and urban planning, there has been a shift in engineering design away from auto-centric thinking.^{1,2} Many regions in the United States are trying to place an emphasis on incorporating multi-modal transportation options in their communities, referred to as a Complete Street design.³ The Grand Boulevard Initiative is a collaboration of cities that El Camino Real passes through on the San Francisco Peninsula, from Daly City to San José, CA. Using urban planning strategies, the goal is to transform the corridor along El Camino Real: away from an auto-centric thoroughfare, and into a more livable community for all.

Silicon Valley Bicycle Coalition’s (SVBC) mission is to create a healthy community, environment, and economy through bicycling for people who live, work, and play in San Mateo and Santa Clara Counties.⁴ SVBC’s Board has set an overall goal of having 10% of trips in the Bay Area be taken by bike by 2025 to further the organization’s mission.

Protected bike lanes along the El Camino Real corridor will encourage more people to take trips by bicycle due to the increased safety and convenience, contributing to

¹ Barnes, E. and Schlossberg, M., 2013. “Improving Cyclist and Pedestrian Environment While Maintaining Vehicle Throughput: Before-and After-Construction Analysis.”

² National Complete Streets Coalition., 2013. “The Best Complete Streets Policies for 2012.”

³ National Complete Streets Coalition, The Best Complete Streets

⁴ Silicon Valley Bicycle Coalition. Retrieved from <https://bikesiliconvalley.org/about-svbc/>

SVBC’s mission. Protected bike lanes, where cars and bikes are physically separated by a type of barrier, offer the most protection and comfort for a wide range of users. Within a year of adding protected bike lanes, cities have seen an average increase of 75% in the number of people biking on those streets.⁵ Protected bike lanes, where feasible, are the first recommendation that SVBC makes when evaluating a road for improvement. People already bike on El Camino Real to access the many businesses and other destinations, prioritizing the need to make this corridor safe, comfortable and vibrant for all users. This paper will explore the existing conditions on El Camino Real and some successful examples of local and national bike projects that have led to positive change in various communities.

Existing Conditions on El Camino Real⁶



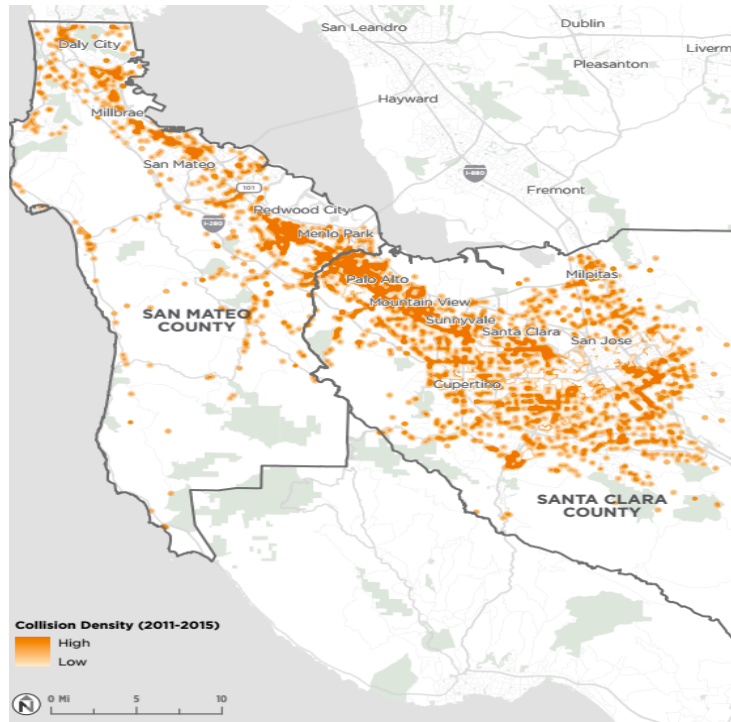
Figure 2 Current Conditions on El Camino Real in Santa Clara (Silicon Valley Bicycle Coalition, “Bikes on El Camino Real”)

Historically, El Camino Real was a 600-mile stagecoach path that connected the Franciscan missions between San Diego and Sonoma. El Camino Real parallels the first commuter rail service west of the Mississippi and the first road to have sections paved for the California State highway system. El Camino Real is the only non-freeway road that connects from Daly City to San José, and is the backbone of the historical communities on the Peninsula. This, as well as the concentration of housing and businesses along this corridor, makes it THE essential North-South route, not only for motor vehicles (its main use today), but for bicyclists and pedestrians as well. Parallel routes for people biking exist in some of the various cities along El Camino Real, yet these are disconnected and not always well publicized.

⁵ Anderson, M., 2014. “The Protected Bike Lane Ridership Bump, City by City.”

⁶ Grand Boulevard Initiative, 2013 “Progress Report- Fall 2013.”

El Camino Real, Highway 101, and Highway 280 are the three major thoroughfares that move people who live and work on the Peninsula. More than 350,000 people rely on access to and from the El Camino Real corridor for various reasons, and about 70% of those people drive alone.⁷ With higher amounts of vehicle traffic and speeding on El Camino Real and its vicinity, reports from the County Health Departments indicate that El Camino can benefit from safety improvements. Santa Clara County, where El Camino Real accounts for only 0.5% of the roadway network, had six percent



of bicycle collisions occur on or within 50 ft. of El Camino Real in 2012.⁸ In San Mateo County, El Camino Real makes up only one percent of the roadway network and saw 13.8% of bicycle collisions occur on or within 50 ft. of El Camino Real between 2009 and 2013.⁹ This is a high concentration of collisions on El Camino Real compared to other roads.

Figure 3 Bicycle Collision Data for San Mateo and Santa Clara Counties (Joint Venture Silicon Valley and Silicon Valley Bicycle Coalition, “Silicon Valley Bike Vision,” <http://jointventure.org/images/stories/pdf/2017-02-bike-vision.pdf>)

One of the biggest challenges on El Camino Real is that it runs through 19 different cities with inconsistent and outdated design elements. As a state highway, the State of California (Caltrans) has ownership of the road, not the cities it runs through, which adds complexity. El Camino Real changes back and forth between a four-lane street and a six-lane “highway,” with varying conditions, depending on where you happen to be. Using older design standards, the widths of the travel and parking lanes are greater than necessary, leading to increased speeds. Currently there are only a couple of very short segments of bicycle lanes on El Camino Real. In addition, Redwood City and other cities along the corridor have identified that parking along El Camino Real is underutilized in many places.¹⁰ Based on research from other cities, updating the travel lanes and adding protected bike lanes on El Camino Real could lead to decreased collisions, increased safety, increased people biking, increased health and environmental benefits, and increased business/investment.

⁷ Grand Boulevard Initiative, 2013 “Progress Report- Fall 2013.”

⁸ Santa Clara County Public Health, 2015

⁹ Get Healthy San Mateo County, 2015 “Creating Healthier Streets.”

¹⁰ Redwood City El Camino Real Corridor Plan, 2016. “Existing Conditions Report.”

Protected Bike Lane Case Studies

	Valencia St. San Francisco, CA	Telegraph Avenue Oakland, CA	Columbus Avenue New York City, NY
Collisions	↓	↓	↓
People Biking	↑	↑	↑
Travel Time	≈	≈	↓
Economic Benefits	↑	↑	N/A

San Francisco Bay Area: People Driving and Biking Prefer Protected Bike Lanes¹¹



Figure 4: Bike Lane Treatments that Survey Users Rated According to Comfort Level (Sanders, R.L., 2014. "Roadway Design Preferences Among Drivers and Bicyclists in The Bay Area.")

A doctoral student at UC Berkley asked drivers and people biking in the San Francisco Bay Area to look at eight different roadway configurations with different types of bicycle lane treatments. The survey illustrated examples of bike lanes with no separation from traffic (sharrows), bike lanes with a painted separation (Class II bike lane), and bike lanes that provided a physical barrier from vehicle traffic (Class IV protected bike lane). People driving and biking rated which treatment they felt most comfortable on while driving near bicyclists or bicycling near traffic. The survey results showed that both

¹¹ Sanders, R.L., 2014. "Roadway Design Preferences Among Drivers and Bicyclists in The Bay Area."

people driving and biking preferred protected bike lanes because they added a sense of predictability of people biking and an increased sense of safety. Protected bike lanes on El Camino Real will create a separate and defined path, which will improve the comfort level of people driving and biking, resulting in more trips taken by bike and increasing safety for all users of the roadway.

Valencia Street, San Francisco, California: Increased biking, Consistent travel time, Increased business.¹²



Figure 5: SF’s First Parking Protected, Raised Bike Lane on Valencia Street
 (San Francisco Municipal Transit Agency, "Happy Bike to Work Day..."
<https://www.sfmta.com/about-sfmta/blog/happy-bike-work-day-new-protected-bike-lanes-and-bike-count-webpage>)

Despite common opposition, adding bicycle facilities does not significantly impact travel time or local businesses. Beginning in 1999, San Francisco began to transform a retail-oriented portion of Valencia Street by removing a travel lane from a four-lane street. This allowed the city to add bike lanes to the re-configured two-lane road with a center turn lane. A year after completing these changes, it was noted that bicycle usage increased by 140% during the peak period of the afternoon while travel time for people driving was not significantly affected. San Francisco has continued to make changes along Valencia Street throughout the years to widen sidewalks, add pedestrian friendly lighting, bulb-outs for pedestrian crossings, and optimized traffic signals. San Francisco businesses along the re-configured portion of Valencia Street reported seeing an increase in sales of 60%, in part, due to the increased number of people walking and biking. Like the Valencia Street project and others from around the country, adding protected bike lanes on El Camino Real could produce similar trends of increased biking, consistent travel times, and increased business.

¹² National Complete Streets Coalition. 2012. "Complete Streets in California."

Telegraph Avenue, Oakland, California: Decreased collisions, Lower speeds, Increased biking, Consistent travel time, Increased Business¹³



Figure 6 Telegraph Ave. after Reconfiguration (Oakland Department of Transportation, 2017. “Telegraph Avenue Progress Report.” Retrieved from <http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak062598.pdf>

Telegraph Avenue is a major thoroughfare between Oakland, CA and Berkley, CA that is rated as a high injury corridor. Each direction previously had one vehicle travel lane, one lane with sharrows, and a parking lane. In April of 2016, Oakland reconfigured Telegraph Avenue by removing a travel lane in each direction to create nine blocks of parking-protected bike lanes and added eight high visibility crosswalks. The progress report on Telegraph Avenue, released in January 2017, showed a 40% decrease in all collisions between various users. The median vehicle speeds since the re-configuration are now closer to the posted speed limit, without an increase in travel times. Since adding the protected bike lanes, there has been a 78% increase in people biking and people walking increased by 100%. The increased bike and pedestrian traffic has also contributed to a nine percent increase in business along the corridor.

¹³ Oakland Department of Transportation, 2017. “Telegraph Avenue Progress Report.”

New York City, New York: Decreased collisions, Increased biking, Decreased travel time¹⁴



Figure 7: Parking Protected Bike Lanes in NYC (New York City Department of Transportation, 2014. “Protected Bike Lanes in NYC”)

At the end of 2014, New York City announced that it had added over 30 miles of protected bike lanes to city streets since 2007. The New York City Department of Transportation examined data from 12 projects that were three years or older and found that the total injuries for all users dropped by 20%. Columbus Avenue, a one-way street, had three travel lanes, a mixed rush hour/parking lane, and a parking lane. The width of existing lanes for a mile-long section of Columbus Avenue was decreased to add a parking-protected bikeway. Data collected for the report showed a 26% decrease in injury crashes while people biking increased by 51% and travel times were reduced by 35%. The other protected bike lane projects in New York City saw a similar trend in reducing collisions, while the number of people biking increased. The data from New York City suggests that adding protected bikeways on El Camino Real would decrease the likelihood of collisions even with an increased number of people biking.

¹⁴ New York City Department of Transportation, 2014. “Protected Bike Lanes in NYC”

National Data Supports Health Increases from Bicycling



Figure 8: Protected Bike Lane on Polk St. & Hayes St. in San Francisco (San Francisco Municipal Transportation Industry, 2017. “Pedal Out for Bike to Work Day This Thursday”)

Adding protected bike lanes on El Camino Real is expected to increase the usage of active transportation methods and in turn reduce obesity and diabetes rates, and limit harmful emissions in our environment.^{15,16} Researchers examined data from community health surveys representing people from all 50 states and at least 47 major cities. They found that people who bike to work have a better chance at achieving the recommended physical activity level, a lower obesity rate, and a lower rate of diabetes. These statistically significant results were found to be consistent between international, state, and city populations. Other health benefits can result from environmental improvements as well. When more people are walking or biking there are fewer cars on the road, leading to a decrease in harmful emission particles.¹⁷ Protected bike lanes on El Camino Real can lead to more people biking and walking, leading to decreases in obesity and diabetes, and improved air quality; all resulting in measureable health benefits for our region.

¹⁵ National Complete Streets Coalition. 2012. “Complete Streets in California.”

¹⁶ Pucher et al., 2010. “Walking and Cycling to Health: A Comparative Analysis of City, State, and International Data.”

¹⁷ Joint Venture Silicon Valley, 2017. “Silicon Valley Bike Vision.”
<http://jointventure.org/images/stories/pdf/2017-02-bike-vision.pdf>

Emergency Vehicle and Delivery Access to Protected Bike Lanes

When adding protected bike lanes to El Camino Real, planning should ensure that emergency vehicle access is maintained and that deliveries to businesses are not adversely affected. Protected bike lanes are still new and best practices are still being developed to address concerns about emergency and delivery vehicles. Discussions with emergency response stakeholders and other key community representatives is important to have early in the planning phase. Cities should use flexible or mountable barrier treatments that are spaced apart to allow emergency vehicle access when needed. Seattle uses a sand filled barrier, spaced apart to allow access, with flexible posts between the space to display restricted access. Emergency responders are also encouraged to fully evaluate and utilize the existing city grid system to identify alternative response routes. For deliveries, municipalities are encouraged to create loading zones near businesses that have time restrictions to limit the impact on traffic or the protected bike lane. These solutions, and others, could allow the addition of protected bike lanes on El Camino Real with minimal disruptions.

Conclusion

When communities add bike lanes and other treatments, it encourages more people to bike, decreases collisions, improves safety and health, and can positively impact local businesses, without affecting travel time for people driving. With more people walking, biking, or using transit, improvements in health and the environment are measurable. Air quality is better and the obesity and diabetes rates can be lowered. Adding protected bike lanes on El Camino Real could bring all these benefits to the Peninsula.

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