# Santa Cruz County Regional Transportation Commission's

# BICYCLE COMMITTEE

## AGENDA

## Monday, March 11, 2013

## 6:00 p.m. to 8:30 p.m.

## Note Earlier Start Time

**RTC Office**
**1523 Pacific Ave**
**Santa Cruz, CA 95060**

1. Call to Order
2. Introductions
3. Announcements – RTC staff
4. Oral communications – members and public

   *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 January 14, 2013 Bicycle Committee meeting (pages 3-5)
7. Accept Bicycle Committee roster (page 6)
8. Accept summary of Bicycle Hazard Reports (page 7)
9. Accept announcement regarding no call for projects for Bicycle Transportation Account funds for the fiscal year 13/14 (pages 8-9)

## REGULAR AGENDA

10. Complete Streets Analysis and the Sustainable Communities Strategy – Presentation from Grace Blakeslee, RTC Senior Transportation Planner (pages 10-14)

11. 2010 Bicyclist Injuries and Fatalities for Santa Cruz County Report and 2012 Bicycle Safety Observation Study – Presentation from Theresia Rogerson, Community Traffic Safety Coalition (pages 15-23)

12. May 2012 RTC Bicycle Count Project – Presentation from Ginger Dykaar, RTC Transportation Planner and Ryan Heywood, former UCSC IDEASS Student (pages 24-81)

13. Highway 1 Bike/Pedestrian Overcrossing at Chanticleer Avenue Update – Report from Kim Schultz, RTC Senior Transportation Planner and Suzanne Sarro, RTC Consultant (pages 82-83)

14. Member updates related to Committee functions

15. Adjourn

**NEXT MEETING:** The next Bicycle Committee meeting is scheduled for Monday, April 8, 2013, from 6:30pm to 9pm 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.*

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***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, January 14, 2013
## 6:30 pm

**RTC Office**
**1523 Pacific Ave**
**Santa Cruz, CA 95060**

1. Call to Order at 6:35 pm

2. Introductions

**Members Present:**
Kem Akol, District 1
David Casterson, District 2, Chair
Peter Scott, District 3
Will Menchine, District 3 (Alt.)
Rick Hyman, District 5
Bill Fieberling, City of Santa Cruz
Andy Ward, City of Capitola, Vice-Chair
Leo Jed, CTSC
Piet Canin, Ecology Action/Bike-to-Work
Jim Langley, CTSC (Alt.)
Lex Rau, City of Scotts Valley

**Unexcused Absences:**

**Excused Absences:**
Holly Tyler, District 1 (Alt.)
Eric Horton, District 2 (Alt.)
Carlos Garza, City of Santa Cruz (Alt.)
Daniel Kostelec, City of Capitola (Alt.)
Gary Milburn, City of Scotts Valley (Alt.)
Myrna Sherman, City of Watsonville

**Vacancies:**
District 4 – Voting and Alternate
District 5 – Alternate
City of Watsonville – Alternate

**Staff:**
Cory Caletti, Senior Transportation Planner
Ginger Dykaar, Transportation Planner
Rachel Moriconi, Senior Transportation Planner

**Guests:**
Amelia Conlen, People Power
Steve All, Member of the public
Saskia Lucas, Open Streets

3. Announcements – Cory Caletti announced that each March, a rotating set of seats on the Bicycle Committee expire and asked that members interested in continuing to serve complete an application and return it at their earliest convenience. The applications will be sent to the appropriate Commissioner for nomination to the full RTC, the body making the final appointment.

4. Oral Communications – Steve All, a member of the public who developed CycleNet, a bike route numbering proposal, asked for a show of hands of members familiar with his effort. A few Bicycle Committee members raised their hands.

5. *A*dditions or deletions to consent and regular agendas – Bike Committee member Leo Jed indicated that he is applying for appointment to the City of Santa Cruz's Transportation and Public Works Commission. The Commission's appointment decision will be made in one week.

## CONSENT AGENDA

A motion (Jed/Rau) to approve the consent agenda as amended passed unanimously.

6. Approved draft minutes of the December 10, 2012 Bicycle Committee meeting
7. Accepted Bicycle Committee roster
8. Accept summary of Bicycle Hazard Reports - None
9. Accepted 2013 schedule of meetings and tentative agenda items
10. Accepted update regarding bicycle accommodations as part of the Highway 1 Soquel/Morrissey Auxiliary Lanes Project
11. Accepted correspondence from Committee member Rick Hyman regarding proposed bike lanes Rooney Street

## REGULAR AGENDA

12. 2014 Regional Transportation Plan (RTP) and Metropolitan Transportation Plan Project prioritization – Ginger Dykaar, RTC Transportation Planner, summarized the staff report, the need for a Regional Transportation plan and Metropolitan Transportation Plan, the process and timeline, as well as the value and methodology of project identification and prioritization. She referenced the current draft list of projects with bicycle components identified for inclusion in the 2014 RTP that was supplied as part of the staff report and also provided a replacement page for project page #17, on which a project had been incorrectly omitted. Bicycle Committee brainstormed project prioritizations and individual members recommended certain projects be amended as follows:
    - Raise the priority level for the Bike to Work program
    - General increasing of ranking to certain type of projects with high value, such as Safe Routes to School efforts
    - Raise the priority level for King St bike improvements
    - Raise the priority level for bike facilities on Seabright Ave
    - Raise the priority level for the San Lorenzo river crossing by the boardwalk
    - Increase the priority level for Sharrows and Bike Activated Traffic Signals
    - Add the Bike Smart! project that is administered by Ecology Action
    - Increase the priority level given to Mission St Bike/Truck Safety Campaign
    - Increase funding for the bicycle parking subsidy program
    - Increase the priority given to the Mar Vista bike/ped overcrossing
    - Add an Open Streets project
    - Keep the priority rating for Arana Gulch multiuse trail at priority 1
    - Raise the priority level for the Pajaro Valley High School bike/ped connector trail

    The Bike Committee as a whole did not vote on these recommendations and thus, they are a reflection of individuals' feedback. Ms. Dykaar collected the feedback for staff consideration.

13. Regional Surface Transportation Program grant preliminary recommendations - Rachel Moriconi, Senior Transportation Planner, summarized the staff report, the

Regional Surface Transportation Program (RSTP), the amount available for the current funding cycle, projects submitted for funding consideration, and staff recommendations. After discussion about the merits of some projects over others, the Bicycle Committee decided to deliberate and vote on recommendations per each project of interest. A motion (Rau/Fieberling) to recommend to the RTC that full funding be provided for the Scotts Valley Drive Slurry Seal and Restriping project failed. A motion (Hyman/Ward) to recommend providing $40K to the Ride On Folding Program passed. A motion (Ward/Canin) to recommend increasing funding for Open Streets to $50K passed. A motion (Jed/Casterson) to recommend increasing funding for the Boltage program by $15K to the full $40K requested passed. A motion (Akol/Hyman) to recommend not providing any funding to the Aptos Village Plan Improvement project passed. A motion (Fieberling/Ward) to recommend some level of funding be provided to the Soquel at Frederick St Improvement project passed. A motion (Ward/Akol) to specifically endorse funding for the Branciforte Bike and Pedestrian Bridge project passed. A motion (Hyman/Ward) to recommend no funding be provided to the Freedom Blvd project unless bicycle lanes are included passed. A motion (Fieberling/Akol) to recommend that no funding be provided to the Laurel Street Pavement Rehabilitation project passed. A motion (Akol/Fieberling) to recommend some funding for West Cliff Drive project passed with the additional request that the City of Santa Cruz Public Works staff provides an explanation for the need for curb treatments. The Bicycle Committee took no position on staff recommendations for all other projects.

14. Complete Streets Policies - Committee member Rick Hyman provided a PowerPoint presentation on Complete Streets policies, legal requirements, and details regarding the concept of providing facilities for all transportation users, including bicyclists, pedestrians, transit vehicles, and motorists. To illustrate appropriate incorporation of amenities for all transportation users and lost opportunities, Mr. Hyman summarized four projects in Santa Cruz County, including the already completed Mission Street Improvement and the Highway 1/17 Merge Lane Projects, the current Highway 1 Auxiliary Lane Project (from Morrissey Blvd to Soquel Dr), and future Highway 1 Auxiliary Lanes (from Soquel Drive to 41st Avenue). He indicated his interest in presenting the PowerPoint to other interest groups in the hopes of providing education and encouraging greater community involvement in advocating for treatments that enhance safety and mobility for all transportation users. The PowerPoint is available through Mr. Hyman or RTC staff.

15. Member updates related to Committee functions - None

16. Adjourn – 9:00 pm

**NEXT MEETING:** The next Bicycle Committee meeting is scheduled for Monday, February 11, 2013 from 6:30 pm to 9pm at the RTC office, 1523 Pacific Ave, Santa Cruz, CA.

Minutes respectfully prepared and submitted by:

Cory Caletti, Senior Transportation Planner

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**BIKE COMMITTEE ROSTER – March, 2013**

| Representing | Member Name/Contact Info | Appointment Dates |
|---|---|---|
| **District 1** - Voting<br>Soquel, Live Oak, part of Capitola | Kem Akol<br>kemakol@msn.com 247-2944 | First Appointed: 1993<br>Term Expires: 3/13 |
| Alternate | Holly M. Tyler<br>Holly.m.tyler@gmail.com 818-2117 | First Appointed: 2010<br>Term Expires: 3/13 |
| **District 2** - Voting<br>Aptos, Corralitos, part of Capitola, Nisene Marks, Freedom, PajDunes | David Casterson, Chair<br>dcasterson@gmail.com 588-2068 | First Appointed: 2005<br>Term Expires: 3/15 |
| Alternate | Eric Horton<br>erichortondesign@gmail.com 419-7296 | First Appointed: 3/09<br>Term Expires: 3/15 |
| **District 3 -** Voting<br>Big Basin, Davenport, Bonny Doon, City of Santa Cruz | Peter Scott<br>drip@ucsc.edu 423-0796 | First Appointed: 2007<br>Term Expires: 3/13 |
| Alternate | William Menchine (Will)<br>menchine@cruzio.com 426-3528 | First Appointed: 4/02<br>Term Expires: 3/13 |
| **District 4** - Voting<br>Watsonville, part of Corralitos | Vacant | Term Expires: 3/12 |
| Alternate | Vacant | Term Expires: 3/12 |
| **District 5** - Voting<br>SL Valley, Summit, Scotts Valley, part of Santa Cruz | Rick Hyman<br>bikerick@att.net | First Appointed: 1989<br>Term Expires: 3/13 |
| Alternate | Vacant | Term Expires: 3/13 |
| **City of Capitola** - Voting | Andy Ward, Vice Chair<br>Andrew.ward@plantronics.com 462-6653 | First Appointed: 2005<br>Term Expires: 3/14 |
| Alternate | Daniel Kostelec<br>dkostelec@sbcglobal.net 325-9623 | First Appointed:<br>Term Expires: 3/14 |
| **City of Santa Cruz -** Voting | Wilson Fieberling<br>anbfieb@yahoo.com | First Appointed: 2/97<br>Term Expires: 3/15 |
| Alternate | Carlos Garza<br>carlos@cruzio.com | First Appointed: 4/02<br>Term Expires: 3/15 |
| **City of Scotts Valley -** Voting | Lex Rau<br>lexrau@sbcglobal.net 419-1817 | First Appointed: 2007<br>Term Expires: 3/14 |
| Alternate | Gary Milburn 427-3839 hm<br>g.milburn@sbcglobal.net/438-2888 ext 210 wk | First Appointed: 1997<br>Term Expires: 3/14 |
| **City of Watsonville -** Voting | Myrna Sherman<br>hmsherman2@sbcglobal.net | Term Expires: 3/13 |
| Alternate | Vacant | Term Expires: 3/13 |
| **Bike To Work -** Voting | Nick Mucha<br>nmucha@ecoact.org 426-5925 x.128 | First Appointed: 4/11<br>Term Expires: 3/13 |
| Alternate | Piet Canin<br>pcanin@ecoact.org 426-5925 ext. 127 | First Appointed: 4/02<br>Term Expires: 3/13 |
| **Community Traffic Safety Coalition -** Voting | Leo Jed<br>leojed@gmail.com 425-2650 | First Appointed: 3/09<br>Term Expires: 3/15 |
| Alternate | Jim Langley<br>jim@jimlangley.net 423-7248 | First Appointed: 4/02<br>Term Expires: 3/15 |

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

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**March 11, 2013**
**Hazard Report**

| Date | First Name | Last Name | Contact Info | Location | Cross Street | City | Category | Additional Comments | Forwarded To | Forwarded Date | Response | Images |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 02/15/13 | J. | Guevara | j.jguevara@gmail.com | Ocean St | Claremont Terrace | Santa Cruz | debris on shoulder or bikeway, bikeway not clearly marked | rider states Co. pipeline warning sign has moved several feet south, takes up most of bike lane. already dangerous section because cars consistently drive over bike lane where ocean st shifts slightly-bike lane paint is well worn from cars driving over it. const. sign needs to warn cars that bikes have right to take lane for safety. cars force me into const. sign. | Cheryl Schmitt | 02/20/13 | From Cheryl - I have notified the project manager - 02/20/13 | Bicycle Hazard Downloaded Images\2013\021513-OceanSt-ClaremontTerrace.jpg |
| 02/12/13 | Saskia | Lucas | saskia_lucas@yahoo.com | | | City/County Santa Cruz | debris on shoulder or bikeway | rider states bike lanes and shoulders are often litteres with glass after recycling trucks collect from residential bins, causes cyclists to have to take evasive action, enter traffic lane with cars to avoid debrtis that can puncture bike tires. | all city/county jurisdictions | 02/14/13 | | |
| 02/11/13 | Saskia | Lucas | saskia_lucas@yahoo.com | Soquel Ave | River St | Santa Cruz | rough pavement or potholes | rider states there is large deep pot hole in middle of royal taj parking lot right were river levee path connects to river st. major hazard to any cyclist who might not see to avoid especially those entering or exiting the path at night | Cheryl Schmitt | 02/12/13 | From Cheryl - Forwarded to Streets Maintenance for repair - 02/13/13 | |
| 01/22/13 | Rick | Hyman | bikerick@att.net | 38th Ave | Capitola Rd | Capitola | traffic signal problem | rider states traffic signal does not turn green for cyclists making a left onto capitola rd from 38th | Steve Jesberg | 01/23/13 | | |
| 01/21/13 | Benjamin | Roberts | bsr316@gmail.com | Bonita Dr | Zanzibar & Vista Del Mar Dr | Aptos | debris on shoulder or bikeway | rider states he would greatly appreciate if debris could be removed off the edges of the paved roadway | General Dept Co of Santa Cruz | 01/22/13 | | Bicycle Hazard Downloaded Images\2013\012113BonitaDr-Zanzibar-VistaDelMarDr.jpg |
| 01/18/13 | Tom | Brandow | tbrandow@hotmail.com | Beach St | Riverside Ave | Santa Cruz | rough pavement or potholes | rider states that the painted "bar" of the crosswalk is raised up, creates a severe jolt when riding over it, it is right in front of the beach ballin in front of the boardwalk. | Cheryl Schmitt | 01/22/13 | From Cheryl 02/26/13 - Forwarded to Traffic Maintenance.-Follow-up info from Cheryl 03/04/13 From: Richard W Smith<br>Sent: Monday, March 04, 2013 9:02 AM<br>To: Cheryl Schmitt<br>Subject: Hazard report follow up work<br>Cheryl I made contact with Boardwalk security, they will stop placing signs in the Bike lane. My crew will grind the small bump in the bike lane on Beach Street at Riverside this week.<br>Thank you for the information on these hazards.<br>Rich Smith<br>City of Santa Cruz<br>Traffic Supervisor<br>831-420-5522<br>rsmith@cityofsantacruz.com | Bicycle Hazard Downloaded Images\2013\011813-BeachSt-RiversideAve.JPG |
| 01/18/13 | Tom | Brandow | tbrandow@hotmail.com | Beach St | Cliff St | Santa Cruz | bike lane obstruction | rider states that the boardwalk has placed a Yield to Pedestrian sign in the middle of the bike lane. this is a hazard, the MUTCD, Part 9 does not authorize signage in a bike lane. | Cheryl Schmitt | 01/22/13 | From Cheryl 02/26/13 - Forwarded to Traffic Maintenance. | Bicycle Hazard Downloaded Images\2013\011813-BeachSt-CliffSt.jpg |

**DEPARTMENT OF TRANSPORTATION**
DIVISION OF LOCAL ASSISTANCE – M.S. 1
P.O. BOX 942873
SACRAMENTO, CA 94273-0001
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February 11, 2013

To Whom It May Concern:

Due to the Governor's budget proposal announced on January 10, 2013, at this time there will not be a Bicycle Transportation Account (BTA) Program Call for Projects in Fiscal Year 2013–14. The Active Transportation Program proposed by the Governor will consolidate the BTA along with the Safe Routes to School Program, the Environmental Enhancement and Mitigation Program and two other programs into one program.

If you have any questions regarding this announcement, please contact Deborah Lynch at (916) 653-0036.

Sincerely,

DENIX D. ANBIAH
Chief
Division of Local Assistance

c: Deborah Lynch, BTA Coordinator, Office of Special & Discretionary Programs, Division of Local Assistance
District Local Assistance Engineers
District BTA Coordinators

bc: Denix Anbiah, Chief, Division of Local Assistance
Kevin Pokrajac, Chief, Special & Discretionary Programs, Division of Local Assistance

DL:jl

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**AGENDA:** March 11, 2013

**TO:** Bicycle Committee

**FROM:** Grace Blakeslee, Transportation Planner

**RE:** Complete Streets Analysis Update

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## RECOMMENDATIONS

Staff recommends that the Bicycle Committee:

1. provide input on the areas proposed for inclusion in the complete streets assessment (Attachment 1); and,

2. provide input on the transportation elements to be examined in the complete streets assessment (Attachment 2).

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## BACKGROUND

The Complete Streets Analysis is funded by a Strategic Growth Council Planning Grant to support development of the three-county Sustainable Communities Strategy (SCS) being led by the Association of Monterey Bay Area Governments (AMBAG). A Complete Streets Analysis is intended to evaluate existing transportation network against the proposed SCS land use scenarios to reduce vehicle miles traveled and greenhouse gas emissions. The Complete Streets Analysis will include an assessment and development of guidelines. The assessment portion of the Complete Streets Analysis was intended to play a role in the initial development of the Santa Cruz County Regional Transportation Plan (RTP) project selection, which took place in Fall 2012. However, due to delays in finalizing the funding agreement, evaluation of Complete Streets projects for consideration in the RTP project list will be conducted separately and projects will be recommended for consideration into the project list as appropriate.

## DISCUSSION

### Complete Streets Assessment

The goal of the Complete Streets Analysis is to identify transportation and streetscape improvements needed to accommodate new growth and address congestion in new areas of compact development in a manner that reduces vehicle miles traveled and greenhouse gas emissions. Therefore, an assessment of Complete Streets elements will focus on areas identified for more intensified use in the future. Staff has identified areas (Attachment 1) to focus the Complete Streets

Assessment based on: general plan land use descriptions, local area plans, AMBAG place type designations, employment density data, trip destination data, and AMBAG Regional Blueprint Priority Areas. The intent is to examine the primary arterials and collectors and, where appropriate and feasible, local streets that connect residential and activity centers. **Staff recommends that the Bicycle Committee provide input on the areas (Attachment 1) to be included in the Complete Streets Assessment.**

As part of the Complete Streets Assessment, the three-county Regional Transportation Planning Agencies (RTPA) expect to identify the mobility context, inventory complete streets elements, and analyze gaps in the transportation network and services. This should allow each RTPA to identify transportation investments that support multi-modal facilities and connectivity and reduce vehicle miles traveled within each area. A list of transportation elements expected to be examined as part of the complete assessment is shown in Attachment 2. **Staff recommends that the Bicycle Committee provide input on the transportation elements (Attachment 2) to be examined in the Complete Streets Assessment.**

**Next Steps**

*Draft RTP Project List*
The information obtained through the Complete Streets Assessment will assist in identifying which transportation investments could be implemented to provide multi-modal facilities and connectivity in areas identified for more intense development. If not already included in the Draft RTP Project List, the transportation investments recommended as a result of the assessment will be provided to the appropriate jurisdiction to consider for inclusion in the Draft RTP project list.

*Complete Streets Guidelines Development*
Complete Street Guidelines tailored to the Monterey Bay Area will be developed in coordination with the other RTPAs in the AMBAG region following the Complete Streets Assessment. Surveys of public works and planning departments were conducted in 2011 to determine what type of complete streets resources would most support local planning efforts and implementation of complete streets.

Some of the key points obtained from jurisdiction who participated in the three surveys are:

- All jurisdictions consider all modes when planning project
- Complete streets “audits” and facilities mapping are needed to evaluate complete streets
- Checklist of complete street elements is needed to best implement complete streets
- Information about the benefits of complete streets is needed to support implementation
- Funding is the most significant barrier to implementing complete streets

- Approximately half of jurisdictions maintain inventories of some transportation facilities and are updated on an as needed basis.
- Few jurisdictions have incorporated complete streets policies/programs into planning efforts.

The information obtained has been considered in development of the complete streets assessment and will be considered in developing the complete streets guidelines. Specifically, creating a framework for analyzing the economic benefits of complete streets has been added to the work program as a result of the survey and strategies for increasing the competitiveness of local complete streets projects was considered in development of the Complete Streets Assessment.

## SUMMARY

A Complete Streets Analysis is intended to evaluate existing transportation network against the proposed Sustainable Communities Strategies (SCS) land use scenarios to reduce vehicle miles traveled and greenhouse gas emissions. The Complete Streets Analysis will include a Complete Streets Assessment and development of Complete Streets Guidelines specific to the Monterey Bay Area. Transportation investments recommended as a result of the Complete Streets Assessment will be provided to the appropriate jurisdiction to consider for inclusion in the Draft RTP project list. Results of three separate complete streets related surveys have been considered in developing the assessment and guidelines.

Attachments:

1. Areas proposed for inclusion in Complete Streets Assessment
2. Transportation elements expected to be considered in the Complete Street Assessment

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**Complete Streets Assessment - Proposed Areas (Boundaries shown in parathesis)**

**March 5, 2013**

City of Capitola:

- 41st Area near Highway 1 (Gross Road to Capitola Road and Rodeo Gulch to Wharf Road)*, **
- Bay and Porter Area (Robertson to Main and Highway 1 to Capitola Avenue)
- Capitola Village (Wharf Road to Cliff Avenue and Park Avenue to Esplanade)**

City of Santa Cruz:

- Ocean Street Corridor**
- Soquel Avenue/Water Street (Highway 1 and Broadway and Morrissey and Branciforte)*
- Harvey West Area (San Lorenzo River to Dubois Street and Evergreen Street to Golf Club Drive)
- Boardwalk/Wharf Area (Bay Street to San Lorenzo River and Pacific Front Street to Beach Street)**

City of Scotts Valley:

- Scotts Valley Drive (Highway 17 and Hacienda Drive)*
- Mt Hermon Road (Kings Village/Blue Bonnet to Whispering Pines Drive)*

City of Watsonville:

- Main Street (Freedom to Riverside and Union to Brennan)*
- Highway 1/Airport Drive (TBD)
- Green Valley/Freedom (TBD)

County of Santa Cruz:

- Upper 41st Avenue (Highway 1 to Soquel and S. Rodeo Gulch to 41st Avenue)
- Capitola Road and 17th (El Dorado to Chanticleer and Rail Line to Capitola Avenue)
- Pleasure Point Area (Brommer to East Cliff and 30th Avenue to 41st Avenue)
- Soquel Drive (Mar Vista to Spreckles and Rail Line to Soquel Drive)
- Soquel Village (Robertson to Main and Soquel to Highway 1)
- Soquel Drive (Highway 1 to Soquel and Soquel to Mattison)

*All or some gaps analysis completed by RTC in November 2012
**Local Area Plan available

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**Complete Streets Assessment – Proposed Transportation Elements for Examination**

**February 14, 2013**

**MOBILITY and LAND USE CONTEXT**

Average Daily Traffic, Functional Classification, Speed Limit, Signalized Intersection, Signal Synchronization, Parking, Traffic Calming Devices, Truck Route, High Quality Transit Corridor, Bike Route, Safe Route to School, Place Type, Travel Information

**BICYCLE**

CONNECTIVITY and QUALITY: Bicycle Facility Type, Bicycle Lane Width, Bicycle Parking, Bike Racks on Buses, Way Finding,
CROSSINGS: Bicycle Detection, Uncontrolled Crossing
SAFETY: Collision History

**PEDESTRIAN**

CONNECTIVITY and QUALITY: Sidewalks, Sidewalk Width, Block Length, Buffer, Pedestrian Plaza, Way Finding
CROSSING: Signalized Intersection, Audible Countdown, Walk Phase Timing, Uncontrolled Crossing, Crossing Distance, Median, ADA Ramp, Detectable Warning, Curb Extensions, Lighting
SAFETY: Collision History

**TRANSIT**

CONNECTIVITY and QUALITY: Distance to Marked Pedestrian Crossing, Shelter, Lighting, Amenities, Transit Route and Schedule Information
SERVICE: Headways, Links to Key Destinations, Pull outs

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**AGENDA:** March 11, 2013

**TO:** Bicycle Committee

**FROM:** Cory Caletti, Senior Transportation Planner

**RE:** Bicycle Safety Observation Study and Bicycle Injury/Fatality Data

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## RECOMMENDATIONS

Staff recommends that the Bicycle Committee review and discuss the County of Santa Cruz Health Services Agency 2012 Bicycle Safety Observation Study and 2010 Bicycle Injuries and Fatalities for Santa Cruz County report.

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## DISCUSSION

The County of Santa Cruz Health Services Agency (HSA) works to reduce bicycle-related injuries in Santa Cruz County. In May and June of 2012, health education staff and community volunteers conducted a countywide Bicycle Safety Observation study to evaluate the impact of educational efforts on bicyclists' behavior. The data was then compared with similar studies done in previous years. Because Bicycle Committee members were among the community volunteers participating in the Bicycle Observation Survey, your feedback is being solicited by HSA staff as preparations begin for the next survey.

In March, 2007, members indicated that it would be helpful to compile bicycle use data. CTSC staff indicated that bicycle counts would take a collaborative effort and funding. Since that time, RTC staff pursued efforts to conduct bicycle counts. More information will be provided in a following staff report and presentation.

Additionally included in the HSA report for Bicycle Committee review is the bicycle collision data from the Statewide Integrated Traffic Records System (SWITRS) for 2010. According to Caltrans, SWITRS is a statewide records system and acts as a centralized accumulation of data for fatal and injury traffic accidents. In addition, a large proportion of the reported property damage-only accidents are also processed into SWITRS. The reports are generated by over 100 CHP areas and over 500 city police departments, sheriffs' offices and other local jurisdictions.

## SUMMARY

Staff recommends that the Bicycle Committee review and discuss the County of Santa Cruz Health Services Agency 2012 Bicycle Observation Survey Results and 2010 SWITRS Bicycle Collision Data.

Attachments:
1: County of Santa Cruz Health Services Agency's "Bicycle Safety Observation Study 2012" Report
2: Bicycle Injuries and Fatalities for Santa Cruz County – 2010

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# County of Santa Cruz Health Services Agency

# BICYCLE SAFETY OBSERVATION STUDY 2012

## BACKGROUND AND PURPOSE

The County of Santa Cruz Health Services Agency (HSA) has been working with the Community Traffic Safety Coalition (CTSC) and other community partners for over ten years to reduce bicycle-related injuries in Santa Cruz County. During the months of May and June in 2012, HSA Chronic Disease and Injury Prevention staff, members of CTSC, the South County Bicycle and Pedestrian Work Group (SCBPWG), and the Santa Cruz County Regional Transportation Commission's (SCCRTC) Bicycle Committee, and other community volunteers conducted a countywide bicycle safety observation survey to inform bicycle safety education efforts. The 2012 data was compared with previous years' survey data to identify trends in road cyclist safety behaviors over time.

The study is designed to observe what is generally considered safe and unsafe behavior when riding a bicycle. While some behaviors might be legal, such as those over the age of 18 years choosing not to wear a helmet while cycling, those same behaviors could increase the risk of injury or death and are therefore considered unsafe in this survey.

## METHOD OF DATA COLLECTION

A total of 35 staff and volunteers collected data at 46 locations throughout Santa Cruz County, 29 observation sites located in North County and 16 in South County. All of the observation locations for the 2012 survey were the same as used in previous observation surveys, except for three school sites added in 2009, and five more school sites added in 2012.

The survey included three types of locations: commuter, school, and weekend. The commuter sites were observed on weekdays, except Monday and Friday, from 4:00 pm to 6:00 pm. School sites were observed for an hour before each school's start time on a weekday morning, except Mondays and Fridays. Weekend sites were observed from 11:00 am to 1:00 pm on a Saturday or Sunday. Each observer had a sheet to collect data that included approximate age, sex, wearing a helmet, riding with traffic, stopping at a stop sign or red light, and riding on the sidewalk. Also recorded were date, day of the week, and weather conditions. Observers were given instructions and a data collection tool to ensure reliable results.

## SUMMARY OF RESULTS

A total of 3,046 bicyclists were observed. Significant overall findings for 2012 include:

- 73% of cyclists were men, 26% were women
- Female cyclists had a helmet use rate of 59% compared to males at 45%
- Watsonville cyclists wore helmets at a rate of 20% compared to 54% for North County cyclists

- 85% of cyclists rode with traffic on the right side of the road
- 72% of cyclists stopped at stop signs and red lights
- 24% of cyclists rode on the sidewalk

**Tables 1, 2 and 3 summarize the results from the 2012 survey.**

**Table 1: Santa Cruz County (All 46 sites)**

| | Sample Size | % | Wore a Helmet | Rode with Traffic | Stopped at signs/ lights | Rode on sidewalk |
|---|---|---|---|---|---|---|
| **Total Bicyclists** | 3046 | 100% | 49% | 85% | 72% | 24% |
| **Males** | 2234 | 73% | 45% | 84% | 69% | 26% |
| **Females** | 792 | 26% | 59% | 87% | 82% | 19% |
| **Children (0-12 yrs)** | 237 | 8% | 67% | 62% | 80% | 74% |
| **Teens (13-17 yrs)** | 295 | 10% | 24% | 72% | 67% | 51% |
| **Young Adults (18-24 yrs)** | 953 | 31% | 45% | 90% | 80% | 12% |
| **Adults (25+ yrs)** | 1552 | 51% | 53% | 88% | 67% | 19% |

**Table 2: North/Mid County Sites (29 sites)**

| | Sample Size | % | Wore a Helmet | Rode with Traffic | Stopped at signs/ lights | Rode on sidewalk |
|---|---|---|---|---|---|---|
| **Total Bicyclists** | 2575 | 100% | 54% | 88% | 75% | 18% |
| **Males** | 1819 | 71% | 52% | 88% | 72% | 18% |
| **Females** | 737 | 29% | 59% | 88% | 82% | 17% |
| **Children (0-12 yrs)** | 177 | 7% | 78% | 62% | 81% | 74% |
| **Teens (13-17 yrs)** | 208 | 8% | 33% | 75% | 71% | 38% |
| **Young Adults (18-24 yrs)** | 882 | 34% | 48% | 92% | 83% | 9% |
| **Adults (25+ yrs)** | 1300 | 50% | 58% | 90% | 69% | 14% |

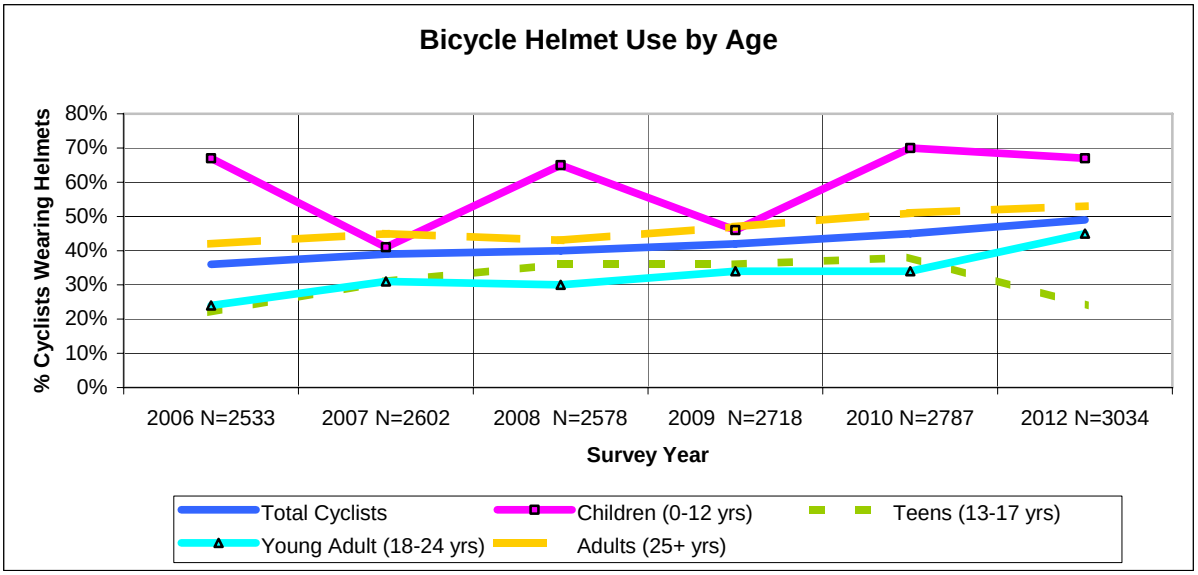
**Table 3: Watsonville Sites (16 sites)**

| | | % | Wore a Helmet | Rode with Traffic | Stopped at signs/ lights | Rode on sidewalk |
|---|---|---|---|---|---|---|
| **Total Bicyclists** | 471 | 100% | 20% | 70% | 57% | 56% |
| **Males** | 415 | 88% | 16% | 69% | 54% | 58% |
| **Females** | 55 | 12% | 53% | 75% | 76% | 41% |
| **Children (0-12 yrs)** | 60 | 13% | 35% | 63% | 76% | 75% |
| **Teens (13-17 yrs)** | 87 | 18% | 1% | 66% | 55% | 78% |
| **Young Adults (18-24 yrs)** | 71 | 15% | 6% | 63% | 48% | 57% |
| **Adults (25+ yrs)** | 252 | 54% | 28% | 74% | 56% | 44% |

## TRENDS OVER TIME

The tables below compare data over seven years for six observational surveys looking at helmet use, riding with traffic, stopping at stop signs/lights, and riding on the sidewalk by sex and age.

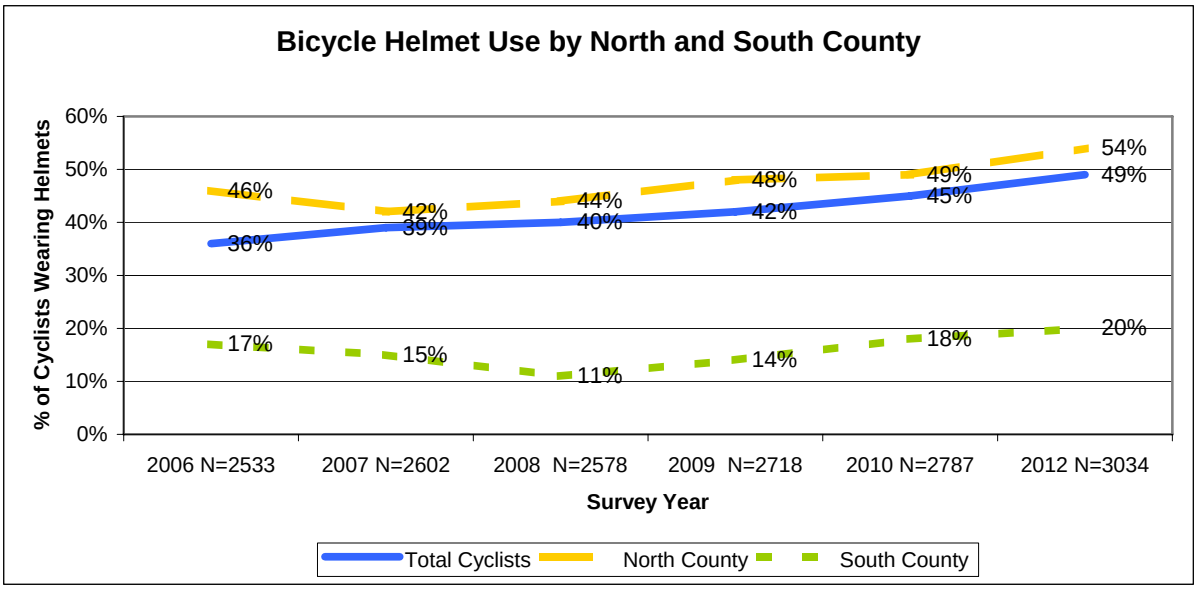
### *Bicycle Helmet Use




Total helmet use for the county has been steadily increasing since 2006 and increased from 45% in 2010 to 49% in 2012. An increase in helmet use took place for males from 42% in 2010 to 45% in 2012. This year females saw their highest rate of helmet use so far at 59% from 54% in 2010 and have consistently worn helmets at a higher rate than males in all years surveyed.

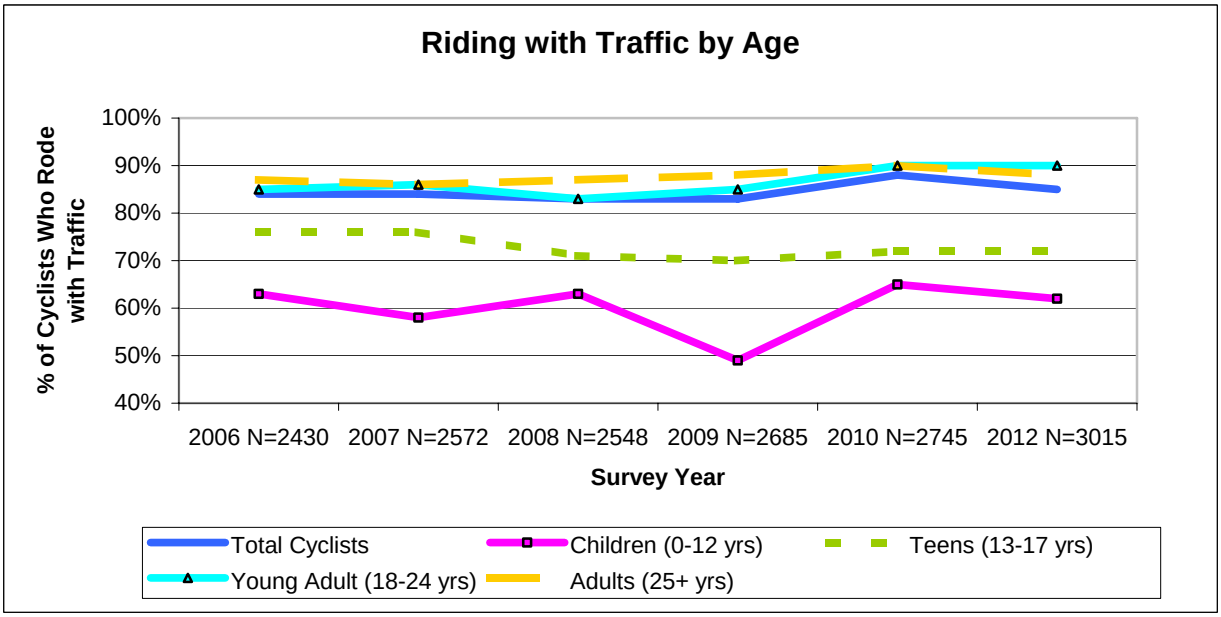
The biggest increase in helmet use occurred this year among young adults age 18 to 24 years from 34% in 2010 to 45% in 2012. Teen helmet use took the biggest drop from 38% in 2010 to 24% in 2012. Helmet use among children has almost always been higher than other age groups, but has been erratic over the years, at least partially due to the fact that the total number of children surveyed (sample size) has been relatively low. Helmet use remained about the same among adults from 51% in 2010 to 53% in 2012.

*Whereas adults are not required to wear a helmet in California, the law requires persons under 18 years of age to wear an ASTM or CPSC approved, properly fitted and fastened helmet as an operator or a passenger when bicycling, skateboarding, roller-blading/skating or using a scooter.




This year only 20% of cyclists observed in Watsonville (South County) wore a helmet. Watsonville cyclists have had a lower helmet use rate each year the survey has been conducted but had been slowly increasing since 2008. The total number of cyclists observed riding in South County has also been much lower than those observed in North County.

## Riding with Traffic



The number of cyclists riding in the same direction as traffic has been fairly consistent within each demographic group over the years surveyed. Children observed riding with traffic has been lower than all other age groups overall and least consistent over the years surveyed, with 62% riding with traffic in 2012. Young adults were next highest in riding with traffic at 72% for 2012 and highest of all age groups were young adults at 90% for 2012.

## Stopping at Stop Signs and Red Lights

The number of bicyclists who stopped at stop signs and red lights increased for most groups observed in 2012. The greatest increases in stopping at stop signs and red lights occurred in females and young adults, both increasing by 9% and 12% respectively from 2010 to 2012. The two groups that saw a decline were children and teens, with the greatest decline among children from 86% in 2010 to 80% in 2012.

## Sidewalk Riding

Local ordinances exist in several jurisdictions in Santa Cruz County related to cycling on the sidewalk. In the cities of Watsonville and Capitola, sidewalk bicycle riding is illegal in all areas, while within the City of Santa Cruz, sidewalk riding is illegal only in commercial areas. The City of Scotts Valley and the unincorporated areas of the county do not have an ordinance in place.

Generally, bicycle riding on the sidewalk has been found to carry a greater risk of injury than riding on the roadway due to more opportunities for conflict with others, such as pedestrians, traveling at varying speeds. While it is legal in some areas to ride a bicycle on the sidewalk, sidewalk riding is generally considered unsafe; however, there are some exceptions. Children often ride on the sidewalk until their skill and judgment levels develop enough to ride safely in the roadway. There are also some circumstances where riding on a segment of sidewalk is a safer choice than riding on the roadway, such as when riding up East Cliff Drive before it becomes Murray Street in the City of Santa Cruz.

Sidewalk riding remained the same or increased slightly for all groups observed this year, except for teens and young adults. The rate of sidewalk riding for teens and young adults decreased by 11% and 3% respectively from 2010 to 2012. Children and teens consistently ride on the sidewalk at a higher rate than any other groups over the years surveyed.

# CONCLUSIONS

When comparing the 2012 bicycle observation data to the other years surveyed, there have been some areas of improvement. Since 2006 countywide helmet use continues to steadily increase. Stopping at stop signs and red lights increased overall this year. Some other areas need improvement in certain demographic groups. Helmet use for children has been unsteady but higher than other age groups, and Watsonville helmet use remains low compared with North County. The number of those riding with traffic has remained fairly steady over the last five years surveyed but took a slight decrease this year. Sidewalk riding increased overall this year.

CTSC and affiliated partners have many programs in place to address bicycle safety in Santa Cruz County. The County of Santa Cruz HSA provides staff to the CTSC. CTSC programs include the Ride n' Stride Bicycle and Pedestrian Education Program reaching over 3,000 elementary and preschool students each year and the South County Bicycle and Pedestrian Work Group. HSA also administers a Bicycle Traffic School for bicyclists who receive a traffic violation and a train-the-trainer model Helmet Fit Site program to distribute bicycle helmets. Many other bicycle safety efforts are also underway through partner agencies, such as the SCCRTC, Ecology Action, UCSC Transportation and Parking Services (TAPS), the Bicycle Trip bike shop, People Power, the Santa Cruz County Cycling Club, local public works departments, and local law enforcement agencies. Detailed results of this survey are available by request to inform all bicycle safety efforts in Santa Cruz County.

*Funding for this project was provided in part by the Santa Cruz County Regional Transportation Commission and the California Office of Traffic Safety, through the National Highway Traffic Safety Administration. For more information, please contact the Community Traffic Safety Coalition c/o the Chronic Disease and Injury Prevention Unit of the County of Santa Cruz Health Services Agency at 1070 Emeline Avenue, Santa Cruz, CA 95060, (831) 454-4312.*

Attachment 2

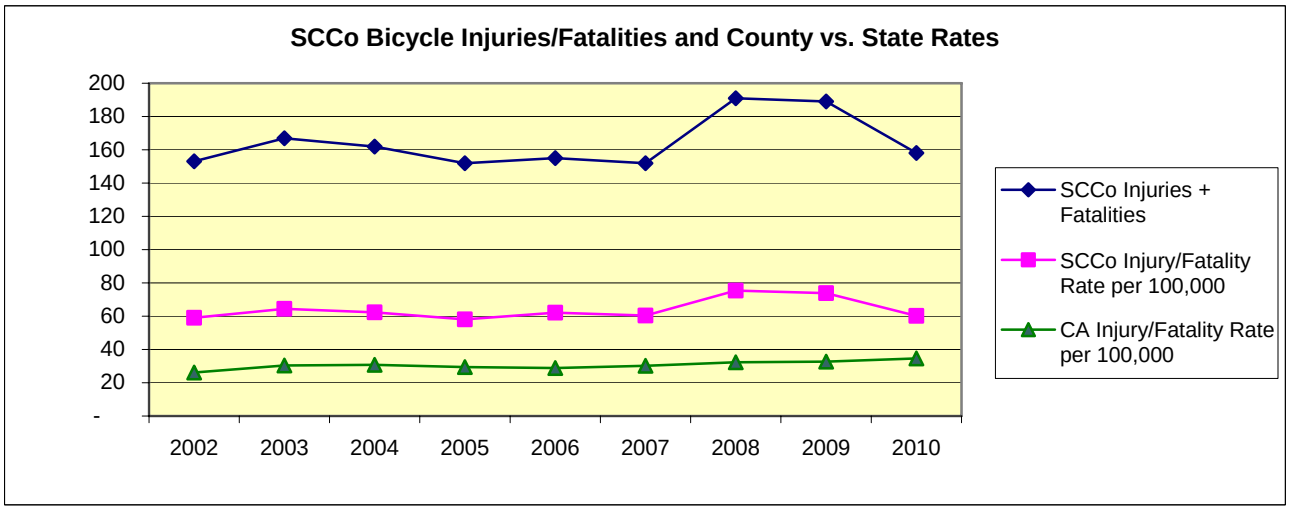
# Bicyclist Injuries and Fatalities for Santa Cruz County 2010

The Santa Cruz County bicyclist injury/fatality rate per 100,000 population for 2010 was 60, which is a decrease from the 2009 rate of 74. This rate was lower than the average injury/fatality rate of 64 for the county since the year 2002. The county bicyclist injury/fatality rate is almost twice the state injury/fatality rate of 35 for 2010.

**State and County Bicyclist Injury/Fatality Rates Per 100,000 Population**

| Calendar year | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| **S.C. County Injuries+Fatalities** | **153** | **167** | **162** | **152** | **155** | **152** | **191** | **189** | **158** |
| Population, Santa Cruz County | 258,900 | 258,900 | 260,200 | 261,345 | 249,705 | 251,747 | 253,137 | 256,218 | 262,382 |
| **Injury/Fatality Rate** | **59** | **65** | **62** | **58** | **62** | **60** | **75** | **74** | **60** |
| | | | | | | | | | |
| ***CA Injuries+Fatalities** | **9,178** | **10,795** | **11,092** | **10,605** | **10,507** | **10,714** | **11,890** | **12,059** | **12,862** |
| Population, California | 35,049,000 | 35,612,000 | 35,991,326 | 36,132,147 | 36,457,549 | 35,553,215 | 36,756,666 | 36,961,664 | 37,253,956 |
| **CA Injury/Fatality Rate** | **26** | **30** | **31** | **29** | **29** | **30** | **32** | **33** | **35** |

*Note: As of 2009, the number of California bicyclists injured and killed is reported by federal fiscal year rather than calendar year by the state Office of Traffic Safety.




The number of bicyclists injured and killed in Santa Cruz County dropped from 189 in 2009 to 158 in 2010. The number of bicyclists injured and killed in 2010 increased in Capitola while decreasing in all other jurisdictions throughout the county. UC Santa Cruz is now listed as a jurisdiction in the collision data and had 11 reported bicyclist injuries in 2010, down by one cyclist from 2009. Bicyclist fatalities totaled zero in 2010, decreasing by three deaths from 2009, the most lethal year since 2002 for cyclists.

**Bicyclists Injured and Killed 2002 - 2010**

| Injured | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| Capitola | 10 | 11 | 20 | 7 | 5 | 6 | 8 | 4 | 9 |
| Santa Cruz | 58 | 77 | 63 | 71 | 82 | 64 | 91 | 68 | 57 |
| Scotts Valley | 4 | 4 | 6 | 2 | 0 | 14 | 4 | 8 | 1 |
| Watsonville | 20 | 7 | 17 | 12 | 13 | 3 | 16 | 18 | 11 |
| Unincorporated | 61 | 67 | 56 | 59 | 54 | 63 | 70 | 76 | 69 |
| UC Santa Cruz | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 12 | 11 |
| **County Total** | **153** | **166** | **162** | **151** | **154** | **150** | **189** | **186** | **158** |

| Killed | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| Capitola | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Santa Cruz | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| Scotts Valley | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Watsonville | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Unincorporated | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 2 | 0 |
| **County Total** | **0** | **1** | **0** | **1** | **1** | **2** | **2** | **3** | **0** |

The number of bicyclist injuries/fatalities remained the same or decreased in all age categories from 2009 to 2010, except for those in the 25 to 34 and 35 to 44 year age groups, which both saw a slight increase in 2010. The most significant decrease in injuries from 2009 was in the 5 to 14 year age group, from 21 in 2009 to 11 in 2010.

**Age Distribution of Bicyclists Injured and Killed 2002 - 2010**

| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| 0 - 4 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 1 | 1 |
| 5 - 14 | 26 | 15 | 26 | 19 | 12 | 20 | 16 | 21 | 11 |
| 15 - 24 | 35 | 48 | 53 | 41 | 29 | 47 | 71 | 61 | 55 |
| 25 - 34 | 36 | 34 | 22 | 19 | 32 | 23 | 33 | 26 | 28 |
| 35 - 44 | 21 | 28 | 25 | 19 | 21 | 18 | 17 | 18 | 19 |
| 45 - 54 | 18 | 26 | 21 | 28 | 37 | 22 | 27 | 27 | 21 |
| 55 - 64 | 9 | 12 | 8 | 15 | 10 | 17 | 19 | 23 | 18 |
| 65 and over | 4 | 2 | 2 | 8 | 7 | 2 | 8 | 11 | 5 |
| unknown | 3 | 2 | 5 | 2 | 5 | 1 | 0 | 1 | 0 |
| **Total** | **153** | **167** | **162** | **151** | **155** | **152** | **191** | **189** | **158** |

When compared to other counties in California, Santa Cruz County ranked fifth for bicyclists injured and killed in 2010 according to the California Office of Traffic Safety (OTS). This is an improvement over recent years when the county was receiving a ranking of second. As a comparison, Yolo County, which has a similar population size to Santa Cruz County and includes the bicycle friendly town of Davis, ranked seventeenth in 2010 for bicyclists injured and killed according to OTS. The cities of Santa Cruz and Davis, also with similar population sizes, have rankings of five and six respectively for 2010.

Although Santa Cruz County tends to receive a high ranking for bicyclists injured and killed, the number of those bicycling in Santa Cruz is also known to be high. The U.S. Census Bureau's 2008-2010 American Community Survey 3-Year Estimates predict that 3.1% of commute trips to work in Santa Cruz County are by bicycle, which is higher than both the state and national levels.

The OTS rankings are based on daily vehicle miles traveled and average population. If the rankings were based on the number bicyclists or the number of miles traveled by bicycle, the relative safety or risk portrayed would be more accurate. An effort is underway through the Santa Cruz County Regional Transportation Commission (SCCRTC) to include bicyclists in their regular traffic counts, which would provide valuable local data on the number of bicyclists and bicycle trips.

*Production of this report was a collaborative effort funded in part by the Santa Cruz County Regional Transportation Commission through the Community Traffic Safety Coalition and the California Office of Traffic Safety, through the National Highway Traffic Safety Administration. Primary data source was the Statewide Integrated Traffic Records System (SWITRS). For more information, please contact the Community Traffic Safety Coalition c/o the Chronic Disease and Injury Prevention Unit of the County of Santa Cruz Health Services Agency at 1070 Emeline Avenue, Santa Cruz, CA 95060, (831) 454-4312.*

**AGENDA:** March 11, 2013

**TO:** Bicycle Committee

**FROM:** Ginger Dykaar, Transportation Planner and Ryan Heywood, previous UCSC IDEASS Student

**RE:** May 2012 Bike Count Report

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## RECOMMENDATIONS

Staff recommends that the Bicycle Committee:

1. Provide input on the May 2012 Bike Count Report.

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## BACKGROUND

The Santa Cruz County Regional Transportation Commission (RTC) partnered with the County of Santa Cruz Community Traffic Safety Coalition (CTSC) and the University of California Santa Cruz IDEASS Program to perform bicycle and pedestrian counts throughout the county in May of 2012. The Community Traffic Safety Coalition has performed seven bicycle safety observation surveys and counts at approximately 40 locations over the past ten years. In addition to the bicycle observation surveys and counts conducted by the CTSC this year, the RTC used the National Bicycle and Pedestrian Documentation (NBPD) methodology for counting both bicyclists and pedestrians at 10 of these locations. Motor vehicle counts were also collected at these 10 locations and at the same times as the bicyclist and pedestrian counts to provide mode split data.

## DISCUSSION

The key findings from this study are:

- The largest number of bicyclists observed during the May 2012 count were at intersections in the City of Santa Cruz and Mid-county, including Capitola
- The top three intersections with the greatest number of bicyclists that were counted during the May 2012 count were Bay Dr. and High St.(UCSC); Seabright Ave. and Murray St.; and Front St. and Laurel St.
- There is an overall upward trend over the last 10 years in the bicycle ridership for Santa Cruz County
- Average mode share at the 20 locations measured was 93.6% motor vehicle, 2.7% bike and 3.7% pedestrian.
- The highest bicycle mode share (10.9%) was on Bay Dr (south of High St) in the City of Santa Cruz.
- The highest pedestrian mode share (20.2%) was on Maple Ave (west of Union St) in the City of Watsonville.

Future counts that are taken within Santa Cruz County would be most comparable to past counts if the following recommendations are followed.

Bicycle Counts

- Commute, weekend and school counts taken at 46 locations throughout Santa Cruz County as currently defined by Community Traffic Safety Coalition
- Commute counts taken from 4-6 pm on Tuesday, Wednesday or Thursday
- School counts taken for 1 hour starting one half hour before school starts on Tuesday, Wednesday or Thursday
- Weekend counts taken from 11-1 pm on Saturday (preferably) or Sunday
- Counts taken annually mid-May to end of May (with consideration for other events such as Bike to Work/School week and before end of semester at UCSC and Cabrillo)
- Counts will tally the number of people on bicycles entering the intersection from each direction
- Bicycle counts will include motorized bicycles and will not include people walking their bikes

Mode Split Counts (Bicycle, Pedestrian and Motor Vehicle)

- Motor vehicle hose counts taken on 2 of the 4 roads entering the 10 intersection locations as in 2012
- Bicycle and pedestrian counts taken at the 10 intersections will indicate not only the direction the bicyclist or pedestrian is entering the intersection but also the direction in which they exit the intersection.
- Mode Split data collected from 4-6pm on Tuesday, Wednesday or Thursday in the fall would provide a comparison of bicycle counts from spring to fall and not duplicate CTSC bike count efforts in spring.
- Bicycle counts will include motorized bicycles and will not include people walking their bikes
- Pedestrian counts will include people in wheelchairs, children in strollers, people walking their bikes, skateboarding, roller blading, and using their scooters

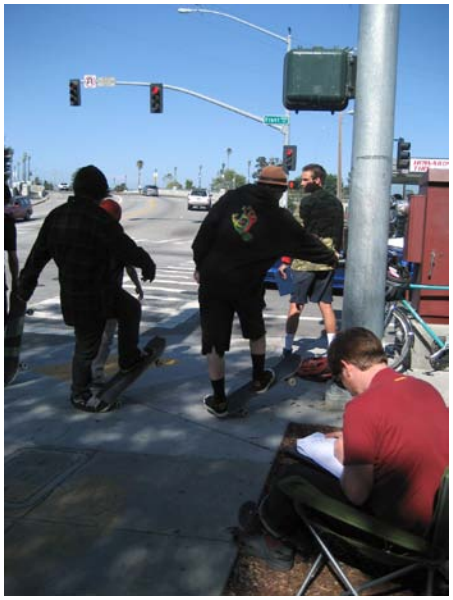
**SUMMARY**

The May 2012 Bike Count Report provides a summary of the results of the May 2012 Bike Count, bike count trend data collected by CTSC over the last ten years, recommendations for future count methodologies and a collection of the bike count data that has been collected in the county since 2000 during either the morning or evening commute periods.

Attachments:

1. Santa Cruz County May 2012 Bike Count Report

DRAFT




# Santa Cruz County

## May 2012 Bike and Pedestrian Count Report


A collaborative project between the Regional Transportation Commission, the Community Traffic Safety Coalition and the University of California Santa Cruz IDEASS Program

SCCRTC

COMMUNITY TRAFFIC SAFETY COALITION

**February 2013**

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# Santa Cruz County
# May 2012 Bike and Pedestrian Count Report

A collaborative project between the Regional Transportation Commission, the Community Traffic Safety Coalition and the University of California Santa Cruz IDEASS Program

## February 2013

Project Coordinators

- **Ryan Heywood**, University of California Santa Cruz, IDEASS Student
- **Ginger Dykaar**, Santa Cruz County Regional Transportation Commission, Transportation Planner
- **Theresia Rogerson**, County of Santa Cruz Health Services Agency and the Community Traffic Safety Coalition, Health Educator
- **Cory Caletti**, Santa Cruz County Regional Transportation Commission, Senior Transportation Planner

See Appendix A for List of Volunteers that contributed greatly to this effort.

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# Introduction

The Santa Cruz County Regional Transportation Commission (RTC) partnered with the County of Santa Cruz Community Traffic Safety Coalition (CTSC) and the University of California Santa Cruz IDEASS Program to perform bicycle and pedestrian counts throughout the county in May of 2012. The Community Traffic Safety Coalition has performed seven bicycle safety observation surveys and counts at approximately 40 locations over the past ten years. In addition to the bicycle observation surveys and counts conducted by the CTSC this year, the RTC used the National Bicycle and Pedestrian Documentation (NBPD) methodology for counting both bicyclists and pedestrians at 10 of these locations. Motor vehicle counts were also collected at these 10 locations and at the same times as the bicyclist and pedestrian counts.

The objectives of this study were to:

- collect data on the number of people bicycling and walking in Santa Cruz County for planning bicycle and pedestrian infrastructure improvements,
- test the National Bicycle and Pedestrian Documentation methodology for establishing a bicycle and pedestrian count collection protocol for Santa Cruz County,
- gather mode split information (bicycle, pedestrian and motor vehicle) to assess how people travel,
- collect data at regular intervals for measuring pedestrian and bicycle ridership trends and monitoring the progress of our county in moving towards a more sustainable transportation system.

The results of the CTSC bicycle observation survey portion of the study can be found on the Community Traffic Safety Coalition website by scrolling down on the Safety Info page (http://www.sctrafficsafety.org/).

## Key Findings

Based on the bicycle, pedestrian and motor vehicle data collected in May 2012, our findings indicate:

- The largest number of bicyclists observed during this count were at intersections in the City of Santa Cruz and Mid-county, including Capitola
- The top three intersections with the greatest number of bicyclists that were counted during this time period were Bay Dr. and High St.(UCSC); Seabright Ave. and Murray St.; and Front St. and Laurel St.
- There is an overall upward trend over the last 10 years in the bicycle ridership for Santa Cruz County
- Average mode share at the 20 locations measured was 93.6% motor vehicle, 2.7% bike and 3.7% pedestrian.
- The highest bicycle mode share (10.9%) was on Bay Dr (south of High St) in the City of Santa Cruz.

- The highest pedestrian mode share (20.2%) was on Maple Ave (west of Union St) in the City of Watsonville.

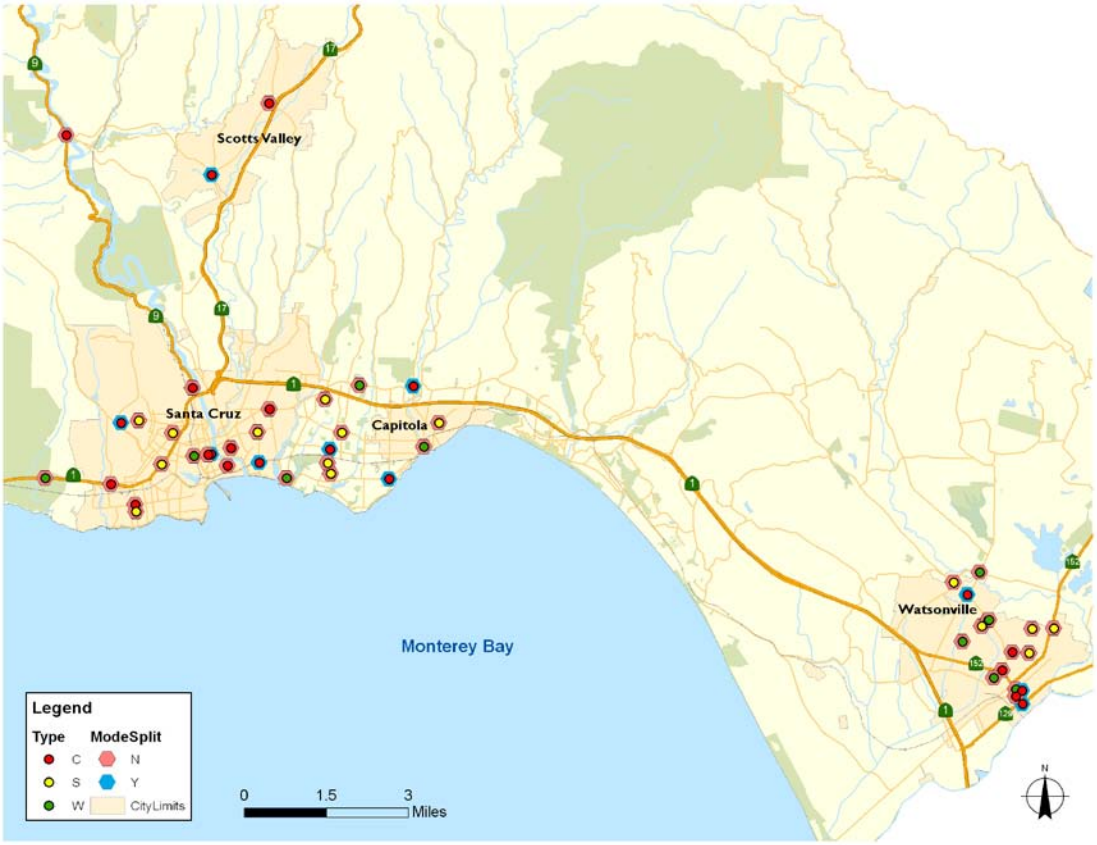
# Methodology

Two distinct count methodologies were used for this study. The CTSC bicycle observation study has been performed for a number of years and can be used to establish trends. The RTC bicycle and pedestrian counts used the NBPD methodology and together with motor vehicle counts provides mode split data.

Bicycle Observation/Count Survey

Bicycle counts were conducted during the CTSC observation surveys at 46 locations throughout Santa Cruz County (Figure 1). More detailed maps of the count locations can be found in Appendix B, Figures B-1 through B-4. All of the locations for the 2012 survey were the same as used in previous observation surveys, except for three school sites added in 2009, and five more school sites added in 2012.

**Figure 1: Map of CTSC Count Locations in Santa Cruz County**




The survey was taken primarily between May 15 and June 1, 2012 with some surveys taken up until mid-June, 2012. These dates were chosen to represent a "typical" spring commute day. Collection dates took into consideration that UCSC

and Cabrillo College were still in session and that other events that could significantly increase or decrease ridership/pedestrian travel were not occurring such as Bike to Work/School week and the Amgen Tour of California professional bicycle race. Bike counts in May have typically been taken after Bike to Work/School week which may affect the bike count totals.

The survey included three types of locations: commuter (C), school (S), and weekend (W). The commuter and weekend sites were conducted at intersections and the locations of the school sites are listed at the bottom of Table 1. The commuter sites were observed on Tuesdays, Wednesdays or Thursdays from 4:00 pm to 6:00 pm. School sites were observed on Tuesdays, Wednesdays or Thursdays for one hour with the count starting one half hour before school begins. Weekend sites were observed from 11:00 am to 1:00 pm on a Saturday or Sunday. One survey/count was conducted for each site.

Thirty-four volunteers and RTC/CTSC staff conducted the observations/counts. Each observer had a sheet to collect data on bicyclists that included approximate age, gender, whether they were wearing a helmet, riding with traffic, stopping at a stop sign or red light, and riding on the sidewalk. It's important to note that wearing helmets is required by law only for those under the age of 18. Given the safety benefits of helmet use, data was collected to measure how well the education message penetrated across all age groups. Also, bicycle riding on sidewalks is not prohibited in all municipalities although it is not recommended for the majority of the bicycle population (excluding youth and the elderly) due to increased collision risk.

Observations were collected on all bicyclists passing through the intersection which provides a count of bicyclists during this time period. Also recorded were date, day of the week, and weather conditions. Observers were given instructions and a data collection tool to ensure reliable results.

National Bicycle and Pedestrian Documentation Bicycle and Pedestrian Counts

Ten of the CTSC locations were chosen to perform an additional bicycle count as well as a pedestrian count using the National Bicycle and Pedestrian Documentation methodology (Figure 1 and Figures B-1 to B-4). The NBPD was developed by the Institute of Transportation Engineers Pedestrian and Bicycle Council and Alta Planning and Design to establish a consistent nationwide methodology for bicycle and pedestrian counts. The methodology aims to establish:

- Consistent days and times
- Consistent count locations
- Consistent methods and materials
- Background documentation of each location
- Open access to bicycle and pedestrian trend data nationwide

Bicyclist counts record the direction from which bicyclists travel and their turning movement through the intersection broken down in 15 minute intervals (Figure 2).

Pedestrian counts record the direction (but not turning movement) from which they travel in 15 minute intervals (Figure 3).

**Figure 2. Example Bike Count Tally Sheet for One 15 Minute Interval**

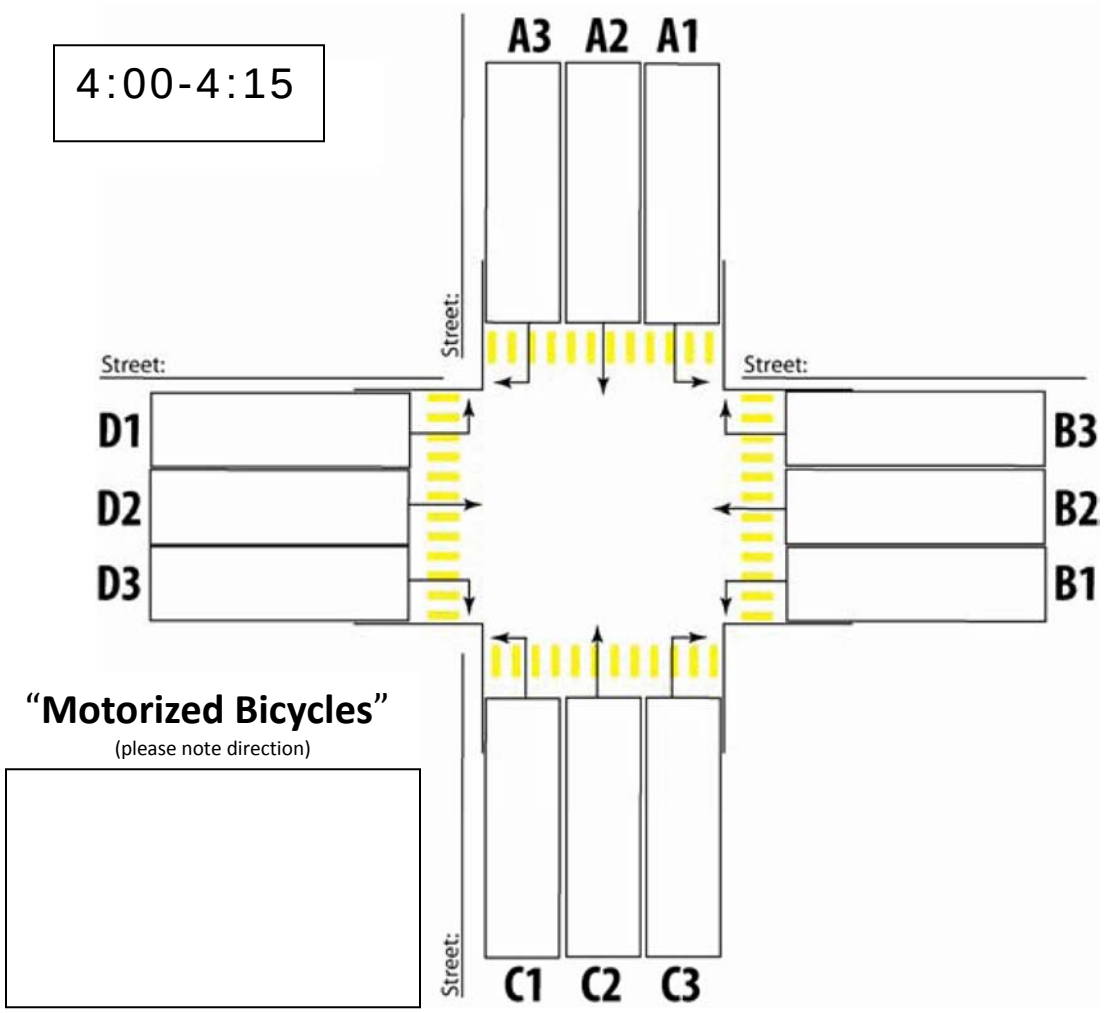
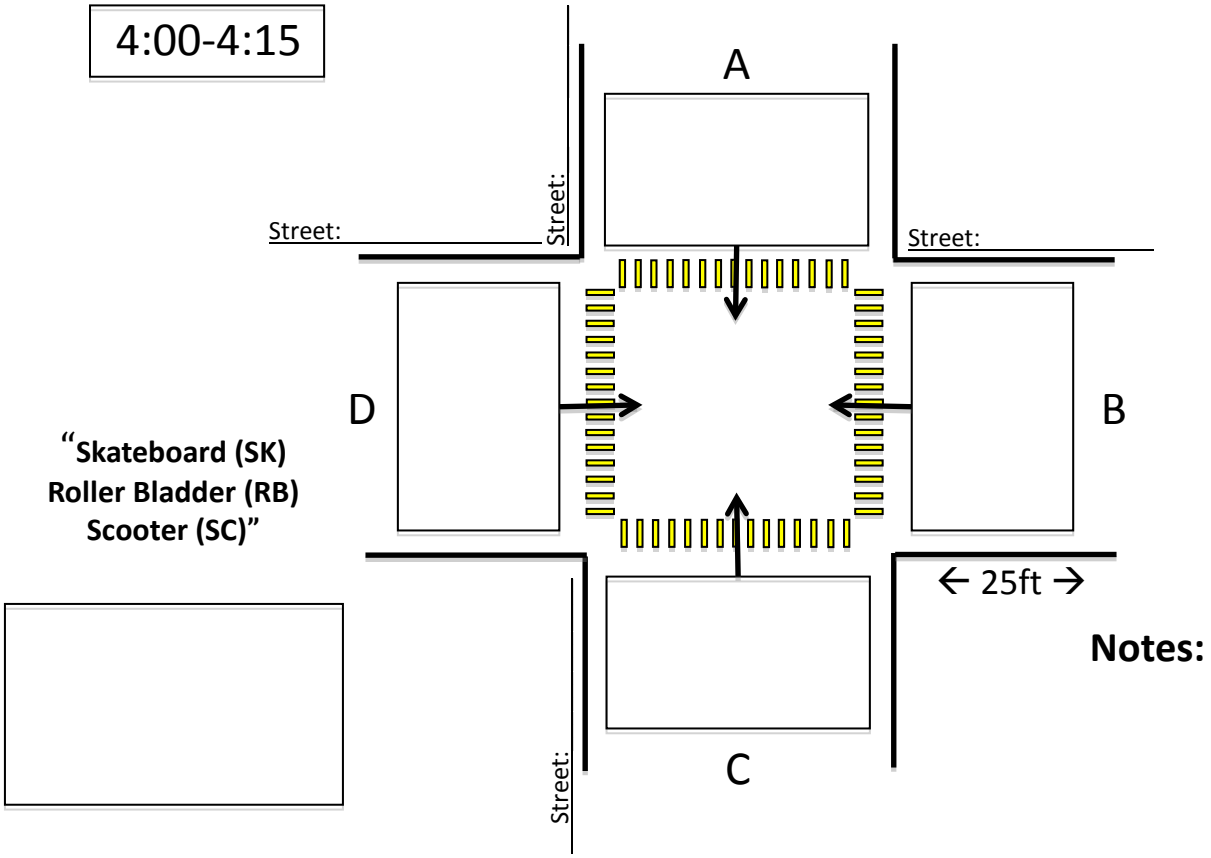


**Figure 3. Example Pedestrian Count Tally Sheet for One 15 Minute Interval**




The 10 locations were chosen based on bicycle volumes as determined from past CTSC bike observation/count surveys and previous City of Santa Cruz bicycle count locations. The NBPD counts took place on May 15th, 16th, 17th (Tuesday, Wednesday and Thursday from 4-6 pm), 2012 as recommended by the NBPD methodology. The bicycle observation surveys at these 10 locations were also taken at the same time.

The NBPD recommends counting at one location for every 15,000 residents. Given the most recent 2011 estimate of Santa Cruz County's population (264,298), this would equate to counting at roughly 18 sites. The total number of bicycle counts taken throughout the county (46) far exceeds this recommendation. The bicycle and pedestrian counts using the NBPD methodology were only collected at 10 intersections due to resource limitations.

Twenty-one volunteers manually counted bike and pedestrian traffic using standardized count forms and procedures based on the NBPD protocol and customized for our study. Each volunteer counter was individually trained on how to properly use the forms prior to count dates, and was provided with a folder with all count materials prepared (map of assigned location, count forms, instructions sheet, pencils, and a public flier in the event the observer is asked questions about the count). Each location had between one and four volunteers to collect data. High

volume sites such as High St & Bay Dr. near UCSC had two pedestrian and two bicycle counters for the NBPD counts to balance the data collection efforts among volunteers and insure accuracy. Lower volume sites had one volunteer for counting both bike and pedestrian activity.

Bicycle counts include the number of people on a bike (not the number of bikes), motorized bicycles or mopeds and people walking their bicycles. Pedestrian counts include people using a wheelchair, stroller, skateboard, scooter and roller blades. Typical protocol counts people walking their bikes as pedestrians and not bicyclists and people walking their bikes will likely be counted as pedestrians in future counts.

### Motor Vehicle Counts

Motor-vehicle data was also simultaneously collected via automated pressure hose counters in 15 minute intervals at 2 roadway crossings at each of the 10 intersections (20 motor vehicle counts total). This data was combined with the bicycle and pedestrian data to provide mode split information at these 20 locations in order to assess how people travel in our county. Vehicle occupancy was not collected during this count but would be worthwhile to collect in future counts for including carpool into the mode split analysis.

## Results

### Bicycle Observation/Count Survey

The bicycle observation/count survey is conducted primarily for observing bicycle safety behaviors. Because of this emphasis, the counts from this data collection effort may not be a fully accurate representation of the total number of bicyclists that traveled through the intersections during this time. It is possible that the observer, being occupied with capturing all the behavior observations, may have not been able to count all bicyclists. With this consideration in mind, bicycle count data collected through the CTSC observation surveys from 2003 through 2012 can be found in Table 1. There is an overall increase in ridership from 2010 to 2012 of 3%. This was determined by calculating the increase in counts for 2012 (taking out counts at new locations) compared to 2010. The trends in bicycle ridership for different areas of the county were averaged and plotted in Figure 4. Trend data calculated using a least squares linear regression for these averaged data show that there is an overall increase in ridership in Santa Cruz County since 2003.

**Table 1: CTSC bicycle count data for Santa Cruz County**
(C=commute 4-6pm Mon-Fri, W=weekend 11am-1pm Sat/Sun, S = school 1 hr based on school start time)

| Type | Mode Split | Site | Location | 2003 | 2006 | 2007 | 2008 | 2009 | 2010 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|
| W | N | E. Cliff Dr. & Wharf Road, Capitola | Capitola | 199 | 152 | 155 | 108 | 138 | 167 | 158 |
| C | N | Ocean Street & Barson | City of Santa Cruz - Beach Flats | 73 | 72 | 69 | 64 | 66 | 93 | 49 |

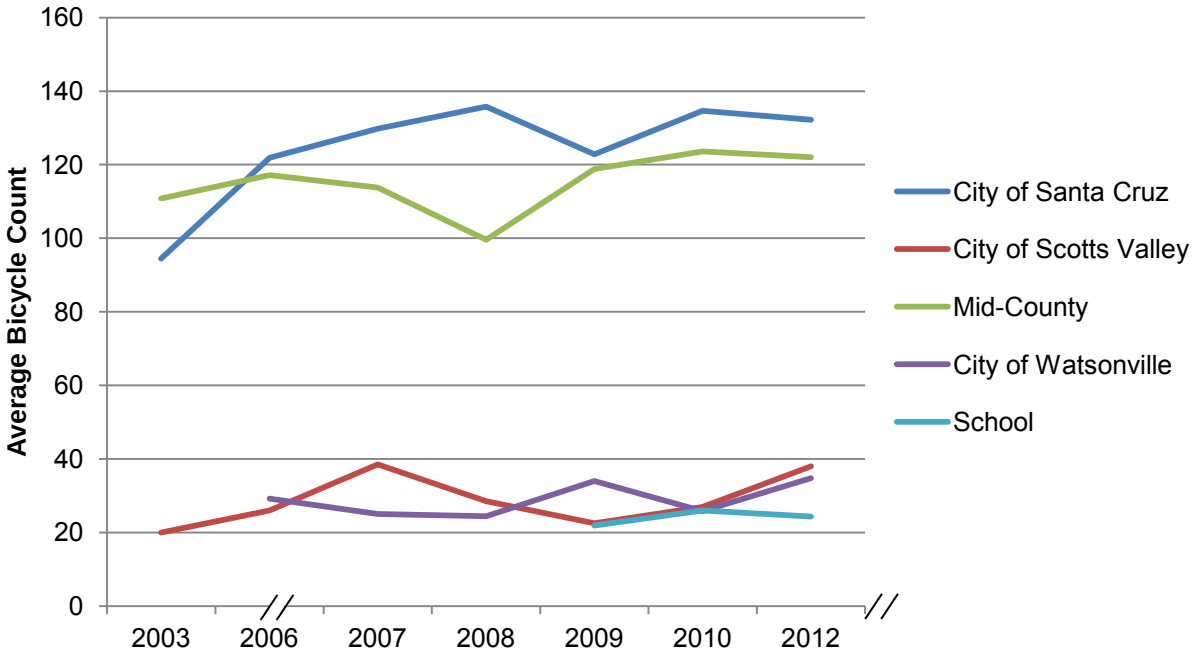
| Type | Mode Split | Site | Location | 2003 | 2006 | 2007 | 2008 | 2009 | 2010 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|
| C | N | Riverside, Leibrandt & Second St. | City of Santa Cruz - Beach Flats | 41 | 62 | 68 | 73 | 88 | 48 | 73 |
| C | Y | Front Street & Laurel Street | City of Santa Cruz - Downtown | 163 | | 223 | 291 | 206 | 250 | 221 |
| W | N | Laurel Street & Chestnut | City of Santa Cruz - Downtown | 117 | 117 | 117 | 120 | 103 | 111 | 95 |
| C | N | Pacific & Laurel St | City of Santa Cruz - Downtown | | 267 | | | | | |
| C | N | River Street & Encinal Street | City of Santa Cruz - Downtown | 53 | 64 | 82 | 54 | 28 | 37 | 47 |
| C | Y | Seabright & Murray | City of Santa Cruz - East Side | 156 | 246 | 286 | 339 | 231 | 274 | 244 |
| C | N | Soquel Avenue & Frederick Street | City of Santa Cruz - East Side | 112 | 139 | 129 | 176 | 144 | 124 | 152 |
| W | N | Soquel Drive & Winkle Avenue | City of Santa Cruz - East Side | 35 | 51 | 48 | 70 | 54 | 59 | 46 |
| C | Y | High Street & Bay (UCSC) | City of Santa Cruz - Westside | 229 | 160 | 227 | 122 | 280 | 316 | 365 |
| C | N | Mission Street & Western Drive | City of Santa Cruz - Westside | 41 | 58 | 72 | 46 | 54 | 33 | 47 |
| C | N | Swift Street & Delaware | City of Santa Cruz - Westside | 19 | 105 | 107 | 139 | 97 | 136 | 115 |
| C | N | Granite Creek & Scott's Valley Dr | Scotts Valley | 32 | 34 | 40 | 22 | 21 | 25 | 30 |
| C | Y | Mt. Herman & Scott's Valley Dr | Scotts Valley | 8 | 18 | 37 | 35 | 24 | 29 | 46 |
| W | N | Hwy 1 at Wilder Ranch | Unincorporated County - Davenport | 97 | 95 | 84 | 43 | 78 | 79 | 80 |
| C | Y | Brommer & 17th | Unincorporated County - Live Oak | 71 | 114 | 104 | 122 | 123 | 101 | 127 |
| W | N | East Cliff & 7th Ave. | Unincorporated County - Live Oak | 152 | 163 | 106 | 82 | 112 | 153 | 126 |
| C | Y | Portola Ave. & 41st, Capitola | Unincorporated County - Opal Cliffs | 79 | 98 | 108 | 122 | 145 | 128 | 117 |
| C | N | Hwy 9 & Graham Hill | Unincorporated County - SLV | 7 | 12 | 19 | 15 | 21 | 20 | 24 |
| C | Y | Soquel Dr. & Porter St., Soquel | Unincorporated County - Soquel | 53 | 59 | 96 | 64 | 76 | 69 | 82 |
| W | N | Freedom & Alta Vista | Watsonville | 25 | 38 | 20 | 21 | 37 | 21 | 34 |
| C | N | Freedom Blvd. & Alta Vista Ave. | Watsonville | 16 | 38 | 35 | 21 | 47 | 46 | 42 |
| C | Y | Freedom Blvd. & Green Valley | Watsonville | 34 | 40 | 46 | 50 | 21 | 32 | 38 |
| C | N | Freedom Blvd. & Main Street | Watsonville | 24 | 13 | 24 | 17 | 37 | 22 | 38 |
| W | N | Green Valley Rd. & Holohan Rd. | Watsonville | | 8 | 14 | 16 | 21 | 10 | 33 |
| C | N | Lincoln Street & High Street | Watsonville | 13 | 13 | 10 | 14 | 27 | 17 | 16 |
| W | N | Main Street & East Beach Street | Watsonville | | 70 | 24 | 38 | 44 | 43 | 61 |
| C | Y | Main Street & Rodriguez Street | Watsonville | 43 | 46 | 28 | 24 | 25 | 26 | 43 |
| C | Y | Maple Ave. & Union Street | Watsonville | 39 | 26 | 38 | 44 | 63 | 28 | 52 |
| W | N | Pennsylvania & Clifford | Watsonville | 10 | 8 | 12 | 12 | 14 | 31 | 18 |

| Type | Mode Split | Site | Location | 2003 | 2006 | 2007 | 2008 | 2009 | 2010 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|
| W | N | Rodriguez & Ford | Watsonville | | 17 | 18 | 13 | 34 | 9 | 16 |
| C | N | Second Street & Rodriguez Street | Watsonville | 36 | 34 | 32 | 23 | 38 | 25 | 26 |
| S | N | New Brighton Middle School | School - Capitola | | | | 23 | 17 | 17 | 26 |
| S | N | Bay View Elementary | School - City of Santa Cruz | | | | | | | 66 |
| S | N | Gault Elementary | School - City of Santa Cruz | 24 | 33 | 19 | 40 | 25 | 39 | 55 |
| S | N | Mission Hill Middle School | School - City of Santa Cruz | 38 | 9 | 46 | 66 | 75 | 70 | 55 |
| S | N | Natural Bridges Elementary | School - City of Santa Cruz | 25 | | | | | | |
| S | N | Pacific Collegiate Charter School | School - City of Santa Cruz | | 21 | 25 | | | | |
| S | N | Westlake Elementary | School - City of Santa Cruz | | | | | | | 51 |
| S | N | Del Mar Elementary | School - Unincorporated County | | | | | | | 8 |
| S | N | Green Acres Elementary | School - Unincorporated County | | | | | 19 | 34 | 8 |
| S | N | Live Oak Elementary | School - Unincorporated County | 29 | 50 | 44 | 39 | 37 | 54 | 27 |
| S | N | Shoreline Middle School | School - Unincorporated County | | | | | | | 35 |
| S | N | Ann Soldo Elementary | School - Watsonville | | | | | 6 | 4 | 26 |
| S | N | Freedom Elementary | School - Watsonville | | | | | 1 | 11 | 11 |
| S | N | H.A. Hyde Elementary School | School - Watsonville | | | | | | | 6 |
| S | N | MacQuiddy Elementary | School - Watsonville | | | | 10 | 5 | 0 | 6 |
| S | N | Mintie White Elementary | School - Watsonville | 4 | 5 | 4 | 4 | 12 | 5 | 5 |

**Observation Locations for Schools**

New Brighton Middle School—on Monterey Ave, in front of the school OR at Monterey and Washburn
Bay View Elementary - on Bay St. in front of school
Gault Elementary—Seabright and Broadway
Mission Hill Middle School –on King St in front of the school
Natural Bridges Elementary-- in front of school
Pacific Collegiate Charter School—in front of school
Westlake Elementary - High St. and Moore St
Del Mar Elementary - Merril St. and Jamie Ln.
Green Acres Elementary—on school property, at the end of the turn around, between the two Bostwicks
Live Oak Elementary—Capitola and Chanticleer
Shoreline Middle School - 17th Ave. and Felt St.
Ann Soldo Elementary—Wagner and Vista Montana
Freedom Elementary—Airport and Freedom
H.A. Hyde Elementary School - on Alta Vista Ave in front of school between Santa Clara St. and Marilyn St.
MacQuiddy Elementary—in front of the school
Mintie White Elementary—Brennan and Palm

**Figure 4: Average bicycle count data for various areas throughout Santa Cruz County (May 2012)***




*Note: All count data was collected over a 2 hour period except school sites were collected for 1 hour based on school start time.

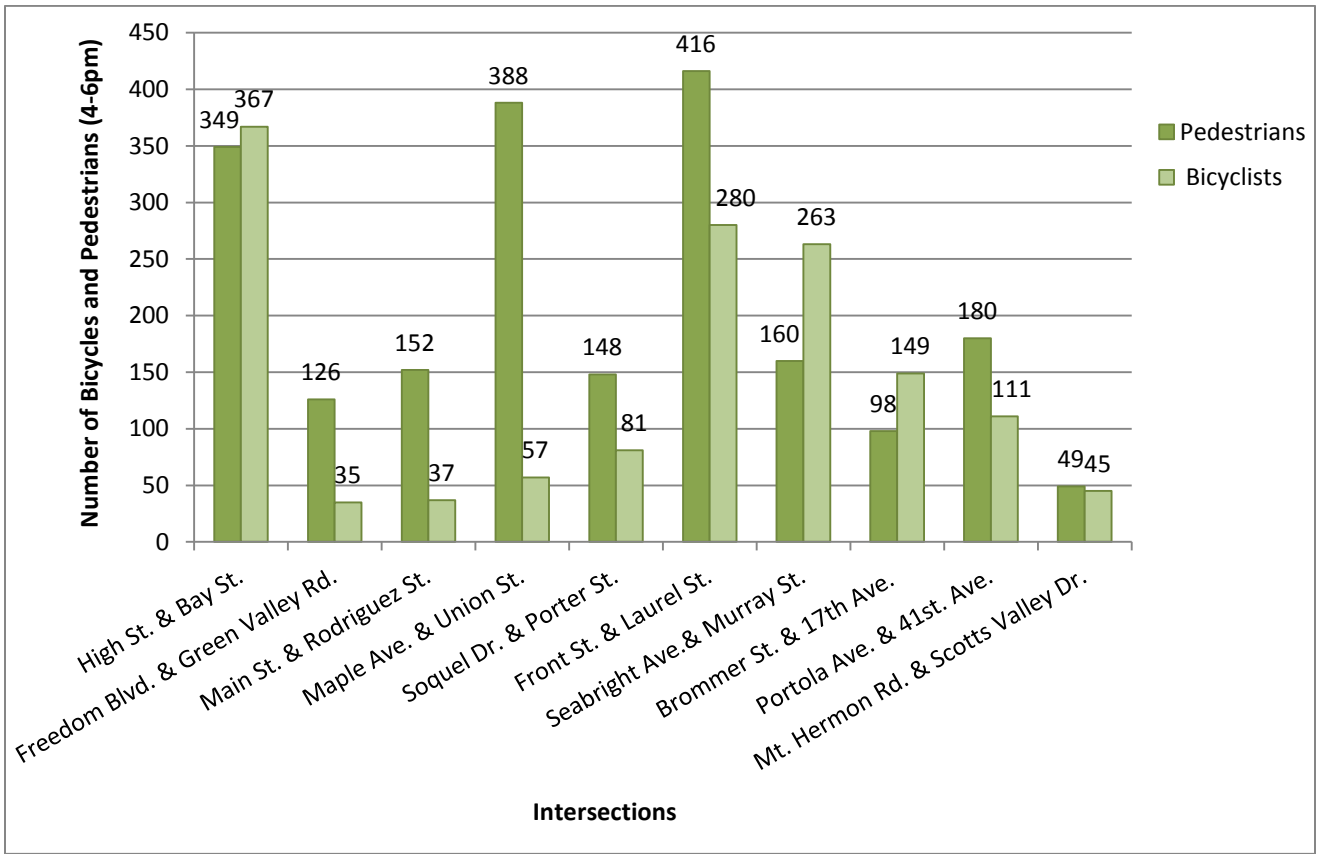
NBPD Bicycle and Pedestrian Counts

The bicycle and pedestrian count data collected at the 10 intersection locations over the 2 hour time period are shown in Figure 5. The weather was sunny and clear on all three count days with slightly windy conditions on the last day (Thursday, May 17th).

The locations with the highest bicycle counts during the data collection were High St and Bay Dr., Front St and Laurel St, and Seabright Ave. and Murray St. which are all in the City of Santa Cruz. Pedestrian counts were highest at Front St and Laurel St. in City of Santa Cruz, Maple Ave. and Union St. in Watsonville, and High St and Bay Dr. in City of Santa Cruz. There were 2,066 pedestrians and 1,425 bicyclists observed at these 10 intersections during this data collection effort.

The results from these counts have been sent to the NBPD national database in an effort to standardize and document bicycle and pedestrian demands similar to motor-vehicle counts.

**Figure 5: NBPD Bicycle and Pedestrian Counts**



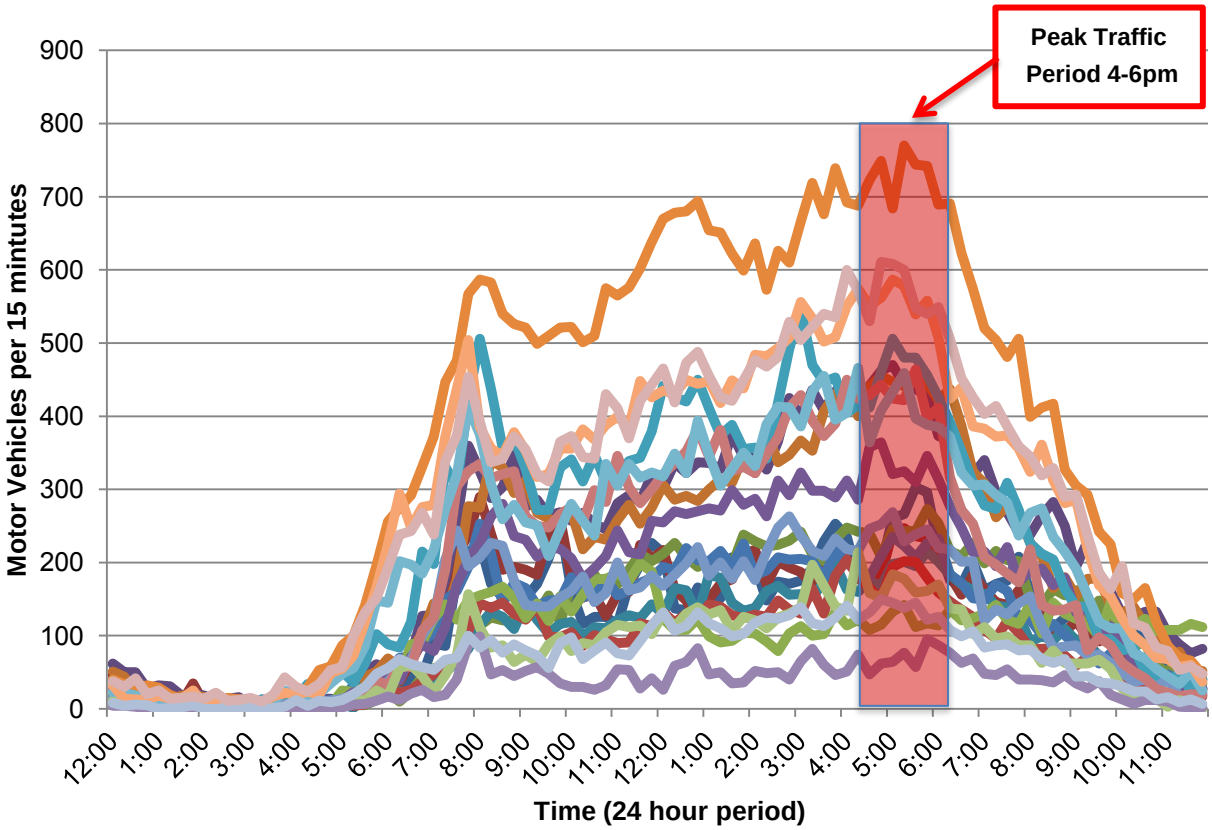

Motor Vehicle Counts

Motor vehicle counts were taken using pressure hose counters at 2 roadway crossings for each of the 10 intersections of the NBPD count locations for a total of 20 motor vehicle counts. Those count locations are listed in Table 2. Figure 4 represents motor-vehicle traffic volumes at each crossing recorded over a 24 hour period during each count day. The red highlighted section displays the 4-6pm time period that bicyclists and pedestrians were counted.

The NBPD methodology recommends counting bicyclists and pedestrians at a time that typically has the largest volume of travelers. As shown in Figure 6, 4-6pm was the appropriate time slot as the majority of locations had peak motor-vehicle numbers during this time. The evening commute spiked around 5pm as people were leaving work, school, or afternoon shopping.

Complete motor-vehicle data was collected from each location during the same day as the bicycle and pedestrian counts except for one site. On Thursday May 17th, a pressure hose counter was broken along Portola Ave. The counter was replaced and motor-vehicle data for this site was recorded on the following Tuesday, May 22nd.

**Figure 6: Motor Vehicle Counts over 24 Hour Period (May 15, 16, or 17, 2012)**




Mode Split

The percentage of motor vehicles, bicyclists and pedestrians (mode split) was determined for the 20 motor vehicle hose count roadway crossing locations (Table 2). The results show that the bicyclist mode share at these 20 roadway crossings ranges from 0.6% to 10.9% and the pedestrian mode share ranges from 0.5% to 20.2%. Average mode share at the 20 locations measured was 93.6% motor vehicle, 2.7% bike and 3.7% pedestrian. The highest bicycle mode share (10.9%) was on Bay St (south of High St) in City of Santa Cruz and the highest pedestrian mode share (20.2%) was on Maple Ave (west of Union St) in the City of Watsonville.

The mode split data was determined based on the number of users of each mode that passed over the hose count location. The bicycle counts recorded the direction each bicyclist traveled and their turning movements and thus the exact number of bicyclists crossing over the hose count location could be determined. The pedestrian counts recorded only the direction from which each pedestrian traveled and thus it was assumed that their direction of travel was straight across the intersection in order to estimate the mode split for each hose count location. Future pedestrian count data for mode split analysis would more accurately determine mode split if the direction the pedestrian was traveling from and their turning movements was recorded.

The methods by which volunteers counted motorized bicyclists, people walking their bikes, people on skateboards, scooters and roller blades were not always consistent. Effort will need to be made to more extensively train future volunteers to make sure there is consistency in the count methodology.

**Table 2: County-Wide Mode Split Counts 2012**
**Data was collected Tues-Thurs, May 15-17, 4-6 pm**

| | | | Motor Vehicles | | Bicycles | | Pedestrians | |
|---|---|---|---|---|---|---|---|---|
| **Date** | **Location** | **Street** | **Total** | **%** | **Total** | **%** | **Total** | **%** |
| 5/15/2012 | City of Santa Cruz | Bay St (S of High St) | 1910 | 80.9% | 257 | 10.9% | 195 | 8.3% |
| 5/15/2012 | City of Santa Cruz | High St (E of Bay St) | 1704 | 86.7% | 107 | 5.4% | 154 | 7.8% |
| 5/16/2012 | City of Santa Cruz | Front St (N of Laurel St) | 1943 | 86.1% | 114 | 5.1% | 199 | 8.8% |
| 5/16/2012 | City of Santa Cruz | Laurel St (E of Front St) | 3498 | 89.7% | 212 | 5.4% | 191 | 4.9% |
| 5/17/2012 | City of Santa Cruz | Seabright Ave (N of Murray St) | 1475 | 85.8% | 108 | 6.3% | 137 | 8.0% |
| 5/17/2012 | City of Santa Cruz | Murray St (E of Seabright Ave) | 3533 | 94.0% | 204 | 5.4% | 23 | 0.6% |
| 5/16/2012 | Live Oak | Brommer St (W of 17th Ave) | 1474 | 92.4% | 75 | 4.7% | 46 | 2.9% |
| 5/16/2012 | Live Oak | 17th Ave (N of Brommer St) | 1668 | 93.8% | 59 | 3.3% | 52 | 2.9% |
| 5/17/2012 | Opal Cliffs | Portola Dr (W of 41st Ave)* | 2622 | 95.1% | 71 | 2.6% | 65 | 2.4% |
| 5/17/2012 | Opal Cliffs | 41st Ave (N of Portola Dr) | 1674 | 91.0% | 50 | 2.7% | 115 | 6.3% |
| 5/17/2012 | Scott's Valley | Mt Hermon Rd (NW of Scott's Valley Dr) | 5792 | 99.5% | 4 | 0.1% | 28 | 0.5% |
| 5/17/2012 | Scott's Valley | Scott's Valley Dr (NE of Mt Hermon Rd) | 3615 | 98.7% | 25 | 0.7% | 21 | 0.6% |
| 5/16/2012 | Soquel | Soquel Dr (W of Porter St) | 3453 | 96.3% | 56 | 1.6% | 76 | 2.1% |
| 5/16/2012 | Soquel | Porter St (S of Soquel Dr) | 1913 | 95.4% | 22 | 1.1% | 71 | 3.5% |
| 5/15/2012 | Watsonville | Maple Ave (W of Union St) | 527 | 77.2% | 18 | 2.6% | 138 | 20.2% |
| 5/15/2012 | Watsonville | Union St (N of Maple Ave) | 1340 | 81.9% | 46 | 2.8% | 250 | 15.3% |
| 5/15/2012 | Watsonville | Freedom Blvd (E of Green Valley Rd) | 4500 | 98.3% | 18 | 0.4% | 60 | 1.3% |
| 5/15/2012 | Watsonville | Green Valley Rd (S of Freedom Blvd) | 3320 | 97.6% | 17 | 0.5% | 66 | 1.9% |
| 5/15/2012 | Watsonville | Main St (W of Rodriguez St) | 4608 | 96.5% | 36 | 0.8% | 130 | 2.7% |
| 5/15/2012 | Watsonville | Rodriguez St (S of Main St) | 1095 | 98.1% | 7 | 0.6% | 14 | 1.3% |
| | | **Total Mode Split** | 51664 | 93.6% | 1506 | 2.7% | 2031 | 3.7% |

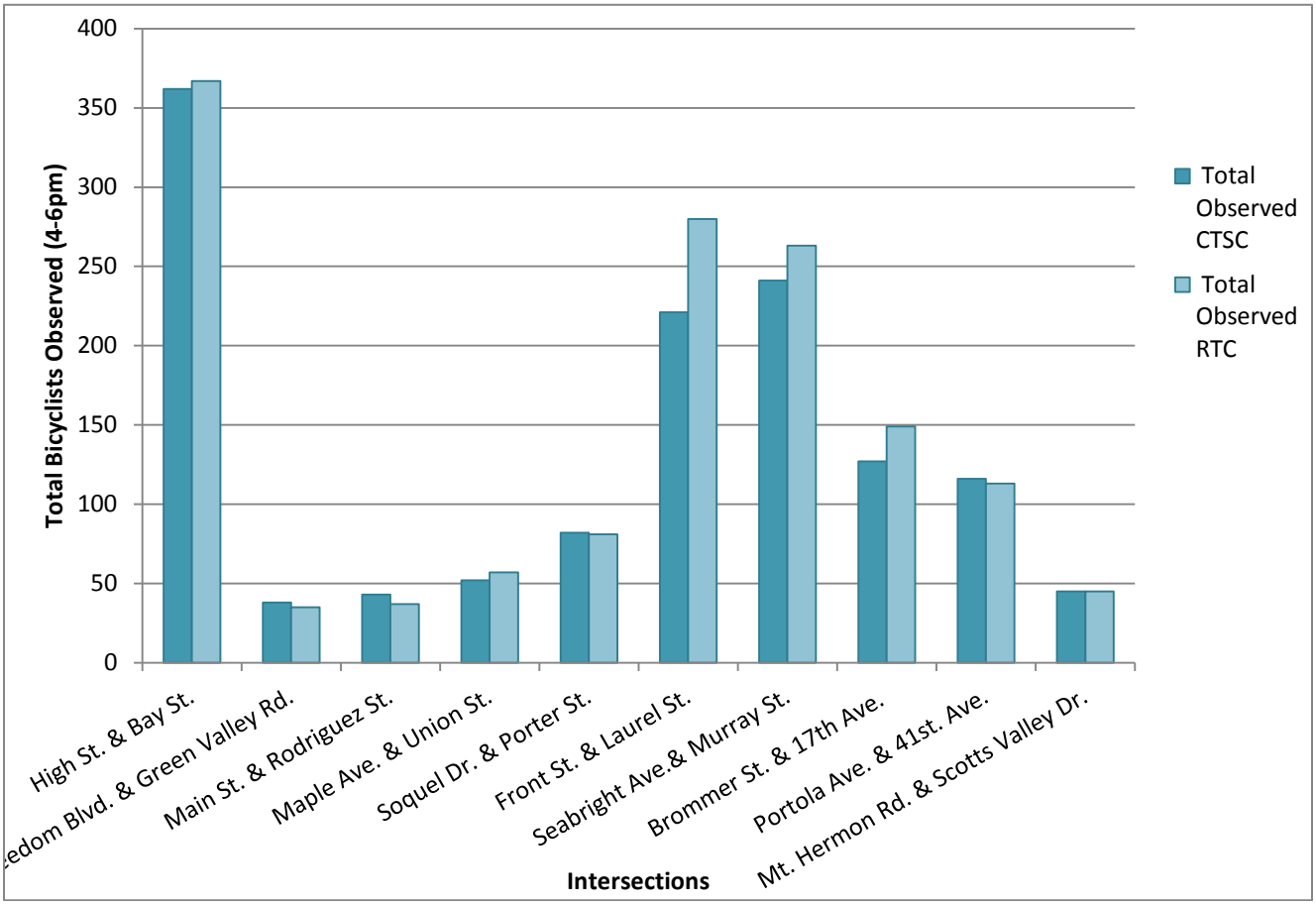
*Note: Motor data was collected on May 22nd instead of May 17th, due to a broken hose counter on May 17th.

## RTC NBPD Bicycle Counts versus CTSC Bicycle Counts

The CTSC and RTC partnered in collecting bicycle data at each location during the same time period. Both agencies had different methods and separate volunteers for recording bicycle data. If both counting processes were error free, then both

agencies would have recorded the same bicycle volumes for each site. Discrepancies were observed when comparing bicycle totals from each agency (Figure 7).

**Figure 7: Comparison of Bicycle Counts Observed Using Different Methodologies**




The data collected through the CTSC observation survey involves recording cyclist age, helmet use, riding with traffic, riding on the sidewalk, and obeying traffic signals which is much more data intensive than counting the direction of bicyclists entering and exiting the intersection. The potential for miscounting was perceived to be higher for the CTSC observation survey count than the RTC count but this was not always the case as is seen in Figure 5. The large discrepancy at Front St and Laurel St. was due to one volunteer not showing up which left only one volunteer to observe/count in all 4 directions.

The accuracy in the data collection would likely be increased by:

- Recruiting a sufficient number of volunteers for each location and having back up volunteers if volunteers cancel at the last minute
- Separating volunteers to reduce distraction so all bicyclists are counted

- Training volunteers well on the method for data collection and emphasizing the importance of being on time and counting all bicyclists during that 2 hour time period
- Ensuring consistency in what is considered a "bicyclist" and "pedestrian" (i.e. how electric bikes, people walking their bikes, scooters, skateboarders, roller bladders and children in strollers are counted)

# Conclusions

Santa Cruz County, with its ever increasing bicycle transportation network, offers bicycling enthusiasts and beginners alike a wonderful opportunity to get around by bike. In order to assess the number of people who are traveling by bike, it is critical to establish a count methodology that is consistent across the county and over time. This data collection effort can be used to facilitate planning for bicycle infrastructure improvements as well as monitor our county's progress towards a more sustainable transportation system. Future counts that are taken within Santa Cruz County would be most comparable to past counts if the following recommendations are followed.

Bicycle Counts

- Commute, weekend and school counts taken at 46 locations throughout Santa Cruz County as currently defined by Community Traffic Safety Coalition (Table 1 and Figures B-1 to B-4)
- Commute counts taken from 4-6 pm on Tuesday, Wednesday or Thursday
- School counts taken for 1 hour starting one half hour before school starts on Tuesday, Wednesday or Thursday
- Weekend counts taken from 11-1 pm on Saturday (preferably) or Sunday
- Counts taken annually mid-May to end of May (with consideration for other events such as Bike to Work/School week and before end of semester at UCSC and Cabrillo)
- Counts will tally the number of people on bicycles entering the intersection from each direction (see example bicycle count sheet in Appendix C)
- Bicycle counts will include motorized bicycles and will not include people walking their bikes

Mode Split Counts (Bicycle, Pedestrian and Motor Vehicle)

- Motor vehicle hose counts taken on 2 of the 4 roads entering the 10 intersection locations as in 2012
- Bicycle and pedestrian counts taken at the 10 intersections will indicate not only the direction the bicyclist or pedestrian is entering the intersection but also the direction in which they exit the intersection. This will allow for a more accurate mode split determination (see Appendix D for example mode split data collection sheets for bicycle and pedestrian counts)
- Mode Split data collected from 4-6pm on Tuesday, Wednesday or Thursday in the fall would provide a comparison of bicycle counts from spring to fall and not duplicate CTSC bike count efforts in spring.

- Bicycle counts will include motorized bicycles and will not include people walking their bikes
- Pedestrian counts will include people in wheelchairs, children in strollers, people walking their bikes, skateboarding, roller blading, and using their scooters

Previous bicycle and pedestrian counts that have been taken during the morning or evening commute period in Santa Cruz County from the year 2000 on can be found in Appendices E and F.

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# Appendix A

### Table A-1: List of Volunteers / Staff for May 2012 Count

| RTC Bicycle and Pedestrian Count | CTSC Observation Survey |
|---|---|
| Michael Cutter | Byron Thomas |
| Allison Weis | Gary Milburn |
| Kellie Su | Katie LeBaron |
| Steve Walker | Kira Ticus |
| Thomas Hiltner | Jim Langley |
| Joshua Brown | Andy & Annie Kochalo |
| Kyle Davis | Peter Scott |
| Andrea Lee | Andy Ward |
| Thomas Pistone | Owen Gorman |
| Greg Jorgensen | Debbie Bulger |
| Cory Caletti | Curtis Swain |
| John Caletti | George Bunch |
| Karena Pushnik | Ginger Dykaar |
| Cheryl Schmitt | Theresia Rogerson |
| Grace Voss | Corinne Hyland |
| Marshall Roberts | Paula Satariano |
| Marcus Kevorkyan | Saskia Lucas |
| Jose Haya | Kathy Chavez |
| Emilie Holder | Rachel Moriconi |
| Danny Brooks | Kevin Bell |
| Robert Jones | Patricia Unruhe |
| | Andrea Silva |
| | Myrna Sherman |
| | Claudia Llamas-Padilla |
| | Richard Roullard |
| | Jeanne LePage |
| | Andrew Murray |
| | Matt Leal |
| | Eileen Cavalier |
| | Emilie Holder |
| | Patty Vargas |
| | Sarah Harmon |
| | Ryan Heywood |
| | Desiree Chavez |

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# Appendix B

## Table B-1: Bike Count & Observation Locations – City of Santa Cruz Area

## Table B-2: Bike Count & Observation Locations – Live Oak, Capitola, Soquel Areas


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## Table B-3: Bike Count & Observation Locations –Watsonville Area

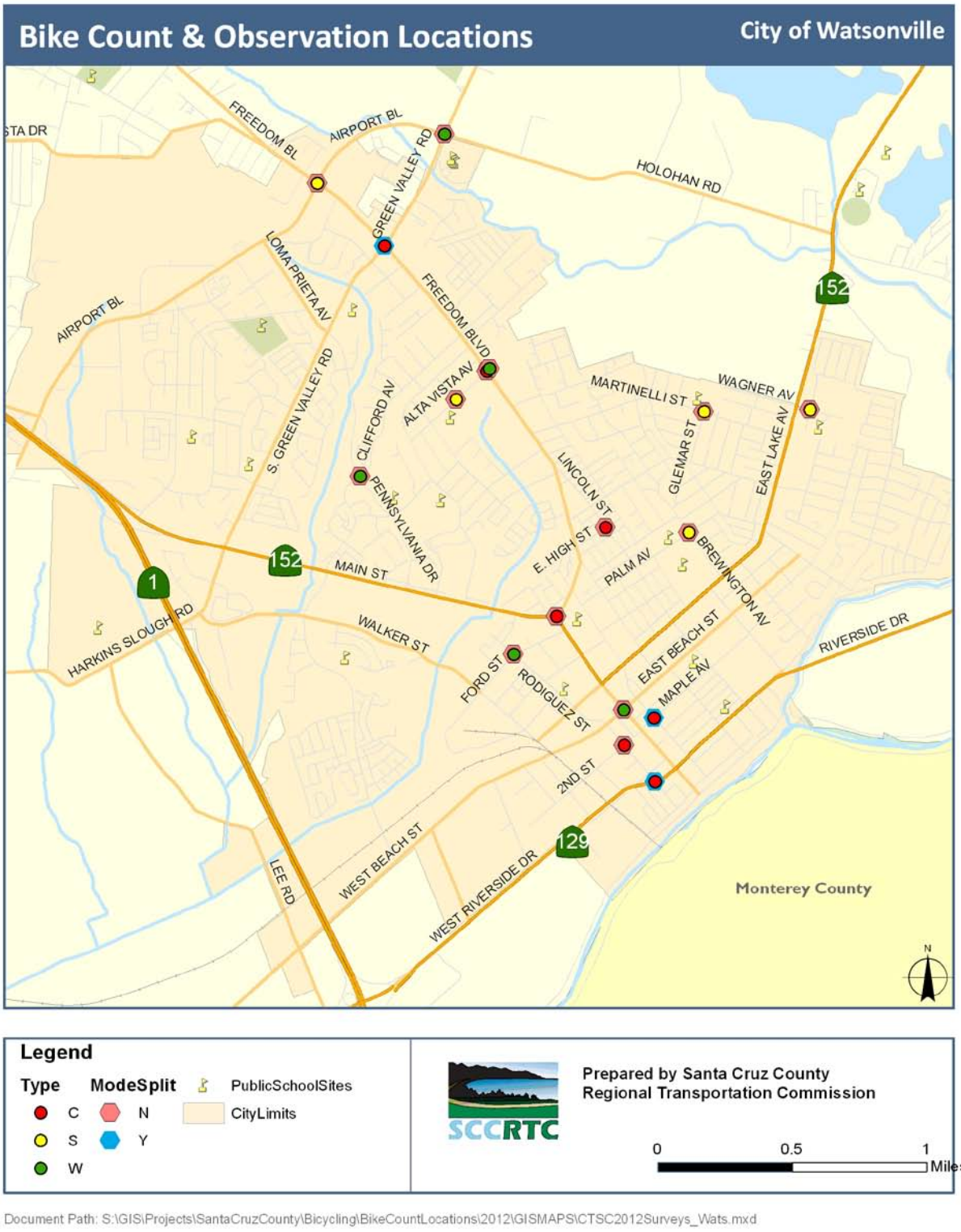
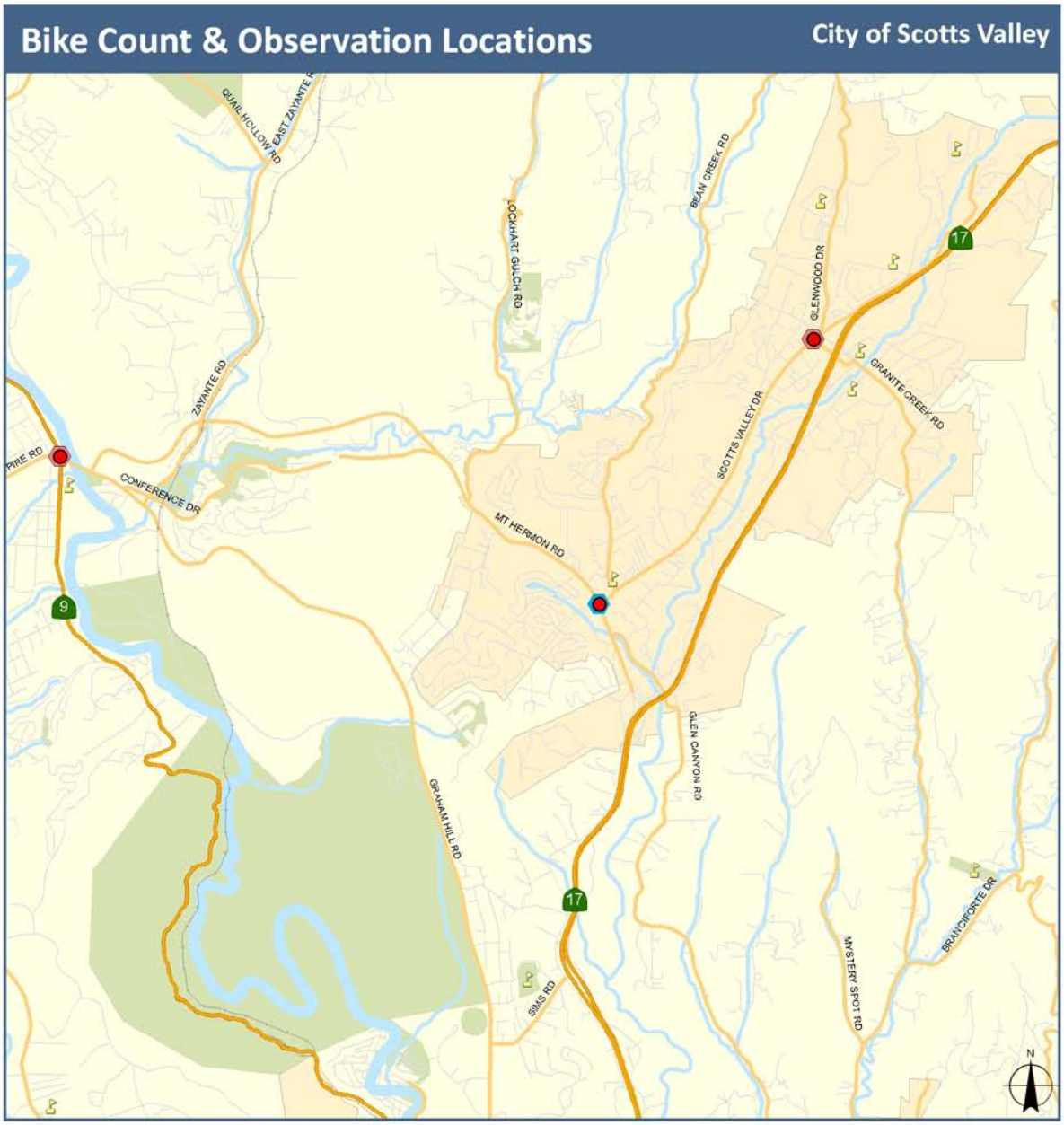



**Table B-4: Bike Count & Observation Locations – Scotts Valley Area**

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# Appendix C

# Bicycle Count Forms for Bicycle Trend Data

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# Bicycle Intersection Count Form

**Name:_____ Location:_____**

**Date: _____ Start Time:_____ End Time:_____**

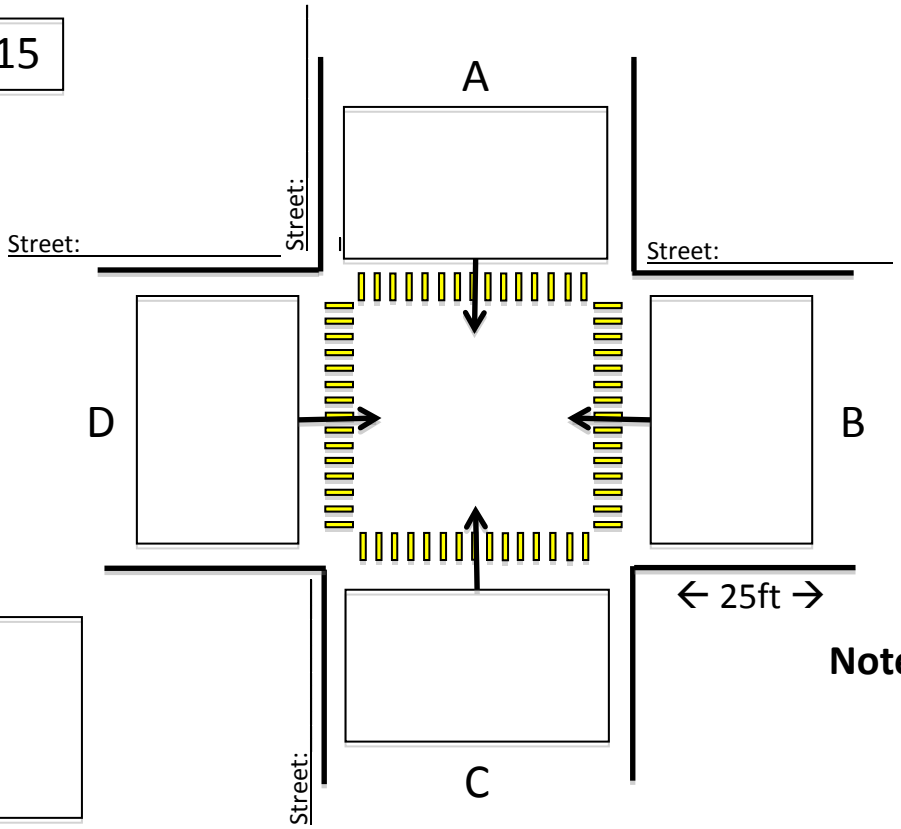
**Weather:_____ (sunny, fair, cloudy, rainy, very cold)**

## -Instructions-

**Please fill in your name, count location, date, time period, and weather conditions.**
**Count all bicyclists crossing through the intersection under the appropriate categories.**

- **Count for two hours in 15-minute increments**
- **Use one intersection graphic per 15-minute interval**
- **Mark each intersection graphic with the street names and a landmark to orient the direction of the graphic relative to the real location**
- **Tally based on which direction the bikes are entering the intersection (where they are coming from)**
- **DO NOT COUNT WALKING CYCLISTS as they are considered pedestrians.**
- **Count the number of people on the bicycle, not the number of bicycles. (kid trailers, child seats, tandems – keep an eye out for these and count appropriately)**
- **Count bicyclists who ride on the sidewalk and motorized bicycles on the intersection graphic. Note: Motorized bicycles have pedals. Do not count motorcycles or mopeds without pedals.**
- **In addition, record motorized bicyclists in the box "Motorized Bicycles" and remember to note direction (ex. Electric Bike-D)**
- **Use the notes section to record any behaviors, events, or actions that might affect count data (ex. car accident, weather changes)**

4:00-4:15

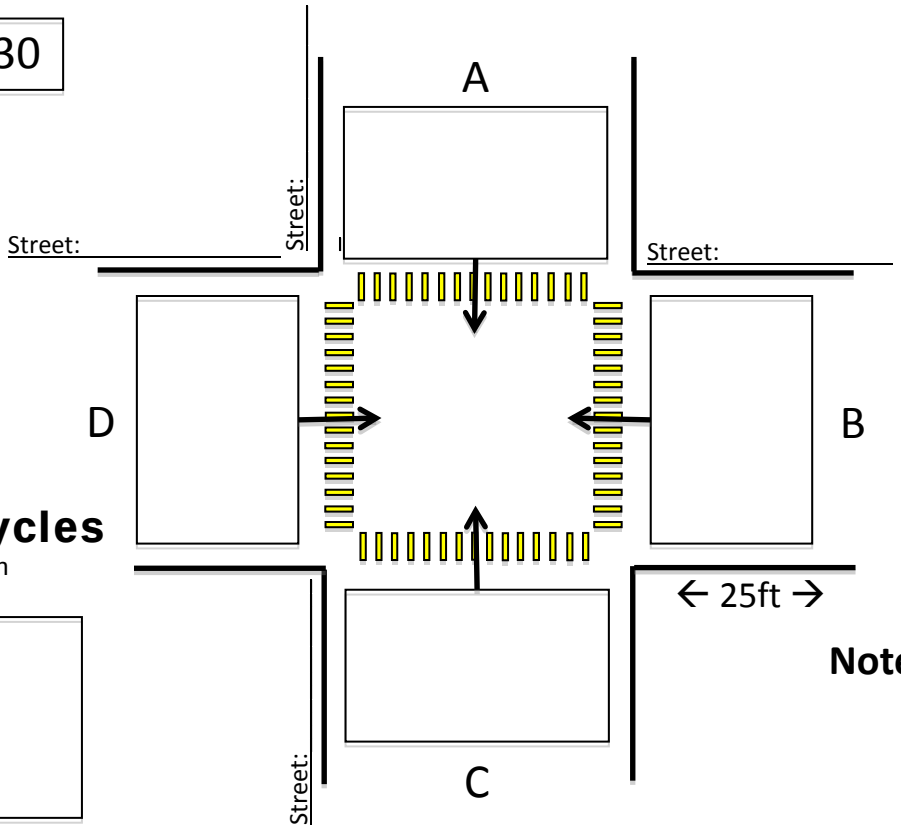



**Motorized bicycles**

Please note direction

**Notes:**

4:15-4:30

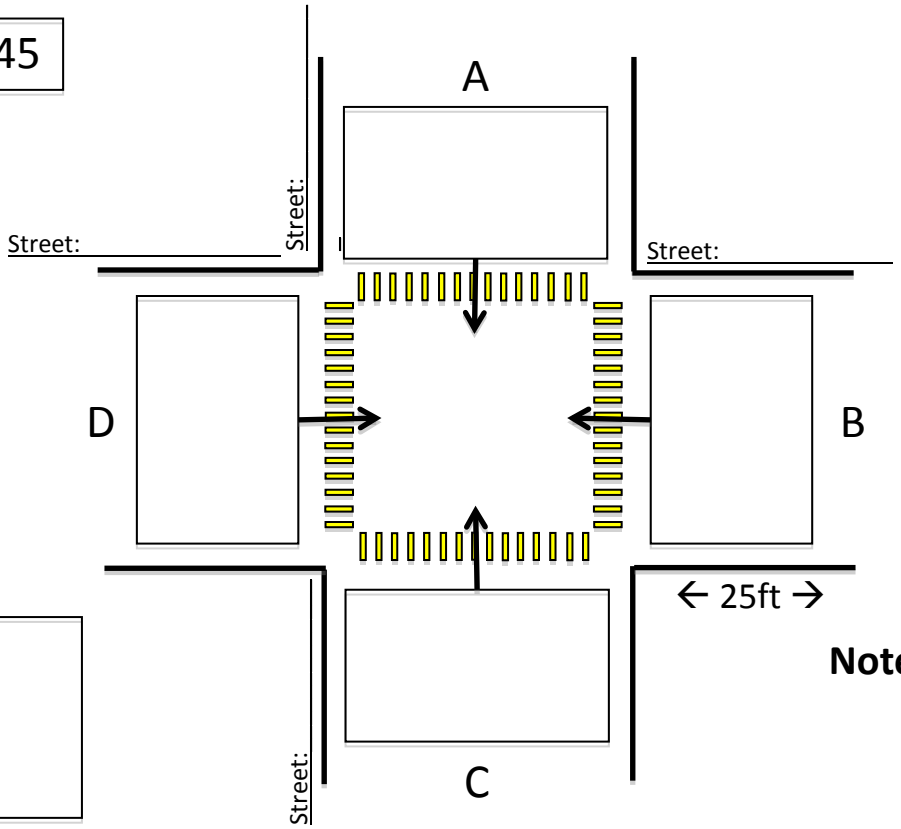



**Motorized bicycles**

Please note direction

**Notes:**

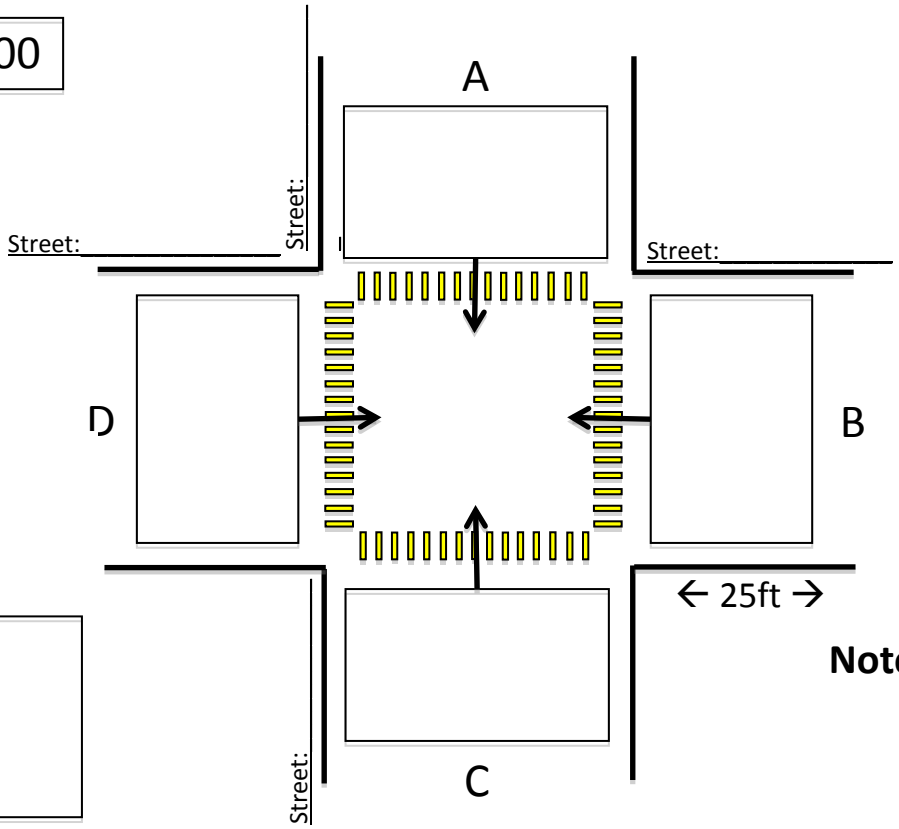
4:30-4:45




**Motorized bicycles**
Please note direction

**Notes:**

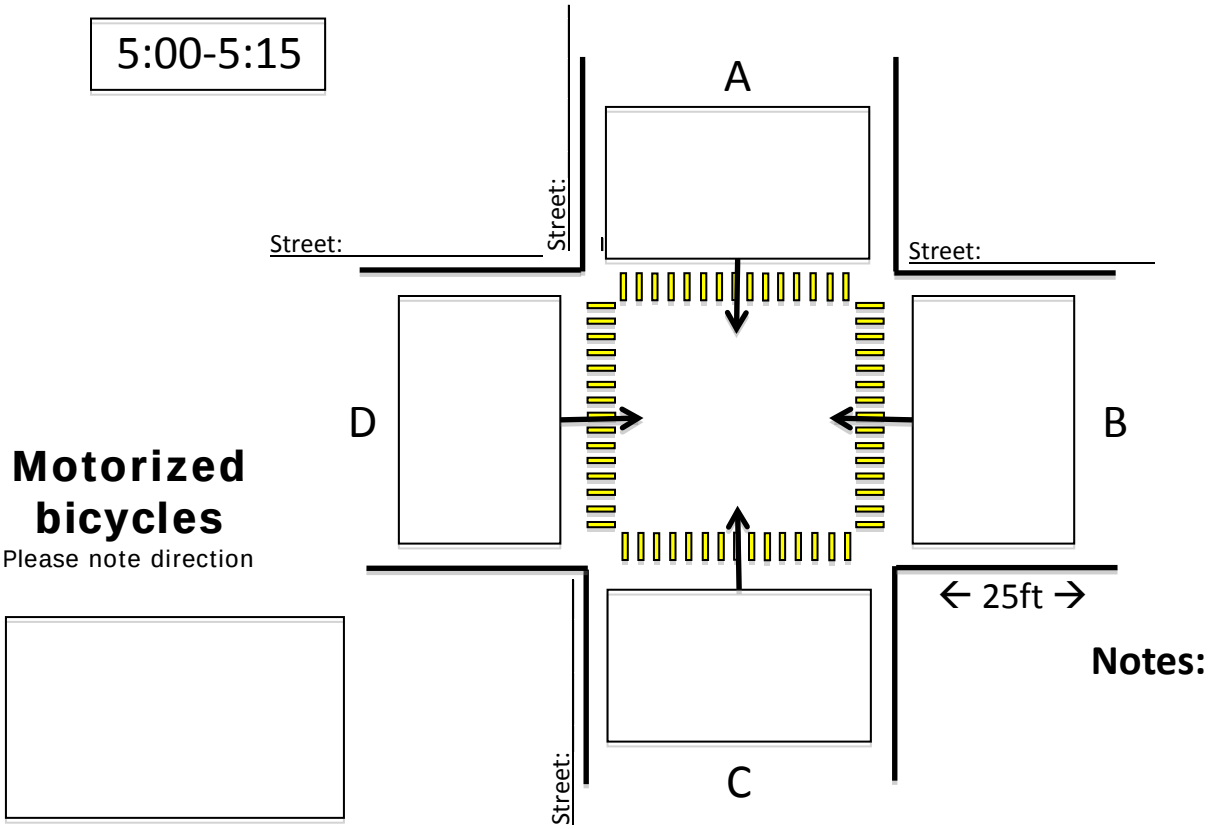
4:45-5:00




**Motorized bicycles**
Please note direction

**Notes:**

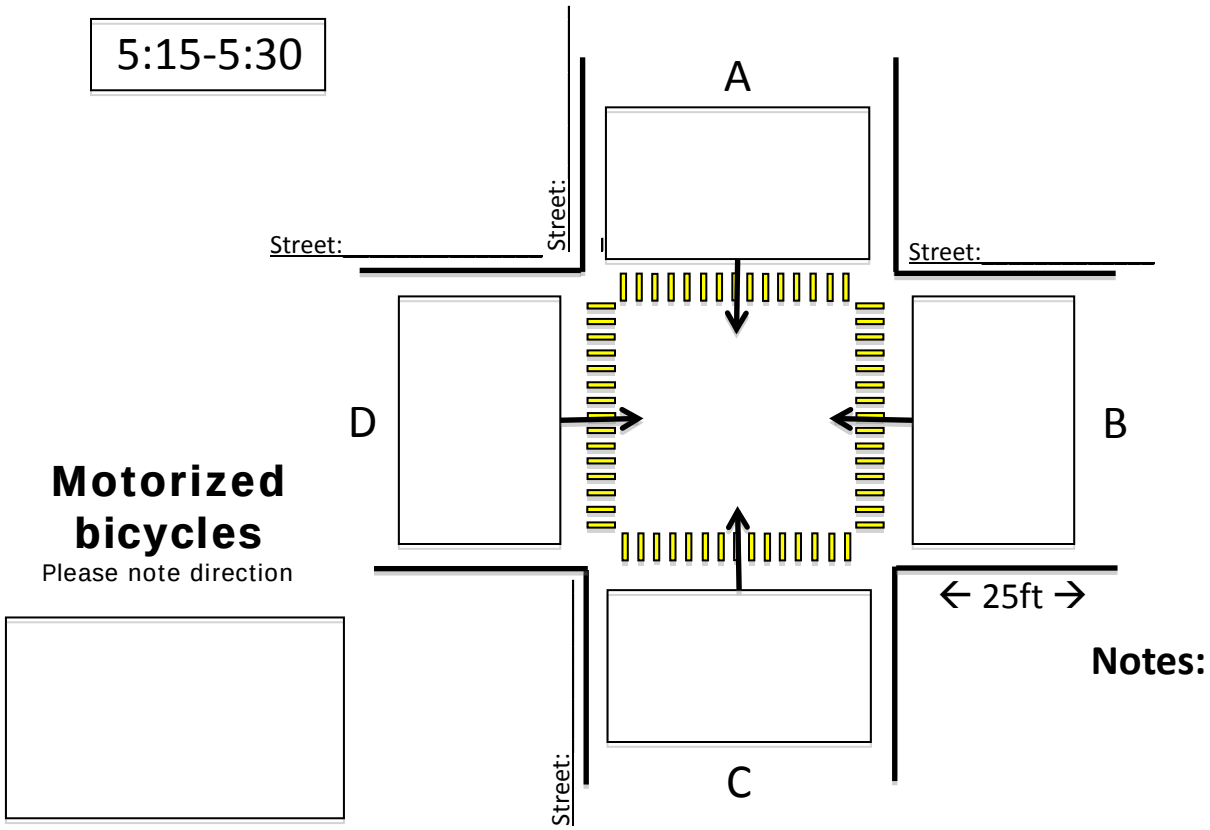
5:00-5:15




**Motorized bicycles**
Please note direction

**Notes:**

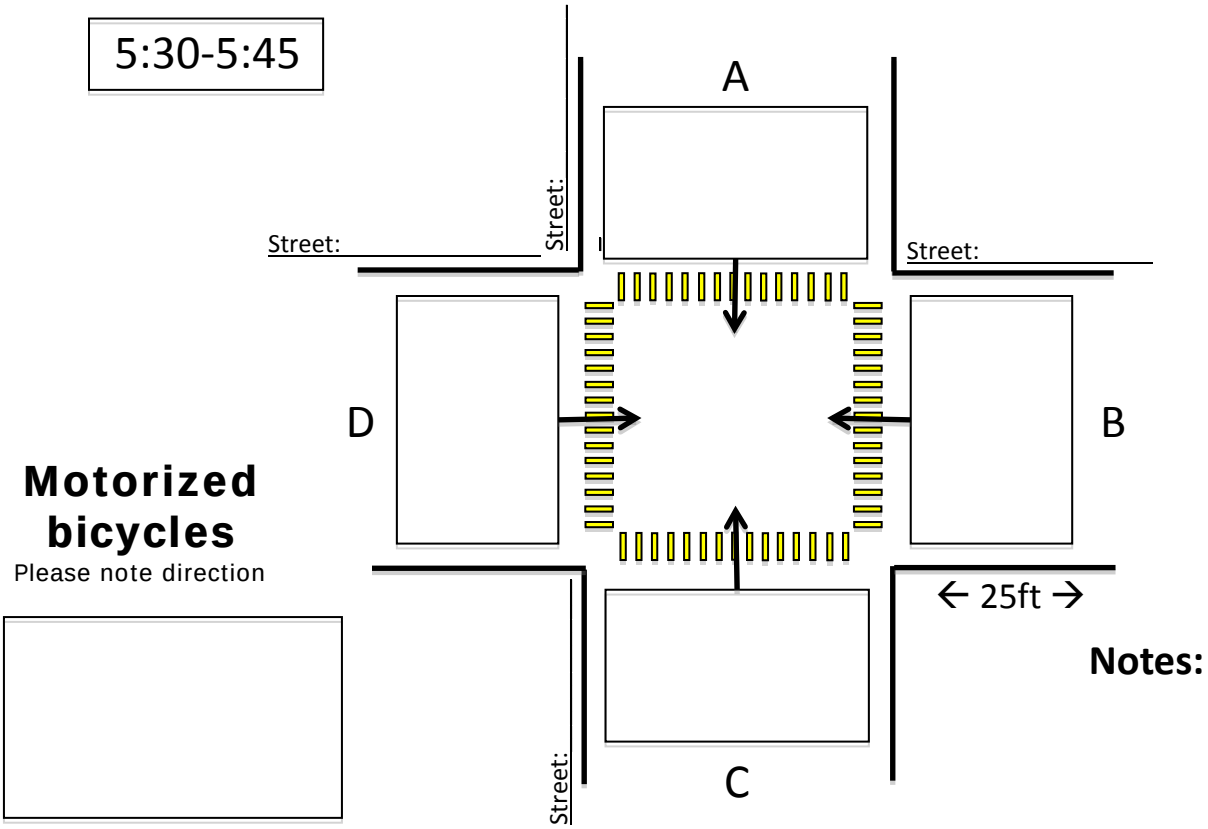
5:15-5:30




**Motorized bicycles**
Please note direction

**Notes:**

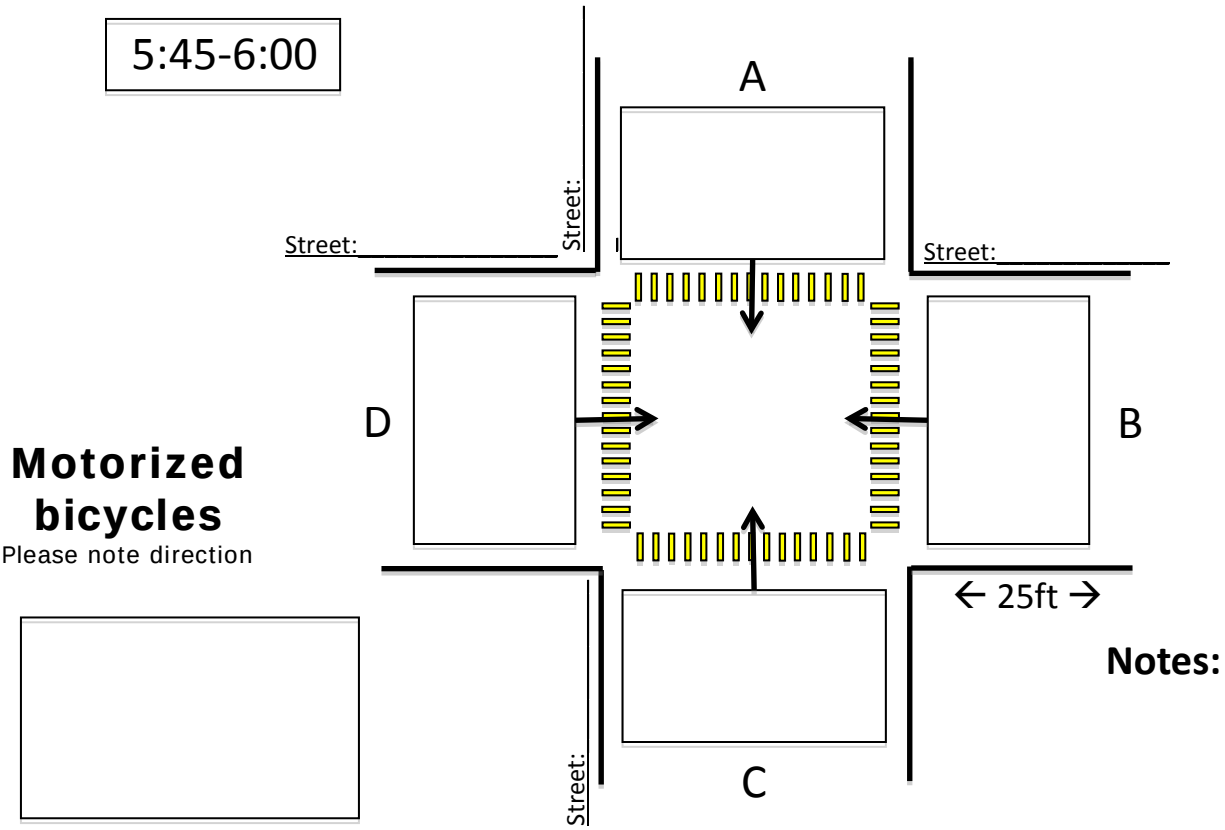
5:30-5:45




**Motorized bicycles**
Please note direction

**Notes:**

5:45-6:00




**Motorized bicycles**
Please note direction

**Notes:**

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# Appendix D

# Bicycle and Pedestrian Count Forms for Mode Split Data

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# Bicycle Intersection Count Form

**Name:_____ Location:_____**

**Date: _____ Start Time:_____ End Time:_____**

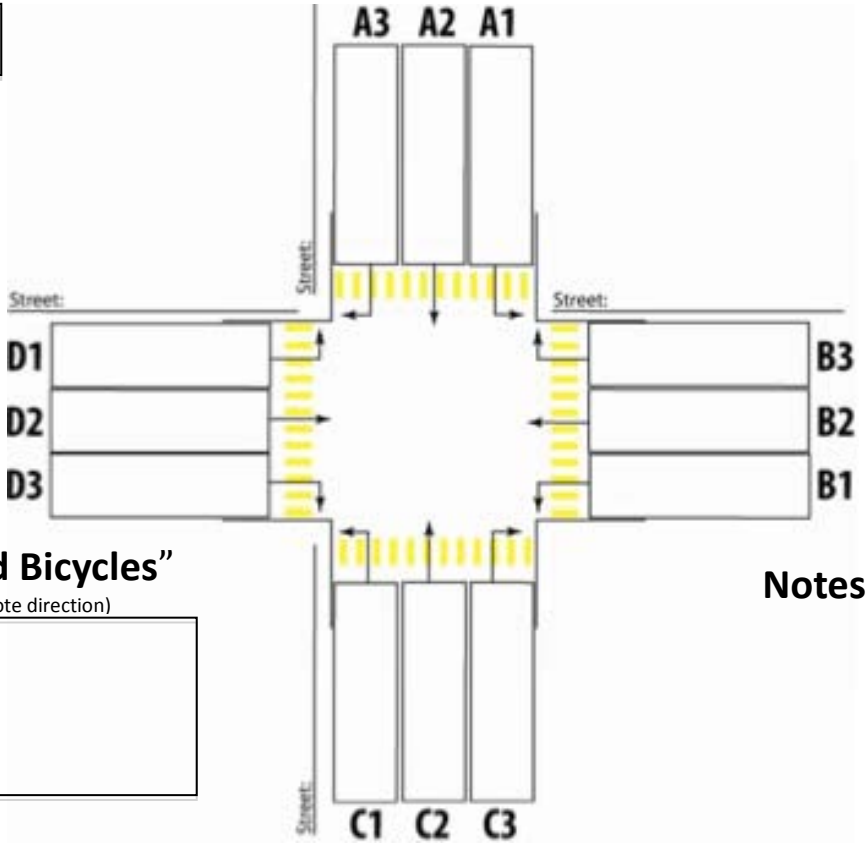
**Weather:_____ (sunny, fair, cloudy, rainy, very cold)**

## -Instructions-

**Please fill in your name, count location, date, time period, and weather conditions.**
**Count all bicyclists crossing through the intersection under the appropriate categories.**

- **Count for two hours in 15-minute increments**
- **Use one intersection graphic per 15-minute interval**
- **Mark each intersection graphic with the street names and a landmark to orient the direction of the graphic relative to the real location**
- **Tally based on which direction the bikes are entering the intersection (where they are coming from) and the direction they are going**
- **DO NOT COUNT WALKING CYCLISTS. They are considered pedestrians.**
- **Count the number of people on the bicycle, not the number of bicycles. (kid trailers, child seats, tandems – keep an eye out for these and count appropriately)**
- **Count bicyclists who ride on the sidewalk and motorized bicycles on the intersection graphic. Note: Motorized bicycles have pedals. Do not count motorcycles or mopeds without pedals.**
- **Record motorized bicyclists in the box "Motorized Bicycles" and remember to note direction (ex. Electric Bike-D2)**
- **Use the notes section to record any behaviors, events, or actions that might effect count data (ex. car accident, running team passes, weather changes)**

4:00-4:15

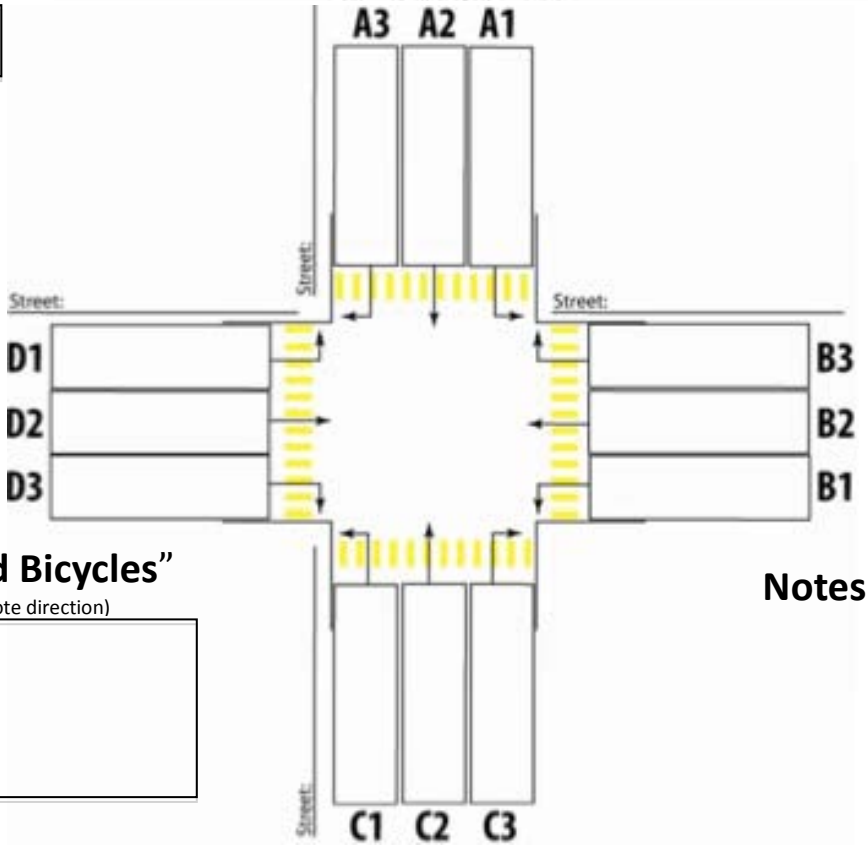



**"Motorized Bicycles"**

(please note direction)

**Notes**

4:15-4:30

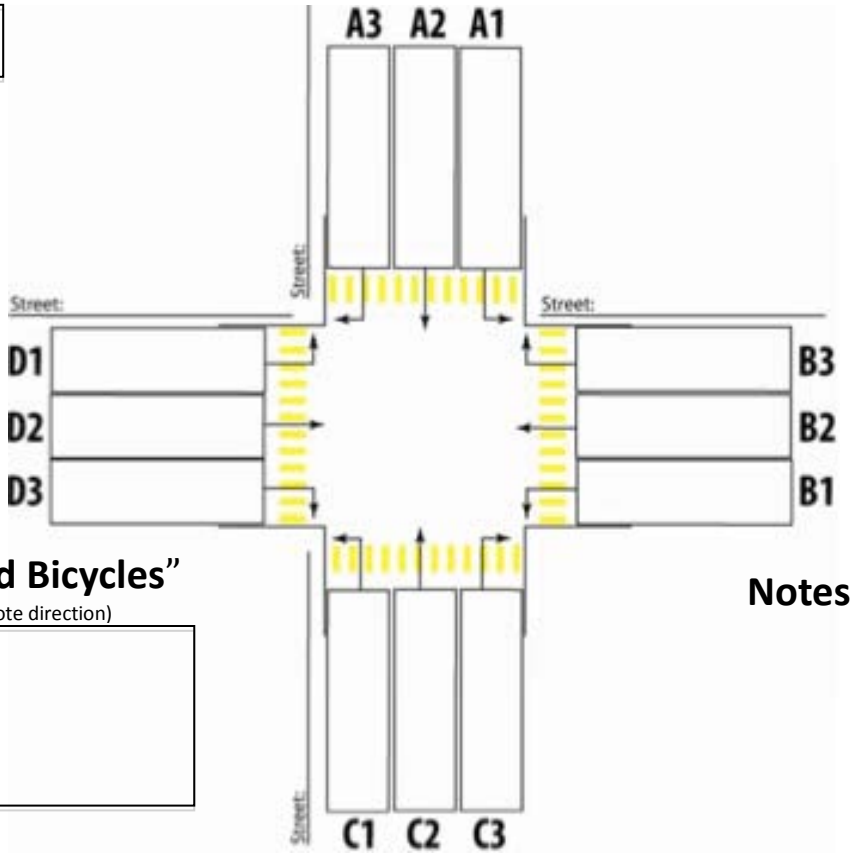



**"Motorized Bicycles"**

(please note direction)

**Notes**

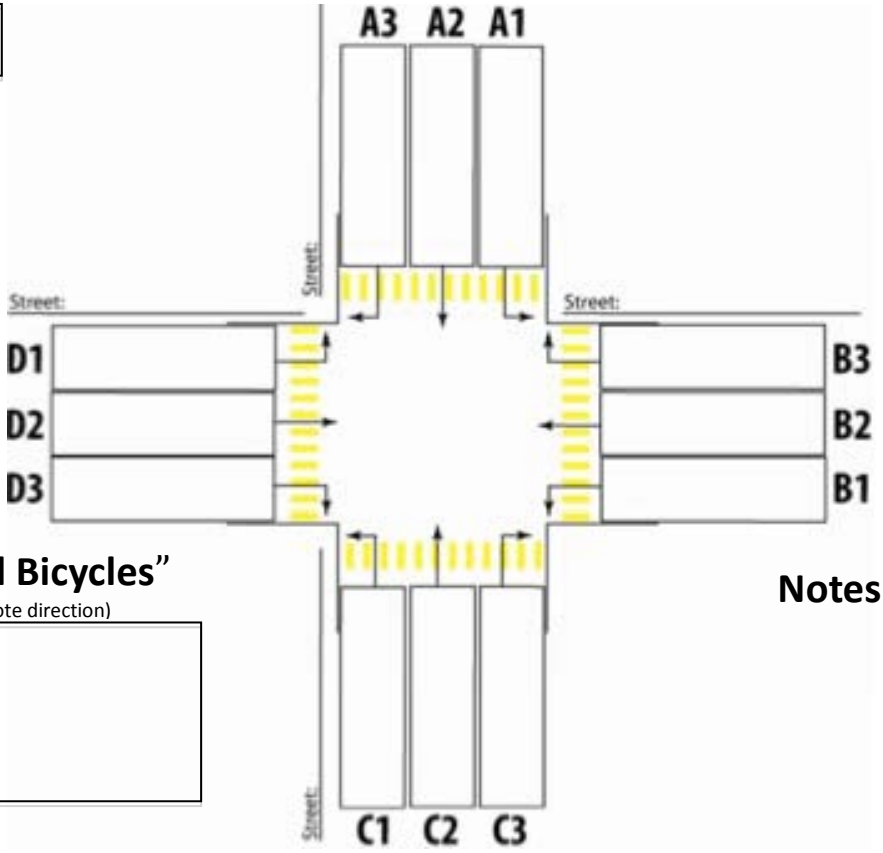
4:30-4:45




"**Motorized Bicycles**"
(please note direction)

**Notes**

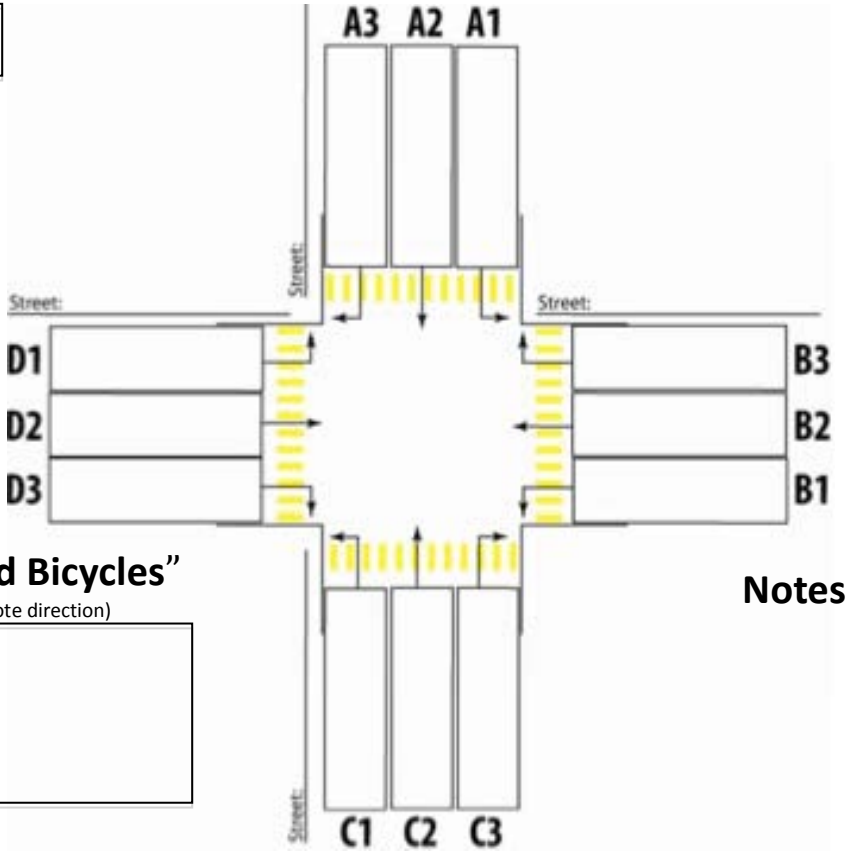
4:45-5:00




"**Motorized Bicycles**"
(please note direction)

**Notes:**

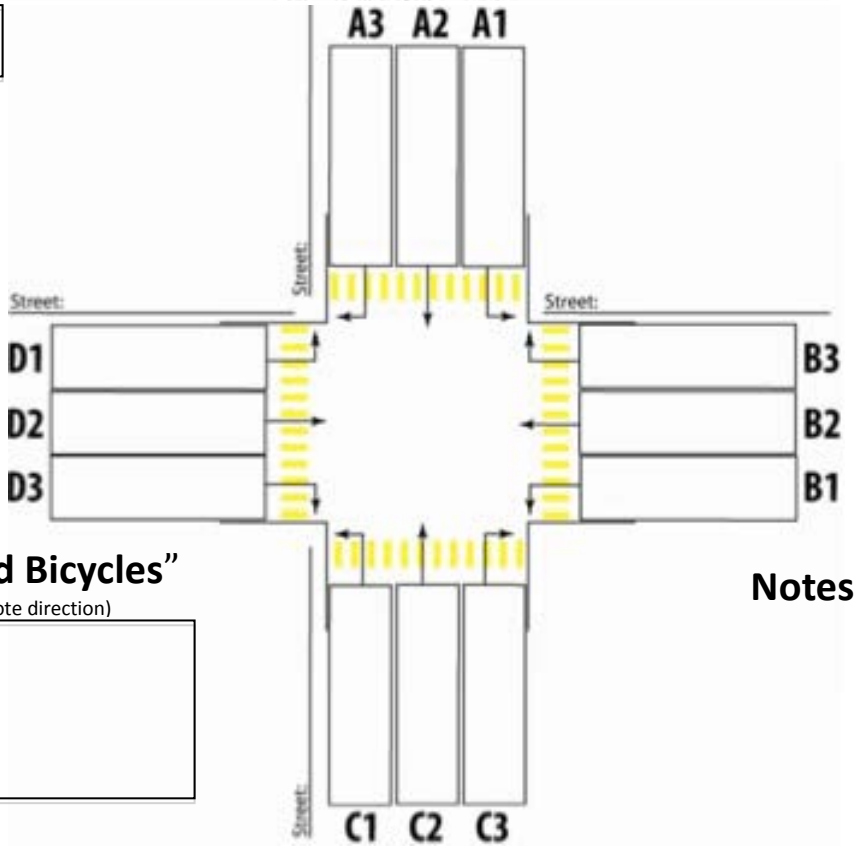
5:00-5:15




"**Motorized Bicycles**"
(please note direction)

**Notes:**

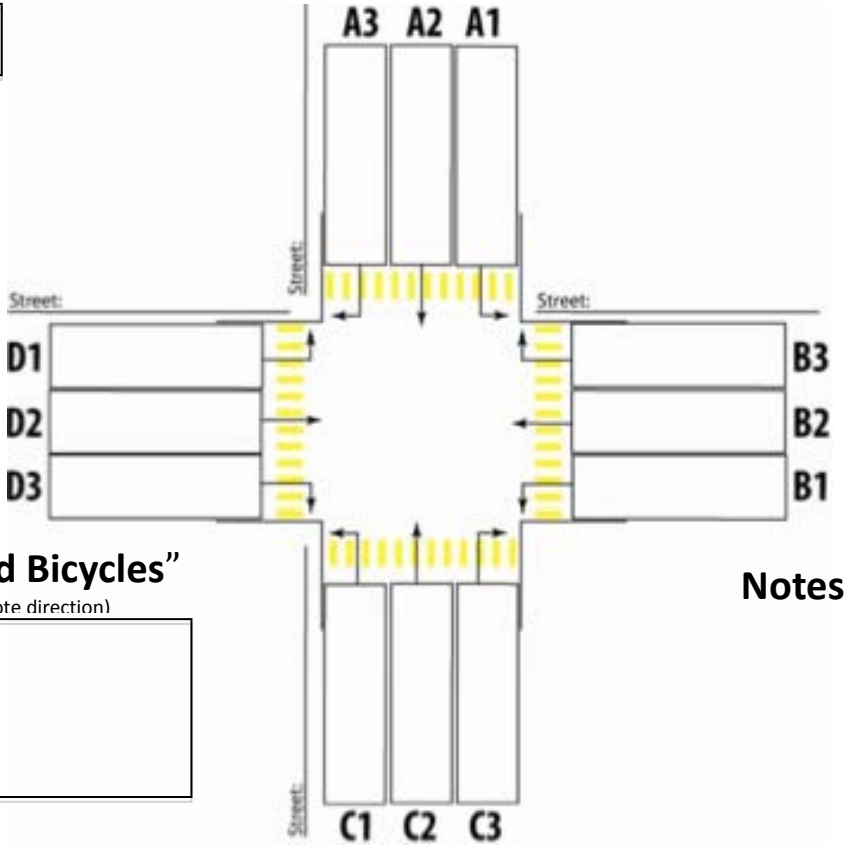
5:15-5:30




"**Motorized Bicycles**"
(please note direction)

**Notes**

5:30-5:45

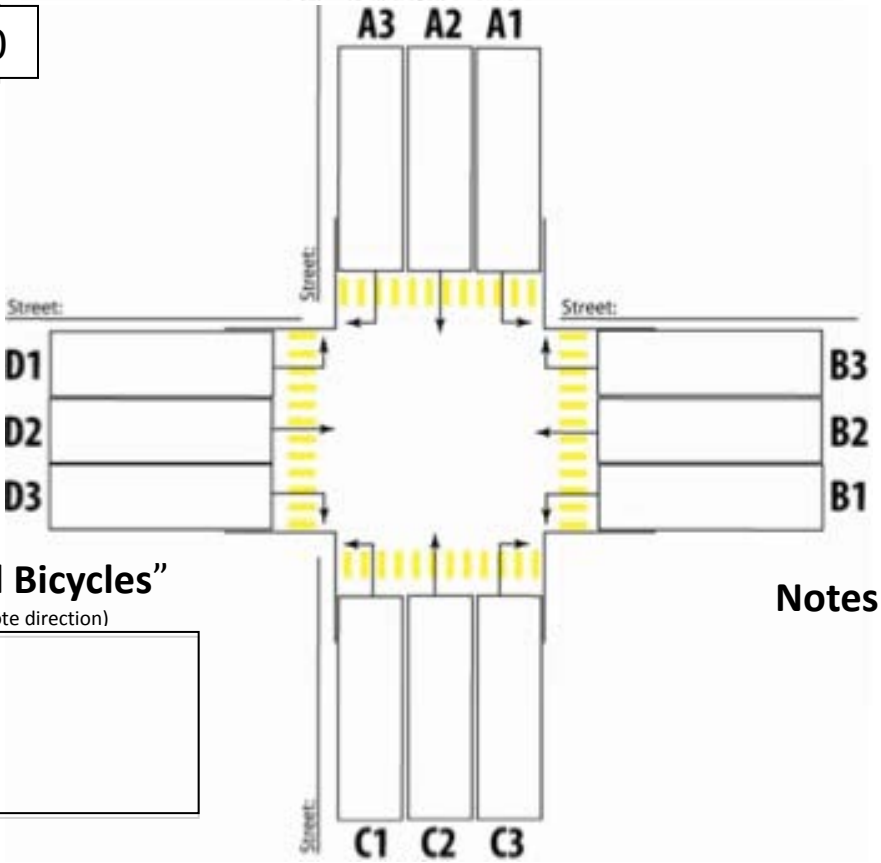



"**Motorized Bicycles**"

(please note direction)

**Notes**

5:45–6:00




"**Motorized Bicycles**"

(please note direction)

**Notes:**

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# Pedestrian Intersection Count Form

**Name:_____ Location:_____**

**Date: _____ Start Time:_____ End Time:_____**

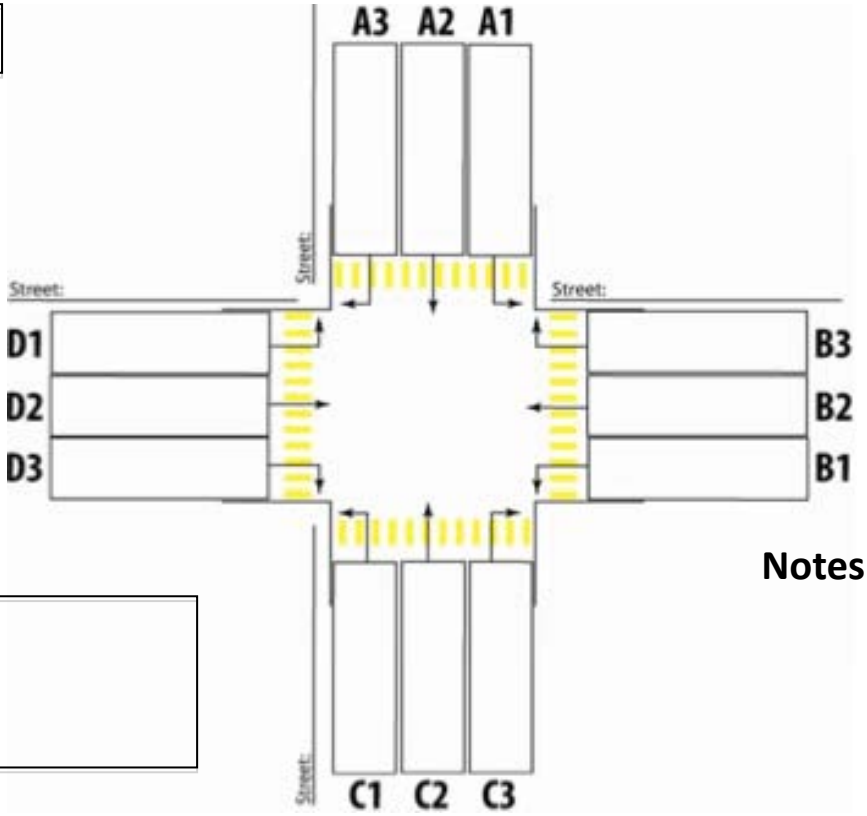
**Weather:_____ (sunny, fair, cloudy, rainy, very cold)**

## -Instructions-

**Please fill in your name, count location, date, time period, and weather conditions.**
**Count all pedestrians crossing through the intersection under the appropriate categories.**

- **Count for two hours in 15-minute increments.**
- **Use one intersection graphic per 15-minute interval**
- **Mark each intersection graphic with the street names and a landmark to orient the direction of the graphic relative to the real location**
- **Tally on the intersection graphics based on which direction the pedestrians are approaching the intersection (where they are coming from) and which direction they are going**
- **Pedestrians include people in wheelchairs or others using assistive devices, children in strollers, skateboarders, roller bladders, walking cyclists,people on scooters and jaywalkers. PLEASE COUNT ALL OF THESE PEDESTRIANS IN THE TALLY BOX.**
- **In addition, count skateboarders, roller bladders, walking cyclists, and people on scooters in the box labeled "Skateboarder (SK), Roller bladders (RB), Walking Cyclists (WC), Scooters (SC)" by recording the abbreviation followed by direction for which they are entering/exiting the intersection *(ex. SK-D3 = 1 skateboarder traveling along leg D3).* If, for example, there are a group of skaters, record by writing the number in the group followed by direction *(ex. 4 SK-B2 = four skateboarders traveling along leg B2).***
- **Use the notes section to record any behaviors, events, or actions that might affect count data (ex. car accident, running team passes, weather changes)**

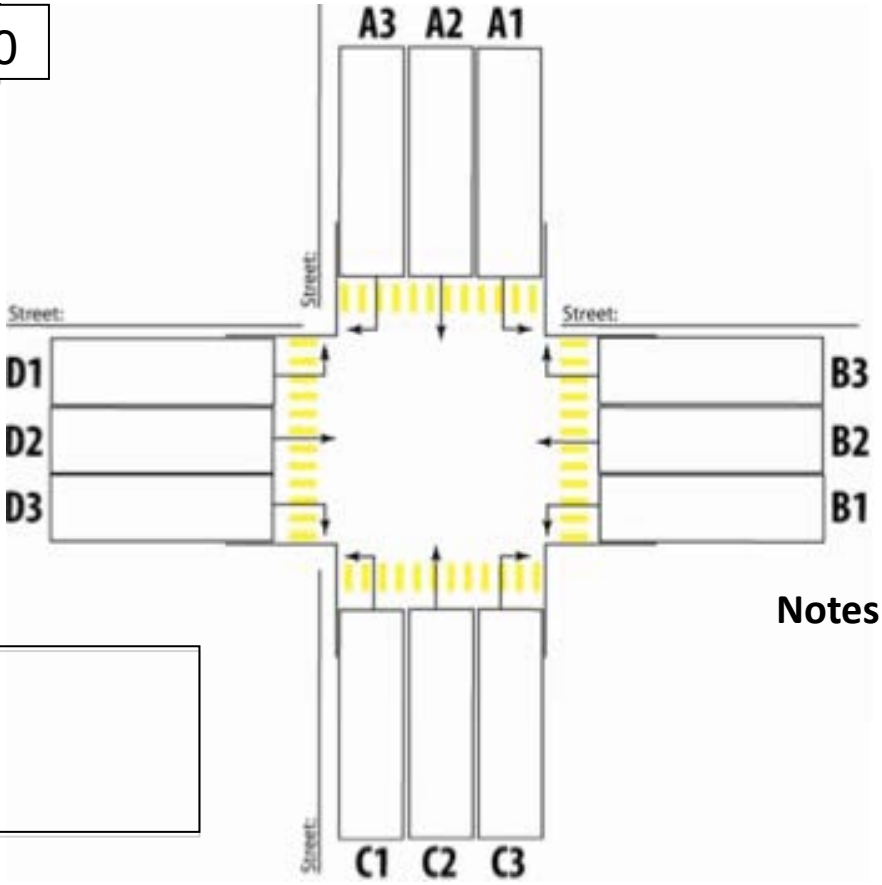
4:00-4:15




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB),* Scooter (SC)**
Please note direction

**Notes**

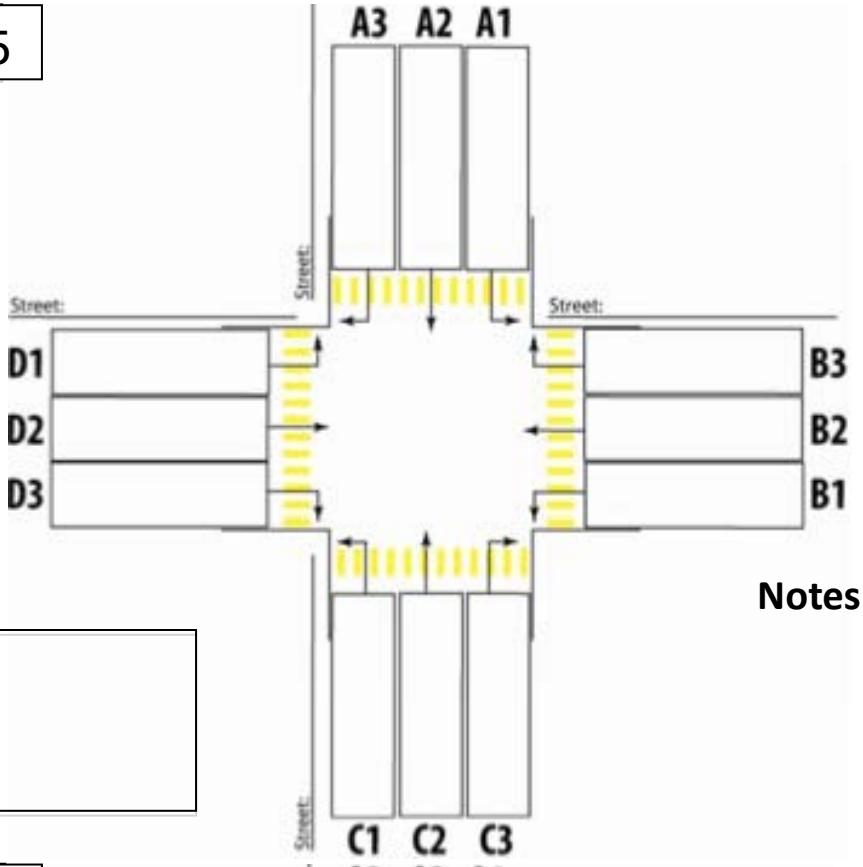
4:15-4:30




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB),* Scooter (SC)**
Please note direction

**Notes:**

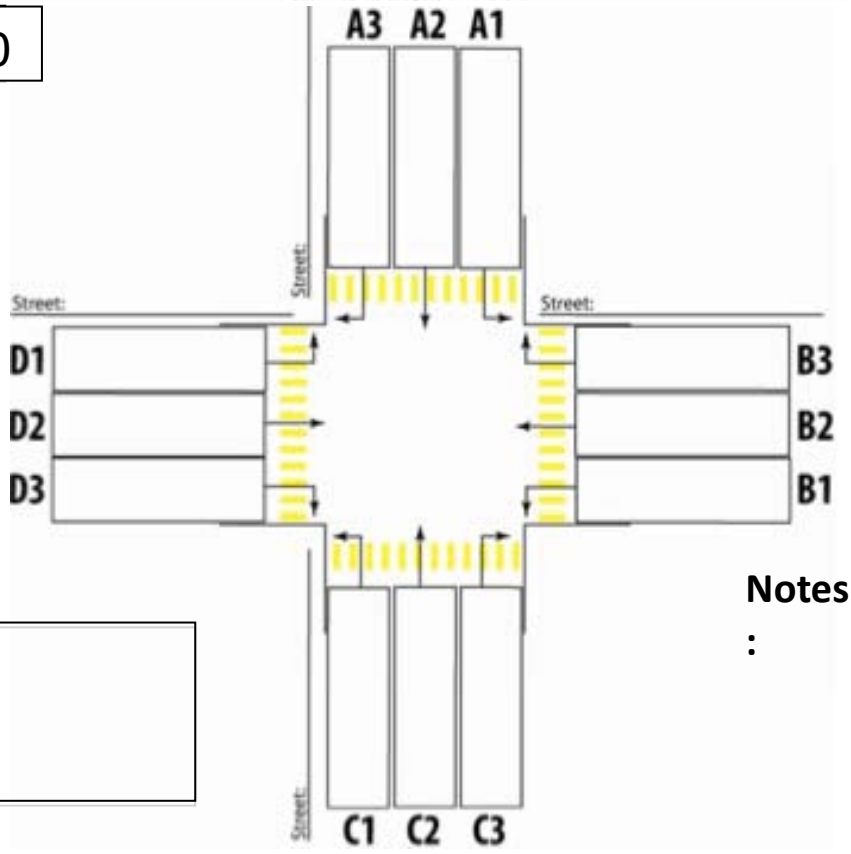
4:30-4:45




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB)*, Scooter (SC)**
Please note direction

**Notes**

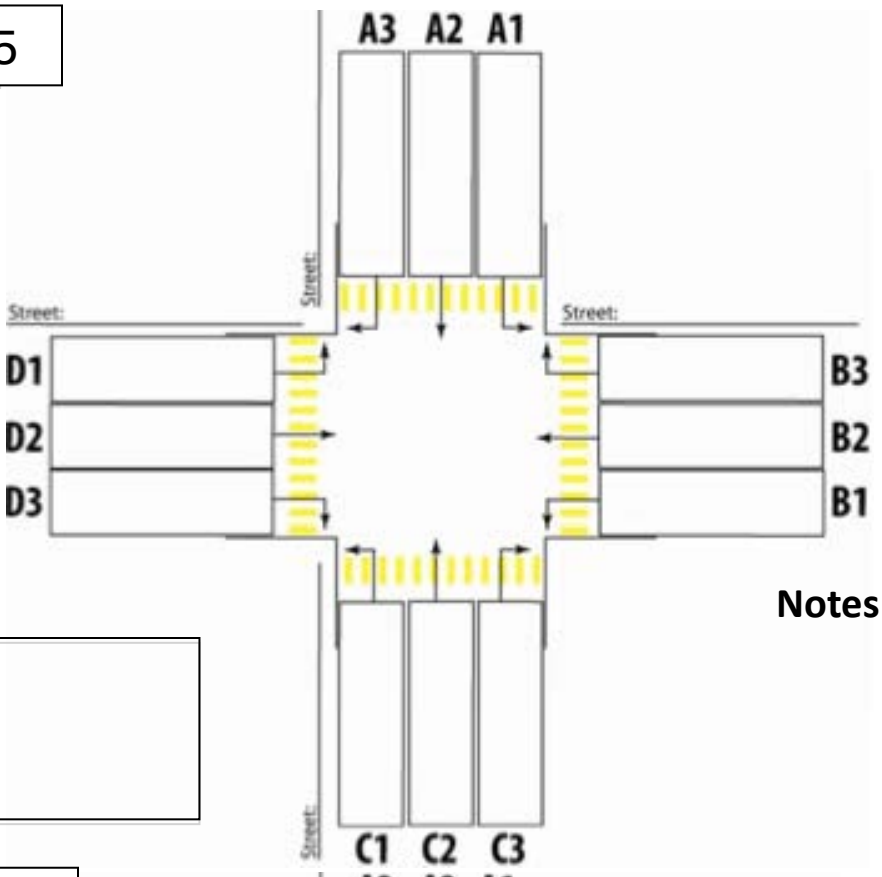
4:45-5:00




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB)*, Scooter (SC)**
Please note direction

**Notes:**

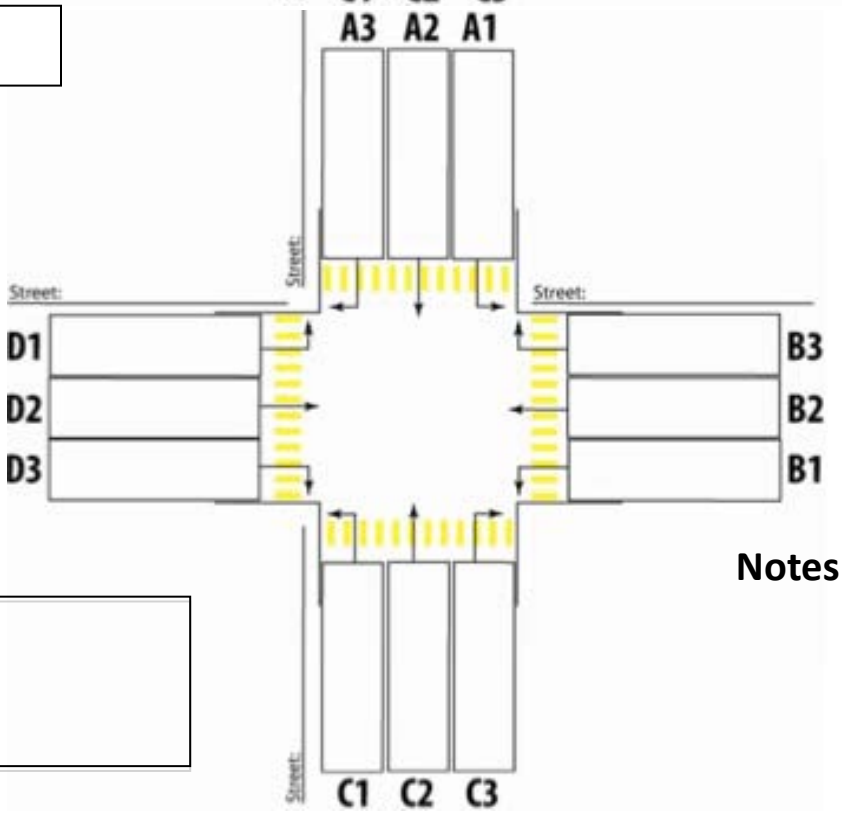
5:00-5:15




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB),* Scooter (SC)**
Please note direction

**Notes:**

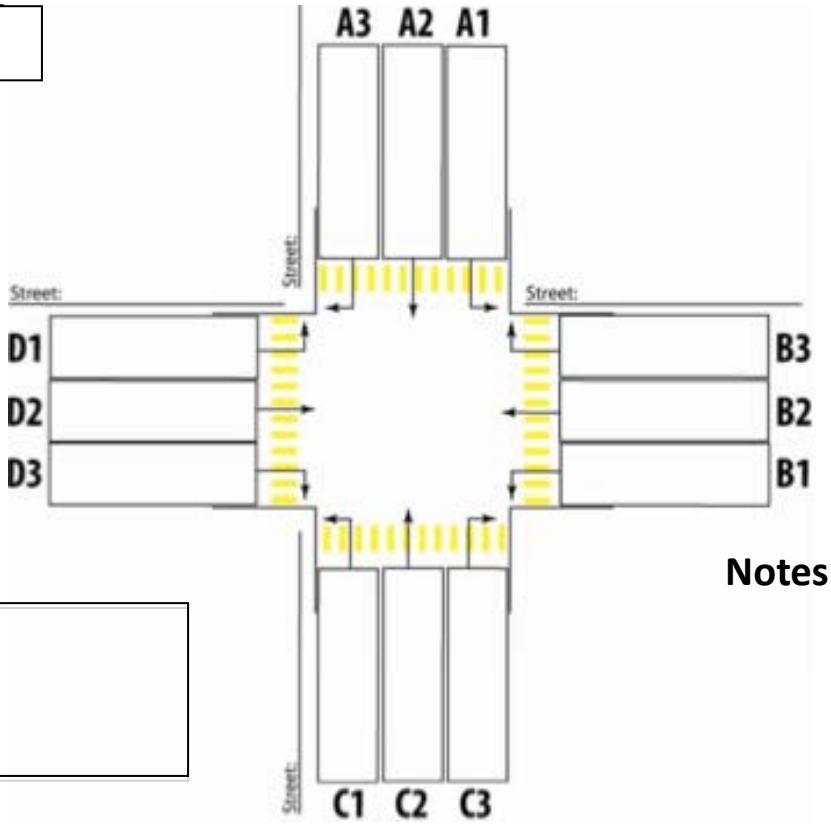
5:15-5:30




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB),* Scooter (SC)**
Please note direction

**Notes**

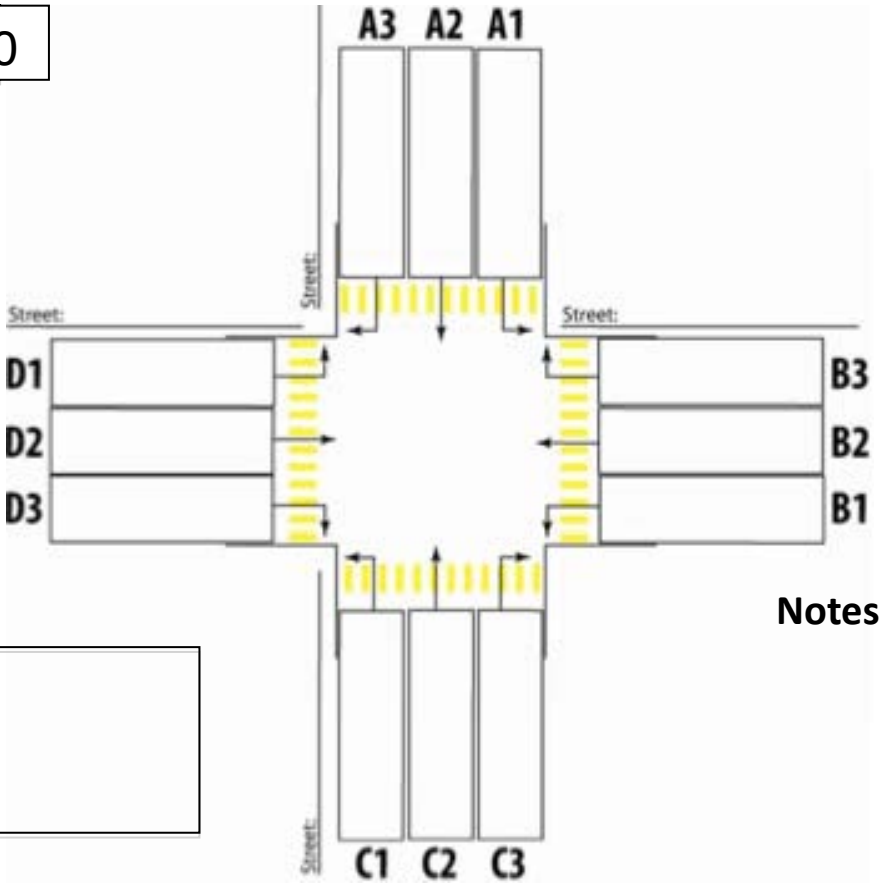
5:30-5:45




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB)*, Scooter (SC)**
Please note direction

**Notes**

5:45-6:00




**Skateboard(SK), Walking Cyclist (WC), Roller Blader *(RB)*, Scooter (SC)**
Please note direction

**Notes:**

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# Appendix E

## Table E-1: City of Santa Cruz Bike Counts- Oct. 2007, 4:30-5:30pm

(Counts are the number of bicyclists that are entering the intersection in the specified direction)

| Date | Weather | Location (N/S & E/W) | Northbound | Southbound | Eastbound | Westbound | Total Count |
|---|---|---|---|---|---|---|---|
| 10/9/2007 | Cloudy/Cool | Pacific Ave. & Cooper | 36 | 33 | Not Applicable | Not Applicable | 69 |
| 10/9/2007 | Cloudy/Cool | Front St. & Laurel St. | 14 | 24 | 41 | 42 | 121 |
| 10/9/2007 | Cloudy/Cool | Seabright Ave. & Murray St. | 10 | 19 | 29 | 40 | 98 |
| 10/9/2007 | Cloudy/Cool | Seabright Ave. & Broadway | 9 | 8 | 15 | 8 | 40 |
| 10/11/2007 | Clear | Bay St. & King St. | 11 | 70 | 14 | 16 | 111 |
| 10/11/2007 | Clear | Riverway Path & Pedestrian Bridge | 20 | 37 | 8 | 27 | 92 |
| 10/11/2007 | Clear | Ocean St. & Water St. | 11 | 8 | 44 | 32 | 95 |
| 10/11/2007 | Clear | Branciforte & Soquel Ave. | 15 | 17 | 31 | 10 | 73 |
| 10/16/2007 | Clear/ Cool | Hagemann & Soquel Ave. | 0 | 7 | 42 | 25 | 74 |
| 10/16/2007 | Clear/ Cool | Woodrow & Delaware | 19 | 20 | 30 | 8 | 77 |
| 10/18/2007 | Clear/ Cool | California St. & Laurel St. | 38 | 18 | 35 | 9 | 100 |

**Non-typical Intersections**

| | | | Northbound (Storey Towards High St.) | Eastbound (High St. towards Storey St.) | Eastbound (High St. contraflow) | Westbound (High St. toward UCSC) | Total Count |
|---|---|---|---|---|---|---|---|
| 10/9/2007 | Cloudy/Cool | Storey St & High St. | 3 | 12 | 26 | 12 | 53 |
| | | | Northbound Mission St. | Southbound Mission St. | Younglove (northbound toward Mission) | Almar Ave. (northbound toward Mission) | Total Count |
| 10/9/2007 | Cloudy/Cool | Mission St. / Almar Ave. / Younglove Ave. | 12 | 18 | 4 | 3 | 37 |
| | | | Eastbound (toward Boardwalk in street) | Eastbound (toward Boardwalk in bikeway) | Westbound (toward Wharf in street) | Westbound (toward Wharf in bikeway) | Total Count |
| 10/11/2007 | Clear | Beach St. (near intersection with Main St.) | 3 | 42 | 2 | 19 | 66 |
| | | | Northbound West Cliff Dr. (In Street towards Cowells) | Southbound West Cliff Dr. (In Street towards Natural Bridges) | Northbound West Cliff Dr. (Path towards Cowells) | Southbound West Cliff (Path towards Natural Bridges) | Total Count |
| 10/18/2007 | Clear/ Cool | West Cliff Drive & West Cliff Path | 14 | Not Available | 52 | Not Available | 66 |

## Table E-2: City of Santa Cruz Pedestrian Counts – Oct. 2007, 4:30-5:30pm

(Counts are the number of pedestrians that are entering the intersection in the specified direction)

| Date | Weather | Location (N/S & E/W) | Northbound | Southbound | Eastbound | Westbound | Total Count |
|---|---|---|---|---|---|---|---|
| 10/9/2007 | Cloudy/Cool | Pacific Ave. & Cooper | 634 | 577 | NA | NA | 1211 |
| 10/9/2007 | Cloudy/Cool | Front St. & Laurel St. | 13 | 51 | 36 | 34 | 134 |
| 10/9/2007 | Cloudy/Cool | Seabright Ave. & Murray St. | 29 | 30 | 4 | 9 | 72 |
| 10/9/2007 | Cloudy/Cool | Seabright Ave. & Broadway | 16 | 11 | 1 | 7 | 35 |
| 10/11/2007 | Clear | Bay St. & King St. | 18 | 8 | 7 | 9 | 42 |
| 10/11/2007 | Clear | Riverway Path & Pedestrian Bridge | 30 | 12 | 54 | 68 | 164 |
| 10/11/2007 | Clear | Ocean St. & Water St. | 19 | 16 | 28 | 15 | 78 |
| 10/11/2007 | Clear | Branciforte & Soquel Ave. | 12 | 16 | 38 | 32 | 98 |
| 10/16/2007 | Clear/ Cool | Hagemann & Soquel Ave. | 2 | 10 | 12 | 9 | 33 |
| 10/16/2007 | Clear/ Cool | Woodrow & Delaware | 8 | 14 | 10 | 3 | 35 |
| 10/18/2007 | Clear/ Cool | California St. & Laurel St. | 12 | 12 | 10 | 18 | 52 |

**Non-typical intersections**

| | | | Northbound (Storey Towards High St.) | Eastbound (High St. towards Storey St.) | Westbound (High St. toward UCSC) | | Total Count |
|---|---|---|---|---|---|---|---|
| 10/9/2007 | | High St. & Storey St. | 5 | 7 | 9 | | 21 |
| | | | Northbound Mission St. | Southbound Mission St. | Younglove (northbound toward Mission) | Almar Ave. (northbound toward Mission) | Total Count |
| 10/9/2007 | | Mission St. / Almar Ave. / Younglove Ave. | 35 | 18 | 7 | 5 | 65 |
| | | | Eastbound (toward Boardwalk) | Westbound (toward Wharf) | Eastbound (on sidewalk) | Westbound (on sidewalk) | Total Count |
| 10/11/2007 | Clear | Beach St. (near intesection with Main St.) | 90 | 115 | 13 | 3 | 221 |
| | | | West Cliff Path (towards Cowells) | West Cliff Path (towards Natural Bridges) | | | Total Count |
| 10/18/2007 | | West Cliff Drive & West Cliff Path | 117 | 137 | | | 254 |

## Table E-3: City of Santa Cruz Mode Split Counts – October, 2007, Tues/Thurs 4:30-5:30 pm

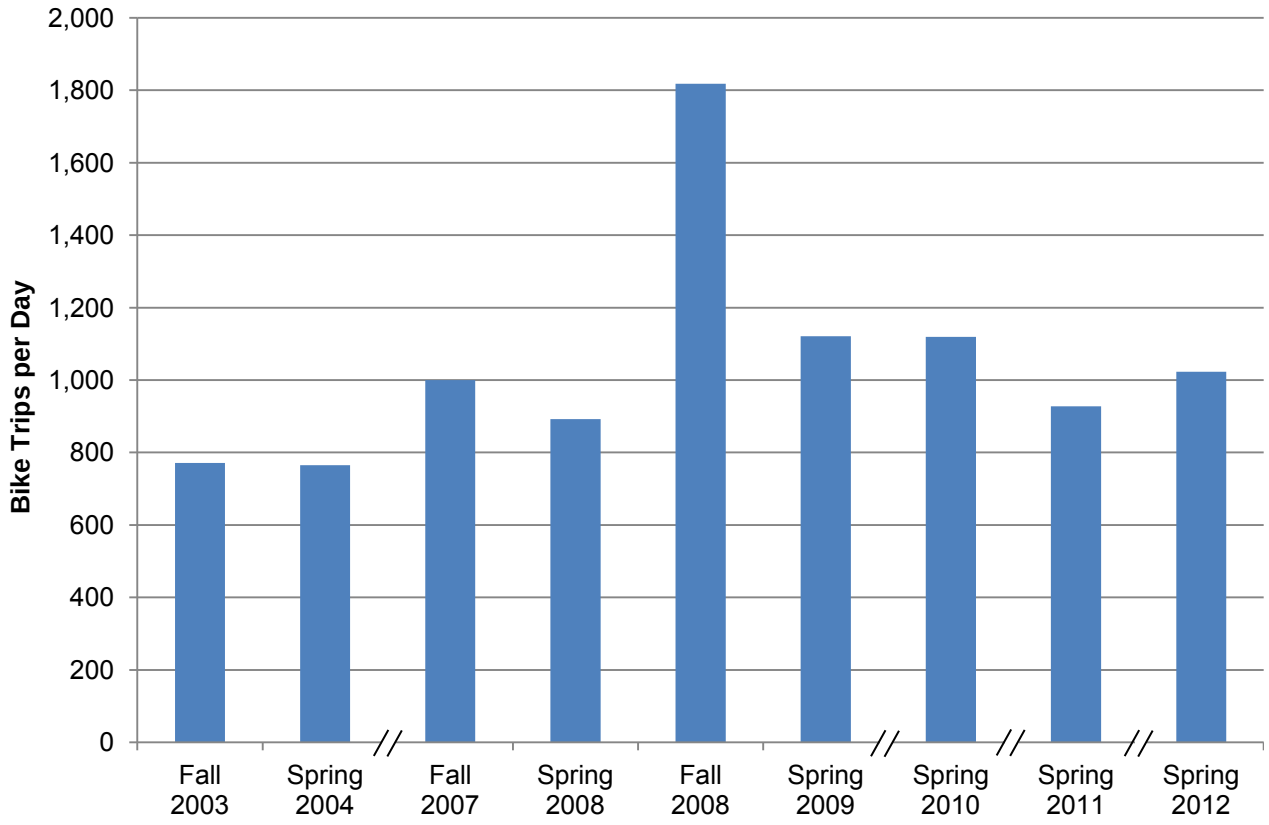
| STREET | SEGMENT | WEATHER | DIRECTION | TOTAL TRAFFIC | MOTORS | % | BICYCLES | % | PEDS | % |
|---|---|---|---|---|---|---|---|---|---|---|
| ALMAR | RANKIN/ MISSION | CLEAR | NB | 188 | 180 | 95 | 3 | 2 | 5 | 3 |
| BAY | KING/ ANITA | CLEAR | NB | 449 | 420 | 94 | 11 | 2 | 18 | 4 |
| BEACH | WESTBROOK/ CLIFF | CLOUDY | EB | 359 | 211 | 59 | 58 | 16 | 90 | 25 |
| BROADWAY | SEABRIGHT/ CAYUGA | CLEAR | EB | 624 | 608 | 97 | 15 | 3 | 1 | 0 |
| CALIFORNIA | LAUREL/ RIGG | CLEAR | SB | 150 | 120 | 80 | 18 | 12 | 12 | 8 |
| DELAWARE | WOODROW/ ALGEA | CLOUDY | EB | 262 | 222 | 85 | 30 | 11 | 10 | 4 |
| FRONT | CATHCART/ LAUREL | CLOUDY | SB | 487 | 412 | 85 | 24 | 5 | 51 | 10 |
| HIGH | STOREY/ LAURENT | CLEAR | EB | 452 | 419 | 92 | 26 | 6 | 7 | 2 |
| KING | BAY/ LAURENT | CLEAR | WB | 320 | 295 | 92 | 16 | 5 | 9 | 3 |
| LAUREL | WALTI/ CALIFORNIA | CLEAR | WB | 581 | 554 | 95 | 9 | 2 | 18 | 3 |
| LAUREL | FRONT/ SAN LORENZO | CLEAR | WB | 518 | 442 | 85 | 42 | 8 | 34 | 7 |
| MURRAY | SEABRIGHT/ HARBOR | CLOUDY | WB | 543 | 494 | 91 | 40 | 7 | 9 | 2 |
| N. B40 | MINNIE/ SOQUEL | CLEAR | SB | 453 | 420 | 93 | 17 | 4 | 16 | 3 |
| OCEAN | WATER/ LEONARD | CLEAR | NB | 1086 | 1056 | 97 | 11 | 1 | 19 | 2 |
| PACIFIC | CHURCH/ WALNUT | CLOUDY | NB | 864 | 194 | 23 | 36 | 4 | 634 | 73 |
| RIVER (SOUTH) | RIVER/ SOQUEL | CLOUDY | SB | 469 | 420 | 89 | 37 | 8 | 12 | 3 |
| SEABRIGHT | BROADWAY/ EFFEY | CLEAR | SB | 302 | 283 | 93 | 8 | 3 | 11 | 4 |
| SEABRIGHT | LOGAN/ WATSON | CLOUDY | SB | 305 | 256 | 84 | 19 | 6 | 30 | 10 |
| SOQUEL | BRANCIFORTE/ CALEDONIA | CLEAR | WB | 580 | 538 | 93 | 10 | 2 | 32 | 5 |
| W. CLIFF | PELTON/ LIGHTHOUSE | CLEAR | NB | 483 | 300 | 62 | 66 | 14 | 117 | 24 |
| WATER | OCEAN/ RIVER | CLEAR | EB | 1476 | 1404 | 95 | 44 | 3 | 28 | 2 |
| WOODROW | DELAWARE/ PLATEAU | CLOUDY | NB | 207 | 180 | 87 | 19 | 9 | 8 | 4 |
| YOUNGLOVE | SEASIDE/ MISSION | CLEAR | NB | 63 | 52 | 83 | 4 | 6 | 7 | 11 |
| **TOTAL** | | | | **11221** | **9480** | **84.5%** | **563** | **5.0%** | **1178** | **10.5%** |

## Table E-4: City of Santa Cruz Mode Split Counts – October, 2002, Tues/Thurs 4:30-5:30 pm

| STREET | SEGMENT | WEATHER | DIRECTION | TOTAL TRAFFIC | MOTORS | % | BICYCLES | % | PEDS | % |
|---|---|---|---|---|---|---|---|---|---|---|
| ALMAR | RANKIN/ MISSION | CLEAR | NB | 316 | 305 | 96 | 3 | 1 | 8 | 3 |
| BAY | KING/ ANITA | CLEAR | NB | 468 | 425 | 91 | 12 | 3 | 31 | 6 |
| BEACH | WESTBROOK/ CLIFF | CLOUDY | EB | 388 | 322 | 83 | 35 | 9 | 31 | 8 |
| BROADWAY | SEABRIGHT/ CAYUGA | CLEAR | EB | 546 | 535 | 98 | 7 | 1 | 4 | 1 |
| CALIFORNIA | LAUREL/ RIGG | CLEAR | SB | 158 | 133 | 84 | 15 | 10 | 10 | 6 |
| DELAWARE | WOODROW/ ALGEA | CLOUDY | EB | 194 | 177 | 91 | 14 | 7 | 3 | 2 |
| FRONT | CATHCART/ LAUREL | CLOUDY | SB | 600 | 555 | 93 | 15 | 3 | 30 | 5 |
| HIGH | STOREY/ LAURENT | CLEAR | EB | 458 | 407 | 89 | 37 | 8 | 14 | 3 |
| KING | BAY/ LAURENT | CLEAR | WB | 346 | 317 | 92 | 22 | 6 | 7 | 2 |
| LAUREL | WALTI/ CALIFORNIA | CLEAR | WB | 695 | 677 | 97 | 11 | 2 | 7 | 1 |
| LAUREL | FRONT/ SAN LORENZO | CLEAR | WB | 798 | 736 | 92 | 33 | 4 | 29 | 4 |
| MURRAY | SEABRIGHT/ HARBOR | CLOUDY | WB | 682 | 636 | 93 | 38 | 6 | 8 | 1 |
| N. B40 | MINNIE/ SOQUEL | CLEAR | SB | 340 | 317 | 93 | 10 | 3 | 13 | 4 |
| OCEAN | WATER/ LEONARD | CLEAR | NB | 759 | 720 | 95 | 11 | 1 | 28 | 4 |
| PACIFIC | CHURCH/ WALNUT | CLOUDY | NB | 674 | 178 | 26 | 28 | 4 | 468 | 70 |
| RIVER (SOUTH) | RIVER/ SOQUEL | CLOUDY | SB | 470 | 415 | 88 | 31 | 7 | 24 | 5 |
| SEABRIGHT | BROADWAY/ EFFEY | CLEAR | SB | 367 | 341 | 92 | 20 | 6 | 6 | 2 |
| SEABRIGHT | LOGAN/ WATSON | CLOUDY | SB | 429 | 374 | 87 | 21 | 5 | 34 | 8 |
| SOQUEL | BRANCIFORTE/ CALEDONIA | CLEAR | WB | 266 | 205 | 77 | 23 | 9 | 38 | 14 |
| W. CLIFF | PELTON/ LIGHTHOUSE | CLEAR | NB | 406 | 310 | 76 | 35 | 9 | 61 | 15 |
| WATER | OCEAN/ RIVER | CLEAR | EB | 1281 | 1178 | 92 | 56 | 4 | 47 | 4 |
| WOODROW | DELAWARE/ PLATEAU | CLOUDY | NB | 167 | 144 | 86 | 12 | 7 | 11 | 7 |
| YOUNGLOVE | SEASIDE/ MISSION | CLEAR | NB | 93 | 75 | 81 | 6 | 6 | 12 | 13 |
| **TOTAL** | | | | **10901** | **9482** | **87%** | **495** | **4.5%** | **924** | **8.5%** |
| **Counts removed for 2002/2007 comparison:** | | | | | | | | | | |
| CAPITOLA | SOQUEL/ CITY LIMIT | CLEAR | NB | 562 | 551 | 98 | 8 | 1 | 3 | 1 |
| CHURCH | PACIFIC/ CEDAR | CLOUDY | EB | 346 | 108 | 31 | 10 | 3 | 228 | 66 |
| SOQUEL | CAPITOLA/ CARL | CLEAR | WB | 596 | 575 | 96 | 16 | 3 | 5 | 1 |

# Appendix F

## Figure F-1: UCSC Bike Ridership Counts at Main and West Entrances




## Table F-1: UCSC Bicycle Count Data at Main and West Entrances*

| Time | Fall 2003 | Spring 2004 | Fall 2007 | Spring 2008 | Fall 2008 | Spring 2009 | *Spring 2009 (McLaughlin)* | Spring 2010 | Spring 2011 | Spring 2012 |
|---|---|---|---|---|---|---|---|---|---|---|
| 7:00-7:15am | 7 | 10 | | | 6 | 10 | *0* | 6 | 7 | 3 |
| 7:15-7:30am | 2 | 11 | 6 | 8 | 25 | 7 | *2* | 17 | 13 | 8 |
| 7:30-7:45am | 11 | 11 | 2 | 10 | 40 | 15 | *1* | 20 | 24 | 8 |
| 7:45-8:00am | 18 | 11 | 10 | 9 | 40 | 21 | *11* | 16 | 12 | 22 |
| 8:00-8:15am | 10 | 4 | 11 | 11 | 44 | 25 | *3* | 7 | 9 | 21 |
| 8:15-8:30am | 19 | 10 | 26 | 13 | 36 | 26 | *9* | 20 | 21 | 10 |
| 8:30-8:45am | 17 | 19 | 21 | 14 | 21 | 15 | *6* | 10 | 18 | 15 |
| 8:45-9:00am | 21 | 16 | 23 | 16 | 26 | 27 | *5* | 17 | 21 | 23 |
| 9:00-9:15am | 27 | 16 | 16 | | 33 | 28 | *2* | 20 | 21 | 22 |
| 9:15-9:30am | 11 | 17 | | | 34 | 22 | *6* | 17 | 27 | 22 |
| 9:30-9:45am | 19 | 18 | 17 | 25 | 50 | 21 | *16* | 17 | 15 | 11 |
| 9:45-10:00am | 8 | 11 | 26 | 19 | 59 | 16 | *22* | 21 | 12 | 13 |
| 10:00-10:15am | 13 | 20 | 10 | 9 | 20 | 15 | *14* | 14 | 11 | 5 |

| Time | Fall 2003 | Spring 2004 | Fall 2007 | Spring 2008 | Fall 2008 | Spring 2009 | *Spring 2009 (McLaughlin)* | Spring 2010 | Spring 2011 | Spring 2012 |
|---|---|---|---|---|---|---|---|---|---|---|
| 10:15-10:30am | 11 | 17 | 7 | 4 | 25 | 15 | *7* | 12 | 15 | 9 |
| 10:30-10:45am | 18 | 28 | 10 | 15 | 19 | 15 | *9* | 4 | 21 | 11 |
| 10:45-11:00am | 22 | 14 | 11 | 10 | 10 | 27 | *8* | 7 | 13 | 15 |
| 11:00-11:15am | 9 | 10 | 15 | 9 | 18 | 11 | *14* | 9 | 15 | 16 |
| 11:15-11:30am | 11 | 9 | 13 | 14 | 17 | 22 | *5* | 14 | 10 | 9 |
| 11:30-11:45am | 12 | 9 | 33 | 15 | 57 | 25 | *16* | 23 | 9 | 12 |
| 11:45-12:00pm | 11 | 11 | 29 | 21 | 49 | 33 | *23* | 42 | 20 | 15 |
| 12:00-12:15pm | 17 | 21 | 18 | 19 | 31 | 19 | *5* | 21 | 24 | 20 |
| 12:15-12:30pm | 19 | 21 | 44 | 13 | 31 | 18 | *10* | 14 | 17 | 29 |
| 12:30-12:45pm | 6 | 17 | 17 | 17 | 22 | 22 | *9* | 11 | 22 | 13 |
| 12:45-1:00pm | 6 | 13 | 17 | 17 | 19 | 23 | *6* | 18 | 19 | 12 |
| 1:00-1:15pm | 15 | 20 | 20 | 18 | 29 | 17 | *8* | 15 | 11 | 15 |
| 1:15-1:30pm | 11 | 12 | 19 | 17 | 39 | 14 | *16* | 24 | 10 | 20 |
| 1:30-1:45pm | 13 | 14 | | | 65 | 17 | *19* | 31 | 29 | 20 |
| 1:45-2:00pm | 22 | 22 | | | 41 | 40 | *37* | 32 | 24 | 31 |
| 2:00-2:15pm | 13 | 16 | | | 41 | 25 | *20* | 43 | 12 | 21 |
| 2:15-2:30pm | 10 | 10 | | | 24 | 16 | *3* | 23 | 15 | 15 |
| 2:30-2:45pm | 13 | 12 | | | 24 | 20 | *9* | 18 | 13 | 25 |
| 2:45-3:00pm | 17 | 20 | | | 31 | 23 | *7* | 16 | 27 | 19 |
| 3:00-3:15pm | 13 | 20 | | | 16 | 32 | *7* | 16 | 20 | 22 |
| 3:15-3:30pm | 25 | 33 | | | 46 | 15 | *10* | 42 | 43 | 48 |
| 3:30-3:45pm | 24 | 21 | | | 51 | 29 | *8* | 33 | 19 | 21 |
| 3:45-4:00pm | 37 | 19 | | | 94 | 35 | *21* | 40 | 20 | 22 |
| 4:00-4:15pm | 11 | 22 | 40 | 32 | 80 | 32 | *3* | 45 | 28 | 36 |
| 4:15-4:30pm | 24 | 15 | 26 | 18 | 57 | 21 | *13* | 43 | 42 | 41 |
| 4:30-4:45pm | 22 | 22 | 33 | 36 | 53 | 28 | *8* | 35 | 26 | 55 |
| 4:45-5:00pm | 25 | 31 | 34 | 28 | 57 | 35 | *5* | 51 | 30 | 51 |
| 5:00-5:15pm | 50 | 36 | 29 | 50 | 86 | 50 | *5* | 53 | 37 | 60 |
| 5:15-5:30pm | 44 | 33 | 34 | 34 | 93 | 35 | *8* | 56 | 47 | 62 |
| 5:30-5:45pm | 33 | 25 | 44 | 37 | 78 | 69 | *10* | 61 | 49 | 50 |
| 5:45-6:00pm | 24 | 18 | 54 | 66 | 81 | 90 | *18* | 65 | 30 | 45 |
| 6:00-6:15pm | | | | | | | | | | 39 |
| 6:15-6:30pm | | | | | | | | | | 43 |
| 6:30-6:45pm | | | | | | | | | | 48 |

*****Spring 2009 counts on McLaughlin Dr (near College Ten Rd) were taken at a location within the campus and not at the Main or West entrances.

# ***MEMORANDUM***

DATE: March 11, 2013

TO: RTC Bike Committee

FROM: Kim Shultz, Highway 1 Project Manager

RE: Highway 1 Bike/Pedestrian Overcrossing at Chanticleer Avenue

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## INTRODUCTION

The Santa Cruz County Regional Transportation Commission (RTC) has identified widening Highway 1 between Highway 17 and Aptos as a high priority project. The RTC is using a combined Tier 1/Tier 2 approach to its environmental documentation for improving the capacity along this corridor. The Tier 1 program level evaluation consists of two alternatives under analysis, the Tier 1 Corridor High Occupancy Vehicle (HOV) Lane Alternative and the Tier 1 Transportation System Management (TSM) Alternative. These project alternatives are analyzed in comparison to the No Build Alternative that sets a baseline for system operations if no capacity improvements are made to the Highway 1 corridor.

The Tier 2 project level evaluation includes widening Highway 1 by adding an auxiliary lane in both northbound and southbound directions between the 41st Avenue and Soquel Avenue interchanges. An auxiliary lane extends the highway on-ramp to the next highway off-ramp thereby lengthening the weaving and merging area for motorists entering and existing the highway. This alternative also includes evaluation of a bike/pedestrian overcrossing of Highway 1 at Chanticleer Avenue.

## BACKGROUND

The proposal to build a bike/pedestrian overcrossing at Chanticleer Avenue was the result of a study completed in 2005 to enhance bike/pedestrian safety and access across Highway 1. Inclusion of this overcrossing in the Tier 2 environmental evaluation will allow project development efforts to advance to construction upon approval of the Final Environmental Document. The Draft Environmental Document will be released for formal review and comment in Spring 2014. Until that time, staff cannot release engineering drawings of the proposal, but will present preliminary design plans at the meeting that highlight the footprint and operational features of the overcrossing sufficient for discussion and comment.

In February 2012, project design consultant and staff presented the preliminary plans for a compact overcrossing that meet right-of way constraints but would not meet design standards for a bike crossing meaning bicyclists would be prohibited from riding bikes across the facility. Based on comments received from Bike Committee members and an update of the Highway Design Manual in 2012, the project engineers have been able to develop an overcrossing that

does meet the state's highway design standards for bicyclists to ride their bikes on the overcrossing.

The project design consultant will present this design at the Bike Committee meeting for preliminary review and comment. This design is still subject to change before inclusion in the draft environmental document which will be formally released for public review and comment approximately one year from now.

## PROJECT CONSTRAINTS AND OPPORTUNITIES

On the north side of Highway 1, Chanticleer Avenue terminates at the highway and space is limited to accommodate a ramp within the narrow cul-de-sac. Light industrial land uses and driveway access occupy both sides of the street that would conflict with a ramp along either side of the road. Enough open space exits with Caltrans' right-of-way between the freeway and adjacent light industrial property to accommodate the landing and overcrossing ramp. Noncontiguous sidewalk facilities are located on both the east and west sides of the street. Retail stores along Soquel Drive, Dominican Hospital, and numerous other medical and retail offices, as well as single and multi-family residences, are all within a one-mile radius of Chanticleer Avenue, north of Highway 1.

South of Highway 1, the Soquel Avenue frontage road intersects Chanticleer Avenue immediately south of the highway. It is anticipated that the overcrossing would need to span over Soquel Avenue as there is not sufficient room between the freeway and Soquel Avenue to locate the ramps. Also, requiring a pedestrian crossing on Soquel Avenue would be hazardous given the volume and speed of traffic. The overcrossing will need to provide standard vertical clearance over both Soquel Avenue and Highway 1, thus adequate space will need to be acquired to accommodate the landing and overcrossing ramp south of Soquel Avenue. Sidewalk facilities are provided along Chanticleer Avenue and portions of Soquel Avenue. Desired destinations such as retail stores along Soquel Avenue and Capitola Road, Live Oak Elementary School, along with single and multi-family residences are all within a one mile radius of Chanticleer Avenue south of the Highway 1.