



Santa Cruz County Regional Transportation Commission's

BICYCLE COMMITTEE

AGENDA

Monday, April 9, 2012

6:30 p.m. to 9 pm

Note Special Time and Location

**Museum of Art and History - Auditorium
705 Front Street, Santa Cruz, CA 95060**

1. Call to Order
2. Introductions
3. Announcements – RTC Staff
4. Oral Communications

The Committee will receive oral communications during this time on items not on today's agenda. Presentations must be within the jurisdiction of the Committee, and may be limited in time at the discretion of the Chair. Committee members will not take action or respond immediately to any Oral Communications presented, but may choose to follow up at a later time, either individually, or on a subsequent Committee agenda.

5. Additions or deletions to consent and regular agendas

CONSENT AGENDA

All items appearing on the consent agenda are considered to be minor or non-controversial and will be acted upon in one motion if no member of the Committee or public wishes an item be removed and discussed on the regular agenda. Members of the Committee may raise questions, seek clarification or add directions to Consent Agenda items without removing the item from the Consent Agenda as long as no other committee member objects to the change.

6. Approve draft minutes of the February 13, 2012 Bicycle Committee meeting (pages 4 - 8)
7. Accept summary of Bicycle Hazard reports (page 9)
8. Accept Bicycle Committee roster (page 10)
9. Accept letter from the Bicycle Committee regarding adding bicycle lanes on Rooney Street (page 11-15)

10. Accept letter from the Bicycle Committee in support of the County Health Services Agency's Office of Traffic Safety grant application (page 16)
11. Accept letter from Caltrans regarding the Bicycle Transportation Account (BTA) Program call for projects (page 17)
12. Approve Bike Secure applications from Gateway School and El Rancho Shopping Center (pages 18-31)

REGULAR AGENDA

13. Officer Elections (page 32)
14. Rumble Strips on Highway 1 from Shaffer Road to Swanton Road Project – Presentation from Caltrans (pages 33-121)
15. Regional Transportation Plan (RTP) Draft Goals and Policies – Presentation from Grace Blakesless, RTC Senior Transportation Planner (pages 122-127)
16. Project Tracking/Subcommittee Tasks: Oral Reports (actions may be taken at the meeting)
 - a. City of Santa Cruz Project Tracking: Fieberling/Hyman/*Garza**
 - b. City of Capitola Project Tracking: Ward
 - c. City of Scotts Valley Project Tracking: Rau/*Milburn**
 - d. City of Watsonville Project Tracking:
 - e. County of Santa Cruz Project Tracking: Akol
 - f. Bike To Work Update: Mucha/Canin
 - g. CTSC and the South County Bike/Pedestrian Work Group Update: Langley/Jed
 - h. UCSC: Scott/Menchine
 - i. Legislative Tracking: Jed/Ward
 - j. Sanctuary Scenic Trail: Fieberling/Casterson/Canin
 - k. Technical Subcommittee: Menchine/Hyman/Ward/Akol
 - l. Bicyclist/Motorist Safety Education: Jed/Menchine
 - m. RTC Packet Monitoring Subcommittee: Hyman
 - n. Safe Routes to School: Horton/Menchine/Akol

(Milburn and Garza participation in subcommittees is unconfirmed)

17. Adjourn

NEXT MEETING: The next Bicycle Committee meeting is cancelled. The following meeting of the Bicycle Committee is scheduled for Monday, May 14, 2012 at the **special meeting time** of at 6:30 pm at the RTC office, 1523 Pacific Ave, Santa Cruz, CA.

HOW TO REACH US

Santa Cruz County Regional Transportation Commission
1523 Pacific Avenue, Santa Cruz, CA 95060
phone: (831) 460-3200 / fax (831) 460-3215
email: info@sccrtc.org / website: www.sccrtc.org

AGENDAS ONLINE

To receive email notification when the Bicycle Committee meeting agenda packets are posted on our website, please call (831) 460-3201 or email ccaletti@sccrtc.org to subscribe.

ACCOMMODATIONS FOR PEOPLE WITH DISABILITIES

The Santa Cruz County Regional Transportation Commission does not discriminate on the basis of disability and no person shall, by reason of a disability, be denied the benefits of its services, programs, or activities. This meeting location is an accessible facility. If you wish to attend this meeting and require special assistance in order to participate, please contact RTC staff at 460-3200 (CRS 800/735-2929) at least three working days in advance of this meeting to make arrangements. People with disabilities may request a copy of the agenda in an alternative format. As a courtesy to those person affected, Please attend the meeting smoke and scent-free.

SERVICIOS DE TRADUCCIÓN/TRANSLATION SERVICES

Si gusta estar presente o participar en esta junta de la Comisión Regional de Transporte del condado de Santa Cruz y necesita información o servicios de traducción al español por favor llame por lo menos con tres días laborables de anticipo al (831) 460-3200 para hacer los arreglos necesarios. (Spanish language translation is available on an as needed basis. Please make advance arrangements (at least three days in advance by calling (831) 460-3200.

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Santa Cruz County Regional Transportation Commission's BICYCLE COMMITTEE

Minutes - Draft

**Monday, February 13, 2012
6:30 p.m.**

**SCCRTC Office
1523 Pacific Ave
Santa Cruz CA 95060**

1. Call to Order at 6:33 pm
2. Introductions

Members Present:

Kem Akol, District 1
David Casterson, District 2, Chair
Bill Fieberling, City of Santa Cruz
Rick Hyman, District 5
Leo Jed, CTSC (Alt.)
Will Menchine, District 3 (Alt.)
Lex Rau, Scotts Valley
Peter Scott, District 3
Holly Tyler, District 1 (Alt.)
Andy Ward, City of Capitola
Nick Mucha, Ecology Action/Bike-to-Work

Vacancies:

District 4 – Voting
District 5 – Alternate
City of Watsonville – Voting and Alternate
City of Capitola – Alternate

Staff:

Cory Caletti, Senior Transportation Planner
Kim Shultz, Senior Transportation Planner
Grace Blakeslee, Transportation Planner
Ginger Dykaar, Transportation Planner

Unexcused Absences:

Shahe Moutafian, District 4 (Alt.)

Excused Absences:

Carlos Garza, City of Santa Cruz (Alt.)
Gary Milburn, City of Scotts Valley (Alt.)
Eric Horton, District 2 (Alt.)
Jim Langley, CTSC

Guests:

Daniel Kostelec, Resident
Steph Nelson, AMBAG
Majid Yamin, City of Scotts Valley
Jack Sohriakoff, County of Santa Cruz
Steve All, Resident
Suzanne Sarro, Nolte Vertical Five

3. Announcements - Cory Caletti, RTC staff, provided the following announcements: 1) Brandon Kett, District 4 voting member, resigned; 2) vacancies now exist for seats representing District 4 (voting), District 5 (alternate), City of Capitola (alternate), and City of Watsonville (voting and alternate); 3) a number of seats expire in March of this year and staff is working on reappointments as well as recruiting new

members from the South County region in particular; 4) the Bike Secure parking subsidy program is on hold pending consideration of a grant extension request submitted to the Air District; 5) the 2012 California Manual of Uniform Control Devices (MUTCD) now allows wider use of the Shared Lane Pavement Markings (sharrows) and use of the Bikes May Use Full Lane signs; and 6) re-election of the Chair and Vice-Chair positions is scheduled for the April meeting.

4. Oral Communications – Andy Ward announced that Kathy Trissell, long time owner of the Sprockets Bicycle Shop and supporter of the bicycle community, passed away after a long battle with cancer. RTC staff will send a sympathy card on the Committee's behalf and will provide information on the planned memorial. Majid Yamin, Traffic Engineer for the City of Scotts Valley, thanked the Bike Committee for the letter of appreciation for the City's installation of sharrows.
5. Additions or deletions to consent and regular agenda – Leo Jed asked to pull item #9. Chair Casterson moved item #9 to item #18a on the regular agenda.

CONSENT AGENDA

A motion (Fieberling/Scott) to approve the consent agenda as amended passed unanimously.

6. Approved draft minutes of the November 14, 2011 Bicycle Committee meeting
7. Accepted Summary of Bicycle Hazard Reports
8. Accepted Bicycle Committee Roster
9. Pulled and re-assigned as item #18a - Accept letter from Caltrans to concerned citizen regarding Highway 1 speed limits and plans for rumble strip installation from Western Drive to Swanton Road
10. Accepted letter from RTC staff requesting extension of the Bike Secure grant funding from the Monterey Bay Air Pollution Control District
11. Accepted letter from Caltrans regarding call for applications for the Safe Routes to School Program
12. Accepted letter from the Bicycle Committee regarding reauthorization of the federal transportation act and inclusion of dedicated funding for Transportation Enhancement and Safe Routes to School programs
13. Accepted letter from the Bicycle Committee to City of Scotts Valley Public Works Director for placement of Shared Roadway Pavement Markings

REGULAR AGENDA

14. Monterey Bay Area Bicycle Travel Demand Modeling Project Data Collection Efforts Update – An oral presentation was provided by Steph Nelson, AMBAG Associate Analyst and Ginger Dykaar, RTC Transportation Planner on the Monterey Bay Area Travel Demand Model, its objectives, and data collection efforts including the cycletracks smart phone app and bike counts. Bike commute data is being drawn from the cycletrack app. Maps of bike count locations proposed by AMBAG's consultant were distributed and members were asked to identify additional locations that should be considered. Ms. Nelson also noted that between the three counties, a total of 40-50 counts would be conducted and about 15 of those will be in Santa Cruz County.

15. *Draft 2010 City of Scotts Valley Bicycle Transportation Plan* and Project Updates – Presentation from Majid Yamin, City Traffic Engineer. Cory Caletti summarized the staff report Mr. Yamin thanked the City of Capitola's former intern, Ariana Green, who drafted the original plan after which Scotts Valley's was modeled. He also thanked RTC staff for extensive assistance. The project list, was discussed, as were possible projects for which the City of Scotts Valley may submit a Bicycle Transportation Account (BTA) application. Glen Canyon Road bicycle lanes were mentioned as a possibility since the project was identified last year and the Bike Com voted to submit a letter of support at that time. Mr. Yamin also discussed a navigational problem from Mt Hermon to El Rancho in the City of Scotts Valley that a Bike Committee member identified. Mr. Yamin indicated that this location is within Caltrans' right-of-way. Holly Tyler, Lex Rau, and possibly Gary Milburn and Rick Hyman, agreed to meet with Mr. Yamin on site and brainstorm some recommendations with signage to facilitate navigation down El Rancho being a possibility. Staff was asked to agendize the discussion for the April meeting.
16. Update on Highway 1 Morrissey to Soquel Auxiliary Lanes project and Bicycle Committee recommendations, and Highway 1 Chanticleer Overcrossing Preliminary Design – An oral report was presented by Kim Shultz, RTC Senior Transportation Planner, and Suzanne Sarro, Consultant Design Engineer regarding the Hwy 1 Chanticleer Overcrossing. Ms. Sarro detailed design issues related to the bridge including mandates to design to a 25 mile/hour travel speed, the right-of-way required for such a structure, the prohibitive and invasive features of such a structure, as well as "design exception" that will be sought from Caltrans, to reduced project costs and the amount of right-of-way required. Members expressed concerns with the design as shown, especially in respect to on and off ramp movements on the ocean side of Soquel Drive that would require bicyclists to dismount and traverse a pedestrian crossing. Ms. Sarro will reconsider the design as well as investigate a few other considerations mentioned such as including a stairway for pedestrians and the possibility of an undercrossing.

Mr. Shultz provided a status report on the current Hwy 1 Morrissey to Soquel Auxiliary Lanes project and summarized responses to the bicycle committee's previous recommendations (see November 14, 2011 packet, pages 16-18). He indicated that 1) the pathway between La Fonda & Park Way, including curb cuts at Park Way, will be improved; 2) a curb cut at the northwest corner of Fairmont and Morrissey will be included pending Caltrans confirmation of adequate right-of-way; 3) the La Fonda/Soquel intersection has detection loops and cameras and no problems have been identified; 4) City of Santa Cruz's Public Works and Police Departments will closely monitor traffic when the LaFonda bridge is down and respond as needed, with modification to signal timing and/or traffic control during peak periods; 5) the student shuttle project is being pursued to include bicycle carrying capability; 6) and the "Recommended Guidelines to Protect Safety of Bicyclists, Pedestrians, and Disabled Travelers during Road Construction" has been forwarded to the Construction Engineer to be shared with the contractor and enforced. Additionally, he noted that the City claims insufficient street width prohibits the installation of bicycle lanes on Goss Ave, Gilbert, Rooney, Morrissey and La Fonda but that sharrows will be considered. Finally, he noted that the two-way bicycle access on Brookwood Drive proposal has been discussed at length with Caltrans, the City of Santa Cruz and the County of Santa Cruz Public Works Departments as well as the City of Santa Cruz Police Department and City Manager. Due to a number of prohibitive issues, the proposal is unlikely to be implemented at

the current time but a more formal response will be provided to the RTC and will be forwarded to the Bicycle Committee. After some discussion, a motion was made (Hyman/Akol) to write a letter to the Santa Cruz City Council requesting bicycle lanes on Rooney Street between Elk Street and Pacheco Avenue/Morrissey Boulevard. The motion passed unanimously.

17. Article 8 Transportation Development Act (TDA) Claim and Project Updates from the County of Santa Cruz – Jack Sohriakoff, Senior Civil Engineer for the County Public Works Department, and Cory Caletti presented the TDA claims. Mr. Sohriakoff described bicycle/pedestrian safety improvements planned for Calabasas Road in the vicinity of Calabasas School. He also summarized the bicycle lane maintenance request and noted that the Board of Supervisors ruled that TDA funds be distributed throughout the supervisorial districts based on total number of road miles. Additionally, Mr. Sohriakoff agreed to replace the “Share the Road” signs on the Aptos bridge approaches where sharrows are stenciled with “Bikes May Use Full Lane” signs. Finally, he indicated that Soquel Drive is scheduled for a full overlay from State Park Drive to Porter Gulch Road. In response to previous requests from Bicycle Committee members, the segment in front of Cabrillo College will be stenciled with inside and outside bicycle lanes so that a division is demarcated between the parking spaces and bicycle travel zones. A motion was made (Hyman/Fieberling) to recommend that the RTC approve the County’s TDA allocation claim. Members also requested that the County provide an update within the next 4-6 months on the costs allocated for each category of bike maintenance tasks (bike lane re-striping vs. minor repairs vs sweeping, etc). The motion passed unanimously.
18. Regional Transportation Plan (RTP) Sustainability Framework and Regional Complete Streets Initiative – Grace Blakeslee, RTC Senior Transportation Planner provided a presentation summarizing the staff report and progress towards adoption of the 2014 RTP. She discussed the role of a sustainable framework within the RTP and indicated that she would return in April with a list of draft goals and policies for the Bicycle Committee to review.
- 18a. Pulled from Consent Agenda (formerly item #9) - Accept letter from Caltrans to concerned citizen regarding Highway 1 speed limits and plans for rumble strip installation from Western Drive to Swanton Road. Leo Jed requested that the item be agendaized for the April 9th Bicycle Committee meeting, addressed wide-ranging concerns regarding the impacts of rumble strips to the comfort and safety of bicycling, and asked that staff provide background information on the project at the next meeting. He indicated that he spoke with Caltrans’ project manager and implementation is not planned for 6-12 months. He, Jim Langely, Lex Rau, and Kem Akol indicated interest in forming a subcommittee to search this issue further. Leo Jed indicated that Piet Canin is also interested.
19. Project Tracking/Subcommittee Tasks: Oral Reports
 - a. City of Santa Cruz Project Tracking: Bill Fieberling indicated that the Coastal Commission approved the Arana Gulch Master Plan and that the City of Santa Cruz is taking steps to bring the project to construction by working to meet the Coastal Commission’s conditions.
 - b. City of Capitola Project Tracking: No update was provided.

- c. City of Scotts Valley project Tracking: The Vine Hill Road bike lane project was completed and vegetation was trimmed back on Green Hills Road.
- d. City of Watsonville Project Tracking: No update was provided.
- e. County of Santa Cruz Project Tracking: Covered as part of earlier item.
- f. Bike to Work Update: This spring marks the 25th anniversary of the Bike to Work event. Bike Week is scheduled for May 6th through May 12th.
- g. CTSC and the South County Bike/Pedestrian Work Group Update: No update was provided.
- h. UCSC: No update was provided.
- i. Legislative Tracking: Leo Jed indicated that there are plans for a 3-foot passing law to be re-introduced in the legislature this year.
- j. Sanctuary Scenic Trail: Cory Caletti reported that the first set of public workshops were attended by over 200 members of the public and good feedback was received on the opportunities and constraints maps shown. Rick Hyman requested a dedicated Bicycle Committee meeting to receive information about the project's planning efforts and to review the maps in greater detail. Staff indicated that an appropriate time for such a presentation is after the Draft Plan will be released and that staff resources are not available to dedicate an extra meeting to such an exercise at this point in time. Ms. Caletti did note that the maps are available online and that Committee members may provide feedback, either individually or through the Technical Subcommittee.
- k. Technical Subcommittee: No report was provided.
- l. Bicyclist/Motorist Safety Education: No report was provided.
- m. RTC Packet Monitoring Subcommittee: No report was provided.
- n. Safe Routes to School: Cory Caletti mentioned that a concrete pad was poured at Rio Del Mar Elementary School and that the approved bike racks will be installed shortly.

20. Meeting adjourned at 9:45 p.m.

NEXT MEETING: The next Bicycle Committee meeting is scheduled for Monday, April 9th, 2012 at the **Special Meeting Time of 6:30 p.m.** at the RTC office, 1523 Pacific Avenue, Santa Cruz, CA.

Minutes respectfully prepared and submitted by:

Cory Caletti, Senior Transportation Planner

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MONTHLY HAZARD REPORT

Date	First Name	Last Name	Contact Info	Location	Cross Street	City	Category	Additional Comments	Forwarded To	Forwarded Date	Response	Images
03/29/12	Andrew	Ward	debnandy@scglobal.net	Encinal St	Highway 9	Santa Cruz	Rough pavement or potholes, traffic signal problems	rider states traffic light crossing highway 9 from encinal st no longer triggers for bicycles, cyclists run the light to proceed if no cars present to trigger signal. Pavement is broken and pot-hole ridden.	Cheryl Schmitt	03/29/12	From Cheryl - Email forwarded to Traffic Maintenance and Streets Maintenance 3/29/12. The traffic signal is maintained by Caltrans, not the City of Santa Cruz.	
03/22/12	Karena	Pushnik	kpashnik@scortc.org	17th Ave	East Cliff	Santa Cruz	Traffic signal problem	rider states sensor for left turn from 17th ave to e. cliff does not trigger left turn signal. Bicycle push button only works for straight through intersection.	Cheryl Schmitt	03/22/12		
03/20/12	Richard	Roullard	roullard@cruzio.com	Eaton St	7th Ave	Santa Cruz	Traffic signal problem	rider states loop detector under bike lane at stop light has stopped recognizing presence of bike.	Cheryl Schmitt	03/20/12		

BIKE COMMITTEE ROSTER - April, 2012

Representing	Member Name/Contact Info	Appointment Dates
District 1 - Voting Soquel, Live Oak, part of Capitola	Kem Akol kemakol@msn.com 247-2944	First Appointed: 1993 Term Expires: 3/13
Alternate	Holly M. Tyler Holly.m.tyler@gmail.com 818-2117	First Appointed: 2010 Term Expires: 3/13
District 2 - Voting Aptos, Corralitos, part of Capitola, Nisene Marks, Freedom, PajDunes	David Casterson, Chair dcasterson@gmail.com 588-2068	First Appointed: 2005 Term Expires: 3/15
Alternate	Eric Horton erichortondesign@gmail.com 419-7296	First Appointed: 3/09 Term Expires: 3/15
District 3 - Voting Big Basin, Davenport, Bonny Doon, City of Santa Cruz	Peter Scott drip@ucsc.edu 423-0796	First Appointed: 2007 Term Expires: 3/13
Alternate	William Menchine (Will) menchine@cruzio.com 426-3528	First Appointed: 4/02 Term Expires: 3/13
District 4 - Voting Watsonville, part of Corralitos	Vacant	Term Expires: 3/12
Alternate	Vacant	Term Expires: 3/12
District 5 - Voting SL Valley, Summit, Scotts Valley, part of Santa Cruz	Rick Hyman bikerick@att.net	First Appointed: 1989 Term Expires: 3/13
Alternate	Vacant	Term Expires: 3/13
City of Capitola - Voting	Andy Ward, Vice Chair Andrew.ward@plantronics.com 462-6653	First Appointed: 2005 Term Expires: 3/14
Alternate	Daniel Kostelec dkostelec@sbcglobal.net 325-9623	First Appointed: Term Expires: 3/14
City of Santa Cruz - Voting	Wilson Fieberling anbfieb@yahoo.com	First Appointed: 2/97 Term Expires: 3/15
Alternate	Carlos Garza carlos@cruzio.com	First Appointed: 4/02 Term Expires: 3/15
City of Scotts Valley - Voting	Lex Rau lexrau@sbcglobal.net 419-1817	First Appointed: 2007 Term Expires: 3/14
Alternate	Gary Milburn 427-3839 hm g.milburn@sbcglobal.net/438-2888 ext 210 wk	First Appointed: 1997 Term Expires: 3/14
City of Watsonville - Voting	Vacant	Term Expires: 3/13
Alternate	Vacant	Term Expires: 3/13
Bike To Work - Voting	Nick Mucha nmucha@ecoact.org 426-5925 x.128	First Appointed: 4/11 Term Expires: 3/13
Alternate	Piet Canin pcanin@ecoact.org 426-5925 ext. 127	First Appointed: 4/02 Term Expires: 3/13
Community Traffic Safety Coalition - Voting	Leo Jed leojed@gmail.com 425-2650	First Appointed: 3/09 Term Expires: 3/15
Alternate	Jim Langley jim@jimlangley.net 423-7248	First Appointed: 4/02 Term Expires: 3/15

All phone numbers have the (831) area code unless otherwise noted.



SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION

1523 Pacific Ave., Santa Cruz, CA 95060-3911 • (831) 460-3200 FAX (831) 460-3215 EMAIL info@sccrtc.org

February 23, 2012

Mayor Don Lane and City of Santa Cruz Councilmembers
809 Center Street
Santa Cruz, CA 95060

RE: Adding Bicycle Lanes on Rooney Street as part of Hwy 1 Auxiliary Lanes Project

Dear Mayor Lane and City Council Members:

I'm writing on behalf of the Bicycle Committee of the Regional Transportation Commission (RTC) to respectfully request that you include bicycle lanes in the upcoming Rooney Street construction between Elk Street and Pacheco Avenue/Morrissey Boulevard. Sidewalks are to be installed as part of the current Highway 1 Auxiliary Lane project, but not bike lanes. We request adding bicycle lanes as well since bicycle lanes in this location are identified in the City's adopted Bicycle Transportation Plan. Also, bicycle lanes would be consistent with AB 1358, the California Complete Streets Act of 2008.

The Bicycle Committee recommended that bike lanes be installed along the route parallel to the freeway (Goss Avenue to Gilbert Lane to Rooney Street to Morrissey Boulevard to Prospect Heights) several months ago after reviewing the freeway construction and detour plans. Cyclists can not use the freeway and so will not benefit from the upcoming freeway auxiliary lane project, but instead will be inconvenienced by removal of the La Fonda bridge and the detouring of motor vehicle traffic. All these streets are slated for bike lanes in the City's Bicycle Transportation Plan with one segment on Morrissey Boulevard between Pacheco Avenue and Park Way having been recently completed.

The Bicycle Committee recently learned that the City rejected its request and instead offered to mark the roads with Shared Lane Pavement Markings (sharrows). The reason given was that the streets in question are too narrow and as residential streets they require continued street parking. However, the situation on Rooney Street between Elk Street and Pacheco Avenue is quite different. First, a large part of this segment is not residential – it is fronted by a church with its own parking lot. Second, this segment has much more traffic than the rest of the route because it is intersected by the freeway on ramp and the Morrissey Boulevard connector. This traffic will greatly increase during highway construction because this part of Rooney Street will be on the detour route when the La Fonda bridge is closed. Motor vehicles empty onto an approximately 11 foot travel lane with no shoulder, rendering sharrows problematic on this segment of the street. There is ample room within the City right of way for both street parking and bike lanes. If the City does not want to use its entire right-of-way, then a bike lane should take priority over parking.

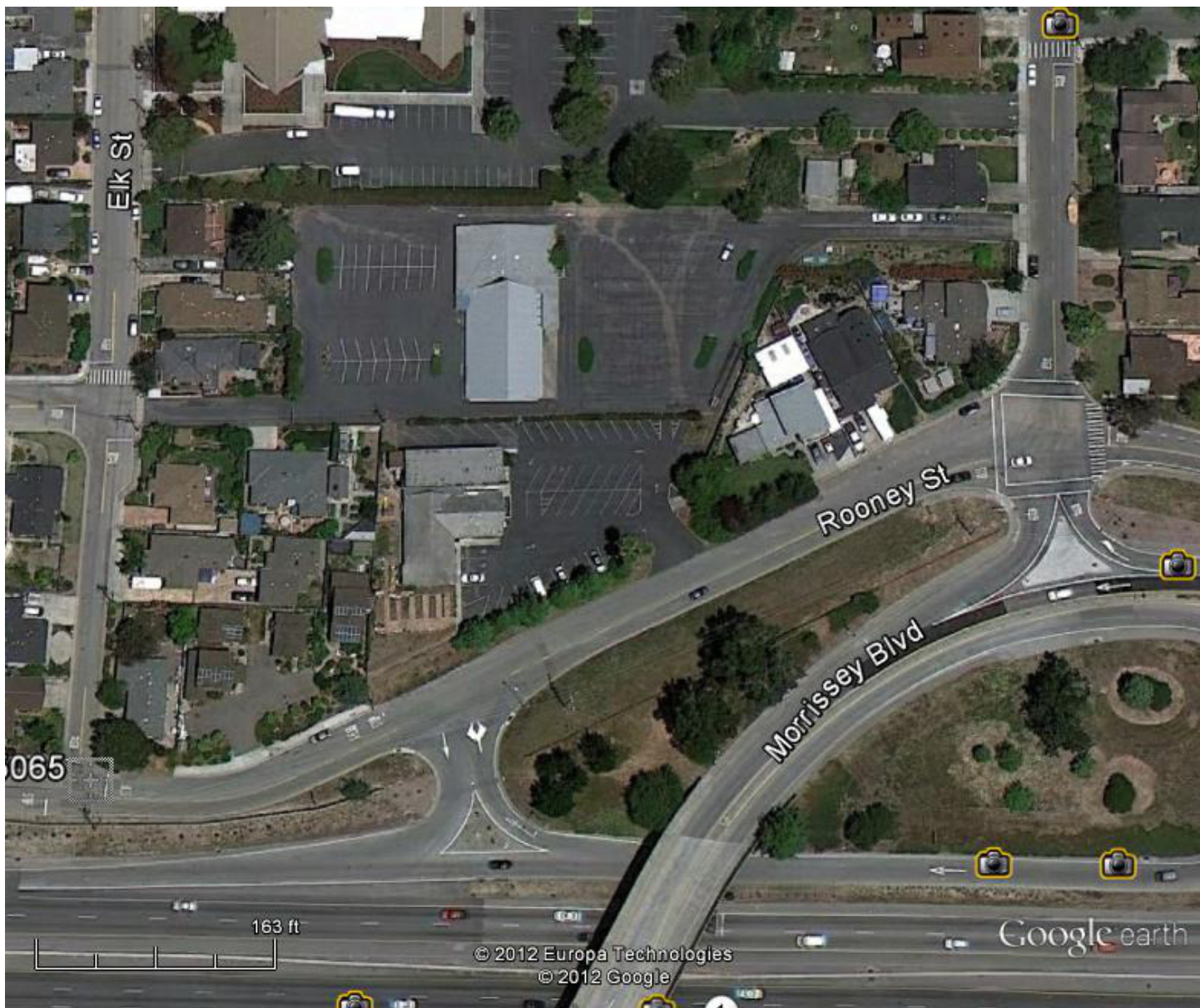
Finally, in order to install the sidewalk, construction with grading and a retaining wall will occur. It has typically been the City's practice to use such opportunities to also install bike lanes where called for in the Bicycle Transportation Plan. We are faced with a rare opportunity to install bike lanes. Once the retaining wall and sidewalks are completed it will be extremely costly and disruptive to perform additional road work. The City should take advantage of the planned construction and install bike lanes to serve the entire community's travel mode choice needs.

Please reconsider your decision and inform the RTC that you are willing to have bike lanes installed on Rooney Street between Elk Street and Pacheco Avenue/Morrissey Boulevard as part of the Highway 1 Auxiliary lane project. On behalf of the area's bicyclists, we thank you for your consideration.

Please contact Cory Caletti, Senior Transportation Planner/Bicycle Coordinator, or Kim Shultz, Senior Transportation Planner/Highway 1 Projects Manager, for any additional information.

Sincerely,

David Casterson
Bicycle Committee Chair



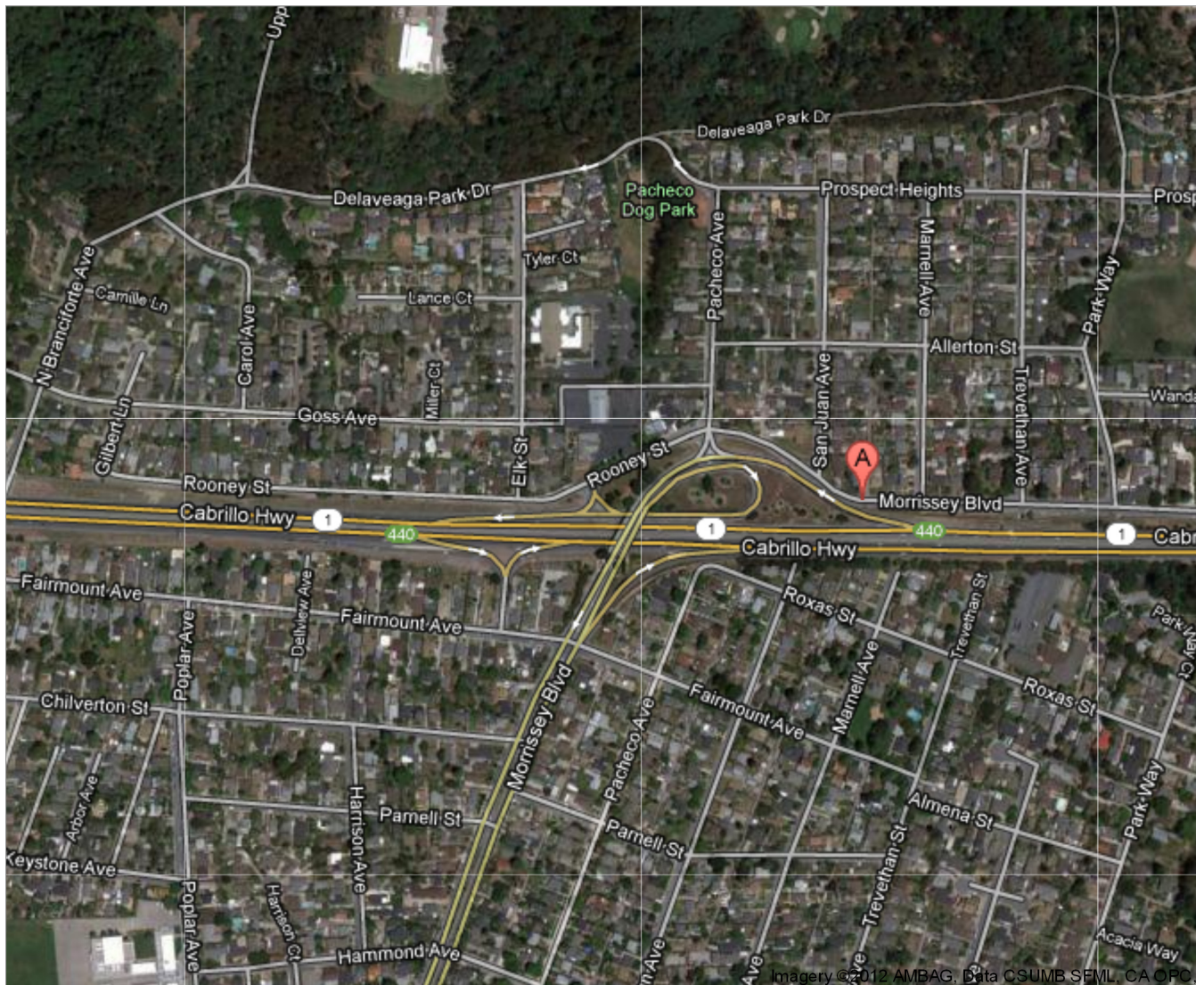
Google earth

feet 400
meters 100





To see all the details that are visible on the screen, use the "Print" link next to the map.







Way 1
Pacheco St

↑
De Loma Pl.
Smoke Center

Morrissey Blvd
Pacheco St



SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION

1523 Pacific Ave., Santa Cruz, CA 95060-3911 • (831) 460-3200 FAX (831) 460-3215 EMAIL info@sccrtc.org

March 22, 2012

Christopher J. Murphy, Director
Office of Traffic Safety
2208 Kausen Drive, Ste. 300
Elk Grove, CA 95758-7115

RE: Letter of Support for the County of Santa Cruz Health Services Agency 2013 OTS grant

Dear Mr. Murphy:

I am writing on behalf of the Bicycle Committee of the Santa Cruz County Regional Transportation Commission (RTC) to offer our support of the County of Santa Cruz County Health Services Agency's (HSA) 2013 OTS grant proposal *Safe and Sober Traffic Safety Education and Encouragement Project*. The project will address pedestrian, bicycle, child passenger, teen driver safety, as well as distracted driving.

The Regional Transportation Commission's Bicycle Committee serves to assist in the development and maintenance of a complete, convenient and safe regional bicycle and pedestrian network. Such a network increases the opportunity and attractiveness of bicycle and pedestrian trips for transportation purposes. The HSA grant complements the Bicycle Committee's goals by providing enhanced safety awareness and education resulting in increased and safer bicycle trips. The RTC also provides direct funding to the HSA's Ride 'n Stride Program, the Community Traffic Safety Coalition, and the coalition's South County Bicycle and Pedestrian Work Group to address community wide bicycle and pedestrian safety education and inter-jurisdictional collaboration on traffic safety needs.

Please feel free to contact the RTC's Bicycle Coordinator and staff to the Bicycle Committee, Cory Caletti at (831) 460-3201 or by email at cacaletti@sccrtc.org, for this and any other Bicycle Committee related matters.

Sincerely,

David Casterson
Chair, RTC Bicycle Committee

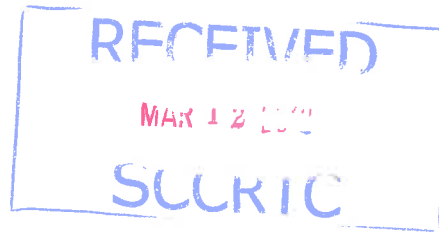
cc: Santa Cruz County Regional Transportation Commission
Santa Cruz County Regional Transportation Commission's Bicycle Committee

DEPARTMENT OF TRANSPORTATION

50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401-5415
TELEPHONE (805) 549-3111
TDD (805) 549-3259
[Http://www.dot.gov/dist05](http://www.dot.gov/dist05)



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March 7, 2012

George Dondero
Executive Director
Santa Cruz Co. Reg. Trans. Comm.
1523 Pacific Street
Santa Cruz, CA 95060

Dear Mr. Dondero:

We are now accepting applications for the Bicycle Transportation Account (BTA) Program for the Fiscal Year 2012/13. Applications are due to our office (postmarked) by April 27, 2012.

The Bicycle Transportation Account provides State funds for city and county projects that improve safety and convenience for bicycle commuters.

To be eligible for BTA funds, you must prepare and adopt a Bicycle Transportation Plan (BTP) that complies with Streets and Highways Code, Section 891.2, items a. – k.

Cities and counties with BTA projects subject to the provisions of a Cooperative Work Agreement (CWA) will not be eligible to compete for BTA funds until the CWA project is complete and closed out.

For more detailed information, please review the program guidelines. The BTA guidelines and an application form are available on the Local Programs website, <http://www.dot.ca.gov/hq/LocalPrograms/bta/BTACallForProjects.htm>.

If you have any questions, please contact Mikie Wickersham, of my staff, at (805) 549-3074.

Sincerely,

GARIN SCHNEIDER
District Local Assistance Engineer

17

TO: Bicycle Committee

FROM: Cory Caletti Transportation Planner and Matt Leal Planning Technician

RE: Bikes Secure – Bike Parking Subsidy Program Applications from Gateway School and El Rancho Shopping Center.

RECOMMENDATION

Staff recommends that the Bicycle Committee review and approve the attached Bikes Secure applications from Gateway School for 4 surface mounted U racks and El Rancho Shopping Center for 9 surface mounted U racks.

BACKGROUND

The Regional Transportation Commission (RTC) has been helping to provide bicycle parking to private businesses, local jurisdictions, school districts and other public agencies in Santa Cruz County since 1994. The Bikes Secure subsidy has been possible thanks to funding from the Monterey Bay Unified Air Pollution Control District's (MBUAPCD) AB2766 program. The RTC was awarded a fourth round of funds in August, 2008. The grant has received its last extension and remaining funds will need to be expended by January 2013.

The fourth Bikes Secure grant will continue to provide bicycle parking to local entities in Santa Cruz County provided they agree to the grant requirements to install the bicycle racks securely in a convenient location for use by patrons and/or employees. Applicants will also need to provide the RTC with pre and post installation bicycle count data and photographs of the installed racks. The grant stipulates that the RTC will provide a maximum of 8 inverted U bike racks per approved applicant but exceptions can be made for more racks on a case-by-case basis. The remaining funds are being expended to purchase U racks. The RTC will have about 74 remaining racks once the shipment of racks is received. The RTC will no longer have any funds to provide subsidies for bike lockers or alternate approved racks. In practice, most applicants choose the inverted U rack available through the RTC. Applications are available online.

DISCUSSION

Grant guidelines indicate that the Bike Secure program target "private businesses, local jurisdictions, school districts, and other public agencies". Attached please find applications from the following organizations:

- Gateway School - 4 surface mounted U racks
- El Rancho Shopping Center - 9 surface mounted U racks

The applications (Attachments 1 and 2) contain maps indicating placement locations, agreements to install racks per RTC specifications, as well as agreements to provide pre and post installation bicycle counts and post installation photographs.

Staff recommends approving requests from the identified applicants as submitted. Staff recommends conditional approval for El Rancho Shopping Center pending receipt by the RTC of the property owner's permission letter. Staff also recommends approving the El Rancho Shopping Center request for 1 additional rack beyond the maximum allowable of 8, due to an anticipated high bicycle ridership in the densely populated community frequenting the large number of establishments. The Committee has made exceptions to the grant limit in the past based on the recognition that larger developments require multiple bicycle parking locations on site. Staff recommends upholding that tradition.

SUMMARY

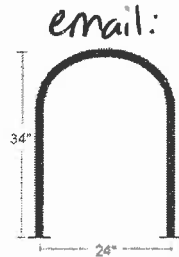
The RTC's Bikes Secure Parking Subsidy Program, funded by the MBUAPCD, provides bicycle racks for Santa Cruz County businesses, jurisdictions, school districts and other public agencies. Staff recommends approving applications for 4 racks for Gateway School and 9 racks for El Rancho Shopping Center.

<u>Attachment 1:</u>	Bikes Secure Application from Gateway School
<u>Attachment 2:</u>	Bikes Secure Application from El Rancho Shopping Center

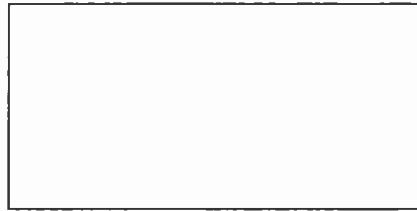
**Santa Cruz County Regional Transportation Commission
Bikes Secure Parking Subsidy Program Application**

Business/Agency Name: Gateway SchoolAddress: 126 Eucalyptus AveContact Person: Jeremy King Phone: 831-345-0036 Fax: _____

Nature of Business: _____



Inverted U



Other: draw or attach picture

The RTC Bicycle Committee recommends the Inverted U rack illustrated above. It is available in surface mount and post hole mount styles with a black powder coat finish. If you are interested in a different rack type, please contact RTC staff regarding other approved rack styles. Please indicate rack type, mount style, finish and number of racks desired. Please be prepared to be flexible on timing of rack availability as it depends upon what we have in stock.

Quantity	Rack Type*	Mount Style
4	Inverted u	Surface Mount

Please Specify Reason for Requesting this Bike Parking Subsidy:

We would like to create a bicycle parking area at the front of our building for parents & visitors to use. Our student bike area is locked during the day & in our community carbon footprint reduction survey we received feed back that a lock up area out front would greatly improve the likelihood of parents riding bikes.

In addition to this page, to complete the application, ALL THREE of the following are required:

- ☒ Completed Agreement to Place and Maintain Bike Racks and Provide Pre and Post Bicycle Count Data and Photographs (following page);
- ☒ Site map with proposed bike parking locations in relation to buildings, auto parking, etc.;
- ☒ Documented property owner's permission (a letter) or public permit, if necessary, to install bicycle racks

I certify that the owner of this property has granted permission to install bicycle racks at the location(s) above and the letter of permission or permit is included with this application. To the best of my knowledge and belief, the data and information included in this application is true and correct and I am authorized to file this application on behalf of the applicant.

Name and Title: Jeremy King I.T. manager / Facilities ManagerSignature: _____ Date: 10-25-11

Bikes Secure Parking Subsidy Program

AGREEMENT TO PLACE AND MAINTAIN BICYCLE RACKS and PROVIDE PRE AND POST INSTALLATION BICYCLE COUNT DATA AND PHOTOGRAPHS

The following is an agreement between the Santa Cruz County Regional Transportation Commission (RTC) and the undersigned, hereinafter referred to as recipient.

The recipient agrees that after being awarded a bike parking subsidy and prior to the installation of the bicycle parking equipment the RTC will be provided with pre installation bicycle count data for the proposed installation site. Bicycle count surveys will count parked bikes within a 200 foot radius of the installation site during the period between 9 am and 11 am on a sunny Tuesday through Thursday, when school is in session. Applicants may provide the pre-installation count here:

Date: 10-25-11 Time of day: 11am Weather condition: Sunny Bicycles counted: 1

The recipient agrees that within one month of receipt of bike parking devices from the RTC or its contracted supplier, unless other arrangements have been made, to install (#) 4 bicycle racks capable of holding (#) 8 bicycles at the location described in the attached map. Said map is attached hereto as Exhibit A, and by this reference is incorporated as part of this Agreement.

Recipient will arrange for and pay for the installation of the following type of bike racks:

The recipient agrees to attach said bike racks in a secure and theft-proof fashion following the appropriate standard outlined in the RTC's Bikes Secure Program Guidelines. Recipient also agrees to maintain the bicycle parking facilities and surrounding area for the life of the devices.

The recipient agrees to provide post installation bicycle counts and photographs of the installed bicycle parking equipment one year after installation of the bicycle parking devices. Surveys will count parked bikes within a 200 foot radius of the installed bicycle parking devices during the period between 9 and 11 a.m. on a sunny Tuesday through Thursday, when school is in session. The post installation survey will be conducted at the same location, during the same time period and month of the year as the pre installation survey.

The recipient agrees to exonerate, indemnify, defend, and hold harmless the RTC, its officers, agents, employees, and volunteers, from and against any and all claims, demands, losses, damages, defense costs, or liability of any kind or nature which the RTC may sustain or incur or which may be imposed upon it for injury to or death of persons, or damage of property as a result of, arising out of, or in any manner connected with the recipient's performance under the terms of this agreement, excepting any liability arising out of the sole negligence of the RTC. Such indemnification includes any damage to the person(s), or property(ies) of the recipient and third persons.

Attachment 1

The recipient further agrees that the RTC may exercise its option to repossess said bicycle parking devices, upon desertion of the present place of business by the business or upon removal of the rack(s) from the herein specified location(s).

Date: 10-25-11 By: Jeremy King I.T. Director / Facilities Manager
Name & Title/
126 Eucalyptus Ave, Santa Cruz 95060
Address, City

Date: _____ By: _____
George Dondero, RTC Executive Director

Post-Installation Count (Date Expected: _____) Photographs Provided?: _____

Date: _____ Time of day: _____ Weather condition: _____ Bicycles counted: _____

From: Jeremy King [mailto:jeremy.king@gatewaysc.org]
Sent: Tuesday, February 07, 2012 3:55 PM
To: Matt Leal
Subject: Re: Gateway School Application

Matt,

Find the overhead picture attached, not the prettiest thing in the world but it should do the trick. ***I do have the authority to install the racks so that should cover it.*** Please let me know if you need anything else and thanks again for the reminder, I started this the first day you e-mailed me and then let it fall off my radar! <image001.jpg>

Jeremy King
Facilities & IT Director
Gateway School
126 Eucalyptus Avenue
Santa Cruz, Ca 95060
Voice: 831-345-0036
Fax: 831-454-0843
www.gatewaysc.org

On Feb 7, 2012, at 8:42 AM, Matt Leal wrote:

Good morning,

I have not yet received any of the missing items from below. Please send items by Wednesday the 8th if you would like to have your application reviewed by the Bicycle Committee for approval. If not your application can go for review in the April meeting once I have the missing items.

Thank you,

-----Original Message-----

From: Matt Leal
Sent: Thursday, January 26, 2012 10:20 AM
To: Jeremy King
Subject: RE: Gateway School Application

Hi Jeremy,

Thanks for getting back to me, I hope all is well.

The two things I need are;

1. I need a aerial map showing where you are proposing to put the bike racks and where they are in relation to the entrance. This can simply be a Google map that you can label where the entrance is and where the proposed racks are being placed.

2. I need documented property owner's permission (a letter) saying that you can install the racks. So for the school I believe that is the principal unless you have the authority, which in that case I have your signature and no further action would be needed.

Let me know if you have any questions.

Have a great day,

-----Original Message-----

From: Jeremy King [mailto:jks01@gmail.com]

Sent: Wednesday, January 25, 2012 2:33 PM

To: Matt Leal

Subject: Gateway School Application

Matt,

I am finally getting back to you from the voice mail you left me a bit ago. Let me know what you need from us and I will be happy to get it to you. Thanks for all your help!

Matt,

Find the overhead picture attached, not the prettiest thing in the world but it should do the trick. I do have the authority to install the racks so that should cover it. Please let me know if you need anything else and thanks again for the reminder, I started this the first day you e-mailed me and then let it fall off my radar!

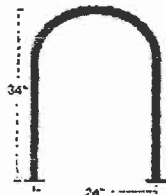


Jeremy King
Facilities & IT Director
Gateway School
126 Eucalyptus Avenue
Santa Cruz, Ca 95060
Voice: 831-345-0036
Fax: 831-454-0843
www.gatewaysc.org

Attachment 2

**Santa Cruz County Regional Transportation Commission
Bikes Secure Parking Subsidy Program Application**

Business/Agency Name: EL RANCHO SHOPPING CENTER % WALT ELLER COMPANY
 Address: 3912 PORTOLA DRIVE #4 SANTA CRUZ, CA 95062
 Contact Person: PATTI ELLER ROBB Phone: 831-475-0460 Fax: 831-475-0189
 Nature of Business: PROPERTY OWNER / SHOPPING CENTER LEASING



Inverted U

SEE ATTACHED
PHOTO'S

Other: draw or attach picture

The RTC Bicycle Committee recommends the Inverted U rack illustrated above. It is available in surface mount and post hole mount styles with a black powder coat finish. If you are interested in a different rack type, please contact RTC staff regarding other approved rack styles. Please indicate rack type, mount style, finish and number of racks desired. Please be prepared to be flexible on timing of rack availability as it depends upon what we have in stock.

Quantity	Rack Type*	Mount Style
9	INVERTED U	SURFACE M

Please Specify Reason for Requesting this Bike Parking Subsidy:

SEE ATTACHED "MEMO"

In addition to this page, to complete the application, ALL THREE of the following are required:

- ☐ Completed Agreement to Place and Maintain Bike Racks and Provide Pre and Post Bicycle Count Data and Photographs (following page);
- ☐ Site map with proposed bike parking locations in relation to buildings, auto parking, etc.;
- ☐ Documented property owner's permission (a letter) or public permit, if necessary, to install bicycle racks

I certify that the owner of this property has granted permission to install bicycle racks at the location(s) above and the letter of permission or permit is included with this application. To the best of my knowledge and belief, the data and information included in this application is true and correct and I am authorized to file this application on behalf of the applicant.

Name and Title: PATTI ELLER ROBB, SENIOR VICE PRESIDENT

Signature: Patti Eller Robb Date: 11/29/2011

Attachment 2

Bikes Secure Parking Subsidy Program**AGREEMENT TO PLACE AND MAINTAIN BICYCLE RACKS and
PROVIDE PRE AND POST INSTALLATION BICYCLE COUNT DATA AND
PHOTOGRAPHS**

The following is an agreement between the Santa Cruz County Regional Transportation Commission (RTC) and the undersigned, hereinafter referred to as recipient.

The recipient agrees that after being awarded a bike parking subsidy and prior to the installation of the bicycle parking equipment the RTC will be provided with pre installation bicycle count data for the proposed installation site. Bicycle count surveys will count parked bikes within a 200 foot radius of the installation site during the period between 9 am and 11 am on a sunny Tuesday through Thursday, when school is in session. Applicants may provide the pre-installation count here:

Date: _____ Time of day: _____ Weather condition: _____ Bicycles counted: _____

The recipient agrees that within one month of receipt of bike parking devices from the RTC or its contracted supplier, unless other arrangements have been made, to install (#) 9 bicycle racks capable of holding (#) 18 bicycles at the location described in the attached map. Said map is attached hereto as Exhibit A, and by this reference is incorporated as part of this Agreement.

Recipient will arrange for and pay for the installation of the following type of bike racks:

The recipient agrees to attach said bike racks in a secure and theft-proof fashion following the appropriate standard outlined in the RTC's Bikes Secure Program Guidelines. Recipient also agrees to maintain the bicycle parking facilities and surrounding area for the life of the devices.

The recipient agrees to provide post installation bicycle counts and photographs of the installed bicycle parking equipment one year after installation of the bicycle parking devices. Surveys will count parked bikes within a 200 foot radius of the installed bicycle parking devices during the period between 9 and 11 a.m. on a sunny Tuesday through Thursday, when school is in session. The post installation survey will be conducted at the same location, during the same time period and month of the year as the pre installation survey.

The recipient agrees to exonerate, indemnify, defend, and hold harmless the RTC, its officers, agents, employees, and volunteers, from and against any and all claims, demands, losses, damages, defense costs, or liability of any kind or nature which the RTC may sustain or incur or which may be imposed upon it for injury to or death of persons, or damage of property as a result of, arising out of, or in any manner connected with the recipient's performance under the terms of this agreement, excepting any liability arising out of the sole negligence of the RTC. Such indemnification includes any damage to the person(s), or property(ies) of the recipient and third persons.

Attachment 2

The recipient further agrees that the RTC may exercise its option to repossess said bicycle parking devices, upon desertion of the present place of business by the business or upon removal of the rack(s) from the herein specified location(s).

Date: 11/29/11 By: PATTI ELLEN ROBB SENIOR VICE PRESIDENT
Name & Title
3912 PORTOLA DRIVE #4 SANTA CRUZ CA 95062
Address, City

Date: _____ By: _____
George Dondero, RTC Executive Director

Post-Installation Count (Date Expected: _____) Photographs Provided?: _____

Date: _____ Time of day: _____ Weather condition: _____ Bicycles counted: _____

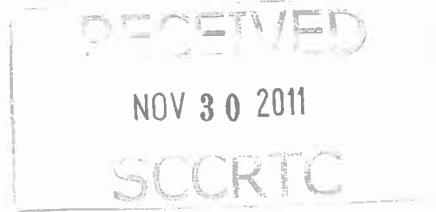


El Rancho Shopping Center

Located at 38th & Portola, Santa Cruz, CA 95062

Corporate Office: 3912 Portola Drive, Suite #4, Santa Cruz, CA 95062

Phone (831) 475-0460 Fax (831) 475-0189



November 29, 2011

MEMO

The El Rancho Shopping Center is approximately 32, 000 foot, (562 Lineal feet in length) neighborhood shopping center located at 38th and Portola Drive, Santa Cruz, CA 95062

Thus, requesting 9 bike racks for use at both ends of the complex.

Requesting, 4 racks in front of Pleasure Point Yoga , Musical Me, Inc, Mt Mike Pizza, and Dunlap's Doughnuts, Portola Hair Salon, Proposed Location of bike rack would be in the center of each of these businesses at the front of each business. Refer to enclosed site map and photos.

Requesting 5 bike racks on West side of Coffeetoipia, Refer to enclosed site map and photos. These racks will service the businesses at West side of complex, Coffeetopia Korean Martial Arts Academy, Browns ECO Aquarium Shop, Ire Motivations Retail Shop, Perfect Nails, Laundry Works and Dynasty Restaurant. Thus, these racks will be at frontage of these businesses.

El Rancho Shopping Center

Patti Eller Robb
Senior Vice President



El Rancho Shopping Center 38th and Portola Drive Santa Cruz, CA. 95062

Google Earth photo of proposed location for Bike Racks.

This photo will serve the requested (4) Four bike racks for location:

3707 Portola Drive in front of the businesses, Pleasure Point Yoga, and Music Me Inc.

See the MEMO for the names of additional business these racks will serve.



Google earth

feet 100
meters 30



El Rancho Shopping Center 38th and Portola Drive Santa Cruz, CA. 95062

Google Earth photo of proposed location for Bike Racks.

This photo will serve the requested (5) Five bike racks for location:

3703 Portola Drive in front of the businesses, Coffeetopia, and Korean Martial Arts

See the MEMO for the names of additional business these racks will serve.

TO: Bicycle Committee
FROM: Cory Caletti, Senior Transportation Planner
RE: Officer Elections

RECOMMENDATION

Staff recommends that the Bicycle Committee nominate and vote for a Chair and Vice-Chair to serve for the next year.

DISCUSSION

David Casterson and Andy Ward have served the Bicycle Committee as Chair and Vice-Chair, respectively, for the previous year. In April of each year, new elections are held. Staff recommends that Committee members consider whether they are interested in serving in either one of these capacities. Interested members should be familiar with Robert's Rules of Order, be willing to facilitate the meetings in a diplomatic and constructive manner and have some history of the Bicycle Committee and its workings.

The SCCRTC's *Rules and Regulations* provides the following information regarding officers' duties:

A Chairperson and Vice Chairperson for each Committee shall be elected to serve for a term of one year. The Committee shall elect its officers at the first meeting following the March SCCRTC meeting of every year. Election shall be by a roll call vote. The Chairperson shall preside at all meetings of the Committee. The Chairperson shall maintain order and decorum at the meetings, decide all questions of order, and announce the Committee's decisions. The Vice Chairperson shall perform the duties of the Chairperson in his or her absence. In the event both officers are absent from the Committee, the majority of quorum may appoint a presiding officer for that meeting. All officers shall continue in their respective offices until their successors have been elected and have assumed office.

The Chair and Vice-Chair provide assistance to each other in their duties and should be available to sign letters on the Committee's behalf and to attend occasional meetings.

On behalf of the Bicycle Committee, staff thanks David Casterson and Andy Ward for their fine service over the past year.

SUMMARY

Staff recommends that the Bicycle Committee hold elections for a new Chair and Vice-Chair to serve the Committee for the next year, through March 2013.

TO: Bicycle Committee

FROM: Cory Caletti, Senior Transportation Planner

RE: Highway 1 Rumble Strips Project

RECOMMENDATION

Staff recommends that the Bicycle Committee receive a presentation from Caltrans and consider plans to install rumble strips on Highway 1 from Shaffer Road to Swanton Road past Davenport.

BACKGROUND

The RTC, its Bicycle Committee and staff were made aware of a project initiated by Caltrans to install rumble strips on Highway 1 from Shaffer Road in Santa Cruz to Swanton Road past Davenport in response to a high number of run-off-the-road collisions. Rumble strips are grooved indentations effective in preventing run-off-the-road collisions by alerting distracted drivers when they are veering off the travel way. Rumble strips, however, can also have negative impacts on bicyclists as they are uncomfortable to ride over and can cause cyclists to lose control of their bicycle and fall. They also limit a cyclist's ability to maneuver within a shoulder or bike lane in response to debris or other hazard avoidance needs.

At the last Bicycle Committee meeting, members voiced concerns and requested that the item be brought back to a future meeting for in-depth discussion. Additionally, members requested that more information be provided on the scope of the project. RTC Commissioners Neal Coonerty, Don Lane, and John Leopold also requested that Caltrans engage the community in the project's development.

DISCUSSION

The RTC, its Bicycle Committee and staff recently became aware of a Caltrans project to install shoulder or edge line rumble strips and centerline rumble strips on Highway 1 between Shaffer Road and Swanton Road, north of Davenport. Caltrans reports that the project was initiated in response to a high number of run-off-the-road accidents. While appreciative of Caltrans' efforts to address high motor vehicle collisions on Highway 1, the RTC's Executive Director George Dondero expressed concerns with the application of rumble strips as a way to alleviate the problem on a roadway with heavy bicycle ridership ([Attachment 1](#)). Caltrans provided a response letter ([Attachment 2](#)) outlining the number and type of collisions and the 1-2 year implementation time frame. At the March 1st RTC meeting, Caltrans' District Director committed to conducting an active public outreach effort through the RTC's Bicycle Advisory Committee in order to receive and consider community concerns and to address the needs of all roadway users.

The project received state-wide and national attention due to wide-spread concern about the potential negative impacts to the popular, state designated Pacific Coast Bicycle Route which draws many charity rides, races, touring cyclists and other local and visiting recreationalists. A number of articles were published expressing opposition to the treatment or alerting readers to the project's development ([Attachment 3](#)). Additionally, the RTC received approximately 90 letters

outlining the hazards that rumble strips pose to cyclists and requesting that the project be abandoned (Attachment 4). Caltrans indicated having received a similar number of letters. Dozens were also sent to Governor Brown.

At its previous meeting, the Bicycle Committee formed a subcommittee to better understand the Caltrans proposal. To facilitate a better understanding of current conditions impacting bicycle travel on Highway 1, RTC staff and subcommittee members summarized bicycle related activities, potential hazards, and the number of organized bicycle rides currently held on Highway 1 (Attachment 5). Additionally, the subcommittee compiled technical guidelines related to use and installation of rumble strips on roadways with heavy bicycle ridership (Attachment 6).

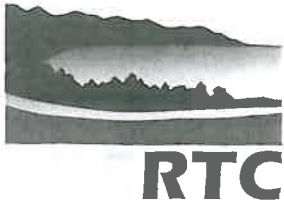
Caltrans' rumble strip project managers and District 5 Deputy Directors will attend the April 9th Bicycle Committee meeting to provide a presentation regarding the crash analysis leading to the project's initiation, address concerns regarding adverse impacts to bicycle ridership and receive public input. Because of the high turn-out expected, the meeting location has been changed to a larger venue. The meeting will therefore be held at the Museum of Art and History at 705 Front Street, Santa Cruz (around the corner from the RTC office), at 6:30pm. Members of the public are invited to attend and provide input.

SUMMARY

Staff recommends that the Bicycle Committee receive a presentation regarding Caltrans' Highway 1 rumble strip project from Shaffer Road to Swanton Road, north of Davenport and provide input. The project is anticipated to go to construction within the next year or two.

Attachments:

- 1) Letter from George Dondero, RTC Executive Director, to Rich Krumholtz, (now retired) Caltrans District 5 Director
- 2) Response letter from District Director Rich Krumholtz
 - a) Executive Summary of Caltrans' Rumble Strip report referenced in letter
 - b) Caltrans Rumble Strip Policy Directive referenced in the letter
- 3) Rumble strip articles in online publications
- 4) Comments from the public in opposition of rumble strips
- 5) Current conditions summary
- 6) Technical guidelines provided by the Bike Committee's Rumble Strips Technical Subcommittee



Attachment 1

SANTA CRUZ COUNTY REGIONAL TRANSPORTATION COMMISSION

1523 Pacific Ave., Santa Cruz, CA 95060-3911 • (831) 460-3200 FAX (831) 460-3215 EMAIL info@sccrtc.org

March 8, 2012

Rich Krumholz, District Director
Caltrans District 5
50 Higuera Street
San Luis Obispo, CA 93401-5415

Re: Rumble Strips on Highway 1 in Santa Cruz County

Dear Mr. Krumholz:

I understand that Caltrans has initiated a project to install centerline and shoulder rumble strips on Highway 1 from the Mission Street/Shaffer Road intersection to Swanton Road after a recent analysis of collision data. As you know, the Regional Transportation Commission and staff have concerns regarding how this project is scoped and the potential impacts to all road users.

Highway 1 is heavily trafficked by tourists, local residents, bicyclists, surfers, equestrians, as well as agricultural and refuse trucks. Highway 1 is also recognized as the Pacific Coast Bicycle Route and due to its spectacular scenery, draws many recreational bicycle riders, mountain bikers accessing Wilder Ranch, charity ride participants, weekly training group riders, organic farm bike delivery operations, as well as triathlon and bicycle road races, most notably the Amgen Tour of California. Rumble strips with their deep depressions in the asphalt that alert inattentive drivers to when they are veering out of the travel lane are an unsuitable riding surface for bicyclists and can potentially cause a loss of control when ridden over.

While I understand that rumble strips would not be placed where the shoulder is less than 5 feet wide, I urge the project team to consider the effective and usable width of the shoulder since many drain grates, debris, failing asphalt, tracked dirt, overgrown landscaping and other obstructions limit the usability of the shoulder. Additionally, in order to maintain continuity throughout the region only centerline striping should be considered since immediately to the north and south of the Santa Cruz County line (in San Mateo and Monterey County) no rumble strips are installed in the shoulder. Please notify Cory Caletti, RTC Senior Transportation Planner/Bicycle Coordinator, of any project team meetings where these issues may be addressed.

Finally, since this topic is generating community, state and even national interest, please consider providing a report to the RTC covering the project scope, budget, time frame, and the crash data used to determine this project's necessity.

If you have additional questions, please contact Cory Caletti at ccaletti@sccrtc.org or (831) 460-3201.

Sincerely,



George Dondero
Executive Director

cc Regional Transportation Commission
Regional Transportation Commission's Bicycle Advisory Committee

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DEPARTMENT OF TRANSPORTATION

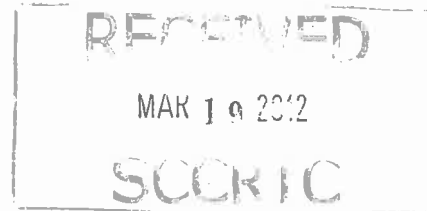
50 HIGUERA STREET
SAN LUIS OBISPO, CA 93401-5415
PHONE (805) 549-3101
FAX (805) 549-3329
TTY 711
<http://www.dot.ca.gov/dist05/>



*Flex your power!
Be energy efficient!*

March 15, 2012

George Dondero
Executive Director, SCCRTC
1523 Pacific Ave
Santa Cruz, CA 95060-3911



Dear Mr. Dondero:

This is in regard to your recent correspondence to the California Department of Transportation (Caltrans) regarding rumble strips on the centerline and shoulders of Highway 1 from Shaffer Road to Swanton Road in Santa Cruz County.

Caltrans takes pride in our mission to *Improve Mobility Across California*, and safety is always our top goal. To align with the Caltrans mission and goals, we strive to ensure that projects meet the needs of all users of the state highway system. The need for safety improvements on Highway 1 between Shaffer Road and Swanton Road was recently reviewed due to the pattern of accidents, especially run-off-road vehicle accidents. For the period of 01/01/2004 to 12/31/2009, this corridor experienced a total of seven fatal collisions that killed eight people, including a cyclist. During this same time period, there were 77 non-fatal injury collisions involving 131 people. Thirty-seven percent (37%) of these collisions involved vehicles running off the right shoulder of the highway, and 14% percent involved bicycles. Nationally, single vehicle run-off-road accidents account for one out of every three fatal collisions. The Federal Highway Administration (FHWA) reports drift-off-the-road crashes caused by drowsy, distracted, or otherwise inattentive drivers are reduced by shoulder or edge line rumble strips.

Between 1998 and 2000, Caltrans and members of the bicycle community formed a Rumble Strip Task Force which worked with the California Bike Advisory Committee to explore various rumble strip patterns that could be traversed by bicyclists and also provide an adequate warning to errant drivers. Various test vehicles were used in this study, as well as bicycle riders of various ages and experience levels. The Rumble Strip Task Force and Caltrans efforts received favorable comments from cyclists who helped develop the 2001 Report Evaluation of Milled-In Rumble Strips, Rolled-In Rumble Strips and Audible Edge Stripe. (<http://www.dot.ca.gov/dist05/traffic/rsreport01.pdf>)

George Dondero
March 15, 2012
Page 2

As a result of that study, revised standard plans were adopted to make rumble strips more accommodating for bicyclists, making them traversable without discomfort or control issues. Caltrans Rumble Strip policy update, October 5, 2011, also provides for a design that places the rumble strip under the vehicle travel way edge line.
(<http://www.dot.ca.gov/dist05/traffic/rspoldir.pdf>)

Caltrans will work with the community to maintain the Highway 1 corridor while improving the safety for all users of the state highway system. We are in the initial scoping stages of this safety project and construction is expected to begin a year or two from now. Caltrans' dialogue with the bicycle community will continue, and input from all users is important to us. We are planning on attending the April 9, 2012 Bicycle Advisory Committee meeting and would be happy to present information as part of the Director's report at a future board meeting.

When the project is complete, it is my sincere hope that it reflects the needs of the community who share our goal of maintaining safety for all users on this scenic stretch of Highway 1.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Richard Krumholz', with a stylized flourish at the end.

RICHARD KRUMHOLZ
District Director

Cc: Regional Transportation Commission
Regional Transportation Commission's Bicycle Advisory Committee

Evaluation of Milled-In Rumble Strips, Rolled-In Rumble Strips and Audible Edge Stripe

Prepared by the

Traffic Operations Program
California Department of Transportation
Business, Transportation and Housing Agency
State of California

Study under the General Direction of:

Jesse Bhullar

Study Under the Direct Supervision of:

Craig Copelan

Principal Investigators:

Troy Bucko
Ahmad Khorashadi

Research Report Prepared By:

Troy Bucko

Evaluation of Milled-In Rumble Strips, Rolled-In Rumble Strips and Audible Edge Stripe

FINAL REPORT

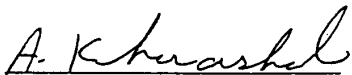
May 2001

Prepared by:



Transportation Engineer

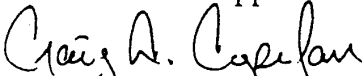
3/30/2001
Date



Transportation Engineer (Registered)

4/7/01
Date

Reviewed and Approved by:



Senior Transportation Engineer

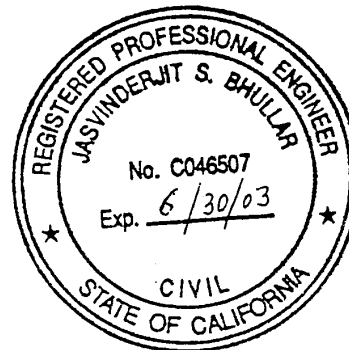
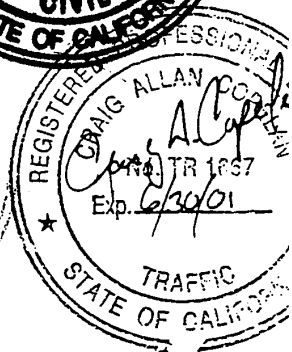
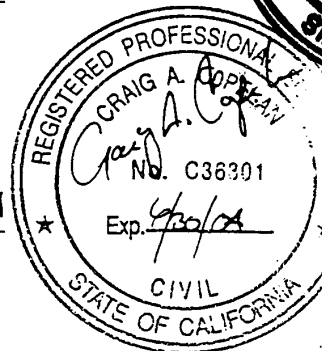
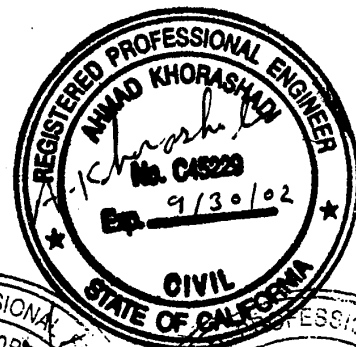
4/16/01
Date

Approved by:



Chief, Office of Traffic Safety
Program and Research

5/8/01
Date



1. REPORT NO.	2. GOVERNMENT ACCESSION NO.	3. RECIPIENT'S CATALOG NO.
4. TITLE AND SUBTITLE Evaluation of Milled-In Rumble Strips, Rolled-In Rumble Strips and Audible Edge Stripe		5. REPORT DATE May 2001 /Revised June 2002
		6. PERFORMING ORGANIZATION
7. AUTHOR(S) Troy R. Bucko and Ahmad Khorashadi		8. PERFORMING ORGANIZATION REPORT NO. 59-680852
9. PERFORMING ORGANIZATION NAME AND ADDRESS Office of Transportation Safety and Research California Department of Transportation 1120 N Street Sacramento, CA. 95819		10. WORK UNIT NO.
		11. CONTRACT OR GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS California Department of Transportation 1120 N Street Sacramento CA. 95819		13. TYPE OF REPORT & PERIOD COVERED FINAL
		14. SPONSORING AGENCY CODE
15. SUPPLEMENTARY NOTES This project was performed in cooperation with the US Department of Transportation, Federal Highway Administration, under the research project titled "INCORPORATING SHOULDER IMPROVEMENTS, RUMBLE STRIPS, AND AUDIBLE EDGE STRIPE UNDER THE CLEAN UP THE ROADSIDE		
16. ABSTRACT <p>In order to find a rumble strip which is both effective in preventing run-off-road collisions and bicycle friendly, eleven prototypes of incised, pressed and proprietary rumble strip configurations were installed at the Caltrans Dynamic Test Facility in West Sacramento, California for testing. The objectives were (1) to collect sound level and vibration data from various test vehicles equipped with recording instruments while being driven over the rumble strips, and (2) to collect subjective driver input on vehicle sound, vibration and vehicle controllability while driving over the same rumble strips and (3) evaluate the installed rumble strip treatments with bicycle and motorcycle rideability.</p> <p>Results of the instrumented and subjective testing of the rolled and milled-in strips using light vehicles concluded that all five strips provided adequate alerting properties for both sound and vibration. However, due to the commercial vehicles size, weight and operating noise levels, it was found that the strips had alerting values ranging from low to insignificant. Results of the instrumented and subjective testing for the proprietary materials using light vehicles found that the chip seal and raised profile thermoplastic had alerting values ranging from low to</p>		

EXECUTIVE SUMMARY

The goal of this study was to evaluate and provide a ground in rumble strip treatment that could be traversed by bicyclists. The new rumble strip treatment would maintain sufficient audible noise and/or tactile vibration to alert the driver of an errant vehicle and to prevent a potential run off road collision. Ground in strips of various widths and depths have been used at various locations on the state highway system to provide a fast response to run off road collisions, which result in severe injuries and fatalities. They have been demonstrated to provide substantial reductions in run off road collisions similar to those provided by rolled in rumble strips, which are commonly used on the California highway system. Concerns about the use of ground in rumble strips from the bicycle community were expressed to the Department by the California Bicycle Advisory Council and the Caltrans representative to this group Mr. Rick Blunden.

In response to the concerns voiced by the bicycle community and interested in obtaining the use of a new rumble strip tool that could be used to minimize run off road collisions This report “The Evaluation of Milled-In Rumble Strips, Rolled-In Rumble Strips and Proprietary Applications” was completed. The report was developed at the request of a Rumble Strip Task Force, which was convened in August of 1998 by Ms. Kim Nystrom, Chief of the Caltrans Office of Transportation Safety Program and Research. The committee chaired by Mr. Craig Copelan of the Traffic Safety Research branch recommended that a study be prepared to evaluate types of ground in rumble strips that would be most suitable for use on the state highway system where bikes are allowed and to incorporate feedback from the bicycle community in the development of these rumble strips.

In February of 1999, the Rumble Strip Task Force requested that the Office of Transportation Safety place a moratorium on the installation of ground in rumble strips (where bicycles were allowed), until a study of ground in rumble strips, as well as other rumble strip types, could be conducted. In March of 1999, the Office of Transportation Safety placed the

moratorium on the installation of ground in rumble strips and directed the Traffic Research Branch to conduct a study on a variety of rumble strips types which would incorporate input from the bicycle community.

The criteria outlined by the Rumble Strip Task Force were,

- 1) to review current practices of Rumble Strip Treatments where bicycles are allowed access,
- 2) to compare current and newly developed treatments that may produce similar results in reducing run off road collisions, and provide a surface that was traversible by bicyclists, and
- 3) to maintain current noise and vibration acceptability factors for rumble strip treatments.

As a result of this study, the following changes in current practice and policy are recommended:

1. Adopt a *new* Standard Plan A40 for rolled-in indentations and ground-in indentations as shown on page 65. The new standard plan would reduce the effective width of the current rolled in indentation (see page 9) from 600 mm (2 feet) to 300 mm (1 foot), and add a ground in indentation with a depth range of 8 ± 1.5 mm ($5/16 \pm 1/16$ inch) and an effective width of 300 mm (see page 65). The new standard plan requires a minimum 1.5 m (5 foot) shoulder for installation.
2. Allow for the installation of raised/inverted profile thermoplastic traffic stripe as a substitute for rumble strip treatment in areas where the shoulder is less than the required 1.5 m for ground in and rolled in indentations, and to provide a continuous rumble strip pattern over bridge decks where rumble strips may be place on either or both sides of a bridge deck.
3. Adopt the installation (page 66) which guides the placement of rumble strip treatments based on shoulder width and bicycle use.
4. Revise the Caltrans Traffic Manual to address changes in the current policy and include the Rumble Strip Installation Guide, as well as a reference to the Rumble Strip Indentation Construction Detail, for the placement of rumble strip indentations on the shoulder, over

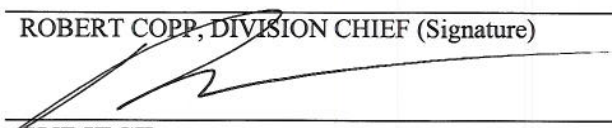
bridge decks and at the approach and exit of entrance/ exit ramps (See Appendix F: TOP D#00-04).

It is recommended that these changes take effect immediately and manuals and plans be updated as soon as possible. It is further recommended that the Highway Safety Improvement Program conduct a before and after studies, at those locations where ground in rumble strips are installed using this new policy to evaluate the new policy change and to measure the effectiveness of the new type of rumble strips in reducing run off road collisions. The results of these before and after studies should be reported in the Highway Safety Improvement Program Annual report.

POLICY DIRECTIVE

TR-0011 (REV 9/2006)

Attachment 2b

TRAFFIC OPERATIONS POLICY DIRECTIVE		NUMBER: 11-04	PAGE: 1 of 5
ROBERT COPP, DIVISION CHIEF (Signature) 		DATE ISSUED: October 5, 2011	EFFECTIVE DATE: October 5, 2011
SUBJECT: Guidelines for Installation of Rumble Strips		DISTRIBUTION <input checked="" type="checkbox"/> All District Directors <input checked="" type="checkbox"/> All Deputy District Directors - Traffic Operations <input checked="" type="checkbox"/> All Deputy District Directors - Maintenance <input checked="" type="checkbox"/> All Deputy District Directors - Construction <input checked="" type="checkbox"/> All Deputy District Directors - Design <input type="checkbox"/> All Deputy District Directors - Transportation Planning <input checked="" type="checkbox"/> Chief, Division of Engineering Services <input checked="" type="checkbox"/> Chief Counsel, Legal Division <input type="checkbox"/> Publications (California MUTCD Website) www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm <input checked="" type="checkbox"/> Headquarters Division Chiefs for: <u>Construction, Maintenance, Design</u>	
DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		IF YES, DESCRIBE California Department of Transportation Standard Plans and Specifications: See Implementation Section B	
WILL THIS DIRECTIVE BE INCORPORATED IN THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		IF YES, DESCRIBE	

DIRECTIVE

The content of this directive should be applied when rumble strips are considered for inclusion within highway projects on the state highway system. The directive introduces:

- Rumble Strip Guidelines for the California Department of Transportation (Department) as outlined under the Implementation section of this document.
See Implementation Section A
- Proposed new and revisions to existing standard plans and specifications related to rumble strips.
See Implementation Section B

POLICY DIRECTIVE

TR-0011 (REV 9/2006)

DELEGATION

No new delegations of authority are created under this policy.

BACKGROUND

The Department has used rumble strips in an attempt to alert inattentive or drowsy drivers that their vehicles are drifting out of their travel lane. Rumble strips are installed both in the shoulders as well as in the center of the roadway. As vehicle tires pass over the rumble strips, the driver receives an auditory and mild tactile warning to correct their steering path. Due to their safety benefits, the Department and departments of transportation across the nation have applied rumble strips on a widespread basis. In Section 5103 of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) enacted in August 2005, Congress recognized that federally-sponsored transportation research indicated that rumble strips improve safety. As such, Section 1401 of SAFETEA-LU lists the installation of rumble strips as a safety measure that may be carried out under the provisions of a Highway Safety Improvement Program.

A significant amount of research has been conducted nationwide on the application of rumble strips. The Department has participated in research that has validated the effectiveness of rumble strips. The Department has taken steps to make rumble strips more accommodating for bicyclists and to make them traversable without discomfort or control issues. Research has indicated that shoulder and centerline rumble strips when installed separately or together improve safety. Shoulder rumble strips can reduce severe run off road collisions in excess of 25%. Centerline rumble strips can reduce cross centerline collisions in excess of 25 percent. A combination of both shoulder and centerline rumble strips can reduce collisions even further.

ADA Notice

For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 653-3657 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS89, Sacramento, CA 95814.

POLICY DIRECTIVE

TR-0011 (REV 9/2006)

IMPLEMENTATION Section A

The Department installs shoulder and centerline rumble strips as follows:

Shoulder Rumble Strips

Where:

Rumble strips should be considered for installation on roads as a measure to reduce run off road collisions.

Installation Method:

Rumble strips are ground into the pavement surface; engineering judgment should be used to evaluate the condition of the pavement prior to rumble strip installation.

Alignment:

Rumble strips should be installed at the edge of traveled way. If installed at narrow shoulder locations, it is recommended to put the rumble strip beneath the applied edge stripe. Consideration should be given for bicyclists when installing this treatment in narrow shoulder areas or in conjunction with centerline rumble strip treatments. Inclusion of pull out locations, widening of shoulders, installation of signing, and other treatments should be considered to accommodate bicycles.

Dimensions:

Lateral width is 6"- 12". At the direction and approval of the district traffic engineer, larger widths may be used to accommodate special circumstances where rumble strips are needed within or across the traveled lane to alert motorists or to facilitate traffic calming.

The recommended longitudinal milling pattern is 5" groove + or - 1", 5/16" depth + or - 1/16", and 1 foot center to center spacing + or - 2".

Layout Considerations:

Break rumble strips for intersections, driveways, and freeway exit gore areas. Recommended break distances are 50 feet for intersections and driveways and 150 feet for freeway ramps. Break distances may be adjusted and the need for breaks in the shoulder rumble strip pattern may be assessed at low volume driveways or other locations based upon the engineering judgment of the district traffic engineer.

Operational Considerations:

Field testing has confirmed that the rumble strip depths mentioned above are traversable by bicycles.

Consideration should be given when installing in narrow shoulder areas or when in conjunction with centerline rumble strip treatments. Inclusion of pull out locations, widening shoulders, installing sign(s) and other treatments should be considered to accommodate bicycles.

Special considerations:

Engineering judgment should be used when considering installation as follows:

- a) On roads with speed limits of 35 mph or less where noise is a concern.
- b) When pavement condition is deteriorated or exhibits cracking; pavement improvement may be needed to complete the treatment, consult the District Maintenance engineer if there are questions regarding pavement quality.

POLICY DIRECTIVE

TR-0011 (REV 9/2006)

Do not install milled shoulder rumble strips:

- a) Between through or turning lanes at intersections.
- b) On bridge decks, approach slabs, or concrete weigh in motion slabs; alternative proprietary raised profile rumble strips materials are available to apply for use in these areas.

Centerline Rumble Strips

Where:

Centerline rumble strips should be considered for installation on undivided highways as a measure to reduce cross centerline collisions.

Installation method:

Centerline rumble strips are ground into the pavement surface; engineering judgment should be used to evaluate the condition of the pavement prior to centerline rumble strip installation.

Alignment:

Where installed, centerline rumble strips should be installed continuously through passing and no passing zones as a pavement treatment below various pavement markings.

Centerline rumble strips may be installed in or below painted medians between lanes. Decisions regarding the width of the median should be made based upon the judgment of the traffic engineer recommending their installation. For medians 24 inches or greater in width, roadways are noted as divided per CVC section 21651; evaluation of the speed zone when considering a median installation is recommended.

Dimensions:

Lateral width is 6" - 12". Larger widths may be used to accommodate special circumstances at the direction and approval of the district traffic engineer (for example, to highlight areas within medians or buffers zones between lanes where traffic is not desired).

The recommended longitudinal milling pattern is 5" groove + or - 1", 5/16" depth + or - 1/16", and 1 foot center to center spacing + or - 2".

Layout Considerations:

Centerline rumble strips should be broken for all public street intersections and commercial driveways with approximately 500 or more vehicles per day.

Operational Considerations:

Bicyclists may have the need to cross over the centerline therefore the rumble strip depths mentioned above are recommended. Centerline rumble strip depths greater than recommended may be installed based upon engineering judgment and with the approval of the district traffic engineer.

Special Considerations:

Engineering judgment should be used when considering installation as follows:

- a. Within suburban or urban areas or on roads with speed limits of 35 mph or less where noise may be a concern.
- b. When pavement condition is deteriorated or exhibits cracking; pavement improvement may be needed to complete the treatment, consult the District Maintenance engineer if there are questions regarding pavement quality.

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POLICY DIRECTIVE

TR-0011 (REV 9/2006)

Do not install milled centerline rumble strips:

- a) Bordering two-way left turn lanes, within intersections, driveways or other high volume turning areas.
- b) On bridge decks, approach slabs, or concrete weigh in motion slabs; alternative proprietary raised profile rumble strips materials are available to apply for use in these areas.

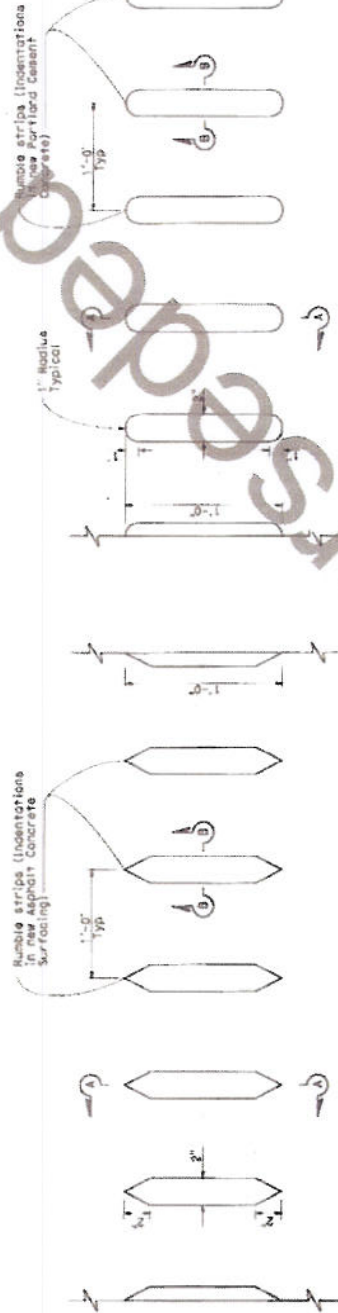
IMPLEMENTATION Section B

Proposed new and revisions to existing Department standard plans and specifications related to rumble strips, see attached.

ADA Notice

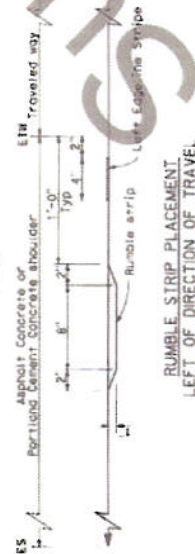
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COUNTY: LOS ANGELES PROJECT: 100-100-100
 SHEET: 100-100-100 OF 100
 DATE: NOV 1, 2006
 DESIGNED BY: CHENG, A. C.
 CHECKED BY: CHENG, A. C.
 IN CHARGE: CHENG, A. C.
 THE SEAL OF THE ENGINEER IS REQUIRED ON ALL SHEETS.
 THE SEAL OF THE ENGINEER IS REQUIRED ON ALL SHEETS.
 TO BE USED IN CONJUNCTION WITH THE 2006 STANDARD PLAN A40A.

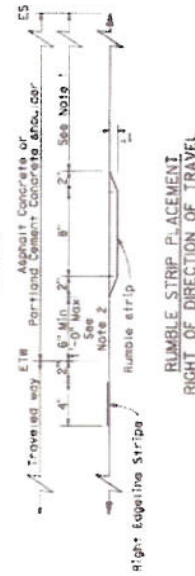


PLAN
ASPHALT CONCRETE SURFACING
ROLLED-IN INDENTATIONS
DETAIL A

PLAN
PORTLAND CEMENT CONCRETE
ROLLED-IN INDENTATIONS
DETAIL B



RUMBLE STRIP PLACEMENT
LEFT OF DIRECTION OF TRAVEL



RUMBLE STRIP PLACEMENT
RIGHT OF DIRECTION OF TRAVEL

TYPICAL ROLLED-IN RUMBLE STRIP
SHOULDER PLACEMENT

NOTES:

- Where bicycles are permitted, shoulder rumble strips should not be used right of direction of travel unless a minimum of 5'-0" of clear shoulder width for bicycle use is available between the rumble strip and the outer edge of the shoulder. Where bicycles are not permitted, a minimum of 4'-0" of distance is required between the rumble strip and the outer edge of the shoulder.
- Unless otherwise shown on the plans or specified in the special provisions, the 6" offset from the edge of travel, way to the edge of the rumble strip shall be used for rumble strip placement right of the direction of travel.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SHOULDER RUMBLE STRIP
DETAILS
ROLLED-IN INDENTATIONS

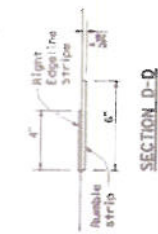
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A40A

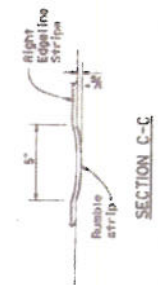
2006 REVISED STANDARD PLAN RSP A408

PROJECT	COUNTY	ROUTE	POST MILE	SECTION
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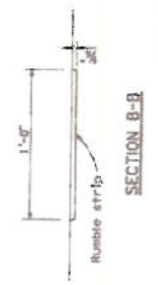
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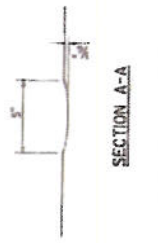
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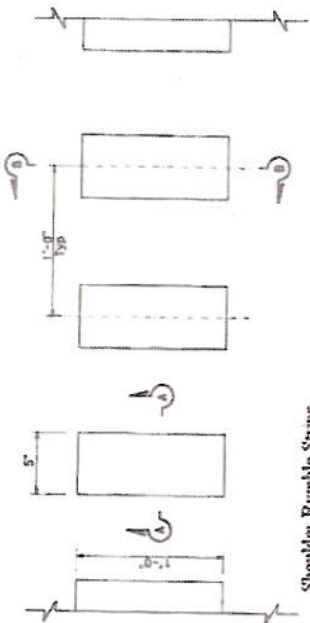
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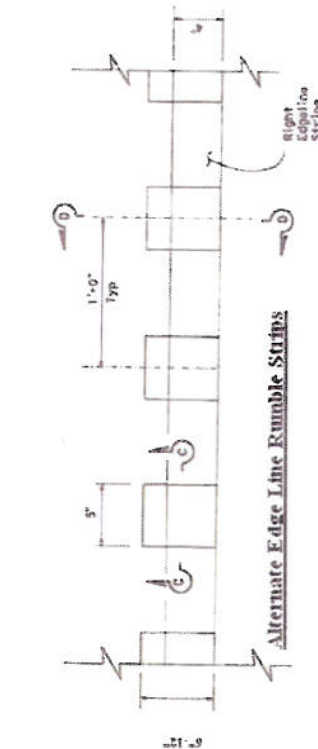
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SECTION D-D

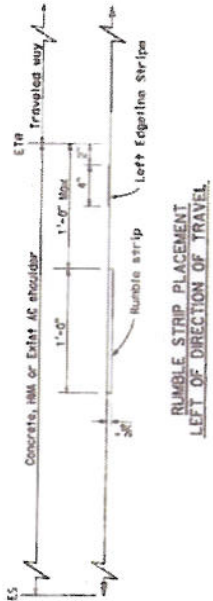


Shoulder Rumble Strips

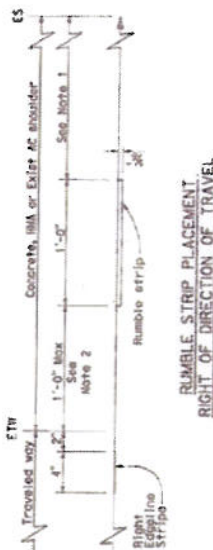


Alternate Edge Line Rumble Strips

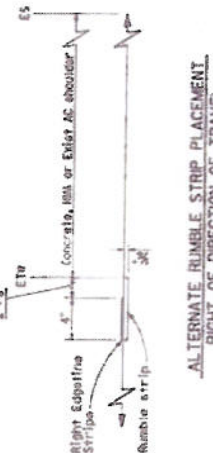
PLAN GROUND-IN INDENTATIONS



RUMBLE STRIP PLACEMENT
LEFT OF DIRECTION OF TRAVEL



RUMBLE STRIP PLACEMENT
RIGHT OF DIRECTION OF TRAVEL



ALTERNATE RUMBLE STRIP PLACEMENT
RIGHT OF DIRECTION OF TRAVEL

Typical Shoulder Rumble Strip Placement

NOTES:

The Alternate Shoulder Rumble Strip Detail may be considered by the Engineer as a means of accommodating bicyclists.

Ground in shoulder rumble strip may be placed up to the edge of travelled way and beneath the edge strips as determined by the engineer.

SHOULDER RUMBLE STRIP DETAILS

NO SCALE

RSP A408 DATED
MAY 1, 2006 - PAGE 15 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A408

PROJECT	COUNTY	ROUTE	SHEET NO.	TOTAL SHEETS

REVISIONS

NO.	DATE	DESCRIPTION
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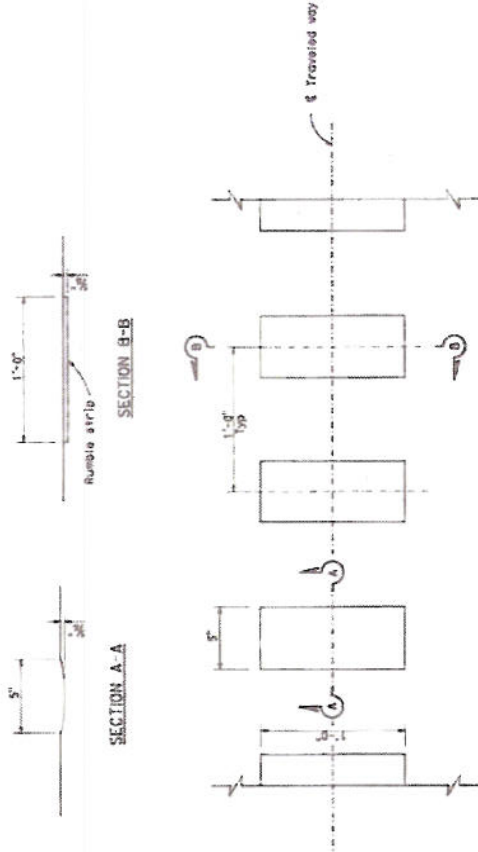
BY: [Signature] DATE: [Date]

FOR: [Signature] DATE: [Date]

APPROVED FOR THE BOARD OF SUPERVISORS

BY: [Signature] DATE: [Date]

To comply with [blank]



PLAN
GROUND-IN INDENTATIONS



Typical Centerline Rumble Strip Placement

Note: Centerline Rumble Strips should be installed according to Center Policy and based upon judgment of the engineer.

Shaping details should be installed over the rumble strip pavement treatment and may vary based upon need at the location of installation and engineering judgment.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CENTER LINE RUMBLE STRIP
DETAILS**

NO SCALE

NSP A40C DATED 10/1/00
THE STANDARD PLANS BOOK DATED 10/1/00

NEW STANDARD PLAN NSP A40C

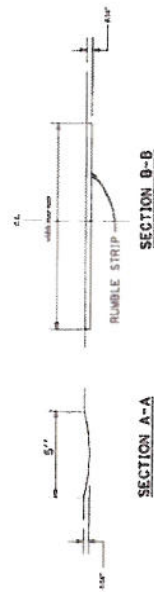
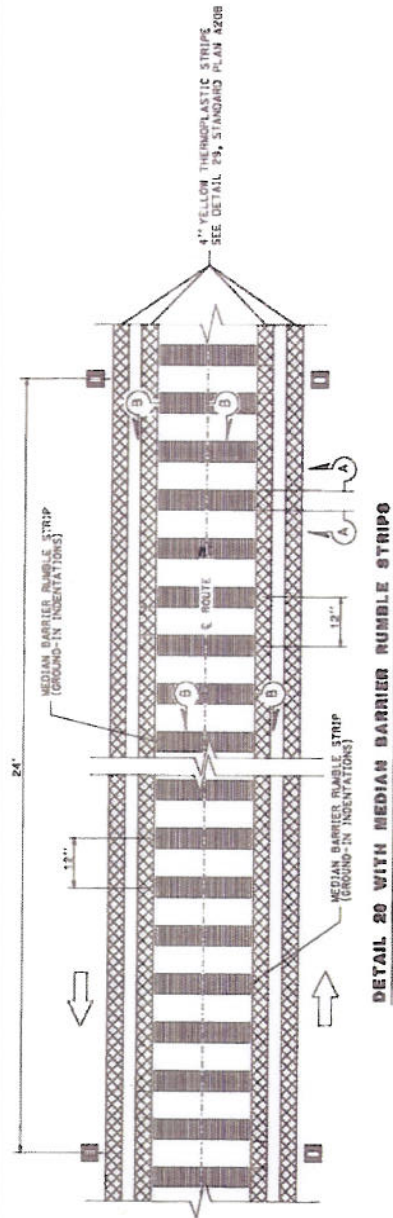
DATE	COUNTY	SECTION	PROJECT	DATE	PROJECT

REGISTERED CIVIL ENGINEER
 LICENSE NO. 12345
 EXPIRATION DATE 12/31/2010
 I, JANE DOE, CERTIFY THAT I AM THE REGISTERED CIVIL ENGINEER FOR THE PROJECT AND THAT I AM NOT PROVIDING ENGINEERING SERVICES TO ANY OTHER PROJECT AT THE SAME TIME.

LEGEND

→ DIRECTION OF TRAVEL

□ TYPE D TWO-WAY YELLOW RETROREFLECTIVE, PAVEMENT MARKER



MEDIAN BARRIER RUMBLE STRIP DETAILS GROUND-IN INDENTATIONS

Note:
 Median barrier rumble strips may be installed as a pavement treatment and the striping for detail 29 installed over the rumble strips. The striping should be installed over the rumble strips upon the recommendation of the engineer.

Median Barrier Centerline Rumble Strip Detail
 DRAFT A-001
 June 2010

NO SCALE

RELATIVE NUMBER SCALE
 10 IN INCHES

10-1. __ RUMBLE STRIP

GENERAL

Summary

This work includes constructing rumble strips in the top layer of hot mix asphalt surfacing by ~~the ground-in or rolled-in methods.~~

CONSTRUCTION

~~Choose between ground-in or rolled-in rumble strips.~~

Select the method and equipment for constructing ground-in indentations.

Do not construct rumble strips on structures or approach slabs.

Construct rumble strips within 2 inches of the specified alignment. The grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must comply with the specified dimensions within 0.06 inch in depth and 10 percent in length and width.

The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.

The grinding equipment must be equipped with a vacuum attachment to remove residue from the roadbed.

Dispose of removed material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

On ground areas, apply fog seal coat under Section 37-1, "Seal Coats," of the Standard Specifications.

MEASUREMENT AND PAYMENT

The contract item for rumble strip is measured by the station along the length of the rumble strips without deductions for gaps between indentations.

The contract price paid per station for rumble strip includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing rumble strip complete in place including furnishing and applying fog seal coat to the actual ground areas, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1. SHOULDER RUMBLE STRIP (CONCRETE PAVEMENT, ROLLED-IN INDENTATIONS)

This work shall consist of constructing shoulder rumble strips by forming indentations in concrete pavement as shown on the plans and as specified in these special provisions.

Shoulder rumble strips shall be constructed in the concrete pavement just prior to initial set. Indentations shall be formed without displacement of adjacent concrete.

Shoulder rumble strips shall not be constructed on structures or approach slabs.

Indentations shall not vary from the specified dimensions shown on the plans by more than 10 percent. Rumble strips shall be constructed within 2 inches of the required alignment. Equipment used to construct the rumble strips shall be equipped with a sighting device that will enable the operator to maintain the alignment of the rumble strip.

Finished rumble strips not meeting specified tolerances, shall be brought within tolerance by either abrasive grinding, or removal and replacement. The corrective method will be selected by the Engineer. Ground surface areas shall be neat and uniform in appearance. The corrective work shall be at the Contractor's expense.

Shoulder rumble strip (concrete pavement, rolled in indentations) will be measured by the station along each shoulder, on which the rumble strip is constructed, parallel with the adjacent traffic lane, without deductions for gaps between the indentations.

The contract price paid per station for shoulder rumble strip (concrete pavement, rolled-in indentations) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the shoulder rumble strip (concrete pavement, rolled-in indentations), complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.____ SHOULD RUMBLE STRIP (CONCRETE PAVEMENT, GROUND-IN INDENTATIONS)

This work shall consist of constructing ground-in shoulder rumble strips in concrete pavement as shown on the plans and as specified in these special provisions.

Shoulder rumble strips shall be constructed in the portland cement concrete pavement by grinding after the concrete has hardened. The indentations shall not be constructed before a period of 10 days has elapsed after the concrete has been placed, nor before the concrete has developed a modulus of rupture of 551 psi.

Shoulder rumble strips shall not be constructed on structures or approach slabs.

Rumble strip indentations shall not vary from the specified dimensions by more than 0.06-inch or 1/16 inch in depth or 10 percent in length and width. Rumble strips shall be constructed within 2 inches of the required alignment. The grinding equipment shall be equipped with a sighting device that will enable the operator to maintain the alignment of the rumble strip.

Residue from grinding operations shall be picked up by means of a vacuum attachment to the grinding machine and shall not be allowed to flow across the pavement nor be left on the surface of the pavement. Residue from grinding concrete pavement shall be disposed of at the location as specified in "Supplemental Project Information" of these special provisions.

At the option of the Contractor, the residue from grinding concrete pavement may be disposed of at a site chosen by the Contractor if the Contractor obtains approval from the California Regional Water Quality Control Board having jurisdiction over the site. A copy of the approval shall be delivered to the Engineer before disposing residue at the site.

The noise level created by the combined grinding operation shall not exceed 86 dBA when measured at a distance of 50 feet at right angles to the direction of travel.

Finished rumble strips not meeting the specified tolerances, shall be brought within tolerance by either abrasive grinding or removal and replacement. The corrective method will be selected by the Engineer. Ground surface areas shall be neat and uniform in appearance. The corrective work shall be at the Contractor's expense.

Shoulder rumble strip (concrete pavement, ground-in indentations) will be measured by the station along each shoulder on which the shoulder rumble strip is constructed, parallel with the adjacent traffic lane, without deductions for gaps between the ground-in indentations.

The contract price paid per station for shoulder rumble strip (concrete pavement, ground-in indentations) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the shoulder rumble strip (concrete pavement, ground-in indentations), complete in place, including removing and disposing of residue from grinding, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1. SHOULDERS RUMBLE STRIP (CONCRETE PAVEMENT, ROLLED-IN INDENTATIONS)

This work shall consist of constructing shoulder rumble strips by forming indentations in concrete pavement as shown on the plans and as specified in these special provisions.

Shoulder rumble strips shall be constructed in the concrete pavement just prior to initial set. Indentations shall be formed without displacement of adjacent concrete.

Shoulder rumble strips shall not be constructed on structures or approach slabs.

Indentations shall not vary from the specified dimensions shown on the plans by more than 10 percent. Rumble strips shall be constructed within 2 inches of the required alignment. Equipment used to construct the rumble strips shall be equipped with a sighting device that will enable the operator to maintain the alignment of the rumble strip.

Finished rumble strips not meeting specified tolerances, shall be brought within tolerance by either abrasive grinding, or removal and replacement. The corrective method will be selected by the Engineer. Ground surface areas shall be neat and uniform in appearance. The corrective work shall be at the Contractor's expense.

Shoulder rumble strip (concrete pavement, rolled in indentations) will be measured by the station along each shoulder, on which the rumble strip is constructed, parallel with the adjacent traffic lane, without deductions for gaps between the indentations.

The contract price paid per station for shoulder rumble strip (concrete pavement, rolled-in indentations) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the shoulder rumble strip (concrete pavement, rolled-in indentations), complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1. __ SHOULDER OR CENTERLINE RUMBLE STRIP (CONCRETE PAVEMENT, GROUND-IN INDENTATIONS)

This work shall consist of constructing ground-in shoulder rumble strips in concrete pavement as shown on the plans and as specified in these special provisions.

Shoulder rumble strips shall be constructed in the portland cement concrete pavement by grinding after the concrete has hardened. The indentations shall not be constructed before a period of 10 days has elapsed after the concrete has been placed, nor before the concrete has developed a modulus of rupture of 551 psi.

Shoulder rumble strips shall not be constructed on structures or approach slabs.

Rumble strip indentations shall not vary from the specified dimensions by more than 0.06-inch or 1/16 inch in depth or 10 percent in length and width. Rumble strips shall be constructed within 2 inches of the required alignment. The grinding equipment shall be equipped with a sighting device that will enable the operator to maintain the alignment of the rumble strip.

Residue from grinding operations shall be picked up by means of a vacuum attachment to the grinding machine and shall not be allowed to flow across the pavement nor be left on the surface of the pavement. Residue from grinding concrete pavement shall be disposed of at the location as specified in "Supplemental Project Information" of these special provisions.

At the option of the Contractor, the residue from grinding concrete pavement may be disposed of at a site chosen by the Contractor if the Contractor obtains approval from the California Regional Water Quality Control Board having jurisdiction over the site. A copy of the approval shall be delivered to the Engineer before disposing residue at the site.

The noise level created by the combined grinding operation shall not exceed 86 dBA when measured at a distance of 50 feet at right angles to the direction of travel.

Finished rumble strips not meeting the specified tolerances, shall be brought within tolerance by either abrasive grinding or removal and replacement. The corrective method will be selected by the Engineer. Ground surface areas shall be neat and uniform in appearance. The corrective work shall be at the Contractor's expense.

Shoulder or centerline rumble strip (concrete pavement, ground-in indentations) will be measured by the station along each shoulder on which the shoulder rumble strip is constructed, parallel with the adjacent traffic lane, without deductions for gaps between the ground-in indentations.

The contract price paid per station for shoulder rumble strip (concrete pavement, ground-in indentations) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the shoulder rumble strip (concrete pavement, ground-in indentations), complete in place, including removing and disposing of residue from grinding, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1. RUMBLE STRIP

GENERAL

Summary

This work includes constructing rumble strips in the top layer of hot mix asphalt surfacing by ground-in methods.

CONSTRUCTION

Select the method and equipment for constructing ground-in indentations.

Do not construct rumble strips on structures or approach slabs.

Construct rumble strips within 2 inches of the specified alignment. The grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must comply with the specified dimensions within 0.06 inch in depth and 10 percent in length and width.

The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.

The grinding equipment must be equipped with a vacuum attachment to remove residue from the roadbed.

Dispose of removed material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

On ground areas, apply fog seal coat under Section 37-1, "Seal Coats," of the Standard Specifications.

MEASUREMENT AND PAYMENT

The contract item for rumble strip is measured by the station along the length of the rumble strips without deductions for gaps between indentations.

The contract price paid per station for rumble strip includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing rumble strip complete in place including furnishing and applying fog seal coat to the actual ground areas, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Attachment 3

California's scenic Hwy 1 set to become uncomfortable for cyclists

by [Carlton Reid](#)
2 days ago



IN **NEWS**

Big Sur will become Big Bumps if Caltrans installs rumble strips on Highway 1, part of the Tour of California route

US cycle writer and historian [Jim Langley](#) is urging Californian cyclists to [write to State Governor Jerry Brown](#) to try and halt plans by Caltrans to install rumble strips on scenic, coastal Highway 1.

"Rumble strips endanger all cyclists," Langley told BikeBiz.com. "Highway 1 from San Fran to Santa Cruz is among the world's most-famous cycling routes, and has been since the 1960s."

Caltrans - the California Department of Transportation - plans to install centre and shoulder rumble strips on what - in parts - is a popular route with roadies. The to-be-rumbled stretch of road is also on the route of the pro race, the Tour of California.

"I just sent a letter to Governor Brown asking him to stop Caltrans from ruining our precious cycling route Hwy 1," said Langley.

Rumble strips are installed to slow down motorists but can be [dangerous for cyclists](#).

Parts of Highway 1 is a US National Scenic Byway, a road recognized by the United States Department of Transportation for its scenic qualities.

« Previous Post

Rumble strips for Highway 1 north of Santa Cruz

Posted on February 27, 2012 by Richard Masoner.

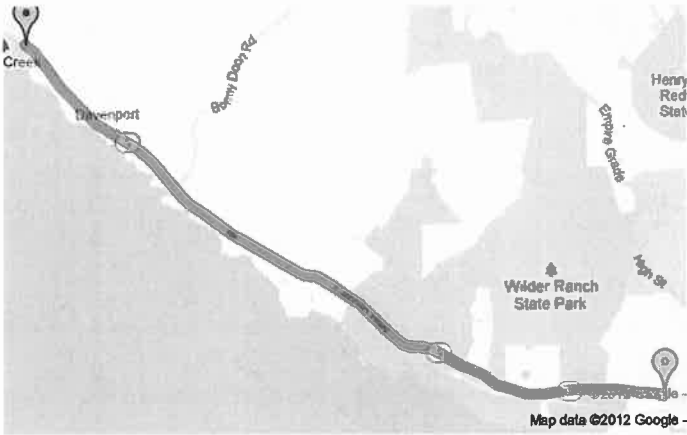
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Caltrans plans to install rumble strips into the centerline and along the shoulders of California Route 1 from Santa Cruz north to Davenport.

Update: Santa Cruz Cycling Club caught this in the planning stages and are working with Caltrans for alternative treatments that address Caltrans crash concerns.

Caltrans District 5 — the state transportation agency responsible for Santa Barbara, San Luis Obispo, Monterey, San Benito and Santa Cruz Counties — performed a safety analysis on Highway 1 north of the city of Santa Cruz and discovered over a third of traffic collisions are "roadway departure" collisions. The driver either cross the centerline and hits another vehicle head on, or the driver goes over the right shoulder flies off into the ocean (for southbound traffic) or crashes into a large cliff (for northbound traffic).

Rumble strips are a proven method of reducing roadway departures. Caltrans plans to add rumble strips into the centerline and along the shoulders from near Shaffer Road on the west side of Santa Cruz north to Swanton Road near Davenport, CA.



View Planned rumble strips Santa Cruz County Highway 1 in a larger map

Cyclists in Santa Cruz and elsewhere are beginning to protest the installation of rumble strips on Highway 1. Although rumble strips can potentially save cyclist lives by keeping drivers out of the road shoulder, many cyclists often oppose rumble strips because they themselves create a hazard. Cyclists may need to leave the shoulder for any number of reasons — road debris, obstructions, or to make a turn — but continuous rumble strips keep the cyclist from leaving the shoulder. Along the Coast Highway north of Santa Cruz, common obstructions include slower cyclists; surfers, mountain bikers, and hang gliders unloading their gear from the side of the road; day trip tourists pulled over to enjoy the view; encroaching sand dunes on the southbound side and fallen boulders on the northbound lanes; and the occasional hitchhiker.



Your Comments

Cyclelicious on Rumble strips for Highway 1 north of Santa Cruz

Cyclelicious on Rumble strips for Highway 1 north of Santa Cruz

Masayuki Onishi on Rumble strips for Highway 1 north of Santa Cruz

Anonymous on Rumble strips for Highway 1 north of Santa Cruz

Khal Spencer on Unified bike advocacy



Rumble strips are often milled in the portion of the shoulder favored by cyclists — the part adjacent to the fog line, because that's the portion of the shoulder swept clean by passing traffic. The further right you move into the shoulder, the more debris and junk you'll encounter.

Why are rumble strips a problem?

Modern, milled in rumble strips are horizontal divots along the sides of the road to startle an inattentive driver awake through noise and vibration when a tire hits the strip. While car handling is not affected by rumble strips, rumble strips are uncomfortable for cyclists to ride on, and deeper rumble strips can cause wheel damage and crashes for cyclists. *(Disclosure: I caught a wheel in a rumble strip on Highway 66 east of Lyons, CO and went down hard. I moved left to avoid piles of sand in the road — some of this sand had covered up the divots so I didn't see them and pow! down I went.)*

cyclists often oppose centerline rumble strips because they discourage people from crossing the centerline while they're passing cyclists, especially on narrow mountain roads with no shoulders. (Bicycle Colorado convinced CoDOT to change their mountain road centerline

rumble strip policy, which now prohibits rumble strips on roads with narrow shoulders.) There are segments of Highway 1 with narrow shoulders where this concern would apply.

California

California rumble strip standards alleviate some of the concerns we as cyclists have: for wide shoulder roads, maximum depth of milled rumble strips is 8.5 mm. For narrow shoulder roads, Caltrans design manual indicates the use of "inverted profile thermoplastic," a corrugated application of fog line paint that looks like this:



Still, it's up to cyclists to ensure traffic engineers adhere to the design standards. If Caltrans uses milled rumble strips, the only real way to remove them after the fact is to repave the shoulder.

Bicycle friendly rumble strips?

Ways to improve the bicycle friendliness of rumble strips include:

- **Bicycle Gaps:** The latest US Federal Highway Administration Technical Advisory on rumble strips recommends "bicycle gaps" of 10 to 12 feet in between milled segments of 40 to 60 feet long.
- **Decreased Depth:** California's design standard says "ground in rumble strip treatments greater than 8.5 mm shall not be installed on shoulders where bicyclists are allowed." Still, I've seen recent installations that exceed this 8.5 mm depth, so it's good to point out the importance of the depth.
- **Lateral location:** Placing rumble strips as close to the roadway as possible (versus, for example, 10 inches into the shoulder where cyclists want to ride) reduces the amount of room taken from the shoulder for cyclist use. Making the milled out portion a little less wide also helps. The Federal technical advisory, for example, advises a width of 16 inches for milled rumble strips.

how much spacing in between?

Local bicycle guru [Jim Langley](#) asks cyclists to write letters regarding this project to local transportation officials. District 5 Caltrans Director Richard Krumholz can be contacted at Rich_Krumholz@dot.ca.gov. The Santa Cruz County Regional Transportation Commission can be contacted at info@scrtc.org. Neal Coonerty, the Santa Cruz County supervisor who represents the district encompassing this area, can be contacted at bds031@co.santa-cruz.ca.us. In your letter, remind these officials to accommodate cyclists in the design and placement of these rumble strips.

With a nod to:

- [Carlton](#), who [joins Apple](#) in placing Santa Cruz along Big Sur coast, though he does know better. A portion of the Tour of California 2012 will travel along a portion of Highway 1 proposed for rumble strip treatment from Davenport to Bonny Doon Road.
- The people of [the California Association of Bicycle Organizations](#) for their invaluable technical feedback.

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Cyclists worry about HWY 1 rumble strips

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SANTA CRUZ, CA (BRAIN) Feb 28, 19:18 MT—Veteran cycling journalist Jim Langley is organizing a campaign among California cyclists concerned about the specter of rumble strips along the shoulder of Highway 1 near Santa Cruz.

"[T]his is arguably one of the most famous cycling routes in the world," Langley said in an email to BRAIN. The coast road is used for dozens of cycling events, including part of an Amgen Tour of California stage.

State transportation officials say they are considering cutting rumble strips on an 11-mile section because data show a higher than normal number of accidents from vehicles leaving their lanes. Rumble strips have been shown to reduce these kinds of accidents by 25 percent, they say.

Langley said the road's narrow shoulders make rumble strips inappropriate.

"Endangering cyclists just makes the road even more dangerous," he said.



This photo taken during 2010 Tour of California shows where the race route leaves Highway 1 and enters Bonny Doon Road. The area is along the section where CalTrans is considering adding rumble strips. Photo: Jim Langley.

"These rumble strips would be up to a foot wide and run continuously inside the white line on the road's edge and down the centerline, too. Cyclists would need to use great care not to hit them or they could be knocked off their bike, lose control and crash, get knocked into the traffic lane or even get a flat tire over these jarring bumps. Also, they would shrink the width of the shoulder for safe riding and force riders to deal with the erosion issues and cracked pavement on the extreme inside of this old, heavily used and super-scenic coastal road."

Langley is asking concerned cyclists to email CalTrans about the project at Rich.Krumholz@dot.ca.gov.

Today is Tuesday, Apr. 03, 2012

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CalTrans' Steve Price said the project is still in the "scoping phase" and that the state will consider the needs of cyclists and respond to the emails pouring in as a result of Langley's campaign.

"I doubt we will do it if there is not adequate shoulder," Price told BRAIN. He said that state codes call for at least 4 feet of shoulder to the right of a rumble strip on roads that cyclists use. He said the section under consideration has shoulders that are between 5 and 8 feet wide.

Price said some cyclists appreciate rumble strips because they warn drivers veering onto a shoulder and they give cyclists an audible warning if a driver behind them drives onto the bumps.

CalTrans is considering the rumble strips north of Santa Cruz, from Milepost 20.41 near the Mission Street/Shaffer Road intersection to Milepost 30.55 at Swanton Road.

—Steve Frothingham

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Archive for the 'Rumble Strips' Category

IS THE PACIFIC COAST HIGHWAY GOING TO RUMBLE?

Monday, March 19th, 2012

UPDATE: Due to anticipated high turnout, the SCCRTC Bicycle Committee is looking for an alternative meeting location. Please contact the RTC at info@scrtc.org for the meeting location.

60

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Nothing can quite compare to rumble strips when it comes to ruining a beautiful bicycle ride. Adventure Cycling and the League have previously [written](#) about rumble strips and the difficulties they pose to cyclists. We were very happy to see the Federal Highway Administration [revise](#) their May 2011 guidance that would have promoted rumble strip installation on many rural roads and even some urban roads across America.



Touring Cyclists on Highway 1

So, it was a bit of a shock when we heard from Adventure Cycling and League members that the California Department of Transportation (CalTrans) is planning to install rumble strips on a portion of the Highway 1 between Davenport and Santa Cruz. Highway 1 – also known as the Pacific Coast Highway – is part of one of the most active bicycle touring routes in the country and a major draw for international tourism.

To its credit, CalTrans has one of the best rumble strip policies when it comes to accommodating bicyclists. So we did some research and found out the following:

- This 11-mile section has been identified as a high collision area, including at least one bicycle fatality. Rumble strips are the proposed safety improvement to address run-off-the-road and head-on crash incidents.
- CalTrans policy only allows rumble strips where there will be more than five feet of shoulder clearance for cyclists. CalTrans data indicate that the shoulder width in this area is approximately eight feet, though this has been disputed by local cyclists and regional transportation planners.
- This is a "candidate project" that will not go to

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construction for another 18-24 months and includes both center-line and shoulder rumbles. CalTrans has committed to working with local cyclists, and presumably following their policy, as project planning progresses.

- The Santa Cruz County Regional Transportation Commission has received over 70 contacts on this issue. The SCCRTC is working with CalTrans to ensure accurate shoulder width data and has requested the collision data justifying the need for rumble strips. The SCCRTC Bicycle Committee will be discussing the project at their April 9 meeting.

While we recognize the safety benefits for motorists under certain conditions, we are concerned about their use on Highway 1. The League and Adventure Cycling will be submitting letters to CalTrans respectfully requesting that:

- CalTrans not install rumble strips on Highway 1 at this time.
- CalTrans work to provide a five-foot wide road shoulder on Highway 1 clear of sand and other debris while still accommodating parked vehicles and ocean access for residents and visitors.
- CalTrans continue to work with cyclists to ensure that Highway 1 remains one of the country's premier bicycling routes.

We encourage local cyclists to speak out on this issue (reference the three points above as a start). Here are some ways you can make sure CalTrans hears your voice:

Contact CalTrans District 5

Jim Shivers
District 5 Public Information Officer
Phone: 805.549.3237
Email: Jim.Shivers@dot.ca.gov

Richard Krumholz
District 5 Director
Email: Rich.Krumholz@dot.ca.gov

Attend the SCCRTC Bicycle Committee Meeting

Monday, April 9 at 6:30pm
Regional Transportation Commission Conference Room
1523 Pacific Ave., Santa Cruz (above Chef Works)

As we learn more, look for updates to this blog.



MATT WEMPE
LEAGUE STATE AND LOCAL ADVOCACY
COORDINATOR

Mr. Wempe joined the League in September 2011. For the three years prior, he worked as a transportation planner and Safe Routes to School Coordinator in Fort Collins, Colo. He holds a BA in Economics from the University of Illinois at Chicago and a

Masters of Urban and Regional Planning from the University of Illinois Urbana-Champaign.

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A POST-HOLIDAY THANK YOU FOR AN IMPROVED RUMBLE STRIP ADVISORY

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Street Smarts

Navigating Santa Cruz County

RTC bike committee to talk rumble strips proposed for Hwy 1

Posted on March 27, 2012 by Ramona Turner

The Santa Cruz County Regional Transportation Commission's Bicycle Advisory Committee has moved the location of its April 9 meeting after receiving about 80 comments from members of the cycling public against Caltrans' plans to install rumble strips along Highway 1, a project that could occur in about two years.

The agenda that night is to discuss Caltrans' proposed method of preventing vehicle collisions between Shaffer Road and Swanton Road on Highway 1 where drivers either cross over the double yellow line or drive off the shoulder. The rumble strips are proposed to accompany the double yellow lines in the center of the highway, as well as along the fog line on the roadway's shoulder.

Cycling enthusiasts are concerned the proposed rumble strips will impact their safety, as well as cycling activities on Highway 1, including accessing points of interests along the north coast, along with the Tour of California, among other races that occur there.

Bike riders fear the restrictions on cycling will also negatively impact the local economy, as Santa Cruz County is a cycling destination hot spot.

They suggest the rumble strips be placed along the center divide and not along the shoulder area, where cyclists ride.

The RTC bike committee meeting begins at 6:30 p.m in the Museum of Art and History's Auditorium at 705 Front St. in downtown Santa Cruz.

The committee's agenda packet will be posted on the RTC's website at www.sccrtc.org, no later than Thursday, April 5.

0

Share and Enjoy:



Comments from the Public Received regarding Rumble Strips

Friday, February 24, 2012 11:56 AM

I'm writing because at a recent RTC Bicycle Committee meeting we learned of CalTrans' plans to install rumble strips on the centerline and shoulders of Highway 1 from Santa Cruz all the way past Davenport and to Swanton Road.

I'm greatly concerned about how this would ruin this incredible and famous Santa Cruz road for cyclists and I urge you to not let it happen. I'm also writing to everyone else I think can help.

I understand wanting to do something to prevent car accidents, however, I can't understand why CalTrans would choose something that is so wrong for a road that has so many other users besides cars, and that is a famous tourist destination and frequented by bicyclists, surfers, hikers, horse riders and pedestrians, who all are put at risk by rumble strips.

As a cyclist and making my living in the bicycle industry (I brought two cycling companies, Bicycling Magazine and SmartEtailng.com to Santa Cruz County), I am especially worried about the dangers to cyclists of installing these treacherous rumble strips on the road. In case you're unfamiliar with them, rumble strips are deep indentations in the pavement designed to capture and shake car wheels to alert drivers they are about to drive out of their lane.

They shake the car so violently that they prevent drivers from wanting to cross the centerline, which means they are more likely to pass cyclists, pedestrians and anyone else on the shoulder too closely (rather than move left), which is a dangerous thing. But, much worse, rumble strips placed on the shoulders (we were told that they would likely extend from 6 to 12 inches inside the fog line) shrinks the effective width of the shoulder. And on Highway 1 where erosion is a common problem and already reduces shoulder width, rumble strips would create a dangerous new hazard.

Cyclists would have to avoid hitting the rumble strips and hang on if they did, as they got bounced over the bumpy surface and could get jostled right into the traffic lane. As you know, bicycles have only two wheels, weigh very little, have to be balanced and are inherently unstable over potholes and road debris like sand. Putting deep ruts in the road creates a significant hazard that any cyclist could ride right into with a second of inattention, reaching for a water bottle or adjusting a helmet or swatting away a bug. It just doesn't make any sense to me that CalTrans would even consider doing something like this when it's been common knowledge since rumble strips were invented that they aren't for use on roads frequently by cyclists. That's why you hardly ever see them.

Another danger is that they would trap cyclists on the shoulder. Right now it's easy on Highway 1 for cyclists to look back, make sure it's safe and move into the traffic lane if there's a too-narrow shoulder because rocks slid down and litter the road, or you have to avoid surfers' parked cars, for example. But, with a dangerous rumble strip all along the shoulder, that won't be easy anymore and it will make a very safe road significantly less safe.

Please keep in mind too that Highway 1 from San Francisco to Santa Cruz has long been known as one of the greatest cycling routes anywhere so cyclists travel from around the world to ride here. That's why the Tour of California, arguably one of the most important professional endurance sports events in the world has been coming here (ironically, a photo from that race even graces the CalTrans website).

Highway 1 is also part of the Pacific Coast Bike Route, established over 30 years ago, that travels from Washington to San Diego and is how my wife Deb (a second-grade teacher at Westlake School), and I discovered Santa Cruz on a cross-country bicycle tour and decided to buy a home

here and settle down. I could list numerous other famous rides that use the road and can add that Santa Cruz County itself is one of the most famous bicycling centers in the world with almost endless bike stores, companies and innovators. Surely we don't want to take away the great cycling on Highway 1 that's helped put us on the map.

Summing up, I'm all for safety. I'm on the Santa Cruz Community Traffic Safety Coalition and the Regional Transportation Committee's Bike Committee - but there's nothing safe about rumble strips for cyclists. The complete opposite is true. In fact, you can find language in the engineering manual that recommends rumble strips be used on cars-only roads, like closed highways and not even be considered on multi-use destination roads like our precious Highway 1.

If CalTrans has to do something to Highway 1, I urge them to use an alternative safety measure that works for all users of Highway 1 (lowering speed limits comes to mind or creating a lights-on safety zone as they did on Highway 1 South). But please do not allow rumble strips and put cyclists at such great risk and ruin such a wonderful and safe road.

Jim Langley

Monday, February 27, 2012 1:25 PM

PLEASE DO NOT PUT RUMBLE STRIPS ON HIGHWAY 1 BETWEEN SANTA CRUZ AND SWANTON RD!

I ride my bicycle on that road, and since there is no bike path past Wilder Ranch, it would make that ride very dangerous or impossible. It is not very crowded on that stretch of road like (it is south of Santa Cruz), and is a very wonderful place to ride a bike.

Money could be much better spent repairing damaged roads. I live off of Rodeo Gulch Rd. and that road lost a lane last year and was replaced with barricades and a stop sign. We are fortunate that it didn't rain much this year, as we could have lost the whole road.

I would appreciate your support in this matter.

Janet Starr

Tuesday, February 28, 2012 12:26 AM

I am a cyclist, a member of the Santa Cruz County Cycling Club, and a voter. I love to ride Highway One for health, exercise, and the ocean view. The proposed installation of rumble strips on the shoulders will effectively create a dangerous situation for all road users, most especially cyclists. I have traveled this great country and whenever I encountered rumble strips in those states that use them I found it safer to ride in the lane rather than chance rolling over the deep gouges in the asphalt. Most of you would think this is an unwise decision but when you have to deal with the alternative, the possibility of taking a fall, you would have to agree with my choice.

It has already been stated how great our Highway One is for all road users but when you consider all the users of this stretch of road you must agree this is a bad choice for all.

I have a question for all of you; how can the state afford to pay for this project when it can't even afford to pay for repairing or stripping the roads?

Scott Campbell

Wednesday, February 29, 2012 11:51 PM

I'm a cyclist. And this link makes the argument: <http://www.roadbikerider.com/jims-tech-talk>

Thanks for taking the time to consider, Rick Butler

Wednesday, February 29, 2012 3:19 PM

As an avid travel cyclist in the state of California, I plead with you; do not put rumble strips on Highway 1.

Rumble strips are virtually impossible to ride a bicycle on or over – they are at best uncomfortable, even for a very short distance, and at worst can cause a cyclist to lose control of their bike and fall. They can damage a bicycle wheel, can cause a flat tire, and/or shake loose parts off a bicycle. Consequently, cyclists will avoid riding over them – and when rumble strips leave no room on a shoulder, the cyclist will have no other option than to ride in the travel lane. While rumble strips do not deter car, truck or bus travel, they have a severe impact on bicycling travel, and have ruined popular cycling routes.

AASHTO's Guide for Development of Bicycle Facilitiesⁱⁱⁱ says that rumble strips "are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of 0.3 m (1 foot) from the rumble strip to the traveled way, 1.2 m (4 feet) from the rumble strip to the outside edge of paved shoulder, or 1.5 m (5 feet) to adjacent guardrail, curb or other obstacle. If existing conditions preclude achieving the minimum desirable clearance, the width of the rumble strip may be decreased or other appropriate alternative solutions should be considered." Cyclists find that placing the rumble strip 1 foot to the right of the edge line is unsatisfactory and strongly recommend a minimum of four or five feet on the outside of the shoulder.

The FHWA guidance on Roadway Shoulder Rumble Strips^{iv} supports this policy, saying, "Rumble strips should only be installed when an adequate unobstructed width of paved surface remains available for bicycle use." The guidance notes that 12 foot gaps placed periodically in the strips allow cyclists to avoid debris and parked vehicles on the shoulder, or safely pass over the rumble strip for any reason. Because rumble strips occupy the favored part of the shoulder closest to the roadway, which generally remains clearer of debris due to the draft caused by passing automobiles, the FHWA guidance recommends that highway maintenance agencies regularly sweep the entire shoulder along bike routes and high bike traffic areas. The guidance states that shallower ("reduced depth") rumble strips, which are less jarring to cyclists, are a good compromise to accommodate bicyclists.

For rural freeways and expressways on the National Highway System, the FHWA guidance endorses "system-wide installation" of rumble strips to take advantage of economies of scale. Since bicyclists are generally prohibited from these highways, and there is often a wide shoulder when they are allowed, this guidance is appropriate

John F Moran

Thursday, March 01, 2012 5:38 AM

I have done long distance cycling rides on Hwy 1 – Seattle to San Francisco and Portland to Newport Beach, CA – plus 2 cross country rides, a ride down the east coast, Tuscany, Newfoundland, Labrador.

The rides on the West Coast are my two favorite rides due to the ever changing beauty the coastal ride offers. Traffic is always a concern while cycling and I urge you to reconsider the placement of rumble strips on the 11 miles section of highway 1 from Davenport to Santa Cruz.

Bill Kiess

Thursday, March 01, 2012 5:57 AM

I am not from California. I live in Louisville, KY. However, I have made the trip to your beautiful state several times, to ride my bicycle on Hwy 1's amazing route. On occasion, from San Diego to Santa Barbara and on others up past Santa Cruz. These are multi-day rides, where I eat in restaurants and stay in hotels along the way.

I can assure you I would not be able to do this if Rumble Strips are installed. Most likely, I would go to Colorado instead.

Please consider the ramifications of just 1 person speaking to you about this, while many, many others do not know about it or would just simply not come back without expressing their disappointment. While safety is your motive, the reality is that Rumble Strips are not the answer to why people cross lanes or go off the road. Put your dollars to work on distracted driving penalties and arrests and let the beautiful coastline views be shared by all, not at the expense of others
Darrin Lay

Thursday, March 01, 2012 6:30 AM

Please, please do not allow the installation of rumble strips as proposed along Highway 1 from Santa Cruz north to Davenport. I have experienced these rumble strips along highways while riding coast to coast a few years ago and they are incredibly dangerous to cyclists. I would be greatly disappointed if these strips are installed. Disappointed enough to allow this to affect my voting preference.

Jeff Linder

Thursday, March 01, 2012 7:01 AM

Please take into consideration the number of cyclists that use this route to get from San Francisco to points south. By putting in rumble strips on the portion of the road from Davenport south, it will require those of us on two wheels to venture into the traffic lane which would put our lives at stake. Having been hit by a car once was enough for me. I sustained injuries (broken hip) but was lucky to come out alive. Others have not.

We want roads that are safe for EVERYONE, not just a segment of the population that uses them. I

Please look at other options before you proceed with this unwise plan.

Nancy Lund

Thursday, March 01, 2012 7:20 AM

As an avid cyclist who may be touring Highway 1 on future rides, I want to urge you NOT to install the planned rumble strips on this route. Rumble strips are VERY dangerous for cyclists and this route is a very popular route for cycle tours as well as individual rides.

Please consider the safety of everyone using this road and cancel this plan. I can testify from personal experience that hitting rumble strips on your bicycle can cause a loss of control leading to a crash.

For more scientific information on this issue, please review this page, posted by the League of American Bicyclists:

http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf

Especially note the AASHTO and FHWA recommendation that "at least four feet of unobstructed roadway shoulder remains after the rumble strips have been installed". Having driven Highway 1 myself, I think it unlikely that this requirement can be met in any areas where the installation of rumble strips would be considered in the first place.

Dick Bryant

Thursday, March 01, 2012 7:30 AM

While I agree that motorists need to be protected from themselves, it should not be at the sacrifice of the safety of other road users whose taxes also support California's roads and highways. Please read through the recommendations contained in

http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf

and give them careful consideration before proceeding with installation of rumble strips on Highway 1 or any other route within your responsibility. Thank you. Sincerely yours,
Bruce Parker

Thursday, March 01, 2012 7:45 AM

I understand Caltrans is considering placing rumble strips along the Coast Highway between Santa Clara and Davenport, CA. I hope you will reconsider this idea. I am an enthusiastic road bicyclist, and would hate to see you ruin the cycling safety of one of the most beautiful stretches of cycling road in the United States. Coming from Oregon, and growing up cycling on the central Oregon coast, I do not bestow that honor lightly!

I ride a bicycle because it is healthy, fun and has low environmental impact. Rumble strips will remove the first two of these reasons for that stretch of road. I ride on two wheels that are less than an inch wide. Rumble strips are not only a maintenance hazard for bicycles by increasing the chance of flats, they reduce safety for all by increasing the chances of a flat repair being conducted on the side of the sometimes limited Coast Highway shoulders, or a fall into the traffic lane. Either of these instances will cause any alert and competent motorist to swerve to avoid them. I am sure you see that swerving motorists are a hazard to not only bicyclists and pedestrians, they are a hazard to other motorists.

Please review the statistics on how many head-on or off-the-road motor accidents rumble strips are likely to avoid. I think you will find the answer is: not many. But I assure you they will increase cyclist accidents. Do you really want to impose the accidental death of even one cyclist on the heart of one of your California motorists?

Steven Peterson

Thursday, March 01, 2012 8:02 AM

I am writing from Ontario, Canada to object to the use of rumble strips on the right hand side of highway.

I have ridden this highway, albeit many, many years ago, and as I recall it is one of the most beautiful cycling roads in the world. Please do not mess it up by putting in rumble strips.

While they may, this is a big MAY, improve conditions for drivers this must be balanced against the interests of all road users. Rumble strips are just plain dangerous for cyclists.

Wayne Lessard, B.A., LL.B.

Thursday, March 01, 2012 8:03 AM

Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

In short, rumble strips are a terrible idea that will ruin this treasure of a road.
Martin Lyons

Thursday, March 01, 2012 8:14 AM

I recently read that CalTrans is planning to install 11 miles worth of rumble strips on the shoulder of Hwy 1 between Santa Cruz & Davenport. As a cyclist, I would ask you to please reconsider. That is a heavily cycled route and rumble strips create a significant danger for cyclists. For example, rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road, or bypass glass or other debris on the shoulder. Additionally, rumble strips may not just shake a cyclist like it does a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

I can see how a restricted-use parkway or highway, like an interstate, might be a good use for rumble strips but not Hwy 1. Hwy 1 is a highway in name only. It's actually a 2-lane country road with farms, surfing spots, shoulder parking, multiple pull-outs, popular public beaches, scenic spots, and lots of cyclists, pedestrians, surfers and even equestrians frequently sharing the shoulders.

Again, please reconsider your plan and do not install rumble strips on Hwy 1. Thank you.
Jim Taggart

Thursday, March 01, 2012 8:23 AM

I read with great concern Jim Langley's report that you are considering RUMBLE STRIPS on Highway 1 between Santa Cruz and Davenport. We have ridden Highway 1 in California on a bicycle with gear, camping and staying in Hotels. Putting Rumble Strips on this highway, and not increasing the road surface so that all users can be protected (impossible in some coastal areas), will only serve to reduce the number of bicycle tourists that visit your fine state. I vacation annually with for a week camping, staying in Hotels and eating at local establishments – We do not go back to locations with RUMBLE STRIPS and will avoid them if at all possible. This will be our 10th year of touring 7-10 days though the western

US. And we make every effort to publicize our poor treatment for more years than when CalTrans finally changes from RUMBLE STRIPS.

RUMBLE STRIPS will not work on Highway 1 or through communities that benefit from bicycle tourists!

John Schaffers

Thursday, March 01, 2012 8:38 AM

It came to my attention today that CalTrans was planning on putting rumble strips on Highway 1 between Santa Cruz and Davenport.

As a life-long California native and avid cyclist I can't fully express the negative ramifications of this idea.

While rumble strips in the centerline can help drivers stay on the road, installing them to the right of the white lines (where us cyclists go) can be very dangerous.

We want to be able to enjoy this wonderful area and share it with cars, but rumble strips can be problematic and even cause crashes.

Safety first is a great motto, but as with any great plan, it's all in the execution. I am hoping that there are other alternatives to increase safety along this beautiful roadway (lowering speed limits, more patrols, etc.)

Warren H. Naugler

Thursday, March 01, 2012 9:15 AM

Please do not put rumble strips on Highway One (PCH) . I live in the Las Vegas area but I have ridden Highway One in the area of discussion .I believe putting the strips in will make the road unsafe for the many cyclists that use the highway . We have them here in Southern Nevada and on narrow roads they force cyclist to actually have to ride in the traffic lane. If you must install them may I suggest that they be placed to the left of the white fog line, because once a vehicle has crossed the line it is usually already too late to recover in time to avoid going off road or hitting cyclists or pedestrians on the shoulder of the road .

Thank You for taking my concerns in advisement.

Rick Taylor

Thursday, March 01, 2012 9:21 AM

I recently read a cycling article that indicated a CalTrans proposal to install rumble strips along HWY 1 from Santa Cruz to Davenport.

As a concerned cyclist living in Santa Cruz and I would certainly not support highway shoulder rumble strips.

I work in Moss Landing, and a few years ago CalTrans created a rumble strip down the middle of hwy 1 from Salinas Road to the Castroville area where it is a 2 lane hwy (similar to the area north of Santa Cruz with farms, turnouts, pedestrians, cyclists etc . . .). I would hope that CalTrans would only replicate this treatment (if any) along the hwy 1 corridor north of Santa Cruz. To me, the center rumble strip does make sense if the goal is to reduce head on collisions.

However, in my opinion, reducing the rideable and useable area of the shoulder with rumble strips would make the road more dangerous for a variety of users. The ubiquitous "bots dots" (http://en.wikipedia.org/wiki/Botts%27_dots) accomplish the same thing along the shoulder and do not create a hazard to cyclists.

Thanks for your attention and consideration of road safety for all users of the HWY 1 corridor.
Peter Walz

Thursday, March 01, 2012 9:33 AM

I am writing to ask you not to install rumble strips on Highway 1 between Santa Cruz and Davenport. This is a very popular route among cyclists. While these rumble strips are designed to protect motorists in cars, they are extremely dangerous for cyclists.

Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

Jay M. Dillon

Thursday, March 01, 2012 9:42 AM

Please reconsider the shoulder rumble strips on Hwy 1. They are unsafe for cyclists as it traps us either on the shoulder or in the roadway. While considerate and experienced cyclists try to ride the shoulder as much as possible to share the road with cars, we need to be free to jump out into the traffic lane to avoid debris in our path. Rumble strips make this dangerous for us both while trying to get out of the shoulder and then back in.

Twice the danger for us.
Ayla Gokturk

Thursday, March 01, 2012 9:45 AM

As a member of the Sonoma County Bicycle and Pedestrian Advisory Committee and a bicycle tourist, I strongly object to the installations of rumble strips on Highway 1 in Santa Cruz county. This road is heavily traveled by bicyclists and has fairly narrow shoulders. AASHTO's Guide for Development of Bicycle Facilities says that rumble strips "are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of 0.3 m (1 foot) from the rumble strip to the traveled way, 1.2 m (4 feet) from the rumble strip to the outside edge of paved shoulder, or 1.5 m (5 feet) to adjacent guardrail, curb or other obstacle." The FHWA guidance on Roadway Shoulder Rumble Strips supports this policy, saying, "Rumble strips should only be installed when an adequate unobstructed width of paved surface remains available for bicycle use."

My experience with CalTrans in Sonoma County is that it is trying to work with bicyclists to provide safe travel for ALL users of the roads and tries to follow AASHTO policies. I would hope that this is true throughout the state, especially along Highway 1 which is such an important bicycle route.

Vincent Hoagland

Thursday, March 01, 2012 10:01 AM

Rumble strips are virtually impossible to ride a bicycle on or over

– they are at best uncomfortable, even for a very short distance, and at worst can cause a cyclist to lose

control of their bike and fall. They can damage a bicycle wheel, can cause a flat tire, and/or shake loose

parts off a bicycle. Consequently, cyclists will avoid riding over them – and when rumble strips leave no

room on a shoulder, the cyclist will have no other option than to ride in the travel lane. While rumble

strips do not deter car, truck or bus travel, they have a severe impact on bicycling travel, and have ruined popular cycling routes.

The negative impact of rumble strips on the ride-ability of a roadway has prompted American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA) to provide guidance to follow when considering rumble strips on roadways used

by cyclists. They recommend that rumble strips should not be used indiscriminately on roadways that

are not limited-access. Rumble strips should be used where there is a history of run-off-the-road crashes; especially where there is sufficient recovery room for a motorist to react to the alert provided

by the rumble strip; and when the impact cyclists can be minimized. This means that at least four feet of

unobstructed roadway shoulder remains after the rumble strips have been installed.

States should train and monitor contractors to ensure best practices are followed. Advocates should work with their state DOTs, Municipal Planning Organizations (MPOs), and county road commissions to

verify that unnecessary rumble strips are not installed and that preferred bicycling routes, especially, are

kept free of rumble strips. It is important to get it right the first time. Improperly installed rumble strips

are expensive to repair – often costing many times more than the original installation – and usually cannot be repaired without leaving behind an uneven surface or a shoulder prone to early failure.

Jim Kirsner

Thursday, March 01, 2012 10:39 AM

As an avid cyclist I am disheartened to hear of the proposal for installing rumble strips on Hwy 1 specifically between Davenport and Santa Cruz. I ride with our team annually from Livermore to Santa Cruz and we always finish up along the coast. These proposed rumble strips would reduce our usable bike lane, make it dangerous for us as cyclists as they truly do make it nearly impossible to hold onto the bars and even worse could force us in places into the traffic lane. I understand wanting to keep cars in their lane however doing it at the expense of bicycles is fully unfair and downright dangerous. Please reconsider the installation of these strips especially on roads heavily utilized by cyclists.

Eileen Vergino

Thursday, March 01, 2012 10:41 AM

I was made aware there is a project planned to install rumble strips on highway 1. I live in California and I bicycle on highway 1 in various parts of the state. I am very concerned by this project and I urge you to reconsider and stop this project. Additionally I believe Caltrans should consider in their road planning for multi-use instead of car specific. These rumble strips are hazardous and can be downright dangerous for cyclists.

Byron Hay

Thursday, March 01, 2012 10:49 AM

Roads are paid for by all tax payers. They should be made and kept safe for all tax payers - including bicyclists. Rumble strips provide a huge hazard for bicyclists. Go out on a bike and run into one yourself. Even doing so intentionally is a hair-raising experience. When it happens by accident (and it easily can due to a wind gust, etc) it can be a cause of collision or crash. There are several places in this country where rumble strips have had to be filled due to these problems. Do NOT waste tax payer money cutting them in the first place. Stop thinking only of cars and consider all tax payers. Really, should I have to tell you this?

David White

Thursday, March 01, 2012 11:04 AM

Please do not move forward with the plans to put rumble strips on the section of Hwy. 1 near Santa Cruz. This project does not result in increased safety but in fact decreasing safety because of it's impact on bicycle traffic. The tires of a road bike can easily catch in such a groove and easily throw a cyclist off balance. This could result in serious injury. If a tire is cut or a wheel damaged the result could also be a cyclist down on the road.

Please keep Hwy. 1 safe for all who use it.

Dennis Mandigo

Thursday, March 01, 2012 11:12 AM

As an avid cyclist and rider in the California Coast classic which raises money for arthritis research. I am writing you to ask that you please reconsider the installation of rumble strips. They are incredibly dangerous for cyclists and could halt charity rides such as aids, the arthritis foundation, and ride to recovery from using this scenic highway. As a Californian I ask that you please take into consideration the safety of everyone that uses this road.

Scott Carpenter

Thursday, March 01, 2012 11:14 AM

I am writing to oppose Caltrans' plan to install rumble strips on an 11-mile stretch of Highway 1, starting in Santa Cruz and continuing north up the coast to Davenport. There's nothing safe about rumble strips for cyclists.

Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed.

Highway 1 is among the most famous, most ridden and most celebrated cycling routes anywhere. It should be made safe for ALL users, including cyclists.

J.A. Zaitlin

Thursday, March 01, 2012 11:31 AM

I am writing to ask that you not support the addition of rumble strips on Highway One or other roadways used by bicyclists. I looked over my shoulder and drifted onto such a rumblestrip on Hwy 84 near Livermore. I was thrust out into automobile traffic, which could easily have resulted in severe injury or death had the approaching car been closer.

Thanks for helping to save lives and preserving one of America's greatest cycling roads.

Bob Fusco

Thursday, March 01, 2012 12:04 PM

The stretch of Hwy 1 from Santa Cruz to Davenport is a well known portion of the route of Tour of California, the California Coastal Classic and California AIDS Ride. Installing rumble strips on this stretch of Hwy 1 would ruin this amazing road for cyclists, and would likely do little to reduce off-the-road and head-on collisions. Reducing speed limits and increasing patrols would do much more to reduce these collisions.

From http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf :

The negative impact of rumble strips on the ride-ability of a roadway has prompted American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA) to provide guidance to follow when considering rumble strips on roadways used

by cyclists. They recommend that rumble strips should not be used indiscriminately on roadways that

are not limited-access. Rumble strips should be used where there is a history of run-off-the-road crashes; especially where there is sufficient recovery room for a motorist to react to the alert provided

by the rumble strip; and when the impact cyclists can be minimized. This means that at least four feet of

unobstructed roadway shoulder remains after the rumble strips have been installed.

Additional guidance on how to avoid ruining roads for cyclists with rumble strips can be found at the above link.

Please do not install rumble strips on the stretch of Hwy 1 between Santa Cruz and Davenport.

Jason Wehmhoener

Thursday, March 01, 2012 12:11 PM

I am writing to you as a cyclist who has enjoyed riding my bicycle on Highway 1. It has come to my attention that Caltrans is planning to install rumble strips on an 11-mile stretch of Highway 1, starting in my town of Santa Cruz and continuing north up the coast to Davenport. If this happens,

I will not be able to ride my bike there, as it will become too dangerous for me, and surely for many others as well. I certainly hope it doesn't happen, and ask you to consider this seriously.

Cycling is becoming a popular sport. Changing Highway 1 will affect hundreds, if not thousands of us. If there is no bike lane, at the very least, we need an adequate shoulder for safety.

Please continue reading below what another cyclist has to say:

"According to Wikipedia, rumble strips were first installed in 1952 on New Jersey's Garden State Parkway. You can see how a restricted-use parkway or highway, like an interstate, might be a good use for them. But Highway 1 is a highway in name only. It's actually a 2-lane country road with farms, surfing spots, shoulder parking, multiple pull-outs, popular public beaches, scenic spots, and lots of cyclists, pedestrians, surfers and even equestrians frequently sharing the shoulders.

Plus, the stats we've rounded up researching this issue indicate that rumble strips would hardly have an impact on preventing head-ons and run-off-the-road crashes. In contrast, simply lowering speed limits or increasing police patrols would help more and have no negative impact on other road users.

All road users deserve safety, not just drivers

The fact that Caltrans is even considering putting rumble strips on such a multi-use and heavily biked road is as inconceivable to me as the California Coastal Commission allowing whaling in the waters adjacent to it. Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us."

Adrienne Rubin

Thursday, March 01, 2012 12:14 PM

I was shocked to read in Road Biker Rider that CalTrans plans to install rumble strips on Highway One north of Santa Cruz.

This poses a serious threat to cyclists. I've ridden along a highway in Colorado that had rumble strips, and the instability caused me at one point to veer into traffic and almost crash.

Twice a year I do a bicycle trip along Highway One, and I don't look forward to navigating this section. Please, for the sake of us cyclists, don't do it!

David McRobbie

Thursday, March 01, 2012 12:18 PM

I am writing to discourage implementation of rumble strips on the shoulders of Highway 1 north from Santa Cruz. I actually believe they don't belong on shoulders of Highway 1 anywhere, but I understand they are being considered specifically for the Santa Cruz to Davenport section.

I am a bicyclist, and have experienced rumble strips in other parts of the state. They are a very real danger to cyclists. They serve to "trap" cyclists between the traffic lane and the shoulder. At times and in some locations, it is unsafe to be trapped there. This can be a location for debris, glass, dead animals, and other hazards. If a cyclist needs to avoid these obstacles, they only choice they have is to enter the roadway. An attentive cyclist will only do this when safe (no passing vehicles), so there is minimal danger to the cyclist. I have at times even crossed the rumble strip to get into the traffic lane. This can also be very dangerous since the nature of the rumble strips used makes it very easy for a cyclist to loose control.

Please do not install rumble strips!
Tom Kuhn

Thursday, March 01, 2012 12:33 PM

The California coastal highway is the dream route for many bicyclists. I hear it is planned to receive rumble strips, which would go a long way toward ruining it. Please reconsider.
Rick Elderkin

Thursday, March 01, 2012 12:33 PM

"According to Wikipedia, rumble strips were first installed in 1952 on New Jersey's Garden State Parkway. You can see how a restricted-use parkway or highway, like an interstate, might be a good use for them.

But Highway 1 is a highway in name only. It's actually a 2-lane country road with farms, surfing spots, shoulder parking, multiple pull-outs, popular public beaches, scenic spots, and lots of cyclists, pedestrians, surfers and even equestrians frequently sharing the shoulders.

Plus, the stats we've rounded up researching this issue indicate that rumble strips would hardly have an impact on preventing head-ons and run-off-the-road crashes. In contrast, simply lowering speed limits or

increasing police patrols would help more and have no negative impact on other road users. All road users deserve safety, not just drivers

The fact that Caltrans is even considering putting rumble strips on such a multi-use and heavily biked road is as inconceivable to me as the California Coastal Commission allowing whaling in the waters adjacent to it. Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard.

Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us."

As an avid cyclist and bicycle commuter I believe the instillation of rumble to be counter to the safety of cyclists. PLEASE rethink the issue to develop a more inclusive solution.

Thank you,
Phil Magallanes

Thursday, March 01, 2012 12:54 AM

I'm writing in opposition to the installation of rumble strips on Highway 1, particularly along the shoulder of the road.

I have been off my bicycle for the last two months after breaking two vertebrae, my right hand, and ripped tendons in my right shoulder; all from a bicycling accident that is due in large part to the lack of importance placed on the bicycle as a means of transportation and recreation. I would even call it disdain. The person who caused my accident, which by the way resulted in severe injuries to my wife as well, had the gall to ask for apologies from us as we lay bleeding on the pavement. I can assure you that more of this is going to happen with the rumble strips. Caltrans ought to be representing not just motor vehicle users but bicyclists as well, particularly because we're the cleanest and most efficient means of transportation in existence.

I've been an avid cyclist for the last 35 years, and so are my wife and son, and most of my family and my wife's family. I've ridden my bicycle all over Southern California and beyond. I've ridden the length of the west coast of the U.S., from Port Angeles in Washington down to San Diego California, most of it along the beautiful Highway 1.

Please stop this insanity, the road belongs to cyclists as well as motorists.
Carlos Ovalle, AIA, LEED AP

Thursday, March 01, 2012 1:24 PM

The fact that Caltrans is even considering putting rumble strips on such a multi-use and heavily biked road as Highway 1 is as inconceivable to me as the California Coastal Commission allowing whaling in the waters adjacent to it. Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

Frank Wilkeson

Thursday, March 01, 2012 1:30 PM

Rumble strips do not treat the underlying cause of any "accident" involving inattentive or sleeping drivers.

On the other hand, rumble strips pose very real dangers to cyclists' safety:

- Rumble strips restrict the width of roadway available for cyclists. Restricting the width of the roadway presents a dangerous condition where roadways are narrow, and restricts cyclists' ability to avoid other road hazards, such as parked cars, road surface defects, and debris.

- Rumble strips cause cyclists to crash when they must be traversed.

For these safety reasons, rumble strips must not be installed on Highway 1.

Doubtless, the idea of installing rumble strips on Highway 1 is well-intentioned. However, installing rumble strips in order to forestall "accidents" involving inattentive and sleeping drivers is ineffective.

Rather than installing rumble strips, enforcement and driver education should be increased. Driver education should not only emphasize the dangers of driving inattentively, or while impaired in any way, but should also emphasize how inattentive driving, or driving while impaired, places lives at risk.

Steven Chabra

Thursday, March 01, 2012 2:18 PM

I was an auto industry exec for many years but also enjoy our roads as a cyclist. I have to say it's hard for me to picture how rumble strips on Highway 1 north of Santa Cruz serve the full use community, let alone cost-effectively. The road there is very much multi-use, and I've found rumble strips are most appropriate for remote, high-speed limited access freeways.

I don't think this is a good match, or a good use of funds. I would be greatly disappointed to find rumble strips on any road of this type, but Highway 1 in particular.

Kurt Wallace Martin

Thursday, March 01, 2012 2:46 AM

Rumble strips are a terrible idea that will ruin the treasure of Highway 1. I do not agree with their use on this roadway and believe they will endanger cyclists.

Lisa Charest

Thursday, March 01, 2012 3:28 PM

By placing rumble strips on Hwy1 between Santa Cruz and Davenport, yes you may be making it a bit safer for a drunk motorist and few other drivers, but in turn you are making it much more dangerous for bicyclists by narrowing an already fairly narrow shoulder in much of that part of Hwy1. You may not be aware but hundreds, thousands of bicyclists have and are still riding that section of Hwy1, since its the major scenic route for bicyclists traveling the coast. You are putting many more bicyclists in danger than the helping the few in-attentive motorists driving that section.

Please re-think what you think is important.

Douglas R. Newberg

Thursday, March 01, 2012 3:46 PM

I write to express my deep concern and strong objections to the proposal apparently under consideration by CalTrans to install "rumble strips" on HWY 1 between Davenport and Santa Cruz.

As an avid cyclist who rides through this area at least once a year – usually with a large bike tour – I know this stretch of road very well. Given the sand in the area, the narrow shoulders in many places, and the lack of escape alleys for cars and bikes alike, it would be extremely dangerous to install rumble strips on what is essentially a 2-lane country road. Where there is not sufficient shoulder space, rumble strips force riders to ride in traffic – even for experience cyclists, riding in and around rumble strips could not only be an incredibly painful experience, but also a very dangerous one in the event that a wheel catches or is turned crossing one of the strips – leading people to veer unexpectedly into traffic and/or go down. Even when there is sufficient shoulder space generally, rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that is often across the road or bypass glass or debris on the shoulder. Moreover, rumble strips in the middle of the road make drivers less likely to ride closer to the center line – even when it is safe to do so – in order to give cyclists adequate space to ride, which will inevitably lead to more near-collisions and collisions with cyclists when cars do not leave enough room while passing a cyclist.

The California Legislature has declared through several legislative pronouncements that, except on separated freeways, all traffic ways should be made as safe as possible for both cyclists and motorized vehicles. Putting rumble strips on a public roadway that is intended for a frequented by cyclists is a very bad, dangerous. I urge CalTrans not to make this dangerous mistake.
Dennis M.P. Ehling

Thursday, March 01, 2012 6:42 PM

It has been brought to my attention that you are planning to install rumble strips on Hwy 1 north from Santa Cruz to Davenport. Please put me down as a concerned citizen/cyclist that oppose this move because while it may be perceived as a safety issue for motorists, it will have the opposite effect on bicyclists. In fact, I am pretty sure that due to the inherent narrow width of this highway, adding rumble strips will probably force bicyclist to ride to the left of the rumble strips and more in the lane of vehicle traffic. How about lowering the speed limit and enforcing it? That will increase safety for everyone and maintain this iconic road for all users... Don't I have that right to safe passage?

While not a citizen of California, I have taken at least a dozen vacations to California for bicycle trips varying in duration from day trips to Mt Polomar to long trips bicycling down the entire California coast. And yes, we do spend a lot of money on motels, food, supplies, and bicycle equipment in your state - just ask my wife. I'm asking you to keep the highway safe to every stakeholder and don't put in rumble strips.

Tim Rygg

Thursday, March 01, 2012 8:54 PM

While riding my bike from Oregon to California on US 101 at the state line I got onto the tractor strips. I was avoiding a piece of truck tire in the bike lane and ended up in the car lane after regaining control of the bike in the car lane I wanted back into the bike lane(across the rumble

strips) losing control again and onto the shoulder and into the bushes. This was a near death experience. These strips could be deadly to a cyclist and I'm asking you to please stop using them.

PS: I had the same thing happen to me with "Botts Dots on the bicycle lane white line."
Mick Weninger

Thursday, March 01, 2012 11:29 PM

Rumble strips are a bad idea. Though rumble strips make the road slightly safer for inattentive drivers, rumble strips make the road less safe for bicyclists.

I have no problem with intervening in cases when someone should be getting the Darwin award, but I strongly feel that we should not reduce the safety of those who are paying attention. Let Darwin do his deeds!
Bruce Ohlson

Friday, March 02, 2012 5:52 AM

I have just read about the rumble strip plan on Hwy 1 near Santa Cruz (in the Road Bike Rider e-zine) and would like to put in a vote against them. As the writer suggests it might be better to lower the speed limit there. I am from Canada and do a lot of cycle touring. The best tour ever was the Pacific Coast Highway ride that I did about 4 years ago from Seattle to San Diego. I loved every minute of it and for the most part drivers were very respectful. It is a scenic drive and people shouldn't be speeding on it anyway. Rumble strips would ruin it for cyclists and you get many of them on this tour. I have never met up with so many cycle tourists as I have on this route.

You have a beautiful state, and your state parks are amazing.
Just my thoughts.
Sue Pott

Friday, March 02, 2012 8:36 AM

Rumble strips are a hazard to bicyclists. This highway offers a scenic ride along California's beautiful coast. Often times there is debris covering the highway shoulder requiring cyclists to temporarily cross into the traffic lane. Crossing and recrossing rumble strips greatly increases the possibility of a crash and the rider could end up in the traffic lane or over correct and crash into the guard rail.

I urge you to reconsider putting rumble strips along highway 1.
Neil Carman

Friday, March 02, 2012 8:39 AM

I was just made aware of the CalTrans plan to put in 11 miles of rumble strips onto Hwy 1 shoulders from Santa Cruz to Davenport. I'm a long time resident of California, business owner, property owner and concerned avid cyclist. The installation of rumble strips on the shoulder or near them will make riding bicycles extremely dangerous and difficult. You are essentially putting bicycle riders at greater risk OF A HEAD ON COLLISION WITH A CAR on this beautiful stretch of road that is for all users. Cars, pedestrian, bicycles and motorized two wheelers can share

this spectacular stretch of road without creating greater risk for any user. Please reconsider and put up more signage, lower speed limits, reflective materials, bottle dots on the centerlines, ...

There are alternatives that don't kill a recreational activity so vital to our state, country and Hwy 1.

Thanks for your time and I implore you to consider and affect other solutions to reducing head on collisions without the use of rumble strips on the shoulders of Hwy 1 from Santa Cruz to Davenport.

Matt Politzer

Friday, March 02, 2012 11:04 AM

I have been made aware of the proposal to install rumble strips between Davenport and Santa Cruz along the CA Coast. I manage a bike tour that rides right through that area, and I wanted to express my concern for the safety of all the cyclists that ride that gorgeous route.

These strips are extremely dangerous for cyclists and will have a direct impact on the ability to ride safely through that area. Please consider the thousands of cyclists that ride that strip of the coast when making this decision about whether to install the strips.

With my thanks,

Amy Robertson

Friday, March 02, 2012 11:20 AM

Please consider the needs of cyclists in evaluation the potential installation of rumble strips on the shoulders of Highway 1. They can pose an extremely dangerous hazard to all cyclists, no matter their level of experience, and Highway 1 may not be wide enough to provide the best benefit to drivers. A lot of information about the danger is available here:

http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf.

Please carefully consider these impacts as planning moves forward.

Mark Gunther

Friday, March 02, 2012 12:37 PM

I heard about a plan to put rumble strips on Highway 1 between Santa Cruz and Davenport, CA. This section of roadway is regularly used by bicyclists, including by myself on several occasions. Rumble Strips would be very dangerous for bicyclists, limiting their available space to ride on the shoulder of the roadway. Highway 1 is not limited access in that section and is a well known bicycle route. Unless there would be 4 feet of more of available shoulder space after the rumble strips were installed, I urge you not to proceed.

Thank you for your consideration.

Richard Burton

Friday, March 02, 2012 12:57 PM

I urge you to NOT install rumble strips along on the PCH between Davenport and Santa Cruz. They are a hazard to bicyclists! The Pacific Coast Highway is one of the most wonderful cycling experiences in the entire country. PLEASE do not ruin it!

Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard.

Bicycles aren't like cars, after all.

We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

Again... Please DO NOT INSTALL RUMBLE STRIPS on the PCH!

Mark Emery

Friday, March 02, 2012 10:45 PM

I am not the type of person who normally sends emails in support or opposition to a cause, but in this case I can't possibly feel any stronger disapproval of any proposal to install rumble zones along portions of Highway 1.

As a cyclist who has ridden the California Coast I can't think of any stretch of the country that is more beautiful. While driving the coast is a beautiful adventure in itself, riding a bike along the coast is amazing. The idea of adding a rumble zone along the shoulder just doesn't make any sense to me. I realize the idea behind the rumble zone, but as you must know there are sections where the shoulder is practically non-existent. So to add a rumble zone doesn't prevent inattentive drivers from going off the road, it places cyclist closer to traffic. Adding these rumble zones along the shoulder will only increase the number of accidents involving cyclist, who are already at the mercy of faster moving and much heavier cars. It doesn't make any sense to increase the State's liability by forcing cyclist closer to the center of the road.

I invite you to get on a bicycle and ride this stretch of the coast yourself before you consider doing this. Cyclists have the same rights to the road as motorists and doing this will only endanger more cyclists, increase tensions between motorists and cyclists and increase the State's liability.

Jose Armas

Saturday, March 03, 2012 1:07 AM

As an avid cyclist I'm against installing rumble strips on a 11-mile stretch of Highway 1, starting in Santa Cruz and continuing north up the coast to Davenport, actually I'm opposed to any rumble strips anywhere on highway 1.

I understand you're trying to reduce head on collisions but stats show that rumble strips do little to prevent that. It would be wiser, safer for both cars, pedestrians, and cyclists, in addition save taxpayers money by simply reducing the speed limit by 5 to 10 mph.

Rumble strips are a hazard to cyclists. Should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver, it could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install

such a dangerous hazard. Bicycles aren't like cars, after all, we have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

The Bike League offers this web site:

http://www.bikeleague.org/resources/reports/pdfs/rumble_strips.pdf where you can read more on the negative impact of rumble strips for cyclists.

In short, rumble strips are a terrible idea that will ruin this treasure of a road and create more hazards than it will prevent.

Fred Rose

Saturday, March 03, 2012 9:30 AM

I am a cyclist located in Ohio although I visited California with my wife this past fall. SF, Yosemite, and Sonoma valley. I rented a mtn bike and did some riding with friends south of SF and then in Santa Rosa for a ride in wine country.

My wife and I had our honeymoon 15 years ago in CA. We flew into San Diego and drove up highway 1 to SF. Awesome trip, great road, great cities, great state, great views!

I just finished reading Road Bike Rider article from Jim Langley included below on the idea of installing rumble strips on highway 1. I wanted to let you know that I agree with Jim that installing rumble strips is a bad idea.

Thanks for your time.

Rod Shearer

Saturday, March 03, 2012 1:04 PM

Please don't install rumble strips at Hwy 1 near Santa Cruz. That change would greatly decrease the safety for the many bicycle riders along that route.

Ned Pelger, P.E.

Saturday, March 03, 2012 10:18 PM

I understand there is planning to install rumble strips. I would ask you to please consider some other safety device to keep drivers alert and safe.

I observed a nasty accident caused by rumble strips when I was on a bicycle ride in Montana. The cyclist hit the rumble strip which threw her and her bike into the air. She fell into the traffic lane and was knocked unconscious. Before I could get off my bike, a car came around the corner. Although the driver tried to avoid her, the bike and rider were caught under the car and drug down the highway. Fortunately, the cyclist did not suffer any broken bones but she had a serious concussion and road rash.

There has to be another answer to the problem of drivers who do not pay attention, drive when sleepy, drift out of their lane, etc. which will not impact other users of the road.

Nikki Grimes

Sunday, March 04, 2012 7:46 AM

I heard about CalTrans plans to install rumble strips on Hwy. 1 between Santa Cruz and Davenport. I would implore CalTrans to not install them. Hwy. 1 is a popular route for cyclists and rumble strips are at best an annoyance and at worst a hazard for cyclists. I have been an avid cyclist for 25 years now, and rumble strips are ruining our ability to utilize the road shoulder for riding. Please do not install them on Hwy. 1 nor anywhere else, for that matter. Thanks for your consideration.
Mike DeMicco

Sunday, March 04, 2012 1:10 PM

All road users deserve safety, not just drivers

Please, Don't put rumble strips along Highway 1. The fact that Caltrans is even considering putting rumble strips on such a multi-use and heavily biked road is as inconceivable to me as the California Coastal Commission allowing whaling in the waters adjacent to it. Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

Why not just make drivers stay alert?? Why endanger others to keep drivers from endangering themselves? I HATE rumble strips. When I drive, if I am losing my alertness I GET OFF THE ROAD and REST for a bit, or longer. Rumble strips are state mandated malfeasance, and may soon be exposed as such in the courts.

Larry Parker

Sunday, March 04, 2012 7:03 PM

I am writing to urge you not to install rumble strips on Hwy 1 near Santa Cruz as is proposed. While they may be a good idea on high speed roads with very wide shoulders, e.g. US395, they are a clear danger to cyclists on a road like Hwy 1, which I have ridden many times. I have personal experience of the frightening experience of riding into the rumble strip, which can easily cause a cyclist to crash. Where the shoulder is not clean (and Caltrans doesn't seem to pay any attention to this) having to move in and out to avoid debris and crossing the rumble strip is quite hazardous, e.g. as on Hwy 25 towards Hollister.
Mick Jordan

Monday, March 05, 2012 4:52 AM

As a cyclist, I worry about the installation of rumble strips near Santa Cruz on Highway 1. This will make the road much more dangerous for cyclists. There are alternative ways to make the road safer, and I urge you to explore them before making this dangerous change, including increased police patrol and reducing the speed limit. Thanks for your consideration

Stephen Cohen

Monday, March 05, 2012 9:19 AM

California Hwy 1 is a route I would like to cycle, it's a major cycling destination. Please don't ruin it for cyclists by cutting rumble strips.

Thanks for reading this,
Stan Munn

Tuesday, March 06, 2012 12:30 PM

I'm an avid road cyclist who lives here in sunny California. I count myself very lucky to live in such a beautiful state and to have the opportunity to ride on so many wonderful roads especially our scenic HWY 1. It pained me greatly when I read about CalTrans plans to add rumble strips to HWY 1 from Santa Cruz to Davenport. I understand that the reason CalTrans is considering doing so is to decrease the number of head on car collisions. Unfortunately, though, adding rumble strips to the sides of the road will adversely affect the safety of cyclists. Simple stated rumble strips are very dangerous for cyclists. They eat up what little shoulder cyclists already have available to them and crossing back and forth across them (to avoid obstacles, parked cars etc...) is bone jarring at best. If you hit one just wrong you go down and on a highway like HWY 1 that's not a good thing. In places where there isn't enough room to safely ride to the right of a rumble strip riders will be forced in the main traffic lane (which as road vehicles they are entitled to do) slowing traffic down. Impatient drivers, of which there are many, may be tempted to try to pass cyclist either too closely or by driving down the wrong side of the road risking more head on crashes. So, I implore you to reconsider adding rumble strips to HWY 1.

Thank you for reading,
Vanessa McDonnell

Tuesday, March 06, 2012 2:42 PM

I learned that you were considering the use of rumble strips on CA 1 which will result in unsafe road conditions for cyclists who are frequent travelers on this stretch of road. In considering the issue of safety, you need to consider the entire picture and not just what applies to motorists. You may well prevent a fatality from a motorist but cause several new ones with cyclists. On the margin, if it is safety neutral it will clearly be a real inconvenience to cyclists who have every right to enjoy the road as much as motorists.

Thank you for allowing us to participate in the conversation on this topic.
Michel Glouchevitch

Thursday, March 08, 2012 9:25 AM

Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or cyclist avoiding a roadside hazard ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

William Mayberry

Thursday, March 08, 2012 11:30 AM
There are alternatives.

At a minimum, they do not need to be continuous for an entire strip of freeway.

Bike travel from between 10-25 mph on general terrain and that lets a bike rider slip in between regions of rumble-free strips. On downhill sections, bike can reach speeds of 30-50 mph (depending on rider and descent angle) and any rumble strips need to be spaced further apart.

As a driver I can respect the value of rumble strips, as a bike rider, I hate them. However, they can co-exist. It just has to be done smartly!

Please, work with all users of the roads, not against a specific group
Gary Coyne

Thursday, March 08, 2012 1:19 PM

As a member of the Sonoma County Bicycle and Pedestrian Advisory Committee and a bicycle tourist, I strongly object to the installations of rumble strips on Highway 1 in Santa Cruz county. This road is heavily traveled by bicyclists and has fairly narrow shoulders. AASHTO's Guide for Development of Bicycle Facilities says that rumble strips "are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of 0.3 m (1 foot) from the rumble strip to the traveled way, 1.2 m (4 feet) from the rumble strip to the outside edge of paved shoulder, or 1.5 m (5 feet) to adjacent guardrail, curb or other obstacle." The FHWA guidance on Roadway Shoulder Rumble Strips supports this policy, saying, "Rumble strips should only be installed when an adequate unobstructed width of paved surface remains available for bicycle use."

My experience with CalTrans in Sonoma County is that it is trying to work with bicyclists to provide safe travel for ALL users of the roads and tries to follow AASHTO policies. I would hope that this is true throughout the state, especially along Highway 1 which is such an important bicycle route.
Vincent Hoagland

Saturday, March 10, 2012 8:19 AM

At first I thought it was a joke. Then I realized your department is seriously considering putting rumble strips on the sides of highway 1.

It just seems so obvious to me that any roadway that allows bicycles cannot also have rumble strips. When cyclists ride on busy roads there is often a lot of debris on the sides. The cyclists need to balance the fine line between riding away from the debris so as to not get a flat tire, while

also riding away from the traffic lane for cars so as to not get hit. Rumble strips would force cyclists into the far right of the shoulder, where all of the debris from cars sits.

If you insist on rumble strips, then I must insist that you also continuously clean up the roadside debris. Even with the separate bike path, which stops at Wilder Ranch, fast cyclists will continue to use the shoulder of the highway. How about putting the rumble strips within the car traffic lane on the far right side?

Thank you for your consideration,
Allison Cruz

Tuesday, March 13, 2012 11:39 AM

As a cyclist, I am concerned that the proposed shoulder rumble strips on Hwy 1 from Shaffer Road to Swanton Road will force me into high speed traffic everywhere that rocks, overgrown plants, or broken pavement makes the shoulder not rideable. Without shoulder rumble strips, I can skirt these hazards without taking the traffic lane.

As a car driver, I am concerned that cyclists will swerve into my path. The speed limit is probably 50 and everyone drives faster, so there will be little time to swerve into oncoming traffic or brake to match the cyclists' speed.

It seems that this project, intended to improve safety, would dramatically decrease it. The centerline rumble strips appear to benefit without causing hazard. The shoulder rumble strips are dangerous.

How much would it cost to create / install shoulder (not centerline) rumble strips? It would be cruel irony if true road hazards were not addressed / repaired because budget were allocated away from them and to creating a new hazard.

Thank you for your consideration.
Miguel F. Aznar

Saturday, March 17, 2012 4:18 AM

Greetings,

I think that installing rumble strips on the eleven miles of Highway 1 from Santa Cruz and continuing north up the coast to Davenport is a terrible idea! I urge you Not to do this and vote against it!!!

Safety measures are all well and good, but there's nothing safe about rumble strips for cyclists. And this stretch of Highway 1 is among the most famous, most ridden and most celebrated cycling routes anywhere. It's a key part of Adventure Cycling's Pacific Coast Bicycle Trail, which runs the length of the West Coast and has been in existence since the 1970s. It's actually how I "discovered" Santa Cruz at the end of my cross-country tour.

It's been used several times for stages in the Tour of California and will host Stage 2 on May 14. Plus, it's traveled by the Arthritis Foundation's California Coastal Classic. And, it's also the route of the super-popular and longtime California AIDS Rides and many other popular cycling events and triathlons.

A great road ruined

In case you've never experienced these miserable wheel-wrecking, tire-puncturing road ruiners, rumble strips come in many nasty varieties, but all consist of deep horizontal grooves (or sometimes raised bumps like mini speed bumps) tightly spaced and continuous on the centerline and/or shoulders of the road.

On the shoulders they are typically placed inside the white line, reducing the available shoulder width for cycling (already shrunk in Santa Cruz from erosion and pavement damage caused by steady wind and the harsh ocean climate).

Designed for drivers

Rumble strips were designed as a safety measure to alert inattentive drivers that they are crossing the center of the road or drifting off the sides of it. When a car tire rolls over the strip it gets violently shaken by the deep grooves and makes a loud buzzing noise, startling and alerting the driver to veer back into their lane.

According to Wikipedia, rumble strips were first installed in 1952 on New Jersey's Garden State Parkway. You can see how a restricted-use parkway or highway, like an interstate, might be a good use for them. But Highway 1 is a highway in name only. It's actually a 2-lane country road with farms, surfing spots, shoulder parking, multiple pull-outs, popular public beaches, scenic spots, and lots of cyclists, pedestrians, surfers and even equestrians frequently sharing the shoulders.

Plus, the stats I've rounded up researching this issue indicate that rumble strips would hardly have an impact on preventing head-ons and run-off-the-road crashes. In contrast, simply lowering speed limits or increasing police patrols would help more and have no negative impact on other road users.

All road users deserve safety, not just drivers The fact that Caltrans is even considering putting rumble strips on such a multi-use and heavily biked road is as inconceivable to me! Rumble strips will trap cyclists on the shoulders and prevent them from using the traffic lane to pass parked vehicles, avoid wind-blown sand that's often across the road or bypass glass or debris on the shoulder.

Much worse, should a newbie or inattentive cyclist ride onto the strip, it won't just shake them, like a driver. It could cause a breakdown or buck them into the traffic lane where they might get struck and killed. You have to wonder how it can even be legal to install such a dangerous hazard. Bicycles aren't like cars, after all. We have to balance and avoid obstacles or we'll crash, and we don't have a metal enclosure to protect us.

In short, rumble strips are a terrible idea that will ruin this treasure of a road.

Nino Pacini

March 20, 2012 11:51 AM

Please do not install rumble strips on the shoulder of Hwy 1. Despite your intentions you will make this road far more dangerous for the thousands of cyclists like myself.

Statistics I have seen show that rumble strips do little to prevent distracted and drunk drivers from veering off the road. So nobody wins.

Sean Coffey

Tuesday, March 20, 2012 9:40 AM

As a resident of Santa Cruz for over 12 years and avid cyclist, I am seriously concerned about the plans to add rumble strips to the fog lines on Highway 1 along our beautiful coastline.

They present a hazard to cyclists on a road, especially one with such a narrow shoulder. I have ridden down the Pacific Coast several times (a major tourist attraction) and the rumble strip on US101 near Santa Barbara (which has a much wider shoulder) significantly degrades the quality of the experience. This planned modification to Highway 1 would not only be a safety issue, but it would also deter cycling tourists and, with them, the money they'd spend.

Please reconsider this short-sided project.

Thank you,
Nils Tikkanen



Adventure Cycling Association

March 19, 2012

Rich Krumholz, District Director
CalTans District 5
50 Higuera Street
San Luis Obispo, CA 93401-5415

Dear Mr. Krumholz:

It has come to our attention that CalTrans plans to install centerline and shoulder rumble strips on the Pacific Coast Highway/Highway 1 between Davenport and Santa Cruz. Highway 1 is part of one of the most active bicycle touring routes in the country and a major draw for international tourism. Adventure Cycling Association is writing to express our concerns regarding this project.

Adventure Cycling is a national non-profit with 44,500 members world-wide. It is our mission to inspire people of all ages to travel by bicycle. As bicycle travel experts, we provide the expertise, resources and inspiration that enable thousands of people to travel by bicycle every year. While we provide organized tours, produce an award-winning magazine, *Adventure Cyclist*, offer free resources on our website and sell bike travel gear, the heart of what we do is produce detailed maps for bicycle travelers. With over 95 individual maps that cover 41,000 miles of routes, one of our most popular routes, year after year, is the Pacific Coast Bicycle Route (PCBR) (www.adventurecycling.org/routes/pacificcoast.cfm) which follows the coastline from Canadian to Mexico. We sold 1,173 maps of this section in 2011 (there are 5 sections in the PCBR series). Due to the indestructible nature of our maps (printed on waterproof and tear-proof paper) we estimate that anywhere between one and fifteen individual tours of one or more may use each map sold over the course of its lifetime.

Originally designated by the State of California as a bicycle route in 1975, in 1991 Assembly Concurrent Act 32 re-established this route as a state bicycle route, called the Pacific Coast Bicentennial Bike Route (see attached resolution). In addition to this state designation, there is local interest in designating the coastal route as U.S. Bicycle Route 95. Adventure Cycling coordinates the U.S. Bicycle Route System (www.adventurecycling.org/usbrs) on behalf of the American Association of State Highway and Transportation Officials (AASHTO).

The fact that this stretch of highway is an official state bicycle route, has to potential to become a U.S. Bicycle Route, and is ridden by tens of thousands of bicyclists using Adventure Cycling maps every year, CalTrans must do due diligence in any making any decisions regarding placing center-line and shoulder rumble strips on this roadway. While we recognize the safety benefits rumble strips have for the motorized traveler, this stretch of road is not a typical highway. Due to access points to local beaches and existing and developing trail projects, it has a high number of non-motorized users and their safety must be considered. We have heard conflicting information regarding the timeline of this project; initial reports stated 6-12 months and now we hear it is 18-

Adventure Cycling Association

A member supported not-for-profit organization dedicated to bicycle travel.

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www.adventurecycling.org • 150 E. Pine Street, Missoula, Montana 59802

24 months. Please consider delaying this project until all the relevant information is obtained and the District has opportunity to meet with local governments and the bicycling community to mitigate potential conflicts.

Based on these circumstances, we request CalTrans to do the following:

- CalTrans not install shoulder rumble strips on Highway 1 until thorough on-the-ground research is conducted to assess the multiple users and potential safety conflicts that might arise from placing rumble strips on this roadway;
- CalTrans work to provide a five-foot wide road shoulder on Highway 1 clear of sand and other debris while still accommodating parked vehicles and ocean and trail access for residents and visitors.
- CalTrans continue to work with cyclists and other user groups to ensure that Highway 1 remains one of the country's premier bicycling routes.

We have reviewed CalTrans rumble strip policy and find it acceptable for accommodating bicycles, in fact, when working with the Federal Highway Administration last fall on the new Shoulder and Center-line Rumble Strip Guidance, we referenced CalTrans as a good state policy. While we are heartened to hear that CalTrans intends to work with the local governments and bicycling community to assure this project is done with the best interests of all users in mind, the fact is that across our country, we have seen good rumble strip policies come undone by poor construction management and inconsistent shoulder widths, which makes the policy null. Compound this by the fact that once rumble strips go in, they are extremely expensive to remove. In fact, it is nine-times more costly to remove than to place them (based on costs estimates from South Carolina DOT). This continues to be a major concern to Adventure Cycling on all rumble strip projects, not just the one proposed on Highway 1.

Sincerely,



Virginia Sullivan
Special Projects Director
gsullivan@adventurecycling.org

cc:

Jim Shivers, District 5

Santa Cruz County Regional Transportation Commissioners

Cory Caletti, Senior Transportation Planner/Bicycle Coordinator, SCCRTC

Penny Gray, Bicycle Program Manager, CalTrans

Assembly Concurrent Resolution No. 32

RESOLUTION CHAPTER 143

Assembly Concurrent Resolution No. 32—Relative to the coastal bicycle route.

[Filed with Secretary of State September 12, 1990.]

LEGISLATIVE COUNSEL'S DIGEST

ACR 32, Farr. California Coast Bicycle Route.

This measure would designate the coastal bicycle route, as now established or hereafter modified, an official state bicycle route and request the Department of Transportation to maintain signs marking the route for experienced riders.

WHEREAS, California is the nation's leading state for bicycle touring; and

WHEREAS, The most popular long distance bicycle touring route in California is the Pacific Coast Bicentennial Bike Route; and

WHEREAS, The Pacific Coast Bicentennial Bike Route was established by the California American Revolution Bicentennial Commission and the Department of Transportation, in honor of the birth of our nation, as a 1,000 mile long journey into the history and future of California; and

WHEREAS, This challenging route passes some of the nation's most beautiful scenery, including vast redwood forests, Big Sur, the wine country, and the Carmel-Monterey area, as well as portions of the historic Mission Trail; and

WHEREAS, Along this route can be found California's Spanish, Russian, and early American heritage; forts, lighthouses, missions, and old mining and lumbering areas; and rich agricultural lands and busy cities and towns filled with a wealth of the past and bustling with the life of today; and

WHEREAS, The Pacific Coast Bicentennial Bike Route connects with the Canada to California Bicycle Route and with the Southwest U.S. Bicycle Route; and

WHEREAS, Resolution Chapter 31 of the Statutes of 1975 designated this route as an official state Bikecentennial Route; and

WHEREAS, That designation as a state Bikecentennial Route terminated in 1983; now, therefore, be it

Resolved by the Assembly of the State of California, the Senate thereof concurring, That the coastal bicycle route, as now established or hereafter modified, be permanently designated an official state bicycle route; and be it further

Resolved, That the Department of Transportation is requested to maintain appropriate signs for experienced bicyclists who may wish to use the route; and be it further

Resolved, That the designation of this route does not revoke the previous designation of portions of this route as the Cabrillo Highway, El Camino Real, and the Pacific Coast Highway; and be it further

Resolved, That the Chief Clerk of the Assembly transmit a copy of this resolution to the Director of Transportation.

RESOLUTION CHAPTER 31

Senate Concurrent Resolution No. 10—Relative to a
Bikecentennial Route.

[Filed with Secretary of State April 18, 1975]

WHEREAS, The California American Revolution Bicentennial Commission, in cooperation with the California Department of Transportation, has established a route which could be part of a national system of bike trails, in honor of the birth of our nation, under the "Bikecentennial 76" program of the National Bicentennial Commission; and

WHEREAS, The route would comprise portions of State Highway Route 5 from the Mexican border to Capistrano Beach, of State Highway Route 1 from Capistrano Beach to Leggett, and of State Highway Route 101 from Leggett to the California-Oregon state line, and such other alternate routes designated by the department and local jurisdictions; and

WHEREAS, This route would easily connect with east-west cross-country "Bikecentennial" routes which terminate in Reedsport, Oregon, and Santa Ana; and

WHEREAS, The route would pass some of the nation's most beautiful scenery, including vast redwood forests, Big Sur, wine country, and the Carmel-Monterey area, as well as portions of the historic Mission Trail; and

WHEREAS, Establishment of this route would be part of a larger effort by the department to develop long-distance bicycle routes which avoid toll bridges and other thoroughfares not properly traversable by bicyclists; now, therefore, be it

Resolved by the Senate of the State of California, the Assembly thereof concurring, That the above route hereby be officially designated a state Bikecentennial Route; and be it further

Resolved, That the department is hereby requested to erect and maintain appropriate signs on the route showing the official National Bicentennial symbol and to prepare adequate maps for bicyclists who may wish to use the route; and be it further

Resolved, That the designation of this route as a Bikecentennial Route remain in effect through 1983 and not negate the previous designation of portions of this route as the Cabrillo Highway, El Camino Real, and the Pacific Coast Highway; and be it further

Resolved, That the Secretary of the Senate transmit copies of this resolution to the California American Revolution Bicentennial Commission and the Director of Transportation.

Current Conditions on Highway 1 and considerations in regards to Caltrans' rumble strips project

Hwy 1 current conditions in respect to cyclists

- Heavily trafficked by recreational cyclists, including those on touring expeditions, mountain bikers accessing Wilder Ranch, organic farm bike delivery service (with wide cargos), etc
- Nationally recognized as the Pacific Coast Bike Route with certain segments also identified as the California Coastal Trail
- Likely to be designated as the Monterey Bay Sanctuary Scenic Trail route from Davenport to Swanton Rd and beyond; and to be designated as part of the US National Bike Route project
- Wind blast generated by GraniteRock and other heavy duty trucks impacts necessary width for safe cycling
- Used by multiple events/training rides including:
 - Amgen Tour of California route each time it has passed through SC Co
 - California AIDS Ride, GreenFondo, American Diabetes Society California Coastal Classic, and other charity events
 - Santa Cruz Triathlon
 - Big Kahuna Triathlon
 - MS Ride
 - Multiple training rides including the weekly Plantronics lunch ride
 - Training ground for current and former pro cyclists, and Olympians, as well as recreational cyclists

Hwy 1 general current conditions

- Heavily trafficked by motorists including tourists and local residents
- Used by surfers parking and unloading in the shoulder area or in the dirt parking lots dragging debris onto the roadway
- Trafficked by equestrians, occasional pedestrians and homeless people with shopping carts
- High speed agricultural trucks and refuse trucks heading to the Dimeo Lane Landfill
- Multiple drainage grates
- Rocks and failing asphalt from drainage and hillsides
- Overgrown brush that makes shoulder unusable
- Guard rails

Other notable considerations:

- While 5 feet is the minimum width where rumble strips would be placed, the effective (usable width) should be measured, not identified width on maps
- Immediately to the north and to the south of Santa Cruz County (in San Mateo County and Monterey County) centerline stripes only exist, thus regional continuity should be prioritized

Examples of centerline and shoulder rumble strips:



Examples of better rumble strip applications:



NCHRP

REPORT 641

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

Guidance for the Design and Application of Shoulder and Centerline Rumble Strips

284 pages:

Excerpted: PP. 20-22

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

rate the alerting properties of rumble strips, Bucko and Khorashadi (14) only considered noise level. However, research conducted by Hirasawa et al. (42) suggests that both sound and vibration contribute to drivers' impressions from the rumble strips. None of the studies fully investigated the relationship of the alerting properties of rumble strips (i.e., vibration and sound levels) and the reactions or behaviors of drivers of passenger cars. The research conducted by O'Hanlon and Kelley (50) in the early 1970s could probably be considered the most comprehensive research that investigated the human factor issues associated with rumble strips; however, O'Hanlon and Kelley did not measure the vibration levels experienced by the drivers, so they too could not investigate the correlation between the alerting properties of rumble strips and drivers' reactions to these stimuli. [Note: The various studies and documents that report on either the desired noise levels to be generated by rumble strips or the field studies that document sound level intensities measured in the field alternate between expressing the sound levels in units of dB and dBA. The intensity of sound is measured in units called decibels (dB). Intensity is perceived as loudness. The notation dBA refers to decibels measured on a sound level meter using the A-weighting filter network. Once the A-weighting scale is selected, the meter mimics the way the human ear responds to sound. The A-weighting scale is the most commonly used family of curves relating to the measurement of sound (51,52). For consistency purposes, it is assumed that even when a reference reported a sound level in units of dB, the A-weighting was applied. Therefore, all units of sound level throughout this document are reported in units of dBA, even if the original reference reported the sound level in units of dB.]

Only one study (14) investigated truck drivers' reactions to rumble strips. The biggest difference between trucks and passenger cars is the level of stimuli experienced by truck drivers when traversing rumble strips. Bucko and Khorashadi note that in commercial vehicles, vibrations are dampened considerably because of the size and weight of the vehicles. Thus, the alerting properties of the vibration levels are essentially insignificant, so the noise in the passenger compartment of a commercial vehicle generated by rumble strips has a greater effect in alerting the driver than the vibration. Bucko and Khorashadi also note that increases in the sound level generated by rumble strips in the range of 1.88 to 4.72 dBA were considered to have low alerting value and increases in the range of 3.62 to 4.62 dBA were considered to have moderate alerting value.

Only a few studies included motorcycles as part of field experiments. The most detailed study on the interaction between motorcyclists and rumble strips was performed by Miller (53), who investigated motorcycle rider behavior on roads with centerline rumble strips. The research included a review of motorcycle crash records, an observational study of motorcyclists on roads with centerline rumble strips, and a

closed course field study where 32 motorcyclists navigated across rumble strips. Miller concluded that centerline rumble strips add no measurable risk to motorcyclists. These results are consistent with findings from other studies (14,42).

The research conducted by Torbic (54) is the only investigation that truly looked at the correlation between the alerting properties of rumble strips and bicyclists' reactions to the stimuli. Torbic concluded that the relationship between whole-body vibration and a bicyclist's perception of comfort is linear; as vibration increases, comfort decreases. Torbic also concluded there is no clear relationship between whole-body vibration and the controllability of a bicycle. This research was also unique in that Torbic developed a methodology for quantifying whole-body vibration of bicyclists based upon guidelines in International Standard Organization (ISO) 2631 (55) to assess human response. In the other comprehensive studies that investigated bicyclists' reactions to rumble strips (14,44,45), bicyclists subjectively rated the comfort and control levels of bicycles while traversing various experimental rumble strip patterns, but no correlation was made between the vibration levels experienced by the bicyclists and the subjective comfort and control ratings. Finally, a general conclusion that can be drawn from the three most comprehensive studies that included bicycle and motor vehicle testing of various rumble strip designs (14,44,45) is that rumble strips providing the greatest amount of stimuli (noise and vibration) to alert an inattentive or drowsy driver also are the most uncomfortable for the bicyclists to traverse. Likewise, rumble strips that are the most comfortable for bicyclists generate the least amount of stimuli in a motor vehicle to alert an inattentive or drowsy driver. In all three studies, compromises were made when selecting the rumble strip design most compatible for both types of road users.

Very few pedestrians encounter rumble strips so, for all practical purposes, rumble strips have an insignificant effect on pedestrians.

Pavement Performance Issues

Several pavement performance concerns associated with shoulder and centerline rumble strips have been identified. Very little scientific-based research has been conducted to address these concerns, but through observational reports most of the pavement performance concerns appear to be unwarranted.

Several maintenance concerns associated with shoulder and centerline rumble strips have been reported. Maintenance crews reported concerns that heavy traffic would cause shoulder pavements with rumble strips to deteriorate faster and that the freeze-thaw cycle of water collecting in the grooves would crack the pavement. For the most part, these concerns have been shown to be unfounded. Most transportation agencies do advise against installing shoulder rum-

ble strips on pavements that are rated as deformed or show high degrees of deformation and/or cracking.

Inclement weather also appears to have an insignificant impact on the durability of shoulder rumble strips. Field tests refute concerns about the effects of the freeze-thaw cycle as water collects in the grooves. In fact, field tests show that vibration and the action of wheels passing over the rumble strips knock debris, ice, and water out of the grooves. Snow plow drivers have also noted that they have come to depend on shoulder rumble strips to help them find the edge of the travel lane during heavy snow and other low visibility situations.

Shoulder rumble strips may also present a challenge to maintenance and rehabilitation crews when lane closures require traffic to be diverted to the shoulder. For long-term rehabilitation projects involving asphalt shoulders, most agencies simply mill a trench around the rumble strips and fill the trench with asphalt. Once construction is complete, the shoulder can be resurfaced and new rumble strips installed along the new asphalt overlay.

Similar to the experience with shoulder rumble strips, several agencies have expressed concerns about pavement deterioration associated with the installation of centerline rumble strips. However, none of these concerns have been validated.

The pavement performance issue that has received the most detailed investigation deals with the preparation of rumble strips prior to overlayment of the shoulder surface so that rideability and pavement integrity are not compromised. New Hampshire DOT (NHDOT) conducted research to develop a specification defining materials, sequences, and/or options to perform this operation successfully. Four test sections were prepared in the following manner for evaluation:

- Test Section A: Shim and overlay;
- Test Section B: Just overlay;
- Test Section C: Mill, inlay, and overlay; and
- Test Section D: Mill and overlay.

Test Sections C and D performed the best, showing no sign of reflection in the area of the former rumble strips, while Test Section A resulted in mild depressions, and Test Section B resulted in pronounced rumble strip reflection. Thus, preparing areas with rumble strips prior to overlayment either by (1) milling, inlaying, and overlaying or by simply (2) milling and overlaying is preferred over the other two preparation options, which would likely result in some degree of reflection in the area of the former rumble strips.

Other Potential Concerns

This section summarizes potential issues or concerns associated with shoulder and/or centerline rumble strips that were not previously addressed.

Impact of Noise on Nearby Residents

A common problem cited by transportation agencies concerning the use of rumble strips is noise that disturbs nearby residents (15). However, noise is generated relatively infrequently by rumble strips placed on the shoulders and on the centerlines of undivided highways. For shoulder and centerline rumble strips, noise is generated only by errant motor vehicles, not by every motor vehicle.

Although the noise produced by shoulder and centerline rumble strips is intermittent, transportation agencies continue to receive complaints from nearby residents. To address these complaints, some agencies have increased the offset of the rumble strip from the edgeline to decrease the incidence of vehicles falsely traversing the rumble strips. Other transportation agencies have completely removed the rumble strips. Another alternative is to construct noise barriers. It has been noted that some residents claim to be able to hear the noise generated from the rumble strips from up to 1.2 mi (2 km) away (56). Studies have also shown that when rumble strips are terminated 656 ft (200 m) prior to residential or urban areas, tolerable noise impacts are experienced; also at a distance of 1,640 ft (500 m), the noise generated from rumble strips is negligible (57). A recent survey to determine the opinions of residents in areas where centerline rumble strips had been placed showed that the majority of residents find the external noise produced from centerline rumble strips acceptable or tolerable and that the potential driver safety outweighed the effect of the external noise (43).

Bicycle Issues

Most studies that investigated the impact of rumble strips on bicyclists focused on the comfort and control problems that bicyclists may (or may not) experience while traversing rumble strips. However, bicyclists have several other concerns associated with rumble strips that have not necessarily been validated or dismissed through research. The severity or extent of these concerns is difficult to assess without the supporting research.

One concern with shoulder rumble strips is that they may encourage bicyclists to ride in the travel lane in situations where bicyclists would rather ride on the shoulder. Even though rumble strips are typically installed on only about half of the paved shoulder, the remaining area between the outer edge of the rumble strip and the outside edge of the shoulder is often littered with debris. The debris discourages bicyclists from utilizing that area. Therefore, bicyclists may prefer to ride in the travel lane. A possible solution to this dilemma is to move the rumble strip further from the travel lane to provide bicyclists with adequate room to ride between the travel lane and the rumble strip. This, however, decreases the recovery

area available to errant motor vehicles. Another possibility is to make the rumble strips narrower. Yet, another possibility is to provide a gap in the rumble strip pattern to allow bicyclists to cross back and forth from the paved shoulder to the travel lane without having to encounter rumble strips.

A general concern with centerline rumble strips is that motorists may not provide sufficient clearance distance between the bicyclist and the motor vehicle when passing a bicyclist on a section of roadway with centerline rumble strips. In other words, the centerline rumble strips may force motorists away from the centerline (as has been shown in several studies) closer to bicyclists riding near the outside edge of the travel lane, leaving less distance between a bicyclist and motor vehicle during the actual passing maneuver. Another concern is that when motorists encounter centerline rumble strips during the passing maneuver, the noise generated by the rumble strips may startle bicyclists, which could result in an undesirable maneuver by the bicyclist.

Maintenance Concerns

Weather does cause problems with raised rumble strips. Snow plow blades passing over the rumble strips tend to scrape them off the pavement surface, which is why raised rumble

strips are usually restricted to areas that do not contend with snow removal. When raised rumble strips get scraped from the pavement surface, a secondary concern is that the material could become a projectile.

Visibility/Retroreflectivity of Centerline and Edgeline Pavement Markings

Some transportation agencies have reported concerns over the visibility and retroreflectivity of centerline pavement markings installed on centerline rumble strips. This could potentially be a problem under nighttime conditions especially if snow, salt, sand, or debris collect in the grooves of the rumble strips. Visibility of pavement markings can also be an issue when rumble strips are installed along the edgeline.

Conflicting evidence as to whether this is an actual problem is found in the literature. However, the majority of studies suggest that visibility/retroreflectivity of pavement markings placed over rumble strips (i.e., rumble stripes) is higher compared to standard edgeline/centerline pavement markings, particularly during wet-night conditions. Rumble stripes also appear to be more resilient and durable than standard pavement markings, particularly in areas with winter maintenance activities.

SECTION 11

Conclusions and Recommendations for Future Research

This section presents the primary conclusions from this research related to the design and application of shoulder and centerline rumble strips. This section also summarizes key unresolved issues related to the design and application of shoulder and centerline rumble strips.

Conclusions

The conclusions of this research are as follows:

- Shoulder rumble strips are an effective low-cost crash mitigation measure. The most reliable and comprehensive estimates to date of the safety effectiveness of shoulder rumble strips are for freeways and rural two-lane roads. Estimates of the safety effectiveness of shoulder rumble strips for rural multilane divided highways are also available but are not considered as reliable as the estimates for freeways and rural two-lane roads. The lack of reliable estimates on the safety effectiveness of shoulder rumble strips for other roadway types does not necessarily mean that shoulder rumble strips are ineffective on these roadway types; rather, the safety effects of shoulder rumble strips on these other facility types are not known at this time.
- The best available estimates of the safety effectiveness of shoulder rumble strips are as follows:
 - Rolled shoulder rumble strips on urban/rural freeways are expected to reduce SVROR crashes by 18 percent and SVROR FI crashes by 13 percent.
 - Shoulder rumble strips on rural freeways are expected to reduce SVROR crashes by 11 percent and SVROR FI crashes by 16 percent.
 - Shoulder rumble strips on rural two-lane roads are expected to reduce SVROR crashes by 15 percent and SVROR FI crashes by 29 percent.
 - Shoulder rumble strips on rural multilane divided highways are expected to reduce SVROR crashes by 22 percent and SVROR FI crashes by 51 percent.
- Given their proven safety benefits for several roadway types, the likelihood that shoulder rumble strips are effective on other roadway types, the low cost of installation, and relatively few concerns (i.e., noise, bicyclists, pavement performance, and visibility), shoulder rumble strips are considered appropriate for installation along a range of roadway types including freeways, on- and off-ramps, multilane divided and undivided highways, and two-lane roads in both rural and urban areas.
- On rural freeways, shoulder rumble strips should be placed as close to the edgeline as possible to maximize the safety benefits of the measure, taking into consideration other factors such as pavement joints.
- Centerline rumble strips are also an effective low-cost crash mitigation measure for undivided roadways with two-way traffic. The most reliable and comprehensive estimates to date of the safety effectiveness of centerline rumble strips are for rural and urban two-lane roads. The lack of reliable estimates on the safety effectiveness of centerline rumble strips for other roadway types does not indicate that centerline rumble strips are ineffective on these roadway types; rather, the safety effects of centerline rumble strips on other facility types are not known at this time.
- The best available estimates of the safety effectiveness of centerline rumble strips are as follows:
 - Centerline rumble strips on urban two-lane roads are expected to reduce TOT target crashes by 40 percent and FI target crashes by 64 percent.
 - Centerline rumble strips on rural two-lane roads are expected to reduce TOT crashes by 9 percent, FI crashes by 12 percent, TOT target crashes by 30 percent, and FI target crashes by 44 percent.
- The safety benefits of centerline rumble strips for roadways on horizontal curves and on tangent sections are for practical purposes the same.
- Given their proven safety benefits for several roadway types, the likelihood that centerline rumble strips are effective on

other roadway types, the low cost of installation, and relatively few concerns, centerline rumble strips are considered appropriate for installation along a range of roadway types including multilane undivided highways and two-lane roads in both rural and urban areas.

- For roadways where bicyclists are not expected (e.g., freeways), shoulder rumble strip patterns should be designed to produce sound level differences in the range of 10 to 15 dBA in the passenger compartment; and on roadways where bicyclists can be expected or near residential or urban areas, shoulder rumble strip patterns should be designed to produce sound level differences in the range of 6 to 12 dBA in the passenger compartment.
- Centerline rumble strip patterns should be designed to produce sound level differences in the range of 10 to 15 dBA in the passenger compartment, except near residential or urban areas where consideration should be given to designing centerline rumble strips to produce sound level differences in the range of 6 to 12 dBA in the passenger compartment.
- Statistical models developed in this research to predict the sound level difference in the passenger compartment when traversing rumble strips can be used to design rumble strip patterns that produce the desired alerting properties. Predictive models are available that include, as independent variables, the four primary rumble strip dimensions (i.e., length, width, depth, and spacing), vehicle speed, angle of departure, pavement type (asphalt or concrete), pavement condition (wet or dry), rumble strip type (milled or rolled), and location (shoulder or centerline).
- In situations where it is desirable to provide more lateral clearance for bicyclists or for installing shoulder rumble strips on roads with very narrow shoulders, shoulder rumble strips can be designed with relatively narrow lengths (e.g., 6 in. [152 mm]) and still generate the desired sound level differences in the passenger compartment.

Recommendations for Future Research

The key unresolved issues associated with shoulder rumble strips that should be addressed in future research are as follows:

- **Better quantify the safety effectiveness of rumble strip applications on different types of roads:** The most reliable and comprehensive estimates on the safety effectiveness of shoulder rumble strips are available for freeways and rural two-lane roads. Estimates on the safety effectiveness of shoulder rumble strips along rural multilane divided highway (nonfreeways) are also available but are not considered as reliable as the estimates for freeways and rural two-lane roads. The safety effectiveness estimates for free-

ways, rural two-lane roads, and rural multilane divided highways are considered appropriate only for the respective roadway types.

The safety benefits of shoulder rumble strips along urban freeways (by themselves), urban freeway on-ramps and off-ramps, urban multilane divided highways (nonfreeways), urban multilane undivided highways (nonfreeways), urban two-lane roads, rural freeway on-ramps and off-ramps, and rural multilane undivided highways (nonfreeways) have not been quantified at this time due to limited mileage of shoulder rumble strip treatments along these respective roadway types. In the future it is desirable to calculate reliable safety estimates for these roadway types. Given the current state of applications, this issue should likely not be addressed for at least another 3 to 5 years to allow for more installations along the respective roadway types.

- **Determine the optimal placement of shoulder rumble strips on rural two-lane roads:** Conclusive evidence shows that on rural freeways rumble strips placed closer to the edgeline are more effective in reducing SVROR FI crashes compared to rumble strips placed farther from the edgeline. However, for other roadway types (e.g., rural two-lane roads), there is no conclusive evidence based upon crash statistics to indicate that offset distance influences the safety effectiveness of shoulder rumble strips. Further investigations, potentially through kinematic modeling, should be made to assess the optimal placement of shoulder rumble strips along roadway types, focusing primarily on rural two-lane roads.
- **Determine the optimal longitudinal gaps in rumble strips to provide accessibility for bicyclists while maintaining the effectiveness in reducing lane departures:** It may be possible to provide accessibility for bicyclists, while still preserving the effectiveness of rumble strips for motor vehicles, by providing longitudinal gaps in rumble strips. Moeur (99) addressed this issue from a bicyclist's perspective. However, this research did not account for vehicle speed and trajectory. In addition, the Moeur study did not vary the length of the rumble strip patterns, and the trajectories of bicyclists as they navigate from the outside of the rumble strip along the shoulder to the inside of the rumble strip near the travel lane are a function of bicycle speed, gap length, and rumble strip groove length. Further investigation into these issues is desirable.
- **Better quantify the safety effectiveness of shoulder rumble strips in varying conditions:**
 - **Along varying roadway geometry.** Studies concerning the safety effectiveness of shoulder rumble strips have utilized crash data collected over long segments of highway, such that the study segments included both tangents and horizontal curves. No distinction has been made in these studies or in the present research between

Synthesis of Shoulder Rumble Strip Practices and Policies - FHWA

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4.0 EFFECT ON DIFFERENT ROADWAY USERS

Simple auditory and vibrational warnings are known to be an effective means of providing an urgent message to an operator. Auditory stimulus have been used for many years by human factors engineers and motor vehicle design engineers as a warning to alert a driver of an important situation. More recently, vibrational stimulus has been used in motor vehicles to provide a warning.

4.1 The Driver's Experience

Deleted

4.1.1 The Driver and Motor Vehicle Auditory Stimulus

Deleted

4.1.2 The Driver and Motor Vehicle Vibrational Stimulus

Deleted

4.2 The Bicyclist's Experience

Bicyclists nationwide have reported safety problems associated with rumble strips. A combination of this concern and laws enacted by some States have led most bicyclists to ride as far to the right of the travel lane as practicable or on the shoulder.

When traveling on the shoulder, debris covering the shoulder or a narrowing of the shoulder due to an overpass may force the bicyclist onto the travel lane. If the shoulder has SRS placed near the edgeline, then the bicyclist must travel over the SRS to get off of the shoulder. The accepted useable shoulder width required for a bicycle to travel is 1220 mm (4 ft), as stated by the American Association of State Highway and Transportation Officials (AASHTO) (18). In instances when a guardrail or curb may infringe on this width, the generally accepted practice is to increase this with to 1525 m (5 ft), so the bicyclist may ride further away from the guardrail and still have an effective width of 1220 mm (4 ft).

4.2.1 The Bicyclist and Bicycle Auditory and Vibrational Stimulus

When considering the combined weight of a bicycle and bicyclist, the sound a bicycle makes when traveling over a SRS is not loud enough to cause much of a problem. However, the vibration that is produced is of a great concern to a bicyclist.

It has been proposed by Chen (11) that the deeper the vertical drop (depth) of the SRS, the greater the vibrational stimulus provided to the errant driver. It was shown by Moeur (9) that the larger the depth of the SRS the more difficult for the bicyclists to retain control of their bicycle while crossing the strips, even at low speeds. However, Gårder (19) concluded from a test of milled and rolled rumble strips 12 mm (1/2 in.) deep, which he and 20 others traversed on a bicycle, that there is no danger if a bicyclist mistakenly crossed a rumble strip.

In the study by Elefteriadi et al. (10), the five proposed bicycle tolerable SRS designs were evaluated by 25 intermediate and advanced bicyclists. Once again, vertical acceleration and pitch angular acceleration were measured, as well as having each participant subjectively rate the proposed designs on comfort and control. Low, intermediate, and high approach speed, as well as three approach angles (0°, 10°, and 45°) were tested. When the acceleration measurements were examined and the subjects' subjective rankings were tabulated, it was

determined that the most tolerable design for bicyclists had a depth of 6.3 mm (0.25 in) and caused the least auditory and vibrational stimulus for motor vehicles.

Fifty-five bicyclists in the Caltrans study (12) were asked to subjectively rate the various test strips on comfort and control level. Participants were allowed to ride over the test strips as many times as necessary, both alone and in groups. Milled SRS that were not as deep were favored by the bicyclists when compared to deeper milled SRS. An additional analysis based upon major demographic variables found three bicyclist variables to be significant: riding in inclement weather, age, and whether a bicyclist has ridden on SRS.

Of the 29 bicyclists surveyed in the Outcalt (13) study, 27 used bicyclists with narrow, high-pressure tires. Bicyclists rated each SRS design for control and comfort. Overall, the survey concluded that while bicyclists can navigate 9.5 mm (3/8 in) deep SRS fairly easily, when grooves are 13 mm (1/2 in) deep or greater, bicyclists may experience control problems.

4.2.2 Other Bicyclist's Concerns

Many bicyclist believe that SRS near the edgeline force bicycles further from the sweeping action of passing vehicles that push debris from the travel lane. Thus, the bicyclist is forced to ride in heavier debris. Harwood (17), Moeur (9), and Gårder (19) have commented that shoulders may at times be covered with debris and have acknowledged a vehicle's sweeping action; however, no research has been identified to document the width of the sweeping action based upon vehicular speed or volume.

At the current time there are two ways to deal with shoulder debris. The first is to have maintenance crews routinely sweep the shoulders. The second is to place a skip (or gap) in the SRS pattern to allow bicyclists to cross from the shoulder to the travel lane when encountering debris, but this does not ensure that debris will not be in the skip pattern.

In addition to shoulder debris, other dislikes of bicyclists with respect to SRS are listed below

- SRS are appearing on more and more roads that are frequented by bicyclists,
- SRS often appear without warning,
- SRS that are placed close to an intersection,
- Different States have different standards and designs, and
- Weaving SRS (poorly installed SRS that are supposed to be in a straight line) are difficult for bicyclists to ride near.

Special Pavement Treatments 6-03

6-03.1 Advance Markers - Exit Ramps

A 3-2-1 countdown pattern of one-way clear reflective pavement markers may be used to help motorists locate exit ramps in heavy fog areas.

The pattern consists of three markers placed on the right shoulder about 630 m in advance of the neutral area (gore), two markers at about 420 m and one marker at about 210 m. The markers are placed on a line perpendicular to the laneline at 0.3 m spacing beginning 50 mm off the edge of traveled way.

6-03.2 Rumble Strips

Rumble strips are bands of raised material or indentations formed or grooved in the traveled way or shoulders. Rumble strips call the motorist's attention to standard warning or regulatory devices or otherwise alert drivers by transmitting sound and vibration through the vehicle.

Rumble strips should not be used on California's streets and highways unless standard traffic control devices have been thoroughly evaluated and documented and the traffic engineer considers their use as the optimal solution to the identified problem.

The use of rumble strips on State highways requires approval by the District Traffic Engineer. Requests should include a description of location, reasons for use, the alternatives which were considered, collision history and a discussion of standard traffic control devices which have been or are in place.

1. TRAVELED WAY RUMBLE STRIPS

Rumble strips on the traveled way are 19 mm or less in height if raised or 25 mm or less in depth if indented and generally extend across the travel lanes.

There are several significant disadvantages to the use of rumble strips across the travel lanes.

These include:

- An abrupt rise or depression in the roadway can present problems to bicyclists and motorcyclists. For this reason, there should be provisions made for cyclists to safely traverse through or around rumble strips.
- Nearby residents may be subjected to continuous noise and vibration in residential areas prompting citizen's complaints.
- All motorists are subjected to the noise and vibration whereas only a few are in need of this effect to be alerted.
- Motorists may make unusual maneuvers to avoid rumble strips.

Typical locations where rumble strips on the traveled way have been used include:

- End of a freeway.
- In advance of toll booths.
- Within a construction zone in advance of the workers.
- In advance of a "T" Intersection where the motorist is not expecting to stop.

2. SHOULDER RUMBLE STRIPS

Shoulder rumble strips are 19 mm or less in height if raised or 25 mm or less in depth if indented and extend along the highway shoulder. The maximum width of shoulder rumble strips is 900 mm.

Shoulder rumble strips are not suitable as a riding surface for bicycles. Where bicycles are permitted, shoulder rumble strips should not be used unless approximately 1.5 m of clear shoulder width for bicycle use is available between the rumble strips and the outer edge of the shoulder.

Research findings indicate that the use of rumble strips on shoulders of freeways in remote areas may reduce drift-off-road accidents. Drifting off the road is most likely to be a problem on freeways with few interchanges and long tangents. The rumble strips may consist of grooves rolled into the hot mix as part of a resurfacing project. When freeways in remote areas are to be resurfaced, consideration should be given to the drift-off-road problem.

6-03.3 Contrast Treatment

Contrast treatment of the pavement surface may be used to reduce motorist confusion where surface texture changes in transition areas, such as from concrete to asphalt.

Contrast treatment should be placed to provide square endings across the traffic lanes to avoid the feathering out that may lead a motorist out of the proper traffic lane.

This treatment may be used for roadways, auxiliary lanes, exit ramps and other locations

6-03.4 Location Markers - Fire Hydrants

Blue raised reflective pavement markers, although not an official traffic control device, may be placed on a highway, street, or road, to mark fire hydrant and/or water supply locations. They shall not be used for any other purpose.

Local agencies shall not place blue reflective pavement markers on a State highway unless they first obtain an encroachment permit from the Department of Transportation. The agency responsible for the placement will also be responsible for the maintenance and replacement. See Section 13060, of the Health and Safety Code.

In general, the blue reflective pavement markers should be placed 150 mm from the centerline stripe, or approximate center of the pavement where there is no centerline stripe, on the side nearest the fire hydrant.

When placed on expressways, freeways and freeway ramps, they should be placed on the shoulder, 0.31 m to the right of the edgeline, opposite the fire hydrant. Typical marker locations are shown on Figure 6-44, TYPICAL FIRE HYDRANT LOCATION PAVEMENT MARKERS.

Because fire hydrants adjacent to freeways may be out of the right-of-way and, in many locations, out of view from the freeway, some fire districts may want to install small supplemental signs or markings to identify the hydrant number or distance to the hydrant. These installations are optional and at the discretion of the District Division Chief for Operations.

CHAPTER 3J. RUMBLE STRIP MARKINGS

Section 3J.01 Longitudinal Rumble Strip Markings

Support:

01 Longitudinal rumble strips consist of a series of rough-textured or slightly raised or depressed road surfaces intended to alert inattentive drivers through vibration and sound that their vehicle has left the travel lane. Shoulder rumble strips are typically installed along the shoulder near the travel lane. On divided highways, rumble strips are sometimes installed on the median side (left-hand side) shoulder as well as on the outside (right-hand side) shoulder. On two-way roadways, rumble strips are sometimes installed along the center line.

02 This Manual contains no provisions regarding the design and placement of longitudinal rumble strips. The provisions in this Manual address the use of markings in combination with a longitudinal rumble strip.

Option:

03 An edge line or center line may be located over a longitudinal rumble strip to create a rumble stripe.

Standard:

04 **The color of an edge line or center line associated with a longitudinal rumble stripe shall be in accordance with Section 3A.05.**

05 **An edge line shall not be used in addition to a rumble stripe that is located along a shoulder.**

Support:

06 Figure 3J-1 illustrates markings used with or near longitudinal rumble strips.

Section 3J.02 Transverse Rumble Strip Markings

Support:

01 Transverse rumble strips consist of intermittent narrow, transverse areas of rough-textured or slightly raised or depressed road surface that extend across the travel lanes to alert drivers to unusual vehicular traffic conditions. Through noise and vibration, they attract the attention of road users to features such as unexpected changes in alignment and conditions requiring a reduction in speed or a stop.

02 This Manual contains no provisions regarding the design and placement of transverse rumble strips that approximate the color of the pavement. The provisions in this Manual address the use of markings in combination with a transverse rumble strip.

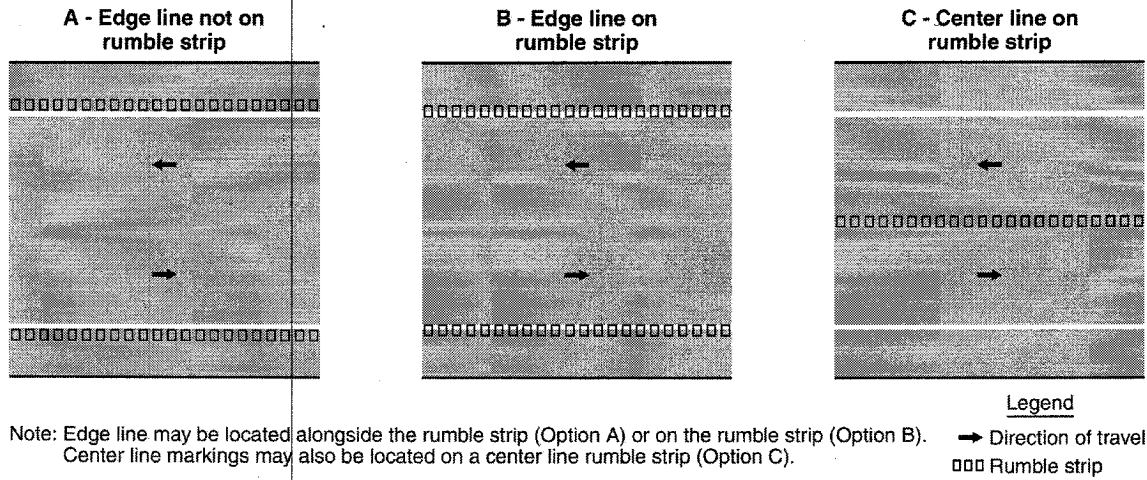
Standard:

03 **Except as otherwise provided in Section 6F.87 for TTC zones, if the color of a transverse rumble strip used within a travel lane is not the color of the pavement, the color of the transverse rumble strip shall be either black or white.**

Guidance:

04 *White transverse rumble strips used in a travel lane should not be placed in locations where they could be confused with other transverse markings such as stop lines or crosswalks.*

Figure 3J-1. Examples of Longitudinal Rumble Strip Markings



Assembly Concurrent Resolution No. 32

RESOLUTION CHAPTER 143

Assembly Concurrent Resolution No. 32—Relative to the coastal bicycle route.

[Filed with Secretary of State September 12, 1990.]

LEGISLATIVE COUNSEL'S DIGEST

ACR 32, Farr. California Coast Bicycle Route.

This measure would designate the coastal bicycle route, as now established or hereafter modified, an official state bicycle route and request the Department of Transportation to maintain signs marking the route for experienced riders.

WHEREAS, California is the nation's leading state for bicycle touring; and

WHEREAS, The most popular long distance bicycle touring route in California is the Pacific Coast Bicentennial Bike Route; and

WHEREAS, The Pacific Coast Bicentennial Bike Route was established by the California American Revolution Bicentennial Commission and the Department of Transportation, in honor of the birth of our nation, as a 1,000 mile long journey into the history and future of California; and

WHEREAS, This challenging route passes some of the nation's most beautiful scenery, including vast redwood forests, Big Sur, the wine country, and the Carmel-Monterey area, as well as portions of the historic Mission Trail; and

WHEREAS, Along this route can be found California's Spanish, Russian, and early American heritage; forts, lighthouses, missions, and old mining and lumbering areas; and rich agricultural lands and busy cities and towns filled with a wealth of the past and bustling with the life of today; and

WHEREAS, The Pacific Coast Bicentennial Bike Route connects with the Canada to California Bicycle Route and with the Southwest U.S. Bicycle Route; and

WHEREAS, Resolution Chapter 31 of the Statutes of 1975 designated this route as an official state Bikecentennial Route; and

WHEREAS, That designation as a state Bikecentennial Route terminated in 1983; now, therefore, be it

Resolved by the Assembly of the State of California, the Senate thereof concurring, That the coastal bicycle route, as now established or hereafter modified, be permanently designated an official state bicycle route; and be it further

Resolved, That the Department of Transportation is requested to maintain appropriate signs for experienced bicyclists who may wish to use the route; and be it further

Resolved, That the designation of this route does not revoke the previous designation of portions of this route as the Cabrillo Highway, El Camino Real, and the Pacific Coast Highway; and be it further

Resolved, That the Chief Clerk of the Assembly transmit a copy of this resolution to the Director of Transportation.

RESOLUTION CHAPTER 31

Senate Concurrent Resolution No. 10—Relative to a
Bikecentennial Route.

[Filed with Secretary of State April 18, 1975]

WHEREAS, The California American Revolution Bicentennial Commission, in cooperation with the California Department of Transportation, has established a route which could be part of a national system of bike trails, in honor of the birth of our nation, under the "Bikecentennial 76" program of the National Bicentennial Commission; and

WHEREAS, The route would comprise portions of State Highway Route 5 from the Mexican border to Capistrano Beach, of State Highway Route 1 from Capistrano Beach to Leggett, and of State Highway Route 101 from Leggett to the California-Oregon state line, and such other alternate routes designated by the department and local jurisdictions; and

WHEREAS, This route would easily connect with east-west cross-country "Bikecentennial" routes which terminate in Reedsport, Oregon, and Santa Ana; and

WHEREAS, The route would pass some of the nation's most beautiful scenery, including vast redwood forests, Big Sur, wine country, and the Carmel-Monterey area, as well as portions of the historic Mission Trail; and

WHEREAS, Establishment of this route would be part of a larger effort by the department to develop long-distance bicycle routes which avoid toll bridges and other thoroughfares not properly traversable by bicyclists; now, therefore, be it

Resolved by the Senate of the State of California, the Assembly thereof concurring, That the above route hereby be officially designated a state Bikecentennial Route; and be it further

Resolved, That the department is hereby requested to erect and maintain appropriate signs on the route showing the official National Bicentennial symbol and to prepare adequate maps for bicyclists who may wish to use the route; and be it further

Resolved, That the designation of this route as a Bikecentennial Route remain in effect through 1983 and not negate the previous designation of portions of this route as the Cabrillo Highway, El Camino Real, and the Pacific Coast Highway; and be it further

Resolved, That the Secretary of the Senate transmit copies of this resolution to the California American Revolution Bicentennial Commission and the Director of Transportation.

BICYCLING AND RUMBLE STRIPS

Problems for Cyclists

What are rumble strips?: Rumble strips are raised or grooved patterns in a road's shoulder designed to alert drivers with noise and vibrations that they are drifting off the roadway.ⁱ They can be an effective safety measure to prevent run-off-the-road (ROR) crashes, especially on limited-access highways and rural two-lane highways with long straight sections. (Rumble strips placed on the centerline can help prevent head-on crashes.)

How do rumble strips impact cyclists?: Rumble strips are virtually impossible to ride a bicycle on or over – they are at best uncomfortable, even for a very short distance, and at worst can cause a cyclist to lose control of their bike and fall. They can damage a bicycle wheel, can cause a flat tire, and/or shake loose parts off a bicycle. Consequently, cyclists will avoid riding over themⁱⁱ – and when rumble strips leave no room on a shoulder, the cyclist will have no other option than to ride in the travel lane. While rumble strips do not deter car, truck or bus travel, they have a severe impact on bicycling travel, and have ruined popular cycling routes.

The negative impact of rumble strips on the ride-ability of a roadway has prompted American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA) to provide guidance to follow when considering rumble strips on roadways used by cyclists. They recommend that rumble strips should not be used indiscriminately on roadways that are not limited-access. Rumble strips should be used where there is a history of run-off-the-road crashes; especially where there is sufficient recovery room for a motorist to react to the alert provided by the rumble strip; and when the impact cyclists can be minimized. This means that at least four feet of unobstructed roadway shoulder remains after the rumble strips have been installed.

States should train and monitor contractors to ensure best practices are followed. Advocates should work with their state DOTs, Municipal Planning Organizations (MPOs), and county road commissions to verify that unnecessary rumble strips are not installed and that preferred bicycling routes, especially, are kept free of rumble strips. It is important to get it right the first time. Improperly installed rumble strips are expensive to repair – often costing many times more than the original installation – and usually cannot be repaired without leaving behind an uneven surface or a shoulder prone to early failure.

Specific Elements to Address

1. Too wide – many rumble strips are excessively wide, removing limited space on the shoulder for bicyclists to travel.
2. Too deep – most rumble strips are ground-in to depths that are excessive and dramatically more dangerous for cyclists.
3. Continuous – rumble strips without gaps in the strip do not allow a safe way for cyclists to cross, merge or turn without hitting rumble strips.
4. Placement – the lateral placement in a shoulder can make a shoulder that was once very comfortable to a bicyclist unusable.

Existing National Guidance

Many states develop their own rumble strip policies. National organizations and agencies such as the AASHTO and the FHWA have issued guidance on how state agencies can balance the motorist safety benefits of rumble strips with the needs of bicyclists. The following includes guidance to install rumble strips in ways that can minimize the harmful impact on bicycling. Ideally, rumble strips would rarely be used on roads where bicycling is expected. Rumble strips should be used only when careful study determines that they are needed to reduce risk in high ROR crash locations and when there is adequate space on the shoulder for drivers to recover. The following guidance should be considered the minimum standard.

AASHTO's [*Guide for Development of Bicycle Facilities*](#)ⁱⁱⁱ says that rumble strips “are **not recommended where shoulders are used by bicyclists** unless there is a minimum clear path of 0.3 m (1 foot) from the rumble strip to the traveled way, 1.2 m (4 feet) from the rumble strip to the outside edge of paved shoulder, or 1.5 m (5 feet) to adjacent guardrail, curb or other obstacle. If existing conditions preclude achieving the minimum desirable clearance, the width of the rumble strip may be decreased or other appropriate alternative solutions should be considered.” **Cyclists find that placing the rumble strip 1 foot to the right of the edge line is unsatisfactory and strongly recommend a minimum of four or five feet on the outside of the shoulder.**

The [*FHWA guidance on Roadway Shoulder Rumble Strips*](#)^{iv} supports this policy, saying, “**Rumble strips should only be installed when an adequate unobstructed width of paved surface remains available for bicycle use.**” The guidance notes that 12 feet gaps placed periodically in the strips allow cyclists to avoid debris and parked vehicles on the shoulder, or safely pass over the rumble strip for any reason. Because rumble strips occupy the favored part of the shoulder closest to the roadway, which generally remains clearer of debris due to the draft caused by passing automobiles, the FHWA guidance recommends that highway maintenance agencies regularly sweep the entire shoulder along bike routes and high bike-traffic areas. The guidance states that shallower (“reduced depth”) rumble strips, which are less jarring to cyclists, are a good compromise to accommodate bicyclists.

For rural freeways and expressways on the National Highway System, the FHWA guidance endorses “system-wide installation” of rumble strips to take advantage of economies of scale. Since bicyclists are generally prohibited from these highways,^v and there is often a wide shoulder when they are allowed, this guidance is appropriate

For non-freeway roads, such as rural multi-lane and two-lane roads, rumble strips should only be used if an engineering study or crash analysis shows that rumble strips would effectively reduce ROR crashes. **If an engineering study recommends rumble strips, they should follow these guidelines:**

1. Rumble strips can be used when eight feet remain clear on the shoulder (recommended for 10-foot shoulders). They should be installed as close to the edge line as practical.

2. Along shoulders of 6 or 8 feet, the FHWA calls for shallower depths, narrower strips, and gaps in the strip to allow cyclists to cross, merge, turn, avoid debris, or pass other cyclists and parked cars. The guidance adds: “Consideration should be given to increasing the gap spacing, narrowing the width of the rumble strips, widening the shoulders for bicycle use, or all of the above on long downhill grades where bicycle speeds are likely to increase significantly.”

3. Rumble strips should **not** be used when they would leave less than 4 feet to the edge of the pavement or five feet if a curb or guardrail is present on the shoulder.

Given the safety benefits of rumble strips for drivers, their use is appropriate under the right conditions. However, transportation agencies should – at a minimum – follow the guidance of AASHTO and FHWA. Rumble strips should not be installed on popular bicycle routes, or anywhere with insufficient shoulder width. If a rigorous crash analysis or engineering study finds rumble strips appropriate, their installation should follow the guidance above.

State Policies and Practices

Rumble strip policies and adherence vary by state. The range of differences in operating speeds, road designs, and expected users means that there is no single standard design for rumble strips used across all fifty states. However, state agencies accommodate bicycling in their rumble strip practices in a number of ways.

In May 2010, 31 states reported that they have rumble strip policies that require 4 feet of clear space, but several states reported incorrectly, or the policy can’t be easily confirmed.

The Adventure Cycling Association has compiled information on policies and practices from many of the fifty states (via the Alliance for Bicycling & Walking and Association of Pedestrian and Bicycle Professionals listservs). See the [complete matrix of state policies](#), including trouble spots and role-models.^{vi}



Here are some findings regarding bicycling-accommodating practices reported in other sources.

Best Practices^{vii}

Not installing rumble strips on designated bicycle routes and other roads where bicycling is expected. For non-freeway rural roads, strips should be installed only after proper study confirms a documented need.

Providing minimum shoulder width – 4-foot shoulder, or 5 feet with guardrail are the bare minimum. Better examples include Alaska and Colorado that require a minimum 6 ft shoulder.

Adjusting placement of the rumble strips by placing strips close to edge line to increase available shoulder area, or on low speed roads by placing stripe away from edge line to allow cyclists to ride on the left side of the strip. Placing rumble strips on the edge line (a rumble stripe) both increases visibility of the white line and maximizes available shoulder area.

Providing gaps in regular intervals to give cyclists a chance to avoid debris along the shoulder, merge, turn, or pass other cyclists, some states include periodic gaps in the strips – at least 12 feet, every 40 or 60 feet^{viii} of rumble strip.

Adjusting rumble strips dimensions – Pennsylvania,^{ix} California,^x and Colorado^{xi} have studied bicycle-tolerable rumble strip designs. The studies come to similar conclusions about the dimensions for such rumble strips.^{xii}

- Width: 5 inches (127 mm)
- Depth: 0.375 inches (10 mm), and
- Spacing: 11 or 12 inches (280 or 305 mm)

When bicyclists need more of the shoulder or rumble strips are needed along a narrow shoulder, Torbic et al. report that narrower strips can “still generate the desired sound level differences in the passenger compartment.”

Survey Results

Torbic, et al. conducted a survey of 27 DOTs and four Canadian provincial transportation agencies on their rumble strip practices.^{xiii} Here are the answers to the questions that relate to bicycling:

- A majority of transportation agencies (17 agencies, 54.8 percent) said that bicycles “affect installation requirements” for their rumble strip policy or guidelines.
- A larger majority (19 agencies, 61.3 percent) said they had a “minimum shoulder width requirement for the installation of shoulder rumble strips.” Minimums ranged from 2 to 6 feet; 4 feet and 6 feet were the most common answers, but 4 feet are considered a bare minimum by bicyclists.
- Nearly 40 percent (12 agencies, 38.7 percent) said their rumble strip policy changes depending on “whether shoulder rumble strips will be installed along a designated bicycle route.” According to the report: “Responses included: (a) rumble strips are not installed along designated bicycle routes, (b) need to consider available lateral clearance, (c) rumble strip patterns/ dimensions change, and (d) gaps are provided rather than installing the rumble strips on a continuous basis.”
- Many agencies (11 agencies, 35.5 percent) said their policy / standard provides “a gap in the shoulder rumble strip pattern to allow bicyclists to maneuver from the travel lane to the

shoulder and back without traversing the rumble strips.” Typical responses were 12-foot gaps in 40- or 60-foot cycles.

- Most agencies (26, 83.9 percent) will install rumble strips both as part of larger projects and as a stand-alone improvement. Two agencies (6.5 percent) install as stand-alone only and two agencies (6.5 percent) install only as part of larger projects.
- Notably, but not surprisingly, no agencies collected data on “bicycle-only crashes or non-crash injuries related to rumble strip encounters.”

Examples of state policies accommodating bicycling

Frequently states go beyond the minimum guidance in one or more aspect of their rumble strip policy. [Alaska](#) requires 6-7 foot shoulders for rumble to be added and periodic 12-foot gaps in the rumbles to allow bicycles to cross; and [Colorado](#), in which no rumble strips are added on shoulders less than 6’ when a guardrail is present, requires a 12 foot gap every in every 60 foot section.

A 2007 Study by the National Center for Transportation and Industrial Productivity, in cooperation with the New Jersey DOT and the US DOT FHWA, reported the following state-specific practices to accommodate bicycling:^{xiv}

1. Minimum shoulder width to accommodate rumble strips. Do not use rumble strips if the shoulder width is less than 8 feet.
2. Widen the shoulder to provide at least a 4-foot-wide continuous riding surface (Florida).
3. Provide an offset of 1.2 m (4 feet) from edge of shoulder for bicycles and motorcycles (Hawaii).
4. Moving the rumble strip as close to the travel lane as possible (Minnesota)
5. Use of continuous rumble strips only on limited access facilities.
6. Use periodic gaps in the rumble strip on non-controlled access highways. Gaps of 12 feet in every 40 to 60 feet of rumble strips used in Arizona.
7. Not allowing rumble strips on roadways used by bicyclists. (Maine)
8. Reducing the width of the rumble strip (Kentucky).
9. Requiring approval of the Pedestrian/Bicycle Coordinator if rumble strip is to be installed on a shoulder width less than 8 feet.

Risk of Rumble Strips for Bicyclists

Shoulder rumble strips are problematic for bicyclists for a number of reasons. Research into bicyclists’ perceptions of rumble strips confirms that cyclists reliably report discomfort while riding over shoulder rumble strips and a limited tolerance for it.^{xv} Debris can collect on the shoulder if it gets caught in the rumble strips or it is too distant to be swept away by automotive traffic, making that section inhospitable to bicyclists. This can lead bicyclists to ride in the travel lane on high speed roads that they might otherwise avoid or abandon routes all together (even limiting their bicycling altogether). There are numerous examples of rumble strips leading to bike-auto crashes.

The bulk of this report has focused on shoulder rumble strips. However, there is a concern associated with rumble strips installed along a centerline as well. Centerline strips are intended to prevent head on collisions by drivers who cross the middle line. Studies show that center line rumble strips cause motorists to drive closer to the shoulder. This can lead drivers to pass bicyclists dangerously close. The noise created by drivers passing over center line rumble strips may also startle bicyclists on the shoulder and cause them to lose control of their bicycle.

Conclusion

While there are safety benefits to rumble strips for drivers of motor vehicles, there are considerable drawbacks for cyclists, who are vulnerable next to high-speed traffic. In accordance with FHWA guidance, rumble strips should be used on roads where bicyclists are prohibited or not expected. On routes used by bicyclists, rumble strips should not be installed indiscriminately; a careful traffic safety study should be conducted to demonstrate a clear problem and a projected impact on safety.

In the event that rumble strips are appropriate, states should follow bicycle-tolerable practices that provide maximum clear shoulder space for cyclists. Using an implementation checklist based on the above rumble strip practices, state agencies and local road authorities should closely monitor contractors to ensure that the policy is being followed. Finally, agencies should follow the FHWA guidance, which recommends that agencies work closely with bicycling organizations to make sure they “address the safety and operational needs of all roadway users.”

- ⁱ FHWA http://safety.fhwa.dot.gov/roadway_dept/research/exec_summary.htm
- ⁱⁱ “Bicyclist struck by truck in south Bryan County,” <http://savannahnow.com/bryan-county-now/2010-04-26/bicyclist-struck-truck-south-bryan-county>
- ⁱⁱⁱ AASHTO Guide for the Development of Bicycle Facilities, http://www.sccrtc.org/bikes/AASHTO_1999_BikeBook.pdf
- ^{iv} FHWA Roadway Shoulder Rumble Strips, http://safety.fhwa.dot.gov/roadway_dept/policy_guide/t504035.cfm
- ^v Statewide Safety Study of Bicycles and Pedestrians on Freeways, Expressways, Toll Bridges, and Tunnels <http://transweb.sjsu.edu/mtiportal/research/publications/documents/BikesAndPeds.htm>
- ^{vi} State Policy Matrix, www.adventurecycling.org/routes/nbrn/resourcespage/StateRumblePoliciesIssues.pdf
- ^{vii} Torbic, D.J., J. M. Hutton, C. D. Bokenkroger, K. M. Bauer, D. W. Harwood, D. K. Gilmore, J. M. Dunn, J. J. Ronchetto, E. T. Donnell, H. J. Sommer III, P. Garvey, B. Persaud, and C. Lyon, “Guidance for the Design and Application of Shoulder and Centerline Rumble Strips,” NCHRP Report 641, Transportation Research Board (2009). http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_641.pdf. This is the most comprehensive and up-to-date source on rumble strip research and practice.
- ^{viii} Moeur, R. *Analysis of Gap Patterns in Longitudinal Rumble Strips to Accommodate Bicycle Travel* <http://www.enhancements.org/download/trb/1705-015.pdf>
- ^{ix} Elefteriadou, L., M. El-Gindy, D. Torbic, P. Garvey, A. Homan, Z. Jiang, B. Pecheux, and R. Tallon, *Bicycle-Tolerable Shoulder Rumble Strip*, Report Number: PTI 2K15. The Pennsylvania State University, The Pennsylvania Transportation Institute, March 2000.
- ^x Bucko, T. R., and A. Khorashadi, *Evaluation of Milled-In Rumble Strips, Rolled-In Rumble Strips and Audible Edge Stripe*, Office of Transportation Safety and Research, California Department of Transportation, April 2001.
- ^{xi} Outcalt, W., *Bicycle-Friendly Rumble Strips*, Report No. CDOTDTD-R-2001-4. Colorado Department of Transportation. May 2001.
- ^{xii} Torbic, et al. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_641.pdf
- ^{xiii} Torbic, et al. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_641.pdf
- ^{xiv} *Shoulder Rumble Strips and Bicyclists*, http://transportation.njit.edu/nctip/final_report/RumbleStrip.pdf
- ^{xv} Torbic, et al. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_641.pdf, Appendix A

AGENDA: April 9, 2012

TO: Bicycle Committee

FROM: Grace Blakeslee, Transportation Planner

RE: Draft Transportation Plan Goals, Targets and Policies

RECOMMENDATIONS

Staff recommends that the Bicycle Committee:

1. Provide input on the Draft transportation plan goals, targets, and policies;
 2. Receive information about the April 19th Public Workshop to discuss the Draft transportation plan goals, targets, and policies.
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BACKGROUND

The Regional Transportation Commission (RTC) will integrate sustainable outcomes into the next Metropolitan Transportation Plan (MTP) and Regional Transportation Plan (RTP). RTC staff coordinated with the North American Sustainable Transportation Council (STC) staff to identify sustainability standards that should be considered when developing a sustainable transportation plan, taking into consideration federal planning goals. The subject categories and sustainability goals identified by STC were presented to the Elderly and Disabled Technical Advisory Committee at the February 2012 meeting. The outlined sustainability framework supports the Triple Bottom Line definition of a sustainable transportation system as one that balances the needs of people, the planet, and prosperity.

DISCUSSION

Overview of Draft Goals, Targets, and Policies

The proposed Draft transportation plan goals, targets, and policies are shown in Attachment 1.

Goals: The Draft goals incorporate:

- the eight sustainable objectives included in the Sustainable Transportation Analysis and Rating System (STARS) framework;
- support the Triple Bottom Line concept of sustainability; and,
- advance federal transportation planning goals.

Targets: The proposed Draft transportation plan targets have been identified, where possible, to establish measurable objectives for achieving the goals and to link policies and projects to goals. In many cases, the proposed targets are intended to support the goal of reducing per capita greenhouse gas emissions by 5 percent by 2035. This is the greenhouse gas emission reduction target set by the California Air Resources Board for the tri-county region, including Santa Cruz, San Benito, and Monterey Counties, and are considered the portion of statewide greenhouse gas emission reductions needed from the tri-county region to meet statewide greenhouse gas emission reduction goals. Where modeling tools were not available, aggressive, but reasonable, targets were proposed based on other similar efforts. In some cases, targets provided are a range because some policies and strategies may receive greater emphasis based on how projects are grouped when evaluating plan alternatives.

Note that three of the targets have not been established at this time: 1A: The percentage of people that live within a 30 minute walk, bicycle, or transit trip to key destinations; and 1E: Improve travel time reliability for all trips between key destinations. These targets require additional baseline data that is not yet available. Also, 1A is largely related to land-use and therefore staff is recommending that no target be set for 1A until more information is available from the Association of Monterey Bay Area Governments (AMBAG) regarding the land use assumptions to be incorporated into the Sustainable Communities Strategy. Target 2B: Reduce the percent of locations with reported high levels of collisions for vulnerable users is still under development.

Policies:

The proposed draft transportation plan policies encompass those types of actions that are expected to most advance the transportation plan goals and targets and maximize benefits to the Triple Bottom Line. The transportation plan policies also reflect the more specific transportation investment strategies that should achieve targets. The proposed draft policies are intended to be specific enough to more easily guide transportation decision making in a manner consistent with sustainable objectives, but allow for flexibility to identify other strategies that may not have been considered and can also demonstrate that they advance sustainable objectives and targets.

RTC staff request that the Bicycle Committee provide input on the draft transportation plan goals and policies.

Next Steps

- April 19, 2012 RTC Transportation Policy Workshop: RTC staff will present the Draft transportation plan goals, targets, and policies to the RTC at the April Transportation Policy Workshop.
- April 19, 2012 Public Workshop: The RTC will host a public workshop on April 19th to discuss the draft goals, targets, and policies. The workshop will be held at the Live Oak Senior Center at 6:30pm and will be a combination of

presentation, display tables, and small group discussion. **Bicycle Committee members are encouraged to attend and to invite other interested parties.**

- May 3, 2012: RTC staff is expected to return to the RTC on the May RTC meeting with the Final Draft goals, targets, and policies, including any proposed revisions made to the April 19th Draft. The final draft goals and policies become final when the MTP and RTP are adopted.
- June 2012: RTC staff is expected to solicit projects ideas from the public, RTC Advisory Committees, and from potential project sponsors, at which time, RTC will work with the Interagency Technical Advisory Committee to finalize the project application form. Project applications are scheduled to be due to the RTC in September 2012.
- June 2012: RTC staff expects to obtain input regarding transportation patterns of Santa Cruz County residents and visitors through an online survey, including obtaining additional information related to key destinations and barriers to utilizing the multimodal transportation system.
- October 2012-January 2013: RTC staff will evaluate transportation projects based on consistency with the transportation plan policies; the projects ability to advance the goals based on how the project fits within the identified strategies; or, the project justification provided. RTC staff will also work with AMBAG to evaluate the project's list ability to achieve the SB 375 greenhouse gas emission targets, when combined with future land use projections.

SUMMARY

The their last meeting, the Bike Committee received information about the sustainability framework that would be utilized to support development of transportation plan goals and policies. The outlined sustainability framework supports the Triple Bottom Line definition of sustainability, which identifies a sustainable transportation system as one that balances the needs of people, the planet, and prosperity. RTC staff is seeking input from the Bicycle Committee on the draft transportation plan goals, targets, and policies.

Attachments:

1. Draft transportation plan goals, targets, and policies

Draft Transportation Plan Goals, Targets, and Policies
April 1, 2012

- **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.**

There is a strong relationship between achieving access, health, economic benefit, and climate and energy goals and targets. In many cases actions to achieve one goal will lead toward achieving the other goals. For example, providing better carpool, transit and bicycle trips reduce fuel consumption, retains money in the local Santa Cruz County economy and reduce congestion for those trips that require driving alone.

TARGETS:

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

- △ **1A.** Increase the percentage of people within a 30-minute walk, bike or transit trip to key destinations. *(To be developed in conjunction with Sustainable Communities Strategy.)*

Re-invest in the local economy by reducing expenses from fuel consumption and related vehicle use.

- △ **1B.** Reduce surface transportation-related fuel consumption and per capita greenhouse gas emissions by 5 percent by 2035

Reduce smog-forming pollutants, greenhouse gas emissions, and fossil fuel consumption.

- △ **1C.** Reduce per capita vehicle miles traveled 5 percent by 2035
 △ **1D.** Improve speed consistency between 20 to 50 percent on the County's congested highway and arterial roadways by 2035

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

- △ **1E.** Improve travel time reliability for all trips between key destinations. *(Seeking additional data to establish specific target numbers.)*

Improve health by increasing physical activity in using the transportation system.

- △ **1F.** Increase walking and bicycling and decrease single occupancy vehicle mode share compared to the baseline condition between 0 to 8 percent by 2035.

POLICIES:

- 1.1. *Transportation Demand Management:* Expand demand management (TDM) programs to key origins and destinations that decrease the number of vehicle miles traveled and result in mode shift.

Draft Transportation Plan Goals, Targets, and Policies

April 1, 2012

- 1.2. *Transportation System Management:* Implement Transportation System Management programs and projects on major roadways across Santa Cruz County that increase the efficiency of the existing transportation system.
- 1.3. *Transportation Infrastructure:* Improve multimodal access to and within key destinations.
- 1.4. *Transportation Infrastructure:* Ensure network connectivity by closing gaps in the bicycle, pedestrian and transit networks
- 1.5. *Land Use:* Support land use decisions that locate new facilities close to existing services, particularly those that service transportation disadvantaged populations.

➤ **GOAL 2. Reduce transportation related fatalities and injuries**

Safety is a fundamental outcome from transportation system investments and operations. Across the the United States, vulnerable users (pedestrians and bicyclists) are killed and injured at a significantly higher rate than the percentage of trips they take.

TARGETS:

- Improve transportation safety, especially for the most vulnerable users.
- △ **2A.** Reduce injury and fatal collisions by mode by 50 percent by 2035
 - △ **2B.** Reduce ____ percent of locations with reported high levels of collisions for vulnerable users (*Additional analysis to be conducted before recommending target.*)

POLICIES:

- 2.1 *Safety:* Prioritize funding for safety improvements that will reduce fatal or injury collisions
- 2.2 *Emergency Service:* Support projects that provide access to emergency services.
- 2.3 *Traffic Calming:* Incorporate traffic calming strategies in transportation investments that will reduce collisions.
- 2.4 *Connectivity:* Reduce the potential for conflict between bicyclists, pedestrians and vehicles at high use locations.

Draft Transportation Plan Goals, Targets, and Policies
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- **GOAL 3. Deliver access and safety improvements cost effectively, within projected revenues, equitable and responsive to the needs of all users of the transportation system, and beneficially for the natural environment.**

TARGETS:

- △ **3A.** Increase local road pavement condition index to 70 by 2035
- △ **3B.** Reduce the percentage of lane miles in “distressed” condition by 5% per year. **3C.** Increase share of funding going to areas and projects servicing transportation **dis**advantaged people
- △ **3D.** Maximize participation from diverse members of the public in RTC planning and project implementation activities, including various income strata and historically under represented groups.

POLICIES:

- 3.1 *Cost Effectiveness:* Maintain the existing transportation system cost-effectively.
- 3.2 *Maintenance:* Maintain and adapt the current transportation system to maximize existing investments.
- 3.3 *Coordination:* Improve coordination between agencies (e.g. paratransit and transit; road repairs; signal synch; TDM programs).
- 3.4 *System Financing:* Support new or increased taxes and fees that reflect the cost to operate and maintain the transportation system.
- 3.5 *Equity:* Demonstrate that planned investments will reduce disparities in safety and access outcomes for transportation disadvantaged population
- 3.6 *Ecological Function:* Deliver transportation investments in a way that improves habitat, increases tree canopy, and avoids impacts to sensitive areas.
- 3.7 *Low Impact Design:* Support management and treatment of storm water on site through low impact design practices to improve water quality and stream flows.
- 3.8 *Public Engagement:* Solicit broad public input on all aspects of regional and local transportation plans, projects and funding.