



Chapter 5: Safety and Education¹⁸

This chapter discusses existing safety conditions for bicycling and walking in the Unincorporated Areas including an evaluation of recent collision activity and current safety and education programs available to residents. Additional programs are recommended to improve safety for bicyclists and pedestrians. It should be noted that while improving safety is a high priority in Alameda County, bicycling and walking involve an inherent risk that no improvements can completely eliminate. It is the responsibility of all road users to follow the rules of the road and to treat each other with respect to increase road safety.

Collision Analysis

Bicycle and pedestrian-involved collision data was obtained from the County of Alameda Public Works Agency for the years 2007 through 2009. This data was analyzed to identify patterns in these incidents which might point to specific improvements needed in the Bicycle and Pedestrian Program for the Unincorporated Areas. **Figure 5-1**, at the end of this chapter, shows this data spatially with the study area.

In addition, current collision data was compared against available data from the previous bicycle and pedestrian plans for the Unincorporated Areas to determine if trends in the cause or location of bicycle and pedestrian-involved collisions could help to identify the need for physical improvements or issues of most concern for education and safety programs. It is recommended that continued analysis of collision diagrams, on-site observations, and further monitoring of collision activity and enforcement be conducted. It is important to perform these analyses to determine if collision causes can be traced to behavior or roadway design issues. Commonalities between incidents can aid in determining what improvements would be effective in reducing collisions. The documents referred to in this analysis include:

- 2007 Alameda County Bicycle Master Plan for Unincorporated Areas (2007 Bicycle Plan). Data was evaluated for years 2001 through 2003.
- 1997 Alameda County Bicycle Master Plan Update for the Western Unincorporated Areas (1999 Bicycle Plan). Data was evaluated for years 1993 through 1995.
- 2006 Alameda County Pedestrian Master Plan for Unincorporated Areas (2006 Pedestrian Plan). Data was evaluated for years 1998 through 2003.

¹⁸ Photographs on far left and third from left courtesy of www.pedbikeimages.org/Mike Cynecki; photograph on far right courtesy of www.pedbikeimages.org/Dan Burden

Bicycle Collisions

In the three-year period between 2007 and 2009, there have been 89 reported collisions involving bicycles in the Unincorporated Areas. This is an average of 30 incidents per year.¹⁹ This is a decrease from the 2007 Bicycle Plan which reported an annual average of 37 reported collisions and the 1999 Bicycle Plan which reported an annual average of 50 reported collisions. While this overall is good news, it is unclear whether this decrease is due to increased safety measures, reduced driving due to the recession, reduced number of collisions reported to the police, or other factors. However, recent studies for the Alameda Countywide Bicycle Plan Update²⁰ show that the percentage of bicycle commuters has grown over the last 10 years with the expectation that bicycle trips for other purposes have also increased. Considering the increase in the number of bicyclists on the roadway, any reduction in the number of bicycle-involved collisions should be seen as a positive result of roadway improvements (i.e. bike lanes) and other programs (i.e. Safe Routes to School, Bike to Work Day, and bicycle education/training programs) that have been implemented during the last 10 years.

Collision Locations

Six roadways had three or more bike collisions in the three year period 2007-2009 and are listed below in **Table 5-1**. In most cases, there was a reduction in the number of collisions compared to the previous study periods.

Table 5-1: Roadways with Most Reported Bicycle Collisions				
Street	Number of Collisions 2007-2009	Number of Collisions 2007 Bicycle Plan	Number of Collisions 1999 Bicycle Plan	Roadway Type
Data years	2007-2009	2001-2003	1993-1995	
Castro Valley Blvd.	9	11	19	Arterial
Hesperian Blvd.	8	7	12	Arterial
Redwood Rd.	6	9	10	Arterial
Bockman Rd.	5	n/a	n/a	Collector
Somerset Ave.	3	n/a	n/a	Collector
Foothill Blvd.	3	n/a	n/a	Arterial
Sources: Alameda County Public Works Agency, Statewide Integrated Traffic Records System (SWITRS)				

As shown in **Table 5-2**, four additional roadways had four or more collisions during the previous study periods but had fewer incidents for the current study period (2007-2009). Bike lanes have been implemented on Lewelling Boulevard between Meekland Avenue and Hesperian Boulevard since the 2007 Bicycle Plan which may have contributed to the reduction in collisions on this roadway. In addition, bike

¹⁹ During the 2007-2009 study period there was one bicyclist fatality and nine severe injuries. Other incidents reported minor injuries (70) or property damage only (9).

²⁰ Alameda Countywide Bicycle Plan, Draft Existing Conditions Chapter, September 2010. Downloaded 3/10/2012 at http://www.alamedactc.org/files/managed/Document/6278/01b_Draft_Bicycle_Plan_Existing_Conditions_Chapter.pdf

lane signage and pavement markings were added to Tesla Road from S Livermore Avenue to Greenville Road. The reduction in collisions on Lewelling Boulevard and other locations is shown below:

Street	Number of Collisions 2007-2009	Number of Collisions 2007 Bicycle Plan	Number of Collisions 1999 Bicycle Plan	Roadway Type
Data years	2007-2009	2001-2003	1993-1995	
Lewelling Blvd	1	5	8	Collector
Center St.	2	4	9	Collector
Tesla Rd.	1	5	n/a	Arterial
Lake Chabot Rd.	0	5	5	Collector

Sources: Alameda County Public Works Agency, Statewide Integrated Traffic Records System (SWITRS)

Bicyclist Age

34 percent of the collisions for the 2007-2009 timeframe involved children under the age of 16 with young adults (ages 18 to 35) involved in 20 percent of the incidents. The group of middle-aged riders aged 35 to 65 makes up another one-third of the total collisions. A detailed breakdown of collisions by year is provided in **Table 5-3**. In comparison to the previous plans, the percentage of child bicyclists was fairly constant while the percentage of young adults involved in collisions has decreased since the 1999 Bicycle Plan. On the other hand, the percentage of older adults has increased from the 11 percent reported in the 1999 Bicycle Plan. This comparison is shown in **Table 5-4**.

Age	2007	2008	2009	Total	Percent
≤ 12	6	9	2	17	18%
13-15	4	4	7	15	16%
16-17	1	1	2	4	4%
18-35	3	11	4	18	20%
36-50	11	5	4	20	22%
51-65	4	2	5	11	12%
66+	1	2	0	3	3%
NOT STATED	2	0	2	4	4%
Total	32	34	26	92^a	100%

^a Three bicyclist-bicyclist collisions were reported during this study period (one for each calendar year) which explains why the total number of bicyclists in this table is greater than the total number of collisions for this study period.

Source: Alameda County Public Works Agency

Chapter 5: Safety and Education

Age Group	Percentage of Collisions 2007-2009	Percentage of Collisions 2007 Bicycle Plan	Percentage of Collisions 1999 Bicycle Plan
Data years	2007-2009	2001-2003	1993-1995
Under 16	34%	31%	39%
Young Adults (18-35)	20%	25%	34%
Older Adults (36-65)	34%	33%	11%

Party-at-fault/Primary Collision Factor

Of the collisions where fault was assigned, 60 percent were assigned to the bicyclist as the party-at-fault during 2007-2009. More than 40 percent of these bicyclists-at-fault were under the age of 16.

The single most common primary collision factor was the bicyclist riding on the wrong side of the road, which comprised 24 percent of the collisions where the bicyclist was deemed at fault. Wrong-way bicycling was also the most common collision factor in the previous plans with 22 percent reported in the 1999 Bicycle Plan and 35 percent reported in the 2007 Bicycle Plan. Improper turning by bicyclists was the secondary collision factor reported as the cause for approximately 17 percent of bicyclist-at-fault collisions for the current and previous plans. The most common primary collision factor in collisions caused by motorists was the failure to yield the right-of-way (35 percent) followed by improper turning (32 percent). These causes were also the leading collision factors in the previous plans.

Pedestrian Collisions

In the three-year period between 2007 and 2009, there have been 72 reported collisions involving pedestrians in the Unincorporated Areas. This is an average of 24 incidents per year. This is a decrease from the 2006 Pedestrian Plan which reported an annual average of 42 pedestrian-involved collisions per year. During the 2007-2009 study period there were two pedestrian fatalities and nine severe injuries. Other incidents reported minor injuries (58) or property damage only (3).

Collision Locations

Six roadways had three or more pedestrian-involved collisions in the three year period 2007-2009 and are listed below in **Table 5-5**.

Street	Number of Collisions 2007-2009	Roadway Type
Castro Valley Blvd.	9	Arterial
Hesperian Blvd.	7	Arterial
Redwood Rd.	4	Arterial
Lewelling Blvd	3	Collector
164 th Ave.	3	Arterial/Collector
Bockman Rd.	3	Collector

Source: Alameda County Public Works Agency

76 percent of the pedestrian-involved collisions occurred while pedestrians were crossing the road either in crosswalks at intersections (36%), at unmarked crosswalks (4%), in crosswalks at midblock locations (3%), or not in crosswalks or ‘jaywalking’ (33%). The remaining 24 percent of the collisions were reported to occur “in the road” (20%) or “not in the road” (4%).

Pedestrian Age

For the 2007-2009 timeframe, pedestrians under the age of 18 (40 percent) were most likely to be involved in a pedestrian-related collision with another 10 percent of incidents involving seniors. A detailed breakdown of collisions by year is provided in **Table 5-6**.

Table 5-6: Pedestrian-Involved Collisions By Age of Pedestrian					
Age	2007	2008	2009	Total	Percent
≤ 12	2	5	5	12	17%
13-15	3	4	2	9	13%
16-17	4	1	2	7	10%
18-35	4	4	6	14	19%
36-50	5	6	4	15	21%
51-65	2	2	3	7	10%
66+	5	2	0	7	10%
NOT STATED	1	0	0	1	1%
Total	26	24	22	72	100%

Source: Alameda County Public Works Agency

Party-at-fault/Primary Collision Factor

Of the collisions during 2007-2009 where fault was assigned, 65 percent were assigned to the driver as the party-at-fault. In more than half of these incidents, the driver failed to yield the right-of-way to the pedestrian while the pedestrian was in the crosswalk.

For the collisions where pedestrians were deemed at fault, most occurred when the pedestrian was crossing not in a crosswalk; more than half of the pedestrians at fault were under the age of 18.

Safety and Education Programs

The safe interaction between pedestrian, bicyclists, and motorists hinges on a shared understanding of the basic rules and responsibilities for travel on public roads. Communities and schools can play a lead role in promoting this understanding through educational programs and other initiatives that encourage safe, responsible behavior by all road users. The following section documents the existing bicycle and pedestrian safety and education programs currently in place in the Unincorporated Areas. In addition, recommendations are made for enhancing existing programs and implementing new, cost-effective programs that have been successful in other communities.

Existing Bicycle and Pedestrian Safety and Education Programs

Bike to Work Day: The Alameda County Public Works Agency annually sponsors Energizer Stations for Bike to Work Day at Bay Fair BART, Grant Elementary School, Dublin/Pleasanton BART, and Castro Valley BART. Additional Energizer Stations were hosted at Bohannon Middle School by Cycles of Change and Alameda County Safe Routes to School and at San Lorenzo High sponsored by San Lorenzo High Green Academy and Cycles of Change. Musette bags filled with safety and informational brochures, snacks, and prizes were handed out.

Bicycle Safety Classes: Free bicycle safety classes are offered to adults and older children (14 years and older) by the East Bay Bicycle Coalition (EBBC). This includes a half-day classroom workshop and half-day on-road training. These classes are held throughout Alameda County. In addition, the EBBC also offers a family cycling workshop including safety drills, skills building, and a neighborhood ride. Lunchtime commute workshops are also available to businesses and schools to learn more about the potential for bicycle commuting.

Walkable Neighborhoods for Seniors (WN4S): The goal of this group is to increase safety for and the awareness of the benefits of walking for older adults, particularly in Oakland, Cherryland, and Ashland. Serving community centers is an increasing priority. There are several senior centers in the Unincorporated Areas that promote walking as a wellness program. The county has received several requests to improve sidewalks and crosswalk near senior centers.

The most notable pedestrian education and marketing program in Alameda County is the Walkable Neighborhoods for Seniors program, which is funded by the Robert Wood Johnson Foundation and managed by the United Seniors of Oakland and Alameda County. The geographic focus is Oakland, Cherryland and Ashland. The activities include walking clubs with designated walking routes, walkability surveys and walkable community workshops. The goals of this program are as follows:

- Increase public and policymakers' awareness of the benefit of walking for older adults;
- Increase older adult pedestrian safety and walking behavior; and
- Develop a coalition to implement a work plan that promotes environmental and policy changes.

Safe Routes to Transit: In the Unincorporated Areas, bus stops are located throughout the AC Transit service area, generally every two blocks. AC Transit found that approximately 90 percent of passengers walk to their first transit stop compared to all other methods (driving, being a car passenger, bicycling). AC Transit has prepared *Designing with Transit*, a toolkit that provides key concept to improve transit and pedestrian friendliness.

The Castro Valley BART Station is located within the Unincorporated Areas; the Bay Fair BART Station is directly adjacent and the Hayward BART Station within close proximity (about 0.5 miles). These stations are well served by the recommended bikeway network. In addition, the County will design and construct pedestrian scale improvements on 159th Ave/Coelho between East 14th Street and the Bay Fair BART Station as part of the Ashland Community Transit Access Project. This would include: widened sidewalks, landscaped buffer between the travel lanes and the sidewalk, trees, intersection improvements, pedestrian-scale lighting and wayfinding signage.

The Hayward Amtrak Station is just across the Hayward City Limits and is served by existing bike lanes on Meekland Avenue in San Lorenzo. The Vasco ACE station is located in Livermore but less than ¼ mile from the border with the Unincorporated Areas. Bike lanes on East Avenue, Tesla Road, and Greenville Road connect with existing facilities in Livermore for access to this station.

School Crossing Guard Program: The Alameda County Public Works Agency coordinates pedestrian crossing guards to assist children in crossing busy streets on their way to and from most of the elementary and middle public schools in the Unincorporated Areas. Each pedestrian crossing guard receives training in their specific duties, local traffic regulations, and crossing techniques.

Neighborhood Traffic Calming Program: Alameda County has developed guidelines and procedures for the implementation of traffic calming measures on local and minor collector streets and to help educate residents on their options if they have traffic safety concerns. Specifically, the program addresses residential neighborhood impacts such as motorists driving above the posted speed limit or using residential roadways as a bypass to more congested major routes.

Alameda County Share the Road Program: This program was developed to educate people on how to prevent collisions by safely sharing the road with all users. As part of this effort, a safety brochure was prepared including safety tips for motorists, bicyclists and pedestrians. The brochure can be downloaded at <http://acgov.org/pwa/>.

Sidewalk Repair Program: The Alameda County Board of Supervisors approved a resolution that allows the Alameda County Public Works Agency to participate in a Measure B cost sharing program for sidewalk repairs for single-family residential properties in Measure B Planning Area 2. This includes the communities of Ashland, Castro Valley, Cherryland, Fairview, and San Lorenzo. Currently, the Sidewalk Repair Program is funded by \$100,000 of Measure B (administered by Alameda County Transportation Improvement Authority) Bicycle and Pedestrian Safety Funds set aside annually. These Measure B program funds are offered on a “first come, first served” basis while funds are available.

Through this program, the County will reimburse 50 percent of the sidewalk repair cost per property, or a maximum of \$750, whichever is less. Prior to the approval of this resolution, residents were responsible for 100% of the costs of sidewalk repairs. Residents of the affected Unincorporated Areas should contact the Public Works Agency at 510-670-5500 to request a sidewalk inspection.

Safe Routes to School Program: There are about 50 schools within the Unincorporated Areas of Alameda County. These schools include public and private elementary schools, junior high schools and high schools and the Castro Valley Adult School. This program is funded by the Alameda County Transportation Commission (through Alameda County Measure B, Caltrans Safe Route to School, Bay Area Air Quality District and private partnerships) and provides many projects and programs at schools throughout Alameda County including the Unincorporated Areas. This includes both capital projects such as sidewalk and crossing improvements as well as safety and education programs. Other sponsors include the Alameda County Public Works Agency and Alameda County Public Health Department.

Chapter 5: Safety and Education

Providing safe routes to schools is one of the County's highest priorities. Since the last bicycle and pedestrian master plans, the County completed safe routes to school capital projects at Arroyo High (Washington Avenue), Castro Valley Elementary, Castro Valley High, Cherryland Elementary (Willow Avenue, Princeton Street, Sunset Avenue, Western Boulevard, and Hampton Road), Colonial Acres Elementary (Meekland Avenue at Hampton Road/Paseo Grande), Grant Elementary (Washington Avenue), Hillside Elementary, Stanton Elementary, and St. John schools. Additional projects are under design/construction and should be completed in the next few years at Arroyo High (Grant Avenue), Chabot Elementary, Cherryland Elementary (Haviland Avenue), Colonial Acres (Meekland Avenue), Fairview Elementary, Marshall Elementary, San Lorenzo High and St. John schools. Pedestrian counts have been collected at the adult crossing guard locations at local elementary schools. These findings are presented in **Chapter 4**.

Safe Routes to School programs are provided at the request of the schools and community in partnership with Transform²¹, the East Bay Bicycle Coalition²², and Cycles of Change²³. Training, ready-to-use materials, and advisory services are also available to the schools to set up their own programs. Many of the programs listed below are funded in part by the Alameda County Safe Routes to School Program.

- **Bike-Tastic Fun Festival:** This event was held on June 11, 2011 at Grant Elementary School as part of the Safe Routes to School Program. It included a Kids Bike Safety Rodeo, bike check-ups, and bike riding skills training. This event was open to all ages but especially targeted children.
- **Kids Bike Rodeos:** The EBBC and Cycles of Change offer a variety of no-cost programs to schools in Alameda County. They include traffic skills building, walking and bicycling safety instruction, bicycle rides, bicycle safety checks, and free helmets. The Rodeos are designed for 4th-5th grade students.
- **Helmet Giveaways:** Free bicycle helmets are fitted and given away at various school and community bicycling events.
- **Bike to School/Walk to School Day:** Bike to School Day is held in May, often coinciding with Bike to Work Day. Walk to School Day, also called Walk and Roll to School Day to encourage both bicycling and walking, is held in October. Many schools in the Unincorporated Area participate with special programs to encourage students to walk and bicycle to school with the participation of parents.
- **Walking School Buses:** A walking school bus is a group of families in the same neighborhood who form a walking group to take children to and from schools. The parents or 'drivers' take turns walking along a set route to and from school, collecting children for designated 'bus stops' along the way. This program is heavily dependent upon parent participation although materials and support are available from the Alameda County Safe Routes to School Program. Schools in the Unincorporated Area have participated in this program in the past.
- **Puppet Shows:** This is a 30-minute performance for K-5th grade students. It follows four characters as they journey to school. Through music, song, and dance, the Big Tadoo Puppet Crew delivers messages about walking and bicycling safety, smart decision making, reducing pollution, and

²¹ Transform is a regional non-profit coalition working to create public transportation and walkable communities in the Bay Area. Transform currently manages the Alameda County Safe Routes to School Program.

²² East Bay Bicycle Coalition (EBBC) is a non-profit bicycle advocacy group representing both Alameda and Contra Costa counties with the mission to promote bicycling as an everyday means of transportation and recreation.

²³ Cycles of Change is a non-profit organization that is helping the East Bay to grow and sustain a mosaic of healthy communities. It offers bicycle education and training programs throughout the East Bay.

building strong and healthy communities. Puppet shows are provided to Alameda County schools upon request.

Recommended Safety and Education Programs

The following safety and education programs are recommended to enhance and expand existing activities in the Unincorporated Areas.

Public Education Campaigns: These campaigns are designed to promote bicycling and walking focusing on the benefits of non-motorized modes.

- As funding or other opportunities become available, consider using volunteers or County staff to create public service announcements for display on television, the internet, and/or outdoor billboards.
- Partner with AC Transit, BART, ACE, and Wheels to display posters promoting safe ways for bicyclists and pedestrians to interact with transit vehicles on the roadway and at transit stops.
- Partner with adjacent cities to share and obtain traffic safety information and best practices. The City of San Jose's "Street Smarts" program offers a well respected safety education module that is easily adaptable to other communities (<http://www.getstreetsmarts.org/>).
- Utilize home mailings and utility bills to distribute brochures, newsletters, and other safety and education materials. Consider providing different materials depending on the target audience, which might vary by location or age.
- Position warning signs at strategic locations advising cyclists and motorists to share the roadway.

Traffic School and Youth "Diversion" Programs: Bicycle safety should be an integral part of traffic school curricula for motorists; however, cyclists hold an equal obligation to adhere to traffic rules. Accordingly, the County should consider instituting a traffic school for bicyclists that are given tickets for traffic violations. Such a program, as available in Santa Cruz County, would parallel conventional motorist traffic schools and would allow cyclists cited with a moving violation to take a class to lessen or eliminate their financial penalty. A similar, albeit less formal program might also be required of youths who are stopped for illegal cycling maneuvers. In this "diversion" program, youths who ride illegally must attend a one-day remedial cycling skills course, which is typically held on a weekend and conducted by the police department.

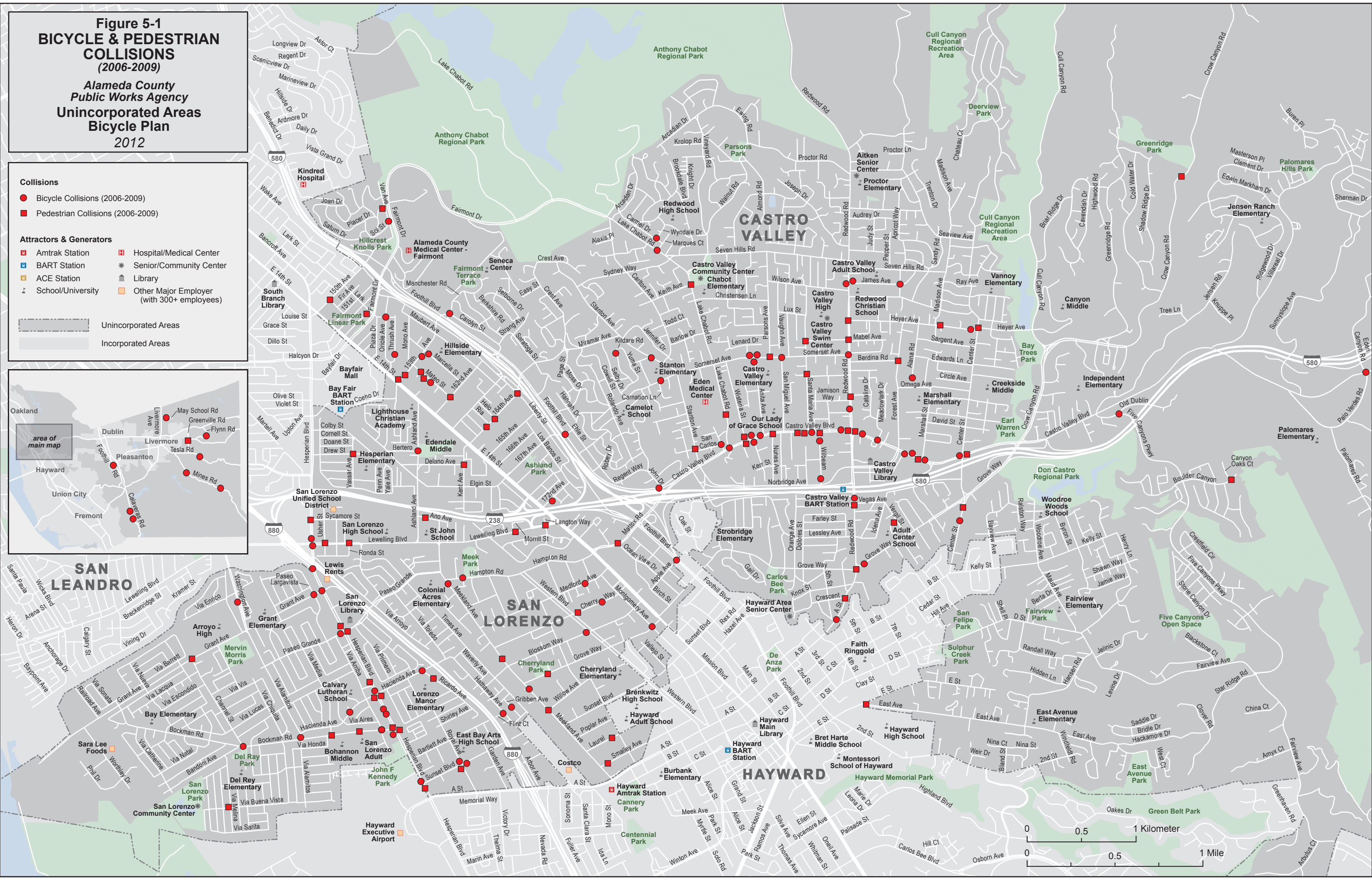
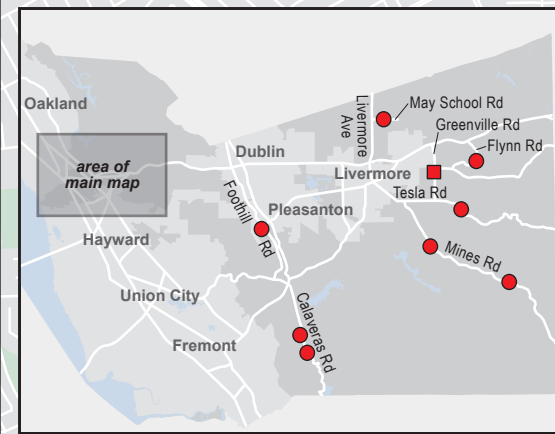
Partnership with Local Bicycle Shops: Bicycle shops are a natural community outlet for the distribution of safe cycling pamphlets, maps, and other informational materials. Bicycle shops are also ideal locations to post notices about bicycle safety workshops and events. Additionally, bicycle shops may also offer knowledgeable personnel and/or sponsorship for future cycling events and workshops.

Walking and Bicycling Audits: The County should consider holding periodic walking and bicycling audits at locations with high incidence of pedestrian and bicycle collisions and/or activity. These events would bring together County transportation staff, police officers, bicycle and pedestrian advocates, and community members to strategize ways of improving walking and bicycling conditions and general safety at these locations.

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**Figure 5-1
BICYCLE & PEDESTRIAN
COLLISIONS
(2006-2009)**
*Alameda County
Public Works Agency
Unincorporated Areas
Bicycle Plan
2012*

- Collisions**
- Bicycle Collisions (2006-2009)
 - Pedestrian Collisions (2006-2009)
- Attractors & Generators**
- Amtrak Station
 - BART Station
 - ACE Station
 - School/University
 - Hospital/Medical Center
 - Senior/Community Center
 - Library
 - Other Major Employer (with 300+ employees)
- Unincorporated Areas
--- Incorporated Areas



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