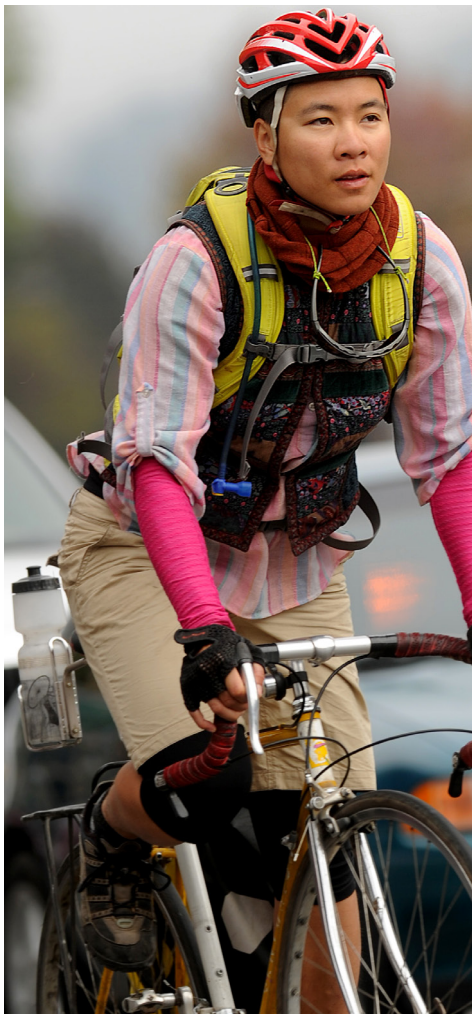

ALAMEDA COUNTY

DRAFT Pedestrian and Bicycle Manual Counts Report, 2002 - 2012

ALAMEDA
County Transportation Commission

Prepared by Wheeler Planning and Switchpoint Planning
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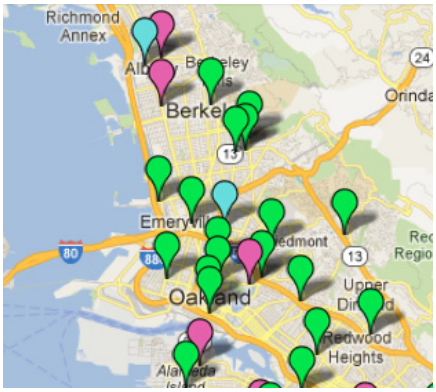

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Executive Summary

The Alameda County Transporation Commission (Alameda CTC), along with several regional agencies and educational institutions, has been collecting data on the number of bicyclists and pedestrians throughout the county since 2002. This data, while useful, was not always collected in a consistent manner. In 2010, the Alameda CTC established an annual count program with the selection of 63 sites at which to conduct counts every year using the same methodology. The primary goal of the count program is to provide countywide trends in bicycling and walking over multiple years. Where there is sufficient data, the goal is also to assess trends at the sub-county level using the North, Central, South and East planning area groupings.

In 2011, Alameda CTC published the first report analyzing data collected from 2002 to 2010. This report provides the second update to this initial report, an analysis of count data collected in 2011 and 2012.

Data Sources and Methodology

The manual count data used in this report was collected during four distinct time periods, as shown in Figure ES-1. The morning, or "AM," count period was added this year as a pilot. Sites counted during the school period were also counted during the morning period to gauge the differences between them and to assess whether a morning period should be included in the ongoing count program.

Figure ES-1: Standard Time Periods

Count Period	Standard Time
Mid-day	12 to 2 PM
School	2 to 4 PM
PM	4 to 6 PM
AM (Pilot)	7 to 9 AM

There are two groupings of manual count data that serve different purposes:

- "Longitudinal data" describes historic trends since 2002 using a small set of count locations that are available for this comparison. Although it is only a small number of locations, this data set is useful for tracking the long-term trends, since it allows observing an eleven-year trend line.
- "Annual data" uses a larger number of locations that were selected in 2010 for the annual count program. These locations were counted again in 2011 and 2012. As time goes on, this larger set of data will provide accurate trends in walking and bicycling throughout the county and at the planning area level.

Figure ES-2 below shows a summary of the years in which manual counts were conducted and the number of sites for each grouping of data, by time period.

Figure ES-2: Annual and Longitudinal Data Sets

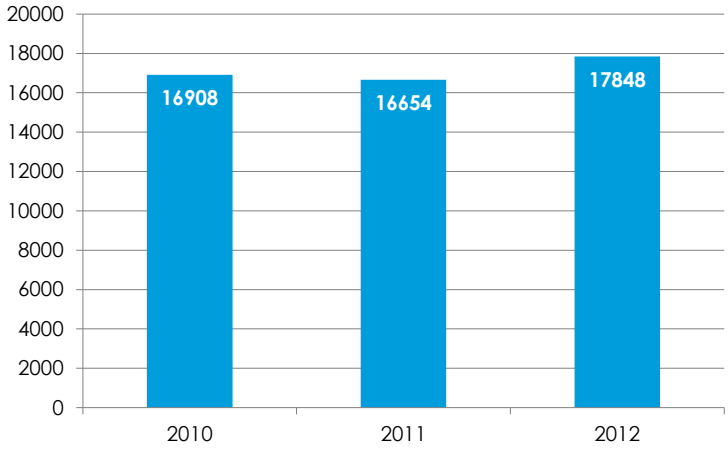
	Annual Data			Longitudinal Data	
Count Period	Comparison Years	# of Sites for Time Period Comparisons	# of Sites for Gender and Helmet Analyses	Comparison Years	# of Sites
Pedestrian					
PM	2010, 2011, 2012	61	63	2002, 2003, 2010, 2011, 2012	6
Mid-day	2010, 2011, 2012	42	45	N/A	N/A
School	2010, 2011, 2012	16	18	N/A	N/A
AM (Pilot)	2012	16	17	N/A	N/A
Bicycle					
PM	2010, 2011, 2012	61	63	2002, 2004, 2006, 2008, 2010, 2011, 2012	9
Mid-day	2010, 2011, 2012	42	45	N/A	N/A
School	2010, 2011, 2012	16	18	N/A	N/A
AM (Pilot)	2012	16	17	N/A	N/A

Note: Sites that were not counted during the same time period for all comparison years are not included in the time period analyses, but are included in the gender and helmet analyses.

Pedestrian Count Trends

Pedestrian counts increased across all time periods from 2011 to 2012, with the largest jump (7%) during the PM peak period. Longer-term trends show considerable growth in the last decade, with pedestrian counts increasing by 59% from 2002 to 2012. A Summary of the pedestrian count trends is provided below.

Total Pedestrians (2010, 2011, 2012; weekday PM; 61 sites) (as seen in Chapter 2, Figure 2-2)



Annual Count Data – 2010 to 2012

- Pedestrian counts increased from 2011 to 2012 across all time periods.
- The PM period data shows a 7% increase in pedestrian counts in the last year (and a 6% increase from 2010 to 2012).
- Mid-day period pedestrian counts also show a 5% increase over 2011 (and a 7% increase from 2010 to 2012).
- School period data, based on counts collected at 16 sites that are within a half-mile of at least one K-12 school, shows a minor increase of 2%, which may not be significant (from 2010 to 2011 there was essentially no change in pedestrian counts.
- By area of the county, the percent change in pedestrians from 2011 to 2012 shows increases in all planning areas. Central County saw the highest percent growth, with a 46% increase over 2011 counts, and the South and East County had increases of 9% and 25% respectively, and

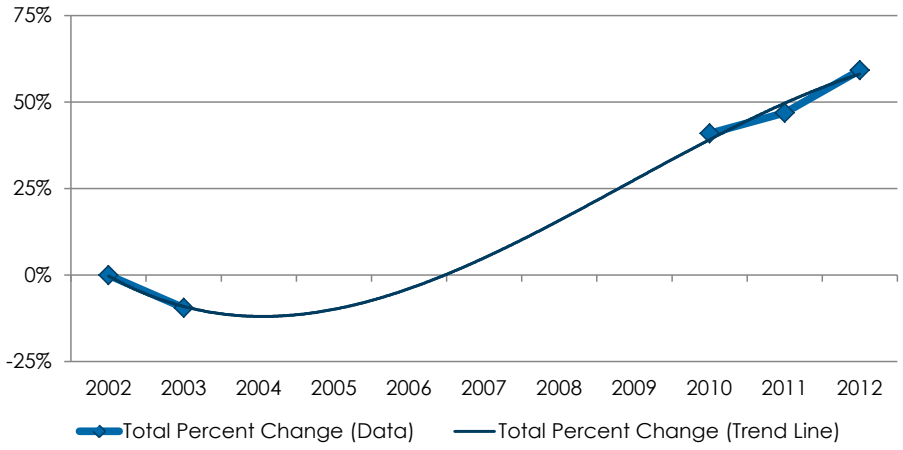
the North, with the highest number of pedestrians counted, showed 3% in growth.

- The pilot AM period pedestrian counts were 6% lower than the school period counts at the same sites. At the site level, just over half of the sites showed lower pedestrian counts during the AM period than during the school period. This suggests that counting during the AM time period is not sufficiently different to warrant counting both periods or switching the counts near schools to the AM time period.

Longitudinal Count Data – 2002 to 2012

The long-term trend in PM period pedestrian counts continues to be upward. From 2002 to 2012, pedestrian counts increased by 59% at a set of six common sites (see Figure ES-3 below, and Figure 2-7, which lists the count sites). The longitudinal data trends for pedestrians are shown below as the percentage change relative to 2002, with a trend line that shows estimated increases between 2003 and 2010, during which no data is available.

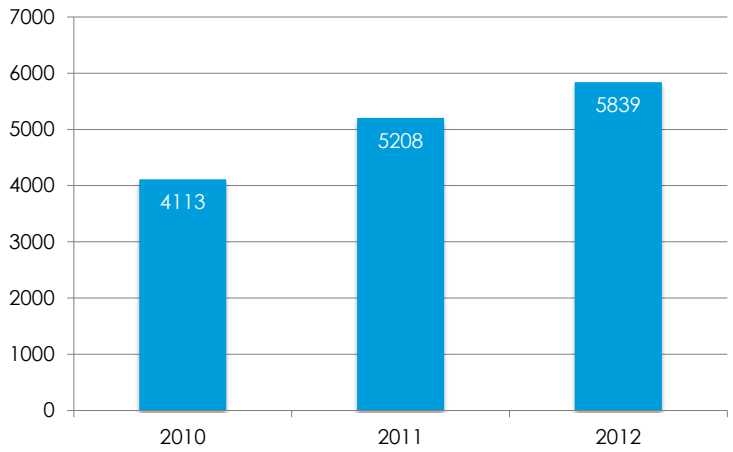
Figure ES-3: Percent Change in PM Pedestrian Counts Relative to 2002 (2002, 2003, 2010, 2011, 2012; weekday PM, 6 sites, which are listed in Figure 2-7)



Bicyclist Count Trends

Bicyclist counts increased between 2011 and 2012 during all time periods, continuing a steady trend in increasing counts seen since 2002. A summary of bicyclist count trends is provided on the following page.

Total Bicyclists (2010, 2011, 2012; weekday PM; 61 sites) (as seend in Chapter 3, Figure 3-2)



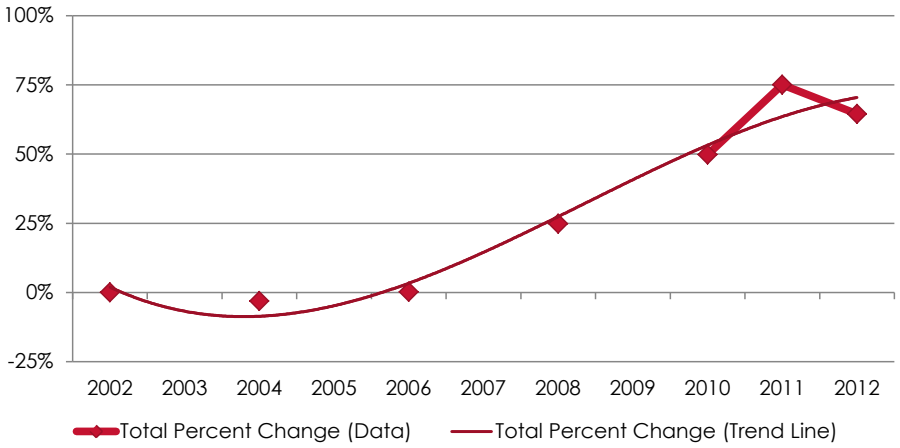
Annual Count Data – 2010 to 2012

- Bicyclists counted in the PM period increased by 12% from 2011 to 2012 (and 42% from 2010 to 2012).
- The mid-day period counts also show a 12% increase from 2011 to 2012 (and a 54% increase from 2010 to 2012).
- The school period saw a more significant increase of 94% from 2011 to 2012 at the 16 count sites within at least a half mile of a K-12 school, (and a 115% increase since 2010).
- By area of the county, the percent change in bicyclists from 2011 to 2012 shows increases in all planning areas. Central County saw the highest percent growth, with a 56% increase over 2011 counts, East County showed an increase of 25%, and the North and South had increases of 8% and 6% respectively. While the North shows one of the lower percent growth rates, it has the highest increase in the number of bicyclists counted.
- The pilot AM period bicyclist counts were 23% higher than the school period counts at the same sites. The variation by site did not correlate to distance from the school, suggesting that the higher AM counts are likely due to non-school-related bicycle commuters and not to significant differences in school-related bicycle trips.

Longitudinal Count Data – 2002 to 2012

Comparing the 9 sites that have been consistently counted during the PM period since 2002, there was a 64% increase in bicycle counts from 2002 to 2012. This is a decrease of 11 percentage points from 2011 to 2012, which is not reflected in the larger annual count data set. Figure ES-4 below shows the percentage increase of PM period counts relative to 2002, as well as a trend line that best fits this data.

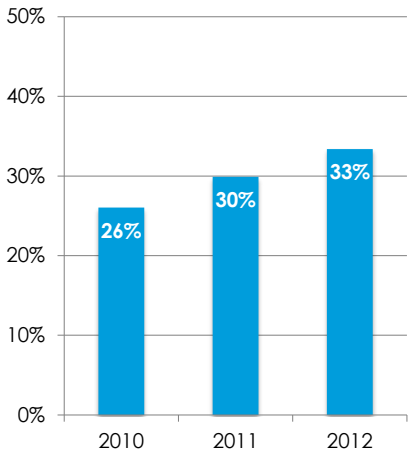
Figure ES-4: Percent Change in PM Bicyclist Counts Relative to 2002 (2002, 2004, 2006, 2008, 2010, 2011, 2012; weekday PM, 9 sites, which are listed in Figure 3-7)



Gender and Helmet Data

Bicyclist gender and helmet use is also collected as part of the manual count program. The following summarizes the trends in these two areas.

Percent female by year (2010, 2011, 2012; weekday mid-day, school and PM periods; 63 sites) (as seen in Chapter 3, Figure 3-13)

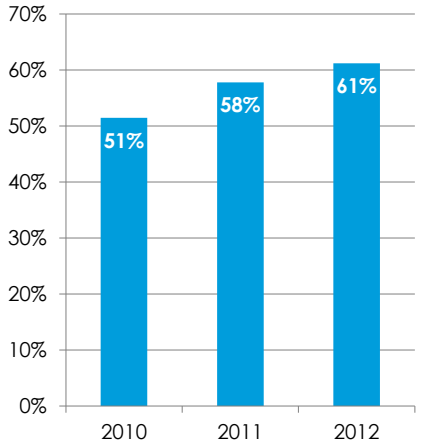


- Women accounted for 49.6% of pedestrians in 2012. This is down less than 1% from the 2011 counts, which is likely not significant at this aggregated level. At the planning area level, women made up 49% of pedestrians counted in the North planning area in 2012, and 48% and 50% in the Central and South planning areas. In the East planning area, females made up 42% of pedestrians in 2012.
- Women made up 33% of bicyclists counted in 2012. However, the proportion of female cyclists has risen steadily and significantly over the last three years, from 26% in 2010. By time period, female bicyclists made up 33% of bicyclists counted during PM period in 2012, 36% during the school

period, and 31% of mid-day period bicyclists. By planning area, females made up 36% of bicyclists counted in the North, 27% in the Central planning area, 31% in the South, and 14% in the East planning area.

- Helmet usage increased between 2011 and 2012 from 58% to 61% of all bicyclists counted. Increases in helmet usage were seen in all time periods except the mid-day where it remained even with last year, and in all areas of the county except the South planning area where it decreased from 62% to 55%.
- Helmet use among women is 11% higher than among males, as seen in the count data. At the planning area level, the difference is most distinct in the Central planning area where 22% more females than males wore helmets. The increase in females bicycling may be one explanation for the increase in helmet use.

Helmet use (2010, 2011, 2012; all time periods; 63 sites) (as seen in Chapter 3, Figure 3-16)



Contextual Data and Trends

The bicyclist and pedestrian count trends are compared in this report to various other data sources, as summarized below.

Collisions

- While pedestrian injuries and fatalities due to collisions decreased 20% in Alameda County between 2002 and 2010, pedestrian volumes in the PM period increased by 41% during this same period. This suggests a significant decline in the number of fatal or injury collisions per pedestrian in the county.
- From 2002 to 2010, the total number of bicycle injuries and fatalities due to collisions rose by 17%. During this same period, bicyclist volumes increased by 50% suggesting a lower collision rate per bicyclist.

Access to BART

- Increased walking and biking in the county has coincided with increases in the percentage of people walking and biking to BART stations in Alameda County.

Population

- The total increase in the population of Alameda County from 2002 to 2012 was 4.9%, as compared to the 59% and 64% increases in pedestrians and bicyclists counted, respectively, during this same period.

California Gasoline Prices

- From 2002 to 2012, gas prices rose by 161%, as compared to the 59% and 64% increases in pedestrian and bicycle counts, respectively, suggesting that increasing gas prices could be influencing the changes in walking and biking.

Unemployment Rate

- From 2002 to 2012, the unemployment rate rose 36%, and in the same period walking and biking increased 59% and 64% respectively. While there are correlations, there is not enough data to make conclusive assessments on the impact of unemployment on walking and biking in the county.

The goal is to provide overall countywide trends in bicycling and walking over multiple years.

1. Introduction

Purpose

The primary goal of the Alameda CTC bicycle and pedestrian count program is to provide overall countywide trends in bicycling and walking over multiple years. Where there is sufficient data, the goal is also to assess trends at the sub-county levels using the North, Central, South and East planning area designations.

The countywide count program includes data from both annual manual counts conducted at intersections and ongoing automated bicycle/pedestrian counters that are located on multi-use trails and in bicycle lanes.

Having a regular count program with consistent walking and bicycling data is important for many reasons, including:

- **Baseline Data:** To have a standard methodology used over multiple years so as to accurately compare the trends across the county.
- **Safety:** To understand the changes in collision rates, i.e., the number of bicycle/pedestrian collisions relative to their volumes.
- **Timely Data:** To see trends as they are happening. Annual count data shows trends more immediately than data sources that are collected less frequently.

Having a regular count program with consistent walking and bicycling data is important to capture trends over multiple years and compare trends across the county.

- **Modeling:** To assist with enhancing the regional and countywide transportation models' ability to predict walking and biking trips.
- **Performance Metrics:** To have data that tracks the progress of Countywide Bicycle and Pedestrian Plan implementation and climate protection policies.
- **Return on Investment/Planning:** Although many factors contribute to walking and bicycling rates, counts can help show the impact of bicycle/pedestrian capital facilities and programs so as to improve decision-making. For example, it may be possible to assess the changes in school trips as a result of Safe Routes to Schools programs.

Although counting at selected intersections captures only a small subset of people who are biking and walking, it is standard practice to use a limited set of locations to extrapolate the number of people using these modes. The intent is not to count everyone who is on foot or bike, or even those places with the highest number of bicyclists and pedestrians, at any one time. Rather, the goal is to paint a picture of changes over time.

Manual Count Program

Bicycle and pedestrian counts have been conducted at various locations and time periods around the county since 2002. The history of this program and the current methodology for the manual count portion of the countywide program are described below.

There are two groupings of manual count data presented in this report, each of which serves a different purpose:

- "Longitudinal data" describes historic trends since 2002 using a small set of count locations that are available for comparison. Although it is only a small number of locations, this data set is useful for tracking the long-term trends, since it allows observing an 11-year trend line.
- "Annual data" uses a larger number of locations that were selected in 2010 for the annual count program. These locations were counted again in 2011 and 2012. As time goes on, this larger set of data will provide accurate trends in walking and bicycling throughout the county and at the planning area level.

Figure 1-1 shows a summary of the years that manual counts were conducted and the number of sites for each grouping of data, by time period.

The count locations used in this report are shown on the map in Figure 1-2, and are listed with the count data in Appendices A-1 and A-2.

Figure 1-1: Annual and Longitudinal Data Sets

	Annual Data			Longitudinal Data	
Count Period	Comparison Years	# of Sites for Time Period Comparisons	# of Sites for Gender and Helmet Analyses	Comparison Years	# of Sites
Pedestrian					
PM	2010, 2011, 2012	61	63	2002,2003,2010, 2011, 2012	6
Mid-day	2010, 2011, 2012	42	45	N/A	N/A
School	2010, 2011, 2012	16	18	N/A	N/A
AM (Pilot)	2012	16	17	N/A	N/A
Bicycle					
PM	2010, 2011, 2012	61	63	2002,2004,2006,2008, 2010, 2011, 2012	9
Mid-day	2010, 2011, 2012	42	45	N/A	N/A
School	2010, 2011, 2012	16	18	N/A	N/A
AM (Pilot)	2012	16	17	N/A	N/A

Note: Sites that were not counted during the same time period for all comparison years are not included in the time period analyses, but are included in the gender and helmet analyses.

Longitudinal Count Locations

Since 2002, Alameda CTC and other agencies have collected manual count data for countywide purposes at 101 different locations around the county. Some of these counts were of bicyclists only and some were in different time periods. The same sites were not counted in each year. Therefore, there is no trend line for all 101 sites. The historic counting efforts have included:

- The (former) Alameda County Congestion Management Agency's biennial Level of Service (LOS) Monitoring Report included bicyclist counts at 12 locations. These were

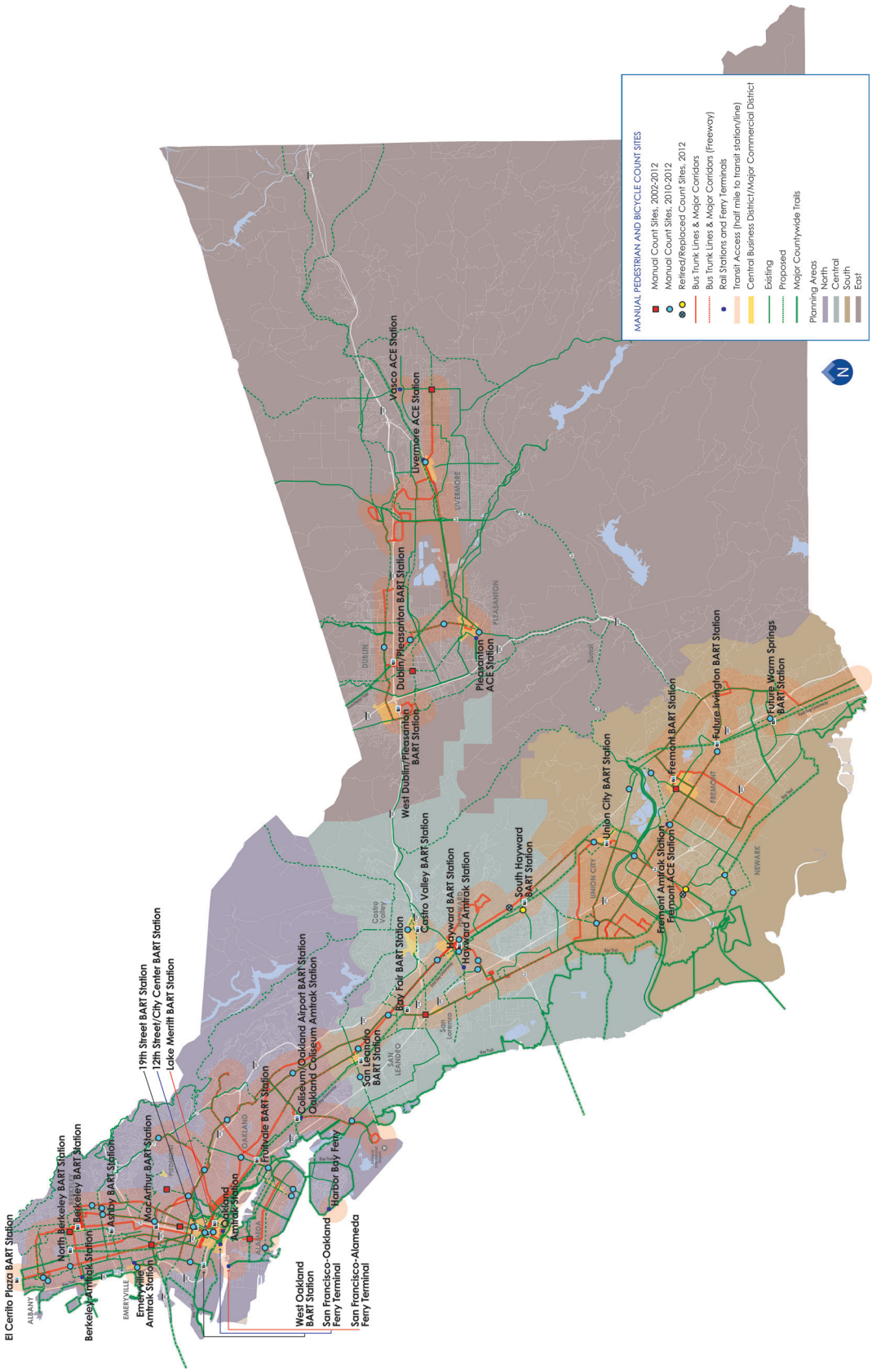


Figure 1-2: Map of Manual Count Locations

conducted by local jurisdictions throughout the county in 2002, 2004, 2006 and 2008.

- The Metropolitan Transportation Commission (MTC) conducted regional bicyclist and pedestrian counts in 2002 and 2003 at 13 and 6 locations, respectively, in Alameda County.
- UC Berkeley's Safe Transportation Research & Education Center (SafeTREC), formerly the Traffic Safety Center, with funding from the Alameda CTC, conducted bicycle and pedestrian counts at a combined 79 locations in 2008 and 2009 to assist in developing a model to predict pedestrian and bicyclist volumes. These locations were mainly, but not exclusively, on Caltrans facilities, since this was the focus of the research project.

Data that was collected at the same sites, during the same time periods, and for the same set of years is considered comparable. The longitudinal data set includes comparable counts that span 11 years, and are limited to six common sites for pedestrians and nine for bicyclists. There is not enough comparable data to do a longitudinal analysis for the mid-day and school periods.

Additional information on the historical manual count data, including the year, lead agency, time period and data collected, are shown in Appendices A-3 and A-4.

Annual Count Locations

In 2010, 63 count locations were selected by Alameda CTC for an annual count program, most of which were a subset of the 101 count locations described above. The sites were selected based on a set of criteria that includes the following:

Primary Criteria (in order of importance)

- Locations where counts have been conducted historically, especially those counted in earlier years.
- On the Countywide Bicycle or Pedestrian Network. All locations are on one or both networks.
- Distribution of sites by area of the county, based on population (to follow national best practices on the number of counts needed to accurately reflect walking and biking)

Secondary Criteria

- Variety of land uses – commercial, residential, industrial and offices
- Variety of land use density (within ¼-mile radius) – high, medium and low
- Variety of street types
- Variety of types of crossings: signalized and unsignalized
- Some locations near transit (within a ¼-mile radius)
- Some locations near multi-use trails (within a ¼-mile radius)
- Some locations near schools (within a ½-mile radius)
- Minimum distance between count locations of ¼-mile to reduce interdependence between the sample locations

These 63 selected sites, or a subset of them, have been the focus of the Counts Reports published in 2011 and 2012. For the fall 2012 counts, 61 of these sites remained the same, while two sites were retired and replaced with new locations due to issues with the intersection configurations, as follows:

- Mission Boulevard and Jefferson Street in Hayward was replaced by Whitman Street and Tennyson Road in Hayward, which is 0.8 miles away; and
- Ardenwood Boulevard (CA 84) and Newark Boulevard (east-side interchange ramp) in Newark was replaced by Newark Boulevard and Jarvis Avenue in Newark, which is one block away.

Data from these retired and new replacement sites is not used in the time period comparisons, but is used in the gender and helmet analyses in this report.

Additionally, two sites in Emeryville were counted during the incorrect time periods in 2012, affecting the number of sites in the mid-day and school period comparisons. The Powell Street and Christie Avenue site was counted during the school period in 2012, instead of the mid-day period; and the San Pablo Avenue and 40th Street site was counted during mid-day period in 2012 instead of the school period. Data collected during the PM time period was not affected at these sites.

Data Collection Methodology

Since 2010, the following data has been collected for each count location:

- **Contextual information:** Date, time, weather, and temperature.
- **Pedestrians:** The number of pedestrians crossing each intersection leg (or where an intersection leg would be, if at a 3-way intersection) and their gender.
- **Bicyclists:** The number of bicyclists originating from each intersection leg, their gender, and whether or not they were using a helmet.

Prior to 2010, all or a subset of the above information was collected.

Since 2010, all counts were conducted by paid, trained consultants, on non-rainy days during September and October. (In 2012, several locations were mistakenly counted in November.) Before 2010, counts were either conducted by volunteers, city staff, or paid consultants.

Time Periods

The manual count data used in this report was collected during three distinct time periods, as shown in Figure 1-3. Additionally, in 2012 a morning ("AM") count period was added as a pilot to assess differences at school locations between the AM and afternoon (or "school") count periods. Only those sites counted during the afternoon ("school") period were also counted during the AM period.

Although morning and weekend counts were conducted at some sites prior to 2010, the more recent counts have focused on the mid-day, afternoon and PM time periods. Longitudinal morning and weekend counts are not analyzed in this report due to the lack of comparable data.

Figure 1-3: Standard Manual Count Time Periods

Period	Standard Time
Mid-day	12 to 2 PM
School	2 to 4 PM
PM	4 to 6 PM
AM (Pilot)	7 to 9AM

Automated Count Program

In addition to conducting manual counts, Alameda CTC owns five automated bicycle/pedestrian counters, which allow data to be collected 24 hours a day. These include two in-pavement bicycle-

only counters and three moveable pedestrian/bicycle counters. Figure 1-4 compares the features of these two counter types.

The East Bay Regional Park District (EBRPD) has 24 automated bicycle/pedestrian counters deployed on trails throughout their district, and will be installing more as new trails are built.

Data from both the Alameda CTC and EBRPD counters has not been incorporated into this report, but it will be included in future reports to portray a more robust picture of walking and biking in the county. In particular, the data will show multi-use trail use

Figure 1-4: Automated Counter Features

	Bicycle Counters	Pedestrian/Bicycle Counters
Permanence of installation site	Permanent installation	Moveable
Mode	Bicycles only	Not mode-specific: pedestrians, bicyclists, rollerbladers, etc.
Facility type	Bicycle lanes	Multi-use trails, sidewalks
Installation type	In-pavement	Pole-mounted
Detector Type	Electro-magnetic loop detector	Infrared detector
Direction of travel	One direction	Two directions

around the county. While often used for utilitarian purposes, trails are also heavily used recreationally, so counts on these trails can help track recreational bicycling and walking.

Alameda CTC and EBRPD currently have one or more counters on the following trails in the county with a goal of covering even more trails, and more fully covering each trail, in the future:

- Bay Trail
- Alameda Creek Trail
- Iron Horse Trail
- Encinal Point Trail
- San Leandro Creek Trail
- Oyster Bay Trail
- Tassajara Creek Trail

Alameda CTC is coordinating with the EBRPD and other jurisdictions within Alameda County that currently have or may develop automated count programs in the future, to share data and ensure the most effective usage and siting of the counters.

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Longer-term trends show considerable growth in the pedestrians counted over the last decade.

2. Pedestrian Count Trends

Pedestrian counts increased across all time periods from 2011 to 2012, with the largest jump (7%) during the PM peak period. Longer-term trends show considerable growth in the last decade, with pedestrian numbers increasing by 59% from 2002 to 2012.

Pedestrian count data was collected during four time periods, titled "PM," "mid-day," "school," and "AM, "as described in the Introduction, and shown in Figure 2-1 below. Two sets of data were analyzed, "annual" and "longitudinal." Annual data, collected in 2010, 2011, and 2012 includes the full set of 61count sites for the PM time period. Each of these sites was counted a second time in either the mid-day or school period. And in 2012, a pilot AM

Figure 2-1: Pedestrian Data Sets

	Annual Data			Longitudinal Data	
	Comparison Years	# of Sites for Time Period Comparisons	# of Sites for Gender Analysis	Comparison Years	# of Sites
PM	2010, 2011, 2012	61	63	2002, 2003, 2010, 2011, 2012	6
Mid-day	2010, 2011, 2012	42	45	N/A	N/A
School	2010, 2011, 2012	16	18	N/A	N/A
AM (Pilot)	2012	16	17	N/A	N/A

Note: Sites that were not counted during the same time period for all comparison years are not included in the time period analyses, but are included in the gender analysis.

From 2011 to 2012, the number of pedestrians counted during the PM peak period increased by 7% across the 61 count sites. Over the past three years (2010 to 2012), the number of pedestrians counted increased by 6% (due to a minor decrease from 2010 to 2011).

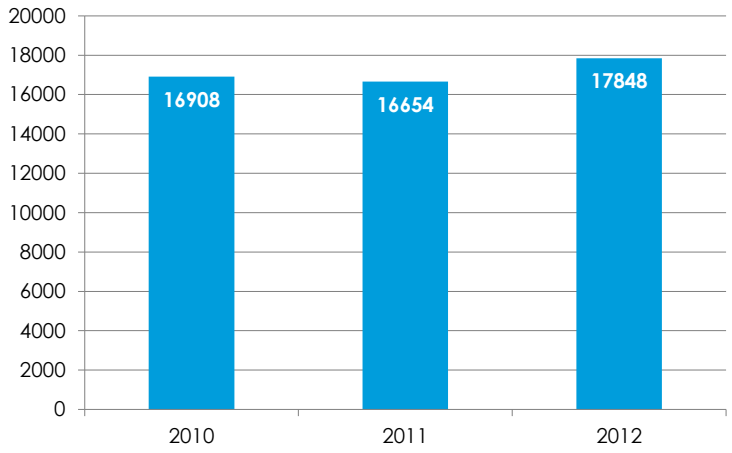
period was added for the 16 sites that were counted during the school period to compare count levels during these two periods. The longitudinal data set compares the more recent annual data with historic counts, where available, at a smaller set of six sites for the PM period only. There is not sufficient historical data to provide a longitudinal analysis for the mid-day and school periods.

Pedestrian Weekday PM (4-6 PM)

Annual Data (2010 to 2012)

From 2011 to 2012, the number of pedestrians counted during the PM peak period increased by 7% across the 61 count sites; this is a greater increase than the other time-periods counted. Over the past three years (2010 to 2012), the number of pedestrians counted increased 6% (due to a minor decrease from 2010 to 2011).

Figure 2-2: Total Pedestrians (2010, 2011, 2012; weekday PM; 61 sites)



The following figures show how these changes were distributed at the planning area level. As shown in Figure 2-3, while the number of pedestrians counted has fluctuated over the past three years, overall, it has increased for most planning areas.

As shown in Figure 2-4, North County saw a 3% increase from 2011 to 2012, which offset the 3% decrease from last year's counts (2010 to 2011). The Central, South, and East, while having fewer overall pedestrians than the North, continue to show steady and significant increases in pedestrians counted. Central County saw

the highest percent growth, with a 46% increase over 2011 counts, and the South and East County had increases of 9% and 25%, respectively. Together with the data from the two previous years, the pedestrian counts have increased, or not changed, as in the case of North County, in all planning areas from 2010 to 2012.

Figure 2-3: Change in Number of Pedestrian by Planning Area (2010, 2011, 2012; weekday PM; 61 sites)

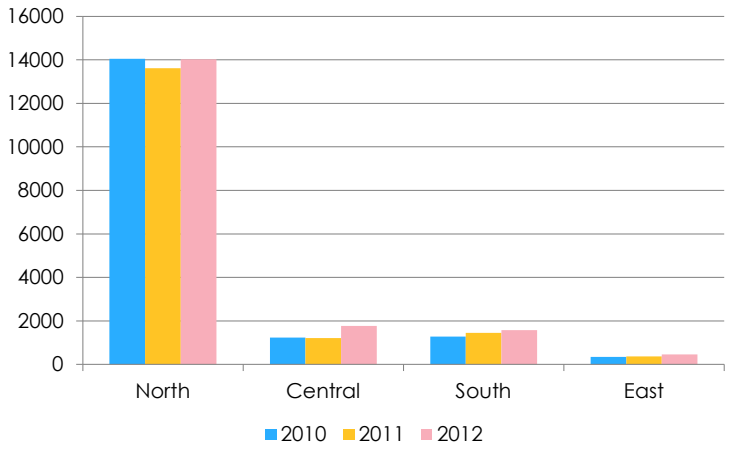
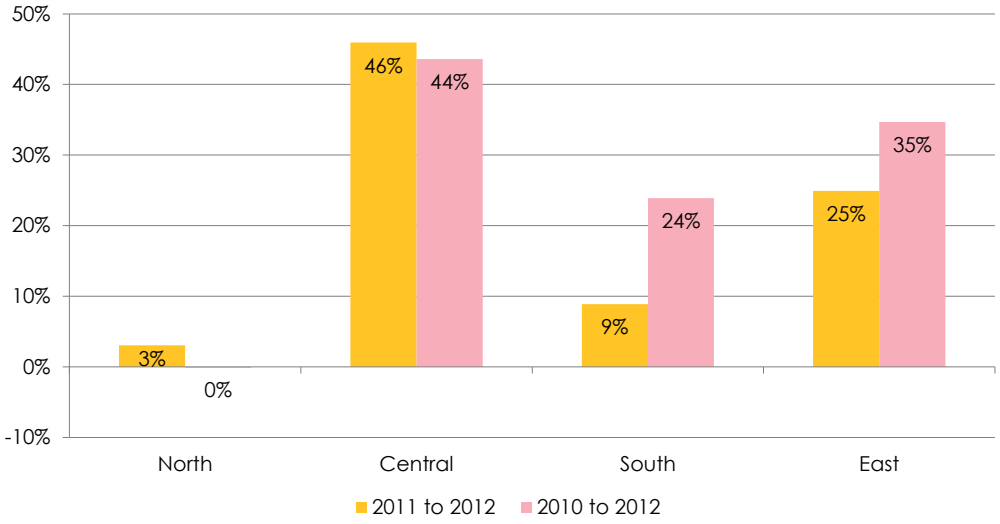


Figure 2-4: Percent Change in Pedestrians by Planning Area (2010, 2011, 2012; weekday PM; 61 sites)



The North planning area has the highest population in the county and the most people walking, so increases in the percent of pedestrians counted translate to higher increases in the number of pedestrians as compared to the other planning areas. For example, the 3% increase in the North planning area from 2011

to 2012 translates to 414 additional pedestrians, while a 9% increase in the South planning area during this same period translates to 129 more pedestrians.

Figure 2-5 shows the changes in the numbers of pedestrians by planning area and compares these numbers with the percentages, over three years.

Figure 2-5: Comparison of Absolute and Percent Change in Pedestrians Counted by Planning Area (2010, 2011, 2012; weekday PM; 61 sites)

	2010	2011	2012	2011 to 2012 # Difference	2011 to 2012 % Change	2010 to 2012 # Difference	2010 to 2012 % Change	# Sites Counted
North	14,052	13,615	14,029	414	3%	-23	0%	30
Central	1,234	1,214	1,772	558	46%	538	44%	13
South	1,276	1,452	1,581	129	9%	305	24%	12
East	346	373	466	93	25%	120	35%	8

Figure 2-6: Variability in Pedestrian Data by site (2010, 2011, 2012; weekday PM; 61 sites)

		2011 to 2012	2010 to 2012
Number and Percent of Sites that...	**Increased**	34 (56%)	32 (52%)
	Decreased	19 (31%)	18 (30%)
	Did not change	8 (13%)	11 (18%)
Sites with Greatest Percentage...	**Increase**	290% Stoneridge Drive and Hopyard Road, Pleasanton	525% Paseo Padre and Decoto Road, Fremont
	Decrease	-36% East Street and Vasco Road, Livermore	-64% Ashby Avenue (CA 13) and Hillegass Avenue, Berkeley
Sites with Greatest Absolute...	**Increase**	270 Winton Avenue and Amador Street, Hayward	255 Winton Avenue and Amador Street, Hayward
	Decrease	-158 College Avenue and Derby Street, Berkeley	-230 Ashby Avenue (CA 13) and Hillegass Avenue, Berkeley

Note: Sites that showed an increase were defined as having a percent change of 5% or greater. Sites with no change in usage were defined as having a pecent change between 5% and -5%. Sites with a decrease in usage were defined as having a percent change of -5% or less.

Just as there is variability at the planning area level, there is also variability at the site level, as shown in Figure 2-6. From 2011 to 2012, 42 count sites (or 69% of all sites) either saw an increase or showed no change in pedestrian numbers, while 19 (or 31%) of the sites showed a decrease in pedestrians during these years. Similar variability is seen in the 2010 to 2012 data.

Longitudinal Data (2002 to 2012)

The PM period, with five years of comparable data covering an 11-year time period, has the most longitudinal data available for pedestrians. While there is a gap in the data from 2003 to 2010, it allows a point of comparison for seeing the longer-term trends, which show overall increasing numbers of pedestrians.

Historically, the numbers of pedestrians counted at six common sites increased by 59% from 2002 and 2012 (see Figure 2-7). During this period, there was a drop in pedestrian numbers from 2002 to 2003 and then a significant rise between 2003 and 2010. From 2010 to 2012, the percent increase shown by this smaller set of sites was 13%, which is slightly higher than the 7% increase seen in the annual count data described above.

Figure 2-7: Total Pedestrians (2002, 2003, 2010, 2011, 2012; weekday PM; 6 sites)

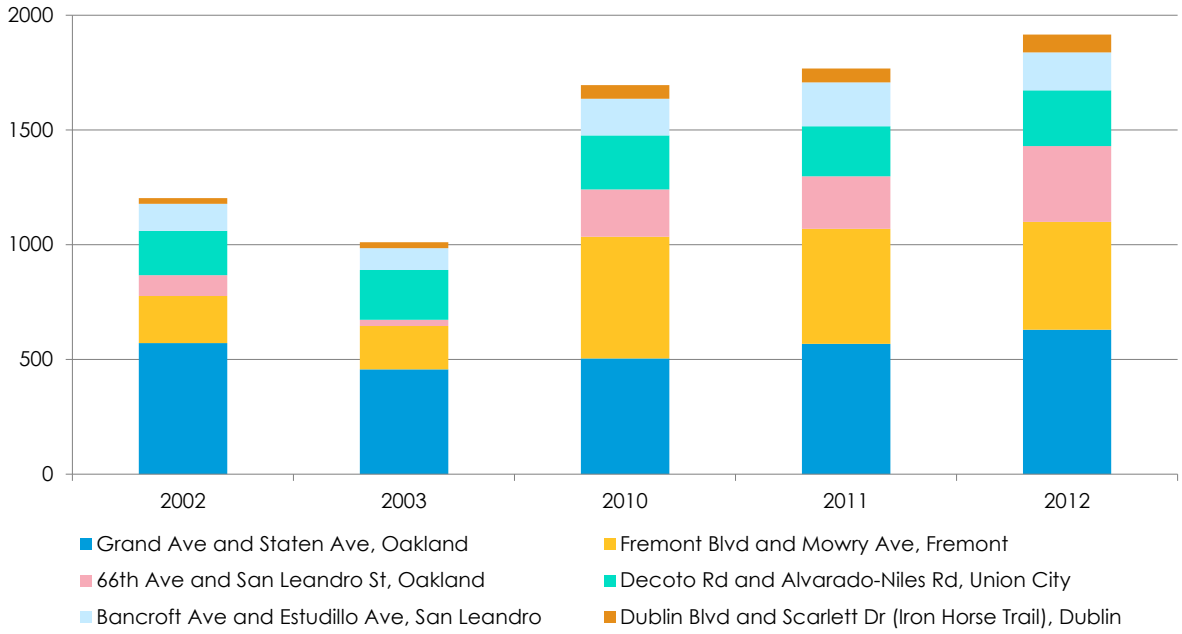


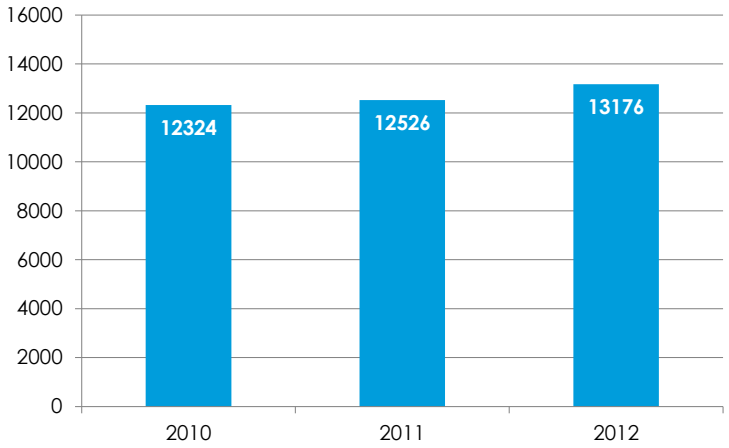
Figure 2-7 also shows the variability at the site level for the longitudinal data. While every one of the six sites saw increases in pedestrians counted between 2002 and 2012, the amount of increase at each site varied. In 2012, the site with the greatest percentage increase (66th Avenue and San Leandro Street in Oakland) was 263% higher relative to the 2002 count. The site with the smallest percentage increase (Grand Avenue and Staten Avenue in Oakland) showed an increase of 10% from 2002.

Pedestrian Weekday Mid-day (12–2pm)

Annual Data (2010 to 2012)

From 2011 to 2012, there was a 5% increase in pedestrian counts over the 42 sites counted during the mid-day period, and a 7% increase from 2010 to 2012, as shown in Figure 2-8.

Figure 2-8: Total Pedestrians (2010, 2011, 2012; weekday mid-day; 42 sites)



At the site level, counts at 26 of the 42 sites (62%) either increased or remained the same from 2011 to 2012. Figure 2-9 on the following page shows the site variability of the mid-day period.

Pedestrian Weekday School (2–4pm)

Annual Data (2010 to 2012)

The number of pedestrians counted during the school period increased only slightly (2%) from 2011 to 2012, as shown in Figure 2-10. The three-year data (2010 to 2012) also shows the total number of pedestrians essentially remaining steady during this count period. All 16 sites included in this analysis are within a half-mile of at least one school, and some of them are near more

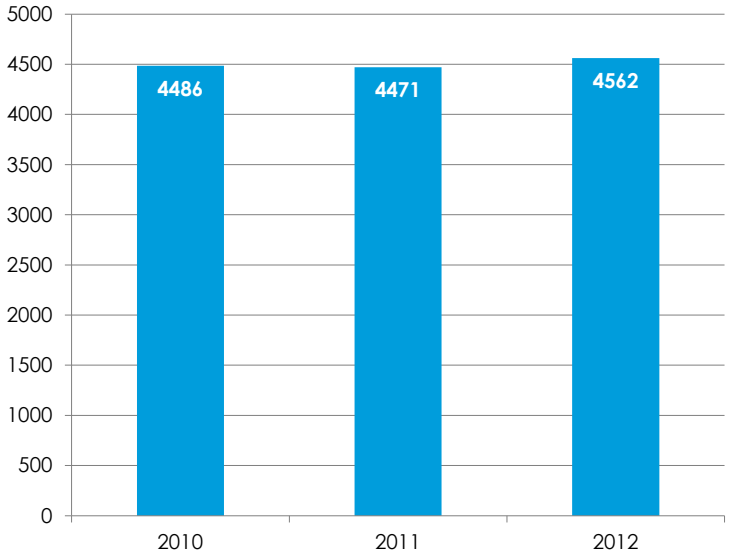
than one school. Additionally, seven of these count sites are within a quarter mile of at least one school.

Figure 2-9: Variability in Pedestrian Data by Site (2010, 2011, 2012; weekday mid-day; 42 sites)

		2011 to 2012	2010 to 2012
Number and Percent of Sites that...	Increased	19 (45%)	24 (57%)
	Decreased	16 (38%)	11 (26%)
	Did not change	7 (17%)	7 (17%)
Sites with Greatest Percentage...	Increase	100% Warm Springs and Grimmer, Fremont	182% Santa Clara and Ocie Way, Hayward
	Decrease	-56% Bancroft Avenue and Auseon Avenue, Oakland	-57% Mowry Avenue (CA 84) and Cherry Ln, Fremont
Sites with Greatest Absolute...	Increase	202 MacArthur Boulevard and 38th Avenue, Oakland	169 Winton Avenue and Amador Street, Hayward
	Decrease	-95 Atlantic Avenue and Webster Street, Alameda	-121 Broadway and 20th Street, Oakland

Note: Sites that showed an increase were defined as having a percent change of 5% or greater. Sites with no change in usage were defined as having a pecent change between 5% and -5%. Sites with a decrease in usage were defined as having a percent change of -5% or less.

Figure 2-10: Total Pedestrians at Count Sites Within a Half-mile of a School (2010, 2011, 2012; weekday school period; 16 sites)



While this overall 2% increase was likely not significant, there was significant variability among the school period sites, as shown in Figure 2-11, with three quarters of the sites showing either an increase in pedestrians counted or no change from 2011 to 2012.

Figure 2-11: Variability in Pedestrian Data by Site at Count Sites Within a Half-mile of a School (2010, 2011, 2012; weekday school period; 17 sites)

		2011 to 2012	2010 to 2012
Number and Percent of Sites that...	Increased	7 (44%)	10 (63%)
	Decreased	4 (25%)	5 (31%)
	Did not change	5 (31%)	1 (6%)
Sites with Greatest Percentage...	Increase	125% Thornton Avenue and Willow Street, Newark	414% Paseo Padre Parkway and Decoto Road, Fremont
	Decrease	-33% Davis St (CA 61) and Pierce Avenue, San Leandro	-42% Central Avenue and Fifth Street, Alameda
Sites with Greatest Absolute...	Increase	87 Grand Avenue and Oakland Avenue, Piedmont	121 Fruitvale Avenue and Foothill Boulevard, Oakland
	Decrease	-75 Chatham Road and 13th Avenue, Oakland	-132 Central Avenue and Fifth Street, Alameda

Note: Sites that showed an increase were defined as having a percent change of 5% or greater. Sites with no change in usage were defined as having a pecent change between 5% and -5%. Sites with a decrease in usage were defined as having a percent change of -5% or less.

Pilot AM Period Data (2012)

In 2012, a morning ("AM") count period was added as a pilot to assess differences at school locations between the AM and afternoon (or "school") count periods. Only those sites counted during the afternoon ("school") period were also counted during the AM period. The AM period counts were 6% lower than the school period counts at the same site. At the site level, just over half of the sites (9 of the 16 sites) showed lower pedestrian counts during the AM period than during the school period. The variation by site did not correlate to distance from the school. Figure 2-12 on the following page shows the variability in the AM and school period data at the same sites. This data suggests that counting

during the AM time period is not sufficiently different to warrant counting both periods or switching the counts near schools to the AM time period.

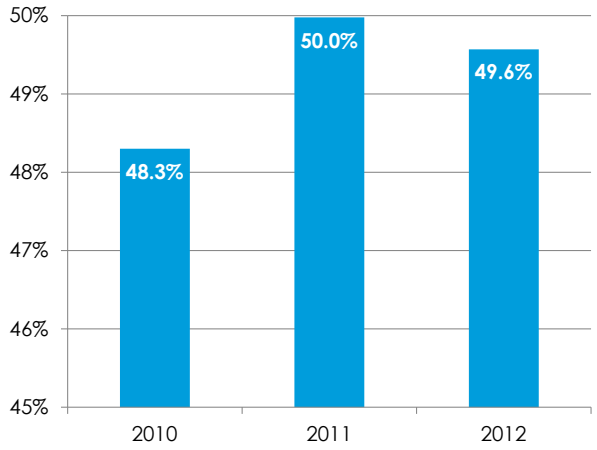
Figure 2-12: Comparison of AM and School Period Counts (2012; weekday AM and school periods; 16 sites)

Percent difference between total bicyclists counted during the AM and school periods at the same sites	-6%
Number (and percent) of sites where AM counts are higher	6 (38%)
Number (and percent) of sites where AM counts are lower	9 (56%)
Number (and percent) of sites where AM counts are equal	1 (6%)

Pedestrian Gender Distribution

While the percent of females in the county population, at 50.9%, is slightly higher than that of males, the percent of females counted walking has typically been lower than males. Between 2010 and 2012, the overall percent of pedestrians that were female ranged between 48.3% and 50.0%, (see Figure 2-13).

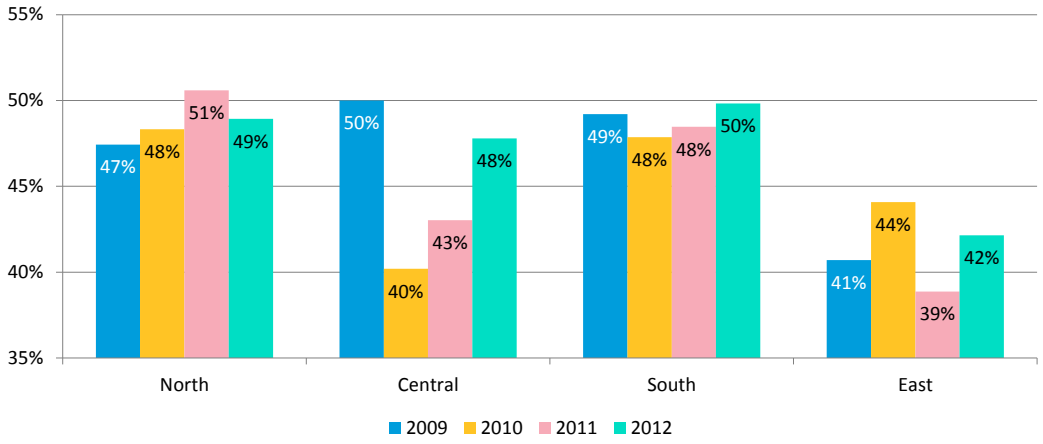
Figure 2-13: Percent Female by Year (2010, 2011, 2012; weekday mid-day, school, and PM; 63 sites)



The percentage of female pedestrians varies considerably throughout the county, as shown in the PM period count data below. (Comparable data for all time periods across all count years for each planning area is not available.)

The North and South planning areas had the highest percentage of female pedestrians in 2012, with 49% and 50% of pedestrians

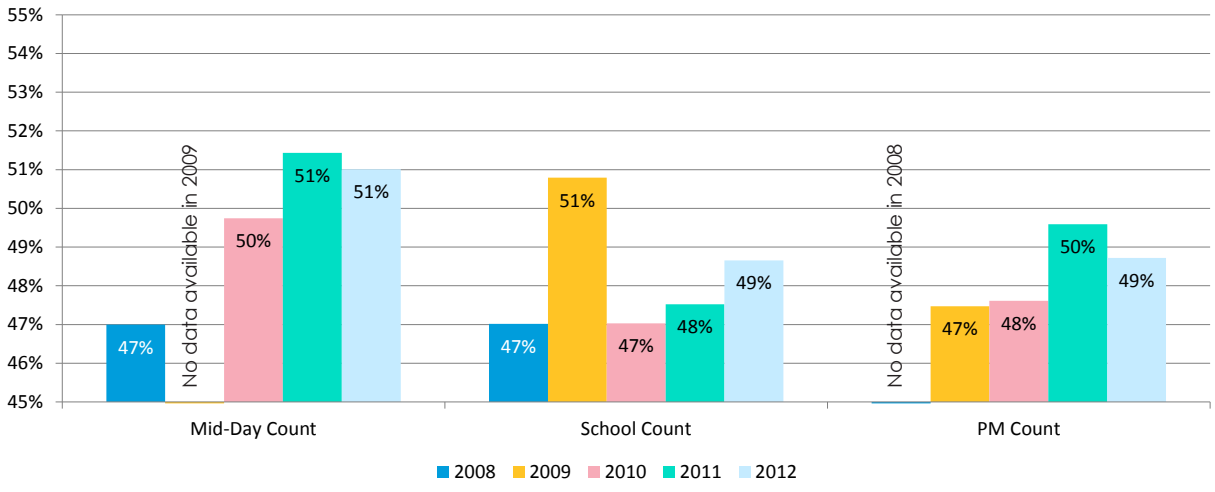
Figure 2-14: Percent Female Pedestrians by Planning Area and Year (2009 to 2012; weekday PM, 63 sites)



counted, respectively. The Central planning area showed significant increases from 43% of pedestrians counted in 2010 to 48% in 2012. The 2009 number in this planning area of 50% female pedestrians appears to be an outlier. The East planning area has the lowest proportion of female pedestrians, with percentages ranging between 39% and 44% females between 2009 and 2012.

As shown in Figure 2-15, the mid-day time period consistently has the highest proportion of female pedestrians counted, with over 50% in 2011 and 2012. The mid-day time period average across all years with gender data is 50.1%. This could be due to the fact that women

Figure 2-15: Percent Female Pedestrians by Time Period (2008, 2009, 2010, 2011, 2012; weekday mid-day, school, and PM periods where data available, 63 sites)



may feel safer walking during daylight hours and may be more likely to walk for exercise during the lunch hour. For the school period, the average for all years with data during this period is 48.0%. In 2009, almost 51% of pedestrians counted were female, but this appears to be an outlier, as the other years' data shows the percentages steadily increasing from 47% in 2008 to almost 49% in 2012. The percent of females counted during the PM time periods is also within this range with the exception of 2011 which saw almost 50% female pedestrians. The average for all years with PM period data is 48.5%. In each of the time periods there appears to be a gradual increase in the number of females walking.

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Bicylist counts went up in every part of the county between 2011 and 2012.

3. Bicyclist Count Trends

Bicyclist counts increased significantly between 2011 and 2012 during all time periods, continuing a steady trend in increasing counts seen since 2002. Notably, the increase in female bicycling has continued, with an increase from 30% to 33% from 2011 to 2012.

Bicyclist count data was collected during four time periods titled "PM," "mid-day," "school," and "AM," as described in the Introduction, and shown in Figure 3-1 below. Two sets of data were analyzed for the PM period: "annual" and "longitudinal." Annual data, collected in 2010, 2011, and 2012, includes the full set of

Figure 3-1: Bicyclists Data Sets

	Annual Data			Longitudinal Data	
Count Period	Comparison Years	# of Sites for Time Period Comparisons	# of Sites for Gender and Helmet Analyses	Comparison Years	# of Sites
PM	2010, 2011, 2012	61	63	2002, 2004, 2006, 2008, 2010, 2011, 2012	9
Mid-day	2010, 2011, 2012	42	45	2008, 2010, 2011, 2012	9
School	2010, 2011, 2012	16	18	N/A	N/A
AM (Pilot)	2012	16	17	N/A	N/A

Note: Sites that were not counted during the same time period for all comparison years are not included in the time period analyses, but are included in the gender and helmet analyses.

61 sites for the PM time period. Each site was counted a second time in either the mid-day or school period.

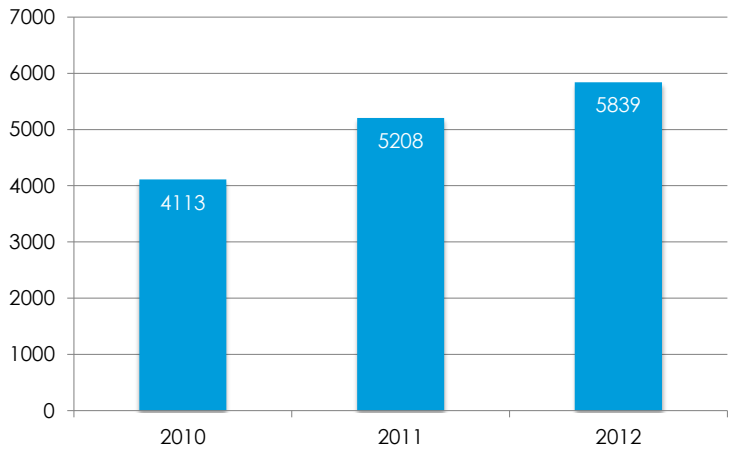
In 2012, a pilot AM period was added for the 16 sites counted during the school period in order to compare the two periods. The longitudinal data set compares the more recent annual data with historic counts, where available, at a smaller set of nine sites for the PM period only. There is not sufficient historical data to provide a longitudinal analysis for the mid-day and school periods.

Bicyclists Weekday PM (4-6 PM)

Annual Data (2010 to 2012)

From 2011 to 2012, there was a 12% increase in bicyclist counts across the 61 count sites, during the PM period, as shown in Figure 3-2. While this is a smaller increase than that seen from 2010 to 2011, which was 27%, it continues the trend of significant annual increases in bicycling.

Figure 3-2: Total Bicyclists (2010, 2011, 2012; weekday PM; 61 sites)



This countywide increase in bicyclists counted was mirrored at the planning area level, where counts increased in each of the four planning areas from 2011 to 2012, continuing a three year upward trend, as shown in Figure 3-3 on the following page.

The percentage increase by planning area is shown in Figure 3-4. The Central area of the county showed the greatest percent change, with a 56% increase in bicyclists counted from 2011 to 2012. The increases during this period in the other planning areas

are 8% in the North area, 6% in the South area, and 25% in the East planning area. These increases build on across the board increases in bicyclist counts in all parts of the county from 2010 to 2011. The greatest increases from 2010 to 2012 were in the Central and South planning areas, as also shown in Figure 3-4.

Figure 3-3: Change in Number of Bicyclists by Planning Area (2010, 2011, 2012; weekday PM; 61 sites)

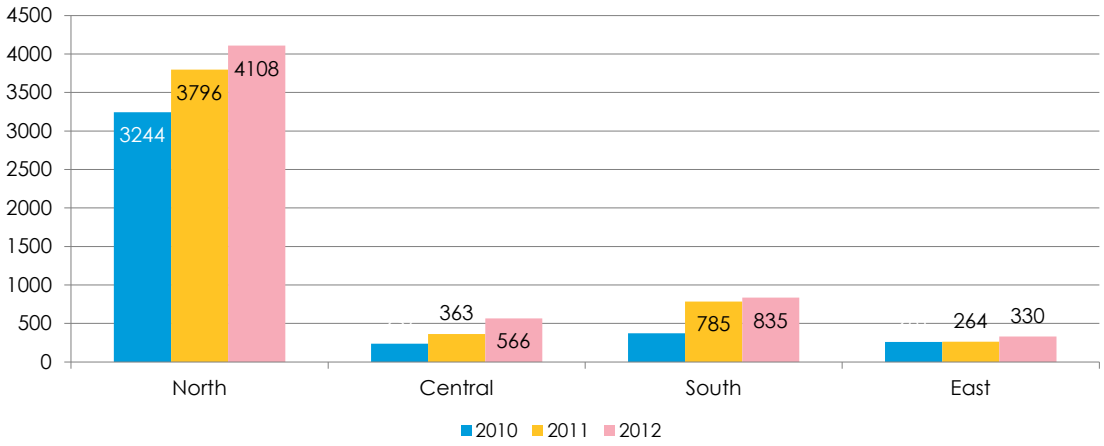
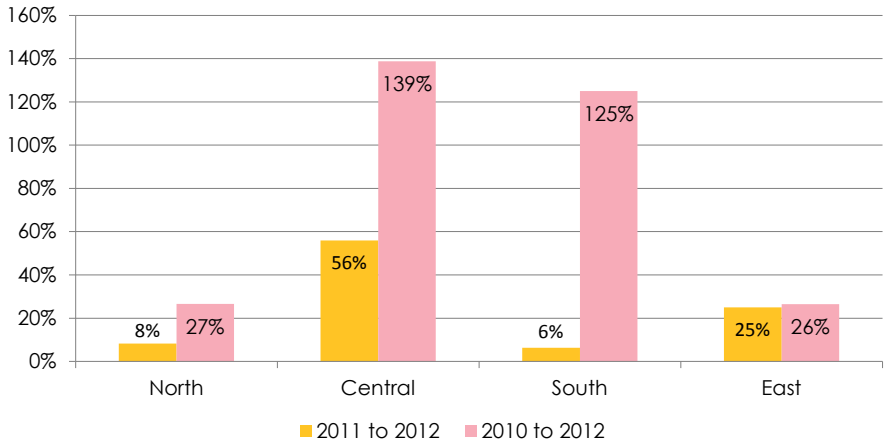


Figure 3-4: Percent Change in Bicyclists by Planning Area (2010, 2011, 2012; weekday PM; 61 sites)



On the following page, Figure 3-5 shows the changes in the numbers of bicyclists by planning area and compares these numbers with the percentages, from 2011 to 2012, and the three year period of 2010 to 2012. The North planning area has the highest population and the highest number of bicyclists, so smaller increases in the percent of bicyclists translate to higher increases in the number of bicyclists as compared to the other planning areas.

Figure 3-5: Comparison of Absolute and Percent Change in Bicyclists by Planning Area (2010, 2011, 2012; weekday PM; 61 sites)

	2010	2011	2012	2011 to 2012 # Difference	2011 to 2012 % Change	2010 to 2012 # Difference	2010 to 2012 % Change	# Sites Counted
North	3,244	3,796	4,108	312	8%	864	27%	30
Central	237	363	566	203	56%	329	139%	11
South	371	785	835	50	6%	464	125%	12
East	261	264	330	66	25%	69	26%	8

Similar to the planning area level, the site level data is also variable. The table in Figure 3-6 shows the variability in the PM data. Notably, 52 of the 61 sites (or 85%) show either an increase or no change relative to 2010.

Figure 3-6: Variability in Bicyclist Data by site (2010, 2011, 2012; weekday PM; 61 sites)

		2011 to 2012	2010 to 2012
Number and Percent of Sites that...	**Increased**	40 (66%)	47 (77%)
	Decreased	18 (30%)	9 (15%)
	Did not change	3 (5%)	5 (8%)
Sites with Greatest Percentage...	**Increase**	880% Mission Boulevard (CA 185) and Grove Way, County	1150% Chatham Road and 13th Avenue, Oakland
	Decrease	-44% Mountain and La Salle, Oakland	-52% Warm Springs and Grimmer, Fremont
Sites with Greatest Absolute...	**Increase**	71 Grand Avenue and Lake Park, Oakland	132 San Pablo Avenue and Virginia Street, Berkeley
	Decrease	-70 San Pablo Avenue and 40th Street, Emeryville	-58 San Pablo Avenue and 40th Street, Emeryville

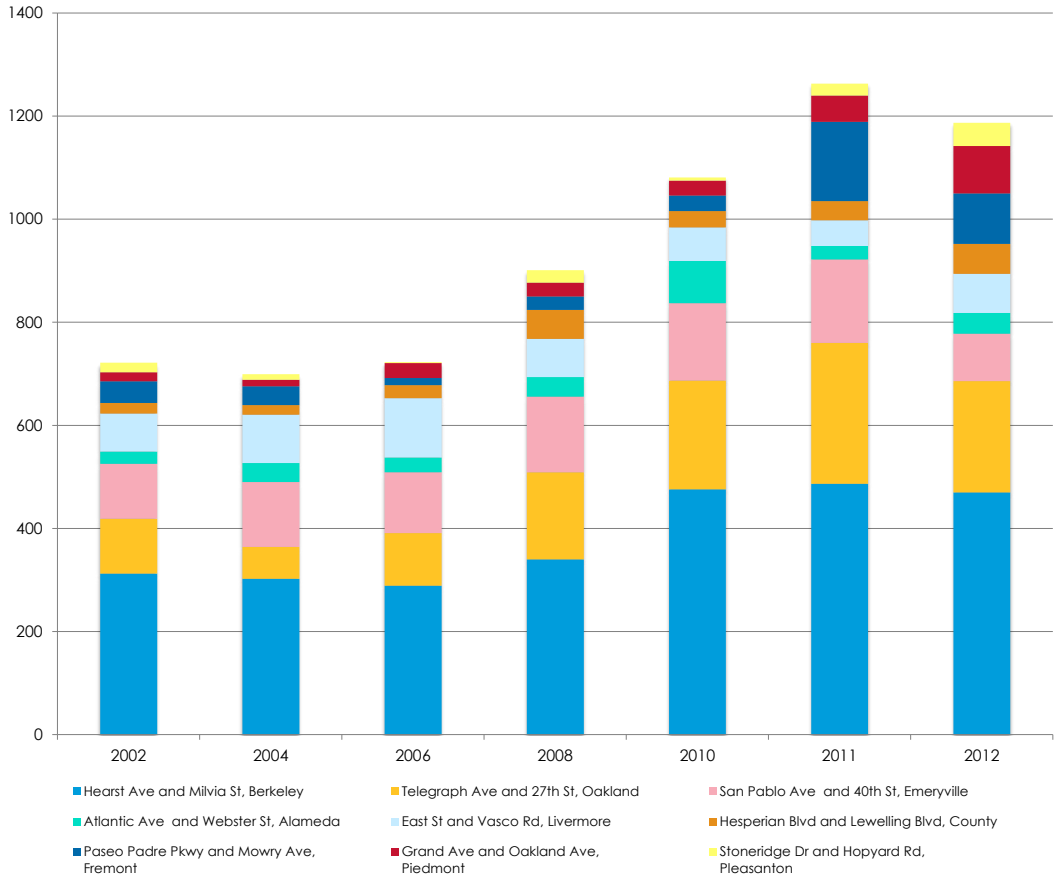
Note: Sites that showed an increase were defined as having a percent change of 5% or greater. Sites with no change in usage were defined as having a pecent change between 5% and -5%. Sites with a decrease in usage were defined as having a percent change of -5% or less.

Longitudinal Data (2002 to 2012)

For the weekday PM period there is also longer-term trend data available going back to 2002, for a limited set of nine sites. As shown in Figure 3-7, the overall trend since 2002 is that the number of bicyclists counted has increased by 64%. However, from 2011 to 2012, there was a decrease (of 6%) in bicyclists counted at these nine sites, which is not reflected in the larger annual data set described above. The decrease is mostly due to lower bicycle counts in 2012 at the 3 sites in Emeryville, Oakland, and Fremont.

Figure 3-7 below also shows that while, in the aggregate, bicycle use has grown steadily throughout the county since 2002, it is

Figure 3-7: Total Bicyclists (2002, 2003, 2006, 2008, 2010, 2011, 2012; weekday PM; 9 sites)



Note: Data for 2002 and 2004 were estimated to allow their inclusion in this comparison. The biennial Level of Service (LOS) data from 2002 to 2008 was collected from 3 - 6pm. An hourly breakdown of the LOS monitoring data was available for the years 2006 and 2008 only. In order to create comparable data for the 2002 and 2004 years, the 2006 and 2008 hourly data was used to estimate the proportion of bicyclists counted during the two-hour 4 - 6pm period.

The number of bicyclists counted during the week-day school period increased from 2011 to 2012 by 94%. Only one of the 16 school period sites showed a decrease in counts.

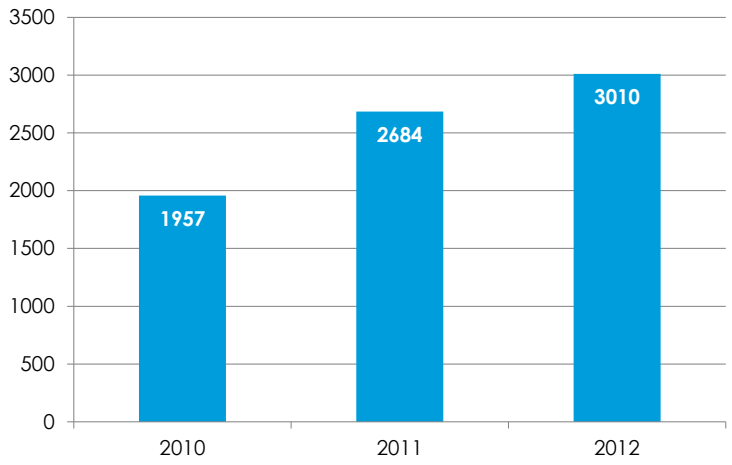
considerably more varied at the site level from year to year. In 2012, at the site with the maximum increase relative to 2002 (Grand Avenue and Oakland Avenue in Piedmont), 419% more bicyclists were counted than in 2002, while the site at San Pablo Avenue and 40th Street in Emeryville saw a 13% drop in bicyclists compared to 2002 and was the only site of the nine locations to show an overall decrease from 2002 and 2012.

Bicyclist Weekday Mid-day (12–2pm)

Annual Data (2010 to 2012)

There was an increase in mid-day bicyclists counted of 12% from 2011 to 2012, calculated from 42 sites, as shown in Figure 3-8. Since 2010, the number of bicyclists counted in this period has increased by 54%.

Figure 3-8: Total Bicyclists (2010, 2011, 2012; weekday mid-day; 42 sites)



Of these 42 sites, 30 (or 71%) of them increased or showed no change from 2011 to 2012, while only 12 (or 29%) showed a decrease, as shown in Figure 3-9 on the following page. Over a three year period of 2010 to 2012, 86% of the count sites increased or remained the same.

Bicyclist Weekday School (2–4pm)

Annual Data (2010 to 2012)

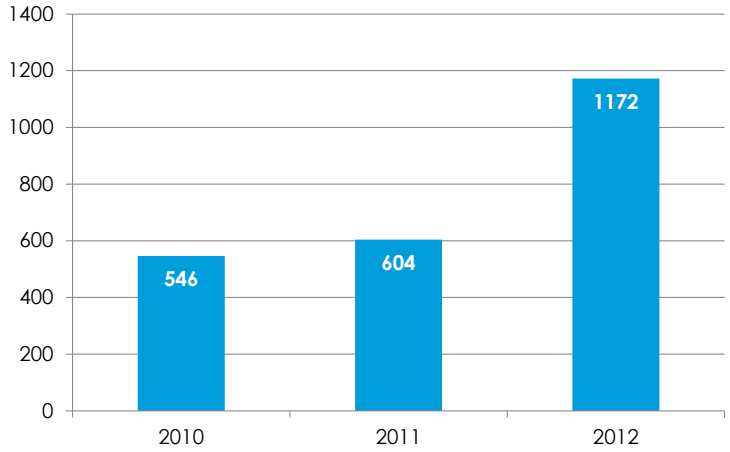
The number of bicyclists counted during the weekday school period increased from 2011 to 2012 by 94% countywide, as shown in Figure 3-10. This is a significantly higher increase than from 2010

Figure 3-9: Variability in Bicyclist Data by Site (2010, 2011, 2012; weekday mid-day; 42 sites)

		2011 to 2012	2010 to 2012
Number and Percent of Sites that...	Increased	28 (67%)	34 (81%)
	Decreased	12 (29%)	6 (14%)
	Did not change	2 (5%)	2 (5%)
Sites with Greatest Percentage...	Increase	375% Owens Drive and Andrews Drive, Pleasanton	1400% Santa Clara Street and Ocie Way, Hayward
	Decrease	-50% Mountain and La Salle, Oakland	-47% Warm Springs and Grimmer, Fremont
Sites with Greatest Absolute...	Increase	62 Solano Avenue and Masonic Avenue (Ohlone Trail), Albany	133 Decoto Road and Alvarado-Niles Road, Union City
	Decrease	-53 Paseo Padre Parkway and Mowry Avenue, Fremont	-26 Park Street and Otis Drive, Alameda

Note: Sites that showed an increase were defined as having a percent change of 5% or greater. Sites with no change in usage were defined as having a pecent change between 5% and -5%. Sites with a decrease in usage were defined as having a percent change of -5% or less.

Figure 3-10: Total Bicyclists at Count Sites Within a Half-mile of a School (2010, 2011, 2012; weekday school period; 16 sites)



to 2011, which showed only 11% increase at the same 16 sites. It is unknown why there was such large increase from 2011 to 2012.

Only one of the 16 sites showed a decrease, while the others showed either an increase or no change in bicyclists from 2011 to 2012, as shown in Figure 3-11. All of the 16 sites included in this analysis are within a half-mile of at least one school, and seven of these are within a quarter mile of at least one school. Figure 3-11 shows the site variability of the school period.

Figure 3-11: Variability in Bicyclist Data by Site at Count Sites Within a Half-mile of a School (2010, 2011, 2012; weekday school period; 16 sites)

		2011 to 2012	2010 to 2012
Number and Percent of Sites that...	Increased	14 (88%)	15 (94%)
	Decreased	1 (6%)	1 (6%)
	Did not change	1 (6%)	0 (0%)
Sites with Greatest Percentage...	Increase	540% Chatham Road and 13th Avenue,Oakland	4700% Chatham Road and 13th Avenue, Oakland
	Decrease	-25% Central Avenue and Fifth Street, Alameda	-22% Central Avenue and Fifth Street, Alameda
Sites with Greatest Absolute...	Increase	81 Chatham Road and 13th Avenue, Oakland	116 Grand Avenue and Lake Park, Oakland
	Decrease	-20 Central Avenue and Fifth Street, Alameda	-17 Central Avenue and Fifth Street, Alameda

Note: Sites that showed an increase were defined as having a percent change of 5% or greater. Sites with no change in usage were defined as having a pecent change between 5% and -5%. Sites with a decrease in usage were defined as having a percent change of -5% or less.

Pilot AM Period Data (2012)

In 2012, a morning ("AM") count period was added as a pilot to assess differences at school locations between the AM and afternoon (or "school") count periods. Only those sites counted during the afternoon ("school") period were also counted during

the AM period. The total AM period bicyclist counts were 23% higher than the total school period counts at the same sites. Out of 16 sites, 10 (or 63%) of the sites had higher AM period counts than school period counts.

Figure 3-12 compares the AM and school period data at the same sites. The AM and school period count differences do not match

Figure 3-12: Comparison of AM and school period counts (2012; weekday AM and school periods; 16 sites)

Percent difference between total bicyclists counted during the AM and school periods at the same sites	23%
Number (and percent) of sites where AM counts are higher	10 (63%)
Number (and percent) of sites where AM counts are lower	3 (19%)
Number (and percent) of sites where AM counts are equal	3 (19%)

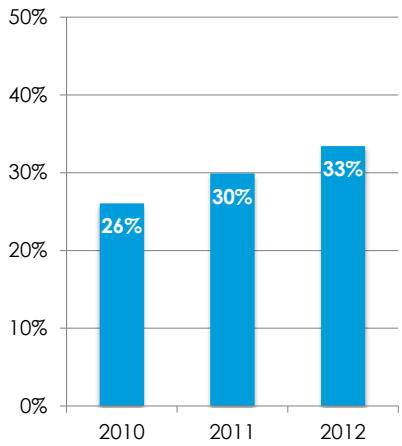
those seen with the pedestrian counts which show that overall AM counts are 6% lower than the school period counts and a majority of sites show lower counts during the AM period than the school period.

The variation by site did not correlate to distance from the school, suggesting that the higher AM counts are primarily due to non-school-related bicycle commuters and not to significant differences in school-related bicycle trips. In fact, total AM period counts are 7% higher than the total PM preiod counts at these same locations. This indicates that a small portion of the higher AM bicycle trip numbers may be attributable to schools. The difference is not sufficient to warrant counting both the AM and school periods or switching the counts near schools to the AM time period. Accurately determining the changes in biking to and from schools would best be done by working directly with schools via the in-school Safe Routes to Schools programs.

Bicyclist Gender Distribution

While the percent of females in the county population, at 50.9%, is slightly higher than that of males, males are far more likely to bicycle than females, although this is changing. From 2011 to 2012, the percentage of female bicyclists counted increased from 30% to 33% countywide (see Figure 3-13). This continues a steady upward trend of female bicycling; females made up 26% of bicyclists counted in 2010.

Figure 3-13: Percent female by year (2010, 2011, 2012; weekday mid-day, school and PM periods; 63 sites)



As shown in Figure 3-14, there are significant differences in the distribution of female bicyclists throughout the county, with the highest percentages in the 2012 data shown in the North (36%) and South (31%) planning areas. This represents a decrease of 6% from 2011 in the South planning area, though the 2011 number may be an outlier. Female bicyclists made up 27% of bicyclists in the Central planning area, up from 20% in 2011; and 14% in the East planning area, where the proportion when down by 1% from 2011. All planning areas saw increases in female cyclists counts

Figure 3-14: Percent Female Bicyclists by Planning Area (2010, 2011, 2012; weekday mid-day, school and PM periods; 63 sites)

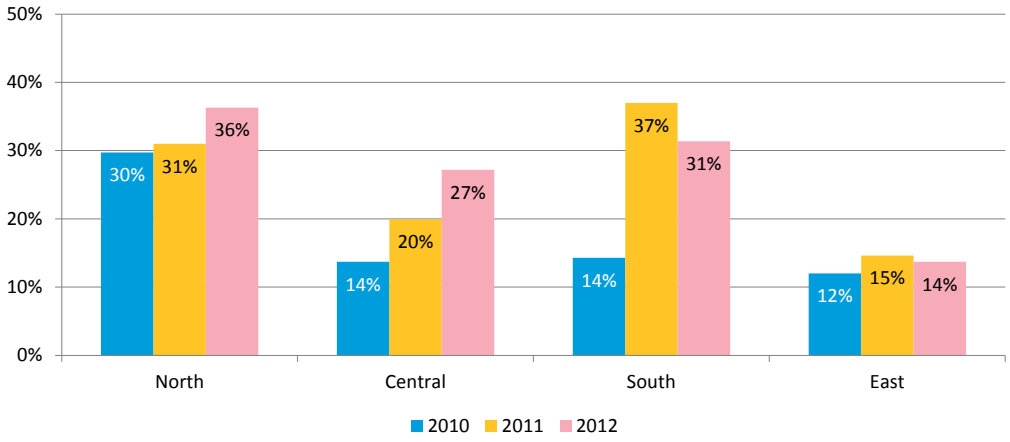
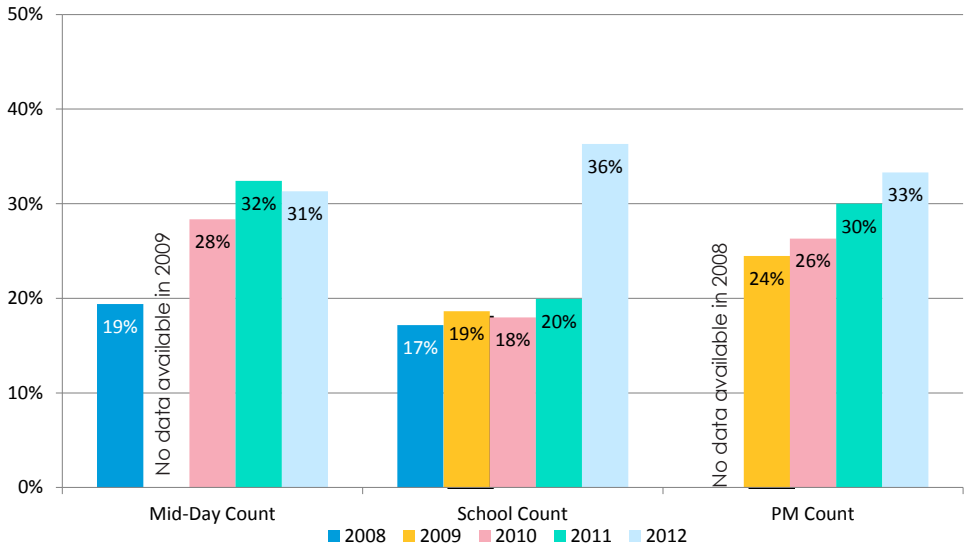


Figure 3-15: Percent Female Bicyclists by Time Period (2008, 2009, 2010, 2011, 2012; weekday mid-day, school and PM periods where data available; 63 sites)



from 2010 to 2012 by between 2% (in the East planning area) and 17% (in the South planning area).

There appears to be little difference in the percent of female bicyclists across time periods in 2012. The PM period shows the most even and steady upward trend in percentages of women biking. The school period saw the largest jump in 2012, with an increase of 16% from 2011.

Bicyclist Helmet Use

For the third year in a row, the number of bicyclists counted wearing helmets increased. Between 2011 and 2012, helmet use increased from 58% to 61%, according to counts at 63 locations around the county, as shown in Figure 3-16.

Figure 3-17 shows an increase in helmet use across all planning areas from 2011 to 2012, except in the Southern part of the county, which showed a 7% decrease. The East part of the county showed the greatest increase, 10% from 2011 to 2012, and has the highest overall helmet usage, with 70% of bicyclists wearing helmets during the 2012 count.

Figure 3-16: Helmet use (2010, 2011, 2012; all time periods; 63 sites)

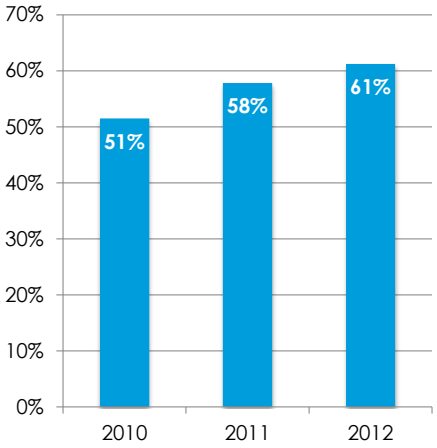
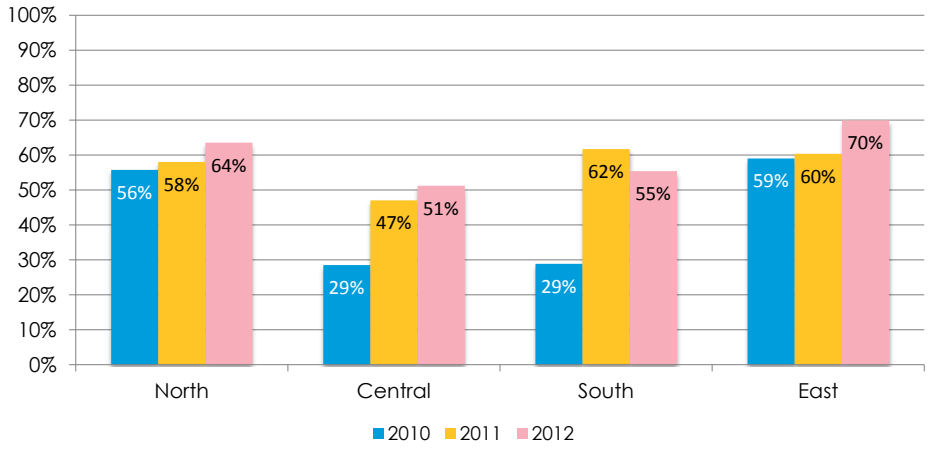
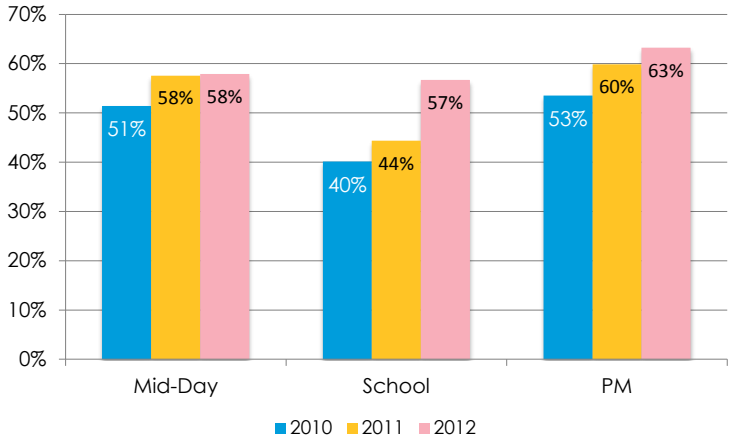


Figure 3-17: Helmet Use by Planning Area (2010, 2011, 2012; all time periods; 63 sites)



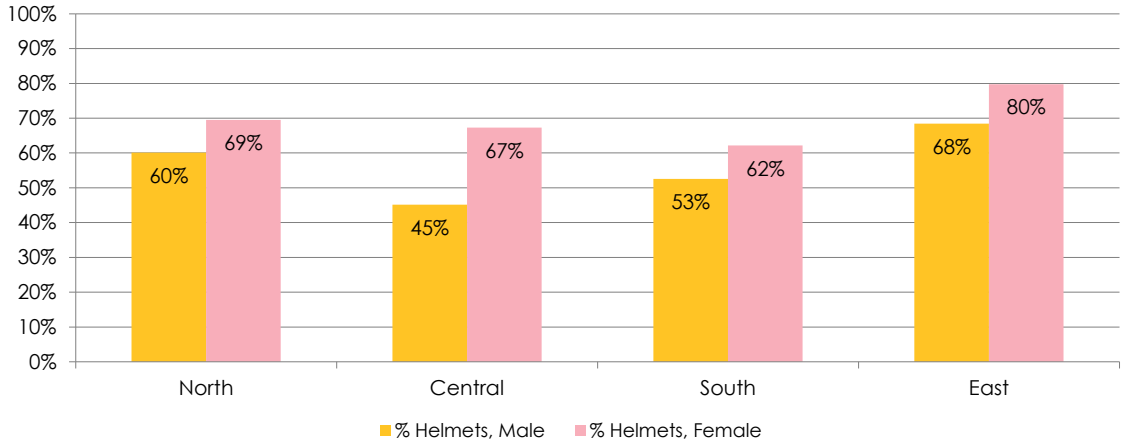
Helmet use increased or remained the same across all time periods in 2012 as shown in Figure 3-18 on the following page. The school period showed the greatest increase with a 13% rise in helmet use since 2011. Helmet use remained the same from 2011 to 2012 during the mid-day period. Overall, helmet use during the PM period is the highest, with 63% of bicyclists wearing helmets.

Figure 3-18: Helmet Use by Time Period (2010, 2011, 2012; all time periods; 63 sites)



This is the first year that helmet use by gender was analyzed. Countywide, helmet use is 11% higher among female bicyclists than male bicyclists (see Figure 3-19). The Central part of the county shows the greatest gender difference with 22% more females wearing helmets than males, while in the rest of the county, the difference ranges from 9 to 11%. Given the difference in helmet usage, the increase above in the number of females bicycling likely has some influence on the increase seen in helmet use.

Figure 3-19: Helmet Use by Gender and Planning Area (2012; all time periods; 63 sites)



The data suggests a continued significant decline in the number of collisions per pedestrian and per bicyclist.

4. Contextual Data and Trends

Looking at the pedestrian and bicycle count data and trends in relation to other data and trends in the county can allow new interpretations of existing data and shed further light on the reliability of the count trends. This section compares the longitudinal PM-period bicycle and pedestrian count data to trends in pedestrian and bicycle collisions, pedestrian and bicycle access to BART stations, county population, gasoline prices and unemployment rates.

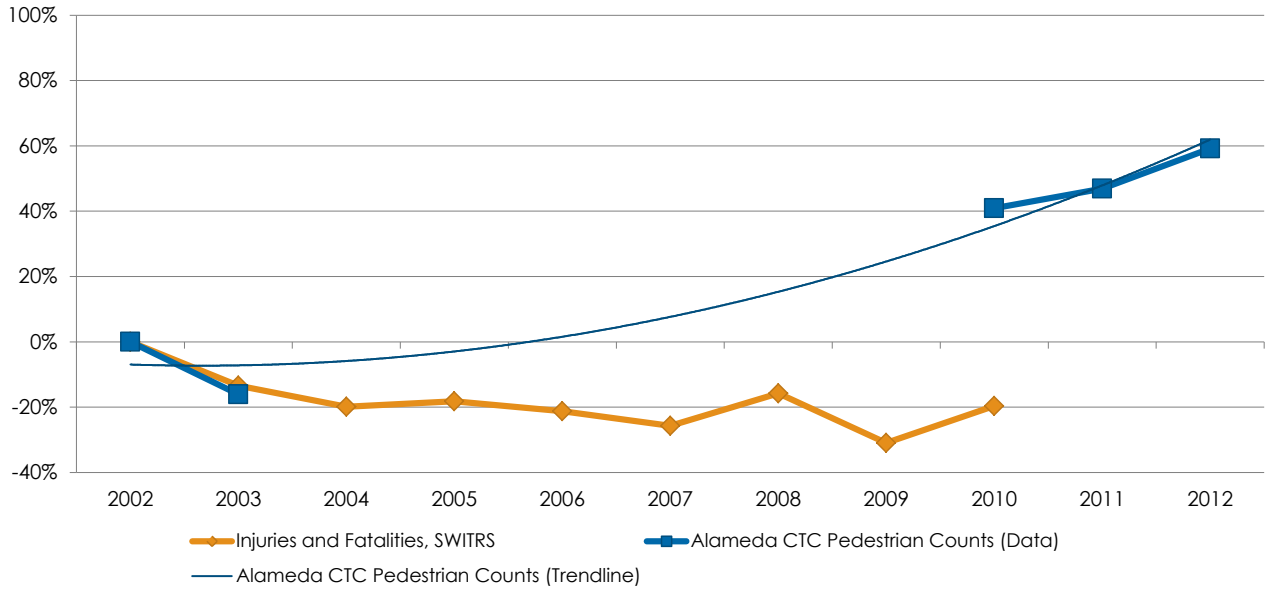
Assessing Collision Rates

Collisions

Collision data from the Statewide Integrated Traffic Records System (SWITRS)* was used to compare the trends in bicycle and pedestrian volumes to injuries and fatalities in these two groups. From 2002 to 2010 (the year for which there is the most recent collision data), pedestrian collisions fell by 20%. During this same time period (2002 to 2010), pedestrian volumes in the PM period increased by 41% at six sites. This suggests a continued significant decline in the pedestrian collision rate, or the number of collisions per pedestrian.

* SWITRS data is known to under-report bicycle and pedestrian collisions because it only uses data from traffic collision reports that involve a motor vehicle, and only those in which injuries or fatalities occurred. Often bicycle and pedestrian collisions and near collisions are never reported, so the true number of collisions is unknown.

Figure 4-1: Percent Change in Pedestrian Injuries and Fatalities Compared with Percent Change in Pedestrian Counts, Relative to 2002



Source: Injuries and fatalities – Statewide Integrated Traffic Records System (SWITRS); Alameda CTC pedestrian counts – longitudinal data, PM period, 6 sites.

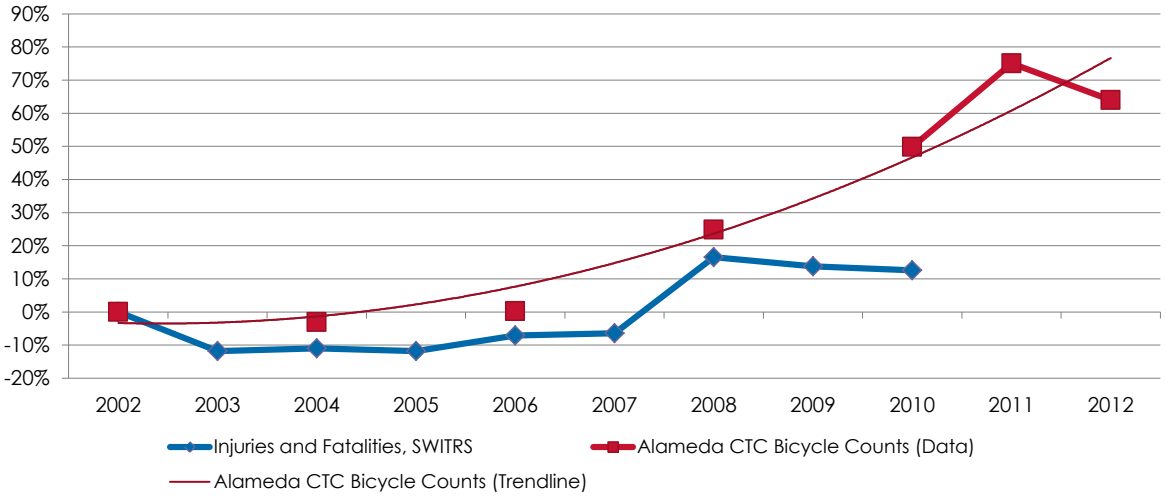
Figure 4-1 shows the percent change in injuries and fatalities resulting from collisions compared with the percent change in pedestrian volumes, both relative to 2002.

Provisional SWITRS data for 2011, which is not included in Figure 4-1, suggests that pedestrian injuries and fatalities have continued to fall, to 25% below 2002 numbers while Alameda CTC data shows that pedestrian counts increased by 47% from 2002 to 2011. SWITRS will release final data for 2011 in late 2013.

From 2002 to 2010, the total number of bicycle collisions has varied, with the years between 2008 and 2010 showing a jump in the number of overall injuries and fatalities, and 2010 being 13% higher than in 2002. However, in this same period, between 2002 and 2010, bicyclist volumes increased more rapidly, by 50%. The data suggests a drop in the number of collisions per bicyclist (or collision rate) over the past few years. Figure 4-2 shows the percent change in injuries and fatalities resulting from collisions compared with the percent change in bicycle volumes, both relative to 2002.

Provisional 2011 SWITRS data, which is not included in Figure 4-2, shows a significant decline in bicyclist injuries and fatalities to 1% below 2002 numbers, while Alameda CTC data shows that bicycle counts increased by 75% from 2002 to 2011. SWITRS will release final 2011 data in late 2013.

Figure 4-2: Percent Change in Bicyclist Injuries and Fatalities Compared with Percent Change in Bicycle Counts, Relative to 2002



Source: Injuries and fatalities – Statewide Integrated Traffic Records System (SWITRS); Alameda CTC bicyclist counts – longitudinal data, PM period, 9 sites.

Comparing Count Data to Other Bicycle/ Pedestrian Usage Data

Access to BART

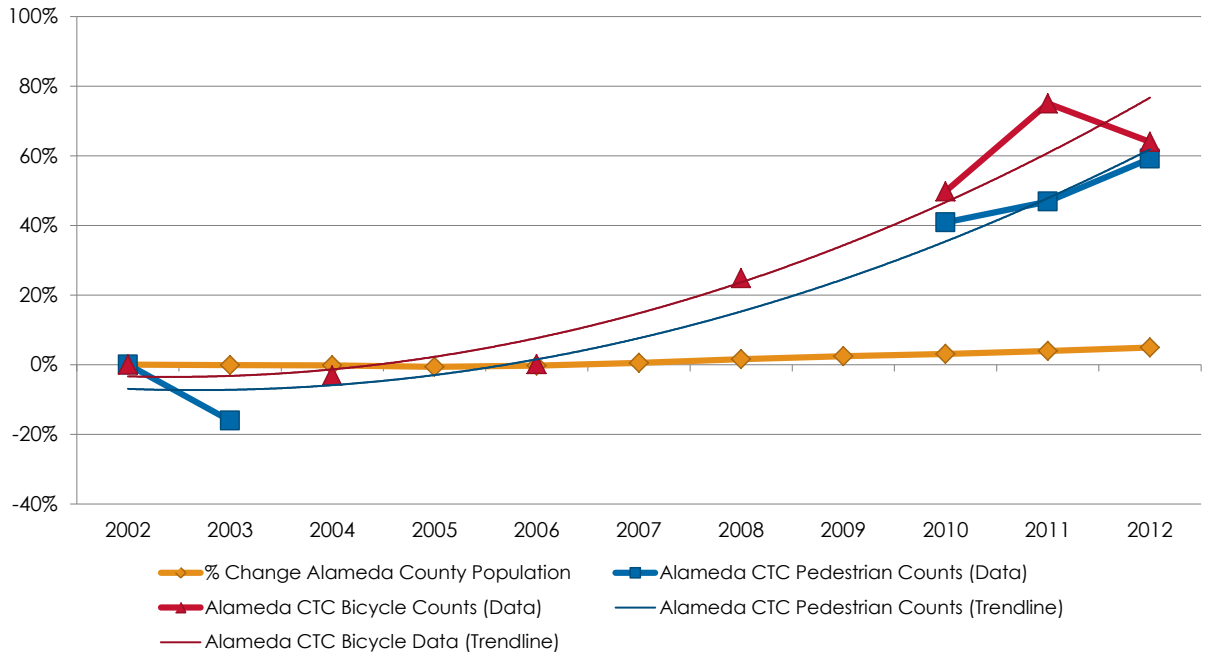
Approximately every ten years, BART collects data on how people access BART stations. The 1998 to 2008 BART station access data correlates closely to the Alameda CTC longitudinal PM count data for pedestrians and bicyclists during a similar time period. Between 1998 and 2008, pedestrian access to BART stations grew by 58%. For bicyclists during the same period, access to BART stations grew by 74%. There is no countywide pedestrian or bicycle data available for the exact same period, however Alameda CTC data indicates similar increases for both pedestrians and bicycles over the ten year period from 2002 to 2012 of 59% and 64%, respectively. This suggests that as pedestrian and bicycle use grows, people are also using these modes as a way to access regional transit, addressing first and last mile transit issues.

Evaluating Contributing Factors to Bicycle/ Pedestrian Trends

Population

Some portion of growth in pedestrian and bicycle usage could be due simply to population growth in Alameda County since 2002, the first year of count data. However, population growth, 4.9% from 2002 to 2012, is significantly lower than the growth of walking and biking during this same period, which was 59% and 64%, respectively (see Figure 4-3).

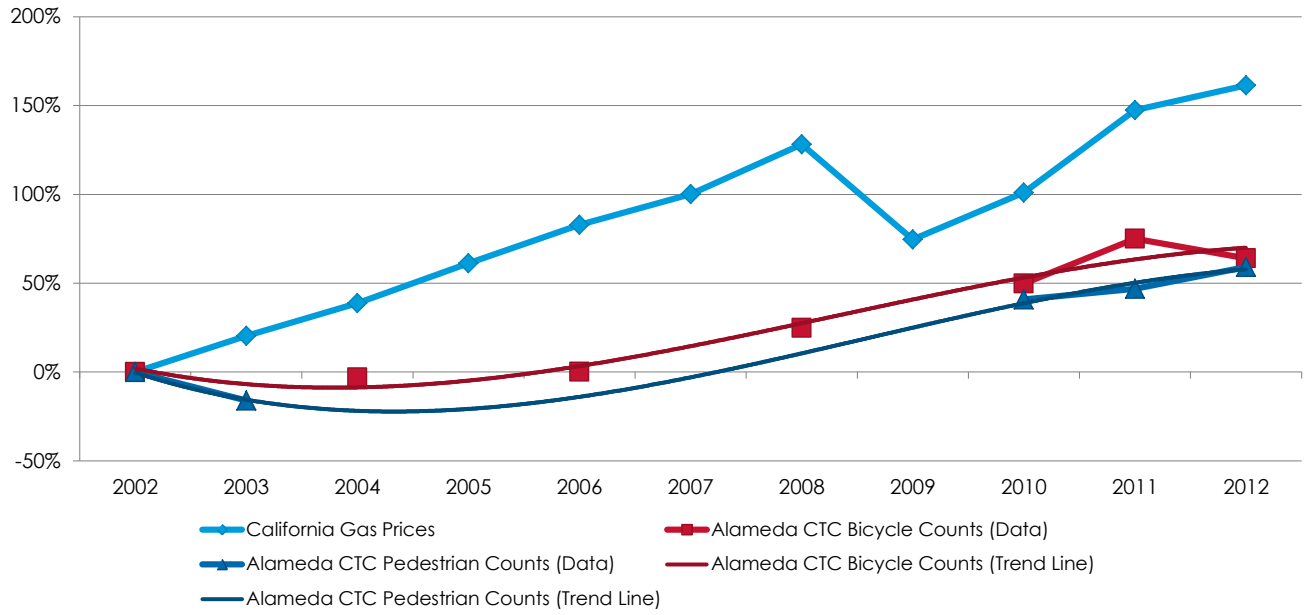
Figure 4-3: Percent Change in Alameda County Population Compared with Percent Change in Bicycle and Pedestrian Counts, Relative to 2002



California Gasoline Prices

One factor often cited as a reason that people switch from driving to walking or biking is higher gas prices. Figure 4-4 shows the percent change in annual gasoline consumer price index for California juxtaposed with the percentage change in Alameda County biking and walking numbers, using the PM period longitudinal data. From 2002 to 2012, gas prices rose by 161%, as compared to the 59% and 64% increases in pedestrian and bicycle counts, respectively, suggesting that increasing gas prices could be influencing the changes in walking and biking.

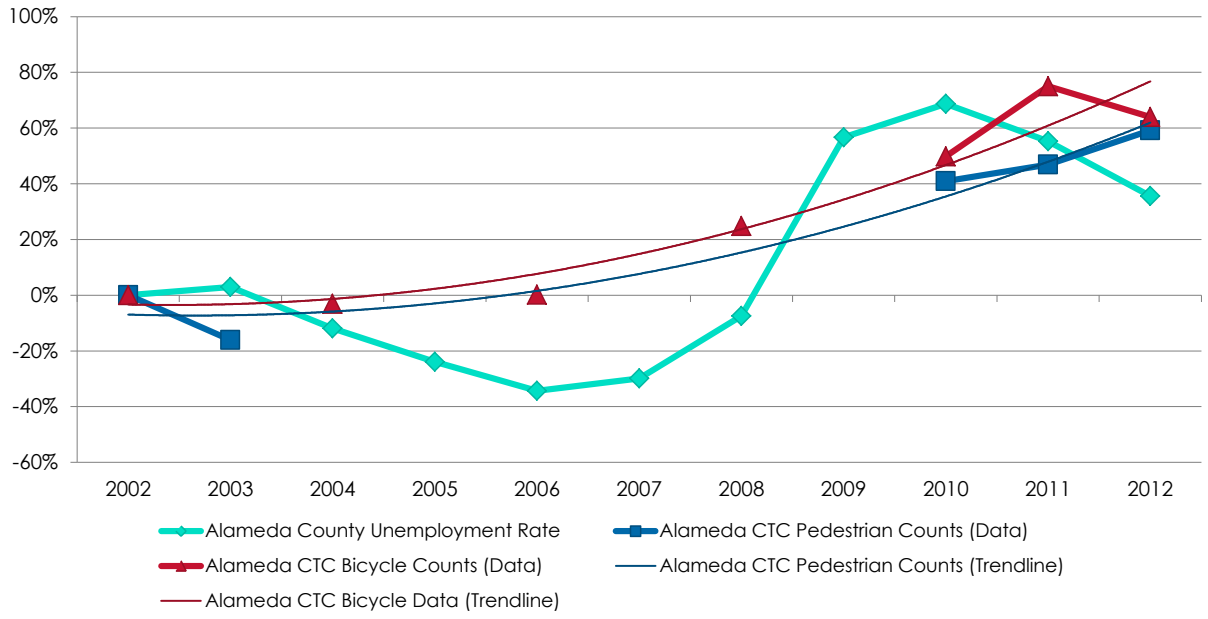
Figure 4-4: Percent Change in Growth of California Gas Prices Compared with Percent Change in Bicycle and Pedestrian Counts, Relative to 2002



Unemployment Rate

Unemployment rates could impact bicycling and possibly walking rates, as people without steady incomes are less able to afford driving and maintaining a car, and sometimes even using transit. In reviewing the data, it is unclear whether unemployment in Alameda County is a factor that contributes to the increase in bicycling and walking since 2002. While there are correlations, there is not enough data to make conclusive assessments. From 2002 to 2012, the unemployment rate rose 36%, and in the same period walking and biking increased 59% and 64%, respectively. However the change in the unemployment rate in the interim years does not match that for bicycling, and there is no pedestrian count data available for much of this period.

Figure 4-5: Percent Change in Alameda County Unemployment Rate Compared with Percent Change in Bicycle and Pedestrian Counts, Relative to 2002



Having robust and consistent walking and bicycling data is important to see trends as they are happening, understand changes in collision rates, inform plans and policies, and improve decision-making.

5. Future Considerations

Over the past few years of collecting, organizing, analyzing and presenting the data in this annual report, the following list of possible future data collection and analysis efforts has been compiled. The list represents ideas of staff and committee members to enhance, expand, and/or streamline the collection and analysis of bicycle and pedestrian data. Implementation of the following ideas will depend on the amount of resources available.

Considerations for Future Data Collection and Analysis Efforts

- Expand and report on collection of data using automated 24-hour bicycle and pedestrian counters. Improve sophistication of automated count data analysis through development of factors for missing data, use of GIS, and validation with manual count data. Automated and manual data should be collected in a coordinated manner. Automated data is particularly useful for capturing trail and bicycle lane usage data.
- Each data collection cycle, evaluate all count sites to ensure that sites with major physical, land use or transportation infrastructure changes are either retired or data is modified, and that new, relevant sites are added, as appropriate.

- Investigate increasing the number of annual count sites, so that the number of sites matches national best practice recommendations for the best representation of changes in walking and bicycling.
- Migrate data into a geographic database (GIS) to improve geographically related analysis capabilities such as distance from schools or transit, main roads, land-use density, and Priority Development Areas (PDAs). GIS will also allow cross analysis of count data with other data sets such as Safe Routes to School, and Census and American Community Survey data; and will allow improved visual representations of trends and selection of new count sites.
- Explore the possibility of conducting weekend manual counts to better capture recreational bicycling and walking. Weekend data was collected in 2008 at 47 count locations and in 2009 at 36 count locations. Counts were conducted on Saturdays during one of three two-hour count periods between 9am and 4pm. Initial research suggests that weekend counts are no more expensive to collect than weekday counts, on an hourly basis.
- Analyze data for locations near transit and also in PDAs, and track trends over time.
- Compare count trends to changes in bicycle and pedestrian commute modes over time.
- Segregate and analyze those count locations near schools with active Safe Routes to Schools (SR2S) programs, and also compare count data to the evaluation data collected by the SR2S program.
- Explore ways to collect data via automation, such as using video detection at traffic signals. This may allow increased data collection throughout the county at a lower cost.
- Research and apply adjustment factors to existing collected data. Adjustment factors are being developed and refined by academics and others, which can be applied to existing data that was not collected during identical time periods, days of week and/or seasons. Applying these factors allows the conversion of much more of the existing data into a comparable form. This includes adjusting for season, extreme temperatures, time

period and land use. These adjustment factors are currently available for Alameda County only for pedestrian data, but hopefully they will soon be developed for bicycle data as well. Although it maybe time intensive to apply them, these adjustments would allow a larger number of data points to more accurately be compared, resulting in a more refined analysis of walking and bicycling trends. The use of automated counters can help to provide accurate location-specific factor values to manual count data.

- Develop and implement streamlined methods for providing up-to-date data, where not already in place, to local jurisdictions and to the general public.

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Appendices

Appendices A-1 through A-4 are on the following pages.

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A-1: Summary Data for All Manual Pedestrian Count Sites, 2002 to 2012

					2002			2003			2006	2008				2009			2010			2011			2012			
ID#	Street	Cross street	City	ACTC Planning Area	AM	Mid	PM	AM	School	PM	PM* 3-6pm	Mid	School* 3-5pm	PM* 3-6pm	Weekend*	School	PM	Weekend*	Mid	School	PM	Mid	School	PM	AM	Mid	School	PM
1	Atlantic Avenue	Webster Street	Alameda	North													313	140	874		457	938		399		843		373
2	Broadway (CA 61)	Calhoun Street	Alameda	North									72		34					102	83		66	55	94		119	79
3	Central Avenue	Fifth Street	Alameda	North												383		138		316	229		220	151	143		184	133
7	Park Street	Otis Drive	Alameda	North	85		272												280		189	257		263		229		215
95	Buchanan Street	Jackson Street	Albany	North																443	245		459	232	455		455	235
9	Solano Avenue	Masonic Ave (Ohlone Trail)	Albany	North									514		397		351	303	407		551	424		384		440		345
10	Ashby Avenue (CA 13)	Hillegass Avenue	Berkeley	North													192	162	269		361	216		166		177		131
12	Ashby Avenue (CA 13)	Telegraph Avenue	Berkeley	North								410			191				345		306	353		306		428		276
14	College Avenue	Derby Street	Berkeley	North								319			628				390		748	418		841		370		683
16	Hearst Avenue	Milvia Street	Berkeley	North										312			306	251	339		369	306		366		247		321
17	San Pablo Avenue	Virginia Street	Berkeley	North	78		103										101	124	126		149	125		132		247		226
22	Hesperian Boulevard	Lewelling Boulevard	County	Central													76	76		139	107		116	130	61		105	129
23	Mission Boulevard (CA 185)	Grove Way	County	Central									69		58					46	35		46	42	65		52	67
24	Redwood Road	Castro Valley Boulevard	County	Central												94		180		255	204		264	172	255		283	216
27	Dublin Boulevard	Scarlett Drive (Iron Horse Trail)	Dublin	East	19		25	22		25							30	45	41		59	28		60		45		77
28	Dublin Boulevard	Hacienda Drive	Dublin	East													36	30	53		42	61		71		47		53
30**	Powell Street	Christie Avenue	Emeryville	North	20		68												159		104	210		186	75		65	154
31**	San Pablo Avenue	40th Street	Emeryville	North							512			504			509	320		456	523		478	515		306		425
32	Fremont Blvd	Mowry Avenue	Fremont	South	127		205	102		188									484		530	496		501		650		470
98	Fremont Blvd (Washington)	Union Street	Fremont	South															75		77	107		140		108		177
33	Fremont Boulevard (CA 84)	Peralta Boulevard	Fremont	South									73		90					93	84		104	119	189		100	155
34	Mission Boulevard (CA 238)	Nichols Avenue	Fremont	South								7			14				7		15	16		19		19		24
35	Mowry Avenue (CA 84)	Cherry Lane	Fremont	South									9		11				28		17	20		16		12		17
36	Paseo Padre Parkway	Mowry Avenue	Fremont	South							190	229			83		174	117	107		112	176		236		140		204
99	Paseo Padre Parkway	Decoto Rd	Fremont	South								89			82					7	8		22	31	54		36	50
38	Warm Springs	Grimmer	Fremont	South													5	3	2		5	2		2		4		3
97	C Street	Grand Street	Hayward	Central															65		98	85		93		146		102
39	Foothill Boulevard	D Street	Hayward	Central								20			4				20		42	14		39		23		63
41**	Mission Boulevard	Jefferson Street	Hayward	Central								171			27	110		51	42		96	568		46				
45	Santa Clara Street	Ocie Way	Hayward	Central								10			63				33		123	98		103		93		99
100**	Whitman Street	Tennyson Road	Hayward	Central																						56		137
47	Winton Avenue	Amador Street	Hayward	Central	126		94									292		34	322		150	305		135		491		405
49	East Street	Vasco Road	Livermore	East															15		12	16		11		30		7
50	Railroad Avenue	First Street	Livermore	East													35	49	74		54	70		48		60		38
51**	Ardenwood Boulevard (CA 84)	Newark Boulevard (E side interchange ramp)	Newark	South									55		15				44		31	48		53				
101**	Newark Boulevard	Jarvis Avenue	Newark	South																						126		117
52	Thornton Avenue	Willow Street	Newark	South													0	1		10	7		8	7	15		18	20
53	66th Avenue	San Leandro St	Oakland	North	143		91	49		27									78		207	96		229		75		330
55	Bancroft Avenue	Auseon Avenue	Oakland	North								56			76				84		119	143		138		63		96
56	Broadway	12th Street	Oakland	North								3577			1374		2032	1033	2755		1957	2735		1921		2803		1995
57	Broadway	20th Street	Oakland	North															1475		1407	1408		1388		1354		1534
58	Chatham Road	13th Avenue	Oakland	North									222		18					264	92		240	86	155		165	149
59	Doolittle Drive (CA 61)	Airport Access Road	Oakland	North									9		4		10	2	8		6	12		10		15		20
62	Fruitvale Avenue	Foothill Blvd	Oakland	North																699	914		806	751	637		820	775
63**	Fruitvale Avenue	Alameda Ave	Oakland	North												31		20		55	47		35	62			31	49

					2002			2003			2006	2008				2009			2010			2011			2012			
ID#	Street	Cross street	City	ACTC Planning Area	AM	Mid	PM	AM	School	PM	PM* 3-6pm	Mid	School* 3-5pm	PM* 3-6pm	Weekend*	School	PM	Weekend*	Mid	School	PM	Mid	School	PM	AM	Mid	School	PM
64	Grand Avenue	Staten Ave	Oakland	North	387		571	380		457									586		504	635		568		700		629
65	Grand Avenue	Lake Park	Oakland	North													561	941		637	576		569	631	307		602	635
70	MacArthur Boulevard	38th Avenue	Oakland	North													415	445	313		316	277		294		479		398
72	Mandela Parkway	14th Street	Oakland	North													91	56	227		377	164		311		123		256
75	Mountain	La Salle	Oakland	North												1241		1566	964		873	901		825		939		890
76	Telegraph Avenue	27th Street	Oakland	North							224			385		212		150	265		201	332		294		306		339
96	Telegraph Avenue	40th Street	Oakland	North															630		1034	584		1007		661		1075
78	Webster Street	7th Street	Oakland	North									936		1131					1117	1063		1148	1050	1357		1193	1100
79	Grand Avenue	Oakland Avenue	Piedmont	North							161			144		114		75		123	45		78	54	212		165	163
80	Main St	Bernal Ave	Pleasanton	East	44	152	165												29		70	30		66		29		94
81	Owens Drive	Andrews Drive	Pleasanton	East									49		31				72		63	57		49		54		49
82	Santa Rita Road	Francisco Street	Pleasanton	East												113		67	60		32	51		47		63		66
83	Stoneridge Drive	Hopyard Road	Pleasanton	East							16						12	17	64		14	77		21		134		82
85	Bancroft Avenue	Estudillo Avenue	San Leandro	Central	429		118	391	705	95							130	67	78		160	123		191		88		166
87	Davis Street (CA 61)	Pierce Avenue	San Leandro	Central									28		33					146	106		165	95	85		111	136
88	East 14th Street (CA 185)	Hesperian Boulevard	San Leandro	Central								78			69				91		105	97		102		106		194
89	East 14th Street (CA 185)	Maud Avenue	San Leandro	Central									179		145					89	104		160	112	226		154	195
92	Alvarado-Niles Road	Dyer Street	Union City	South													73	52	38		54	70		89		89		116
93	Decoto Road	Alvarado-Niles Road	Union City	South	121		193	157		218									97		235	148		218		190		243
94	Decoto Road	7th Street	Union City	South												85		51	54		132	55		74		56		102
			Total Number of Count Locations:		11	1	11	6	1	6	5	11	12	4	23	10	21	31	45	18	63	45	18	63	17	45	18	63

Notes:

* Non-standard time period used. Standard time periods are considered: AM: 7-9am, Mid-day: 12-2pm, School: 2-4pm, PM: 4-6pm, Weekend: Varies, but always 2-hours.)

** Sites 41 and 51 replaced by sites 100 and 101 in Annual Count program beginning in 2012.

** For Sites 30 and 31, the School and Mid-day periods in 2012 were unintentionally switched.

** Site 63 counted during school period but not included in school period analyses due to non-proximity to a school.

A-2: Summary Data for All Manual Bicycle Count Sites, 2002 to 2012

					2002			2003			2004	2006		2008			2009			2010			2011			2012			
ID#	Street	Cross street	City	ACTC Planning Area	AM	Mid	PM* 3-6pm (in green), 4-6pm	AM	School	PM	PM* 3-6pm	PM* 3-6pm	PM 4-6pm	Mid	School* 3-5pm	PM* 3-6pm	PM 4-6pm	Weekend	School	PM	Weekend	Mid	School	PM	Mid	School	PM	AM	Mid	School	PM
1	Atlantic Avenue	Webster Street	Alameda	North			36				56	41	29			62	38			26	24	40		82	26		26		22		40
2	Broadway (CA 61)	Calhoun Street	Alameda	North											16			24					44	21		13	48	91		78	62
3	Central Avenue	Fifth Street	Alameda	North															54		27		78	79		81	73	48		61	94
7	Park Street	Otis Drive	Alameda	North	20		58															63		81	65		77		37		53
9	Solano Avenue	Masonic Ave(Ohlone Trail)	Albany	North											150			127		149	135	91		148	122		168		184		237
10	Ashby Avenue (CA 13)	Hillegass Avenue	Berkeley	North																123	75	48		93	73		101		76		122
12	Ashby Avenue (CA 13)	Telegraph Avenue	Berkeley	North										82				67				105		166	103		154		117		166
14	College Avenue	Derby Street	Berkeley	North										75				65				108		167	119		188		95		156
16	Hearst Avenue	Milvia Street	Berkeley	North			405				392	374	289			441	340			343	171	235		476	263		487		225		470
17	San Pablo Avenue	Virginia Street	Berkeley	North	59		69													95	74	59		86	104		153		161		218
22	Hesperian Boulevard	Lewelling Boulevard	County	Central			27				25	36	25			68	56			25	24		43	32		42	37	63		87	58
23	Mission Boulevard (CA 185)	Grove Way	County	Central											24			18					16	5		16	5	48		40	49
24	Redwood Road	Castro Valley Boulevard	County	Central							26	36	29			45	27		27		55		35	28		38	27	46		37	57
27	Dublin Boulevard	Scarlett Drive (Iron Horse Trail)	Dublin	East	11		17	13		18										82	84	40		55	46		70		58		83
28	Dublin Boulevard	Hacienda Drive	Dublin	East																31	20	3		13	5		26		13		19
30**	Powell Street	Christie Avenue	Emeryville	North	9		7															32		43	32		39	58		18	35
31**	San Pablo Avenue	40th Street	Emeryville	North			142				168	158	118			196	147			174	42		133	150		113	162		84		92
32	Fremont Blvd	Mowry Avenue	Fremont	South	50		90	30		61												29		67	40		68		84		110
33	Fremont Boulevard (CA 84)	Peralta Boulevard	Fremont	South											21			15					35	48		35	48	63		58	74
34	Mission Boulevard (CA 238)	Nichols Avenue	Fremont	South										7				4				3		4	12		21		31		29
35	Mowry Avenue (CA 84)	Cherry Lane	Fremont	South											7			11				9		16	4		19		11		36
36	Paseo Padre Parkway	Mowry Avenue	Fremont	South			60				52	22	14	12		34	26	29		50	37	24		30	112		154		59		98
38	Warm Springs	Grimmer	Fremont	South																15	62	17		23	15		19		9		11
39	Foothill Boulevard	D Street	Hayward	Central										2				1				5		6	8		10		15		18
41**	Mission Boulevard	Jefferson Street	Hayward	Central			11				23		39	3		25		12	22		15	20		28	22		19				
45	Santa Clara Street	Ocie Way	Hayward	Central										4				9				5		37	59		54		75		86
47	Winton Avenue	Amador Street	Hayward	Central	20		18												27		7	20		24	22		27		43		36
49	East Street	Vasco Road	Livermore	East			86				109	125	115			93	74					47		65	40		50		62		76
50	Railroad Avenue	First Street	Livermore	East																23	28	22		31	16		30		23		19
51**	Ardenwood Boulevard (CA 84)	"Newark Boulevard (E side interchange ramp)"	Newark	South											14			16				33		23	30		51				
52	Thornton Avenue	Willow Street	Newark	South			5				12	11				13				14	11		7	6		24	40	25		30	49
53	66th Avenue	San Leandro St	Oakland	North	67		63	27		27												32		45	64		63		51		69
55	Bancroft Avenue	Auseon Avenue	Oakland	North										14				16				39		17	34		46		21		29
56	Broadway	12th Street	Oakland	North										63				47		79	55	161		134	176		187		204		240
57	Broadway	20th Street	Oakland	North																		89		166	92		175		140		229
58	Chatham Road	13th Avenue	Oakland	North											4			13					2	8		15	23	127		96	100
59	Doolittle Drive (CA 61)	Airport Access Road	Oakland	North											3			15		16	43	8		20	13		23		10		18
62	Fruitvale Avenue	Foothill Blvd	Oakland	North																			33	91		42	59	76		75	95
63**	Fruitvale Avenue	Alameda Ave	Oakland	North															72		72		44	65		43	116			72	92
64	Grand Avenue	Staten Ave	Oakland	North	52		48	79		98												99		156	111		182		140		205
65	Grand Avenue	Lake Park	Oakland	North																126	72		61	87		104	107	235		177	178
70	MacArthur Boulevard	38th Avenue	Oakland	North																14	16	11		10	19		28		21		33
72	Mandela Parkway	14th Street	Oakland	North																112	56	65		131	69		129		79		144
75	Mountain	La Salle	Oakland	North															18		20	8		11	36		50		18		28
76	Telegraph Avenue	27th Street	Oakland	North			136				79	130	102			216	169		145		126	127		211	191		273		154		216

					2002			2003			2004	2006		2008				2009			2010			2011			2012			
ID#	Street	Cross street	City	ACTC Planning Area	AM	Mid	PM* 3-6pm (in green), 4-6pm	AM	School	PM	PM* 3-6pm	PM* 3-6pm	PM 4-6pm	Mid	School* 3-5pm	PM* 3-6pm	PM 4-6pm	Weekend	School	PM	Weekend	Mid	School	PM	Mid	School	PM	AM	Mid	School	PM
78	Webster Street	7th Street	Oakland	North											26			15					39	56		38	98	98		54	71
79	Grand Avenue	Oakland Avenue	Piedmont	North			30				21	40	29			59	27		31		16		16	29		19	51	174		93	92
80	Main St	Bernal Ave	Pleasanton	East	26	20	11															12		15	6		10		7		15
81	Owens Drive	Andrews Drive	Pleasanton	East											40			32				16		31	8		20		38		41
82	Santa Rita Road	Francisco Street	Pleasanton	East															43		48	8		45	14		35		22		32
83	Stoneridge Drive	Hopyard Road	Pleasanton	East			32				19	5	2			32	24			13	31	8		6	5		23		23		45
85	Bancroft Avenue	Estudillo Avenue	San Leandro	Central	20		20	42	35	24										24	22	9		21	55		62		40		56
87	Davis Street (CA 61)	Pierce Avenue	San Leandro	Central											2			29					34	19		33	43	82		40	60
88	East 14th Street (CA 185)	Hesperian Boulevard	San Leandro	Central										6				34				21		23	22		27		23		25
89	East 14th Street (CA 185)	Maud Avenue	San Leandro	Central											8			33					22	23		19	42	68		43	91
92	Alvarado-Niles Road	Dyer Street	Union City	South																29	34	14		20	96		132		111		139
93	Decoto Road	Alvarado-Niles Road	Union City	South	35		37	38		43												29		78	104		171		162		110
94	Decoto Road	7th Street	Union City	South															13		18	6		25	12		26		16		71
95	Buchanan Street	Jackson Street	Albany	North																			64	88		58	120	140		139	152
96	Telegraph Avenue	40th Street	Oakland	North																		179		327	242		370		259		372
97	C Street	Grand Street	Hayward	Central																		23		19	41		29		46		30
98	Fremont Blvd (Washington)	Union Street	Fremont	South																		20		32	20		32		25		40
99	Paseo Padre Parkway	Decoto Rd	Fremont	South										16				15					17	22		27	55	61		64	68
100**	Whitman Street	Tennyson Road	Hayward	Central																									6		17
101**	Newark Boulevard	Jarvis Avenue	Newark	South																									63		71
	Total Number of Count Locations:				11	1	22	6	1	6	12	11	11	11	12	12	10	23	10	21	31	45	18	63	45	18	63	17	45	18	63

Notes:

* Non-standard time period used. Standard time periods are considered: AM: 7-9am, Mid-day: 12-2pm, School: 2-4pm, PM: 4-6pm, Weekend: Varies, but always 2-hours.

** Sites 41 and 51 replaced by sites 100 and 101 in Annual Count program beginning in 2012

** For Sites 30 and 31, the School and Mid-day periods in 2012 were unintentionally switched.

** Site 63 counted during school period but not included in school period analyses due to non-proximity to a school.

Green highlighted cells are estimated or use only part of the full time period data.

A-3: Pedestrian Data Sources and Attributes for Manual Counts

Year	Source Agency	# Count Sites	AM	Mid-day	School	PM	Weekend	Data Collection Months	Hourly Data Available	Gender Data Available
2002	MTC	13	7-9am	12-2pm	--	4-6pm	--	Sept, Oct	N	N
2003	MTC	6	7-9am	--	2-4pm	4-6pm	--	--	N	N
2006	Alameda CTC	5	--	--	--	3-6pm	--	May, June	Y	N
2008	UCTSC/ Alameda CTC	50	--	12-2pm	3-5pm	--	9-11am, 12-2pm, 3-5pm	April, May, June, July	Y	Y
2008	Alameda CTC	4	--	--	--	3-6pm	--	May, June	Y	N
2009	UCTSC/ Alameda CTC	36	--	--	2-4pm	4-6pm	9-11am, 12-2pm, 3-5pm	April, May, June	Y	Y
2010	Alameda CTC/ MTC	63	--	12-2pm	2-4pm	4-6pm	--	Sept, Oct	Y	Y
2011	Alameda CTC/ MTC	63	--	12-2pm	2-4pm	4-6pm	--	Sept, Oct	Y	Y
2012	Alameda CTC/ MTC	63	7-9am	12-2pm	2-4pm	4-6pm	--	Sept, Oct, Nov	Y	Y

Note: MTC = Metropolitan Transporation Commission; Alameda CTC = Alameda County Transportation Commission; UCTSC - Unioversity of California Traffic Safety Center (now SafeTREC)

A-4: Bicyclist Data Sources and Attributes for Manual Counts

Year	Source Agency	# Count Sites	AM	Midday	School	PM	Weekend	Data Collection Months	Hourly Data Available	Gender Data Available	Helmet Data Available
2002	Alameda CTC	12	--	--	--	3-6pm	--	unknown	N (but estimated)	N	N
2002	MTC	13	7-9am	12-2pm	--	4-6pm	--	Sept, Oct	N	N	N
2003	MTC	6	7-9am	--	2-4pm	4-6pm	--	unknown	N	N	N
2004	Alameda CTC	12	--	--	--	3-6pm	--	unknown	N (but estimated)	N	N
2006	Alameda CTC	12	--	--	--	3-6pm	--	April, May, June	Y (most locations)	N	N
2008	Alameda CTC	12	--	--	--	3-6pm	--	April, May, June	Y (most locations)	N	N
2008	UCTSC/ Alameda CTC	50	--	12-2pm	3-5pm	--	9-11am, 12-2pm, 3-5pm	April, May, June, July	Y	Y	N
2009	UCTSC/ Alameda CTC	36	--	--	2-4pm	4-6pm	9-11am, 12-2pm, 3-5pm	April, May, June	Y	Y	N
2010	Alameda CTC/ MTC	63	--	12-2pm	2-4pm	4-6pm	--	Sept, Oct	Y	Y	Y
2011	Alameda CTC/ MTC	63	--	12-2pm	2-4pm	4-6pm	--	Sept, Oct	Y	Y	Y
2012	Alameda CTC/ MTC	63	7-9am	12-2pm	2-4pm	4-6pm	--	Sept, Oct, Nov	Y	Y	Y

Note: MTC = Metropolitan Transporation Commission; Alameda CTC = Alameda County Transportation Commission; UCTSC - Unioversity of California Traffic Safety Center (now SafeTREC)

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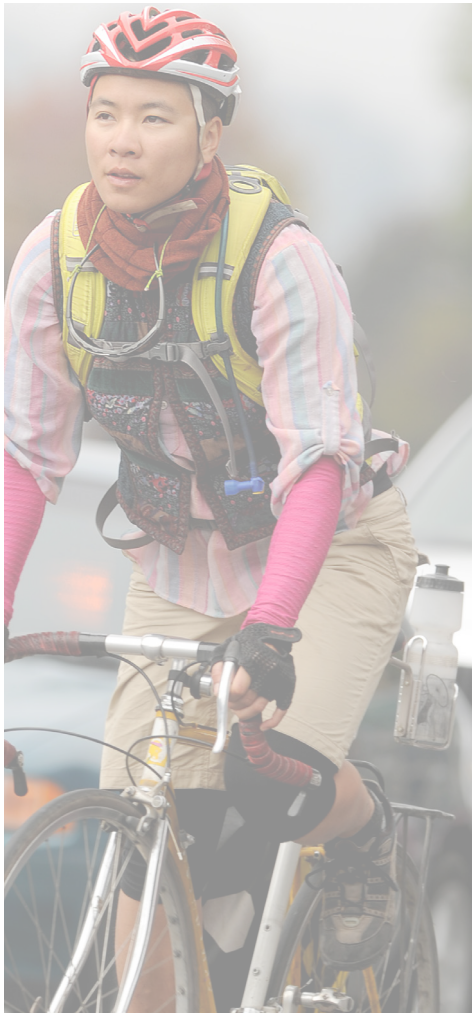

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