

Appendix A. Benefits of Walking and Biking

Communities in the Unincorporated Areas of Alameda County are interested in improving the experience for residents and visitors who wish to walk and bike. Statewide, automobile use remains the most common way that people get around; yet, the amount of people walking and biking continues to increase. In the 2010-2012 California Household Travel Survey, participants reported 16.2 percent and 1.5 percent of their trips occurred by foot and bike, respectively. In Alameda County, the number of residents walking to work has slightly increased from 3.2 percent to 3.4 percent, and the number of residents biking to work has increased from 2.3 percent to 3.5 percent between 2010 and 2015. These increases occurred as the percentage of residents driving dropped from 78 percent to 72 percent, showing a desire to use more active transportation modes.¹

The data shows that the Unincorporated Areas of Alameda County have higher rates of driving and lower rates of walking and bicycling than the incorporated urban areas of Alameda County, which should be expected due to more rural and suburban land use patterns, which have origins (homes) and destinations (work, schools, shopping, etc.) further away from each other than in urbanized areas. The distance between origins and destinations, combined with past development requirements that did not require sidewalks or bike infrastructure and few transit options, can be discouraging for people who would like to walk or bike. Fortunately, the Unincorporated Areas of Alameda County are looking for opportunities to improve these facilities and build infrastructure in key locations to help create safe, convenient, and comfortable walking and biking connections that is a part of the county-wide transportation network.

In addition to simply meeting the desires of residents, walking and biking has been shown to have health, economic, environmental, and livability benefits. The following sections provide an overview of these benefits and highlights the importance of encouraging walking and biking for communities to thrive and grow.

Health Benefits

Regular physical activity is a key part of an individual's overall health and has been shown to reduce the risk of chronic diseases such as heart disease and diabetes. The Centers for Disease Control and Prevention recommends that adults and children need approximately 20 to 60 minutes a day of moderate to vigorous aerobic activity, such as walking and biking.² While walking and biking purely for exercise is one way to meet these recommendations, walking or biking for transportation is another way to incorporate these activities into one's daily routine.

In Alameda County, the percentage of adults who walk regularly (37.5 percent) is higher than the state average (33 percent). Unfortunately, that pattern does not duplicate itself with the number of teens

¹ U.S. Census Bureau, 2010 and 2015 American Community Survey

² Centers for Disease Control and Prevention. Physical Activity.
<https://www.cdc.gov/physicalactivity/basics/index.htm> (viewed 8/3/2017)

who engage in regular physical activity – 68.4 percent in Alameda County to 69.6 percent in California.³ Additional opportunities for walking and biking could edge these percentages up.



Figure A.1. Activity of Alameda County Residents
(Source: Healthy Alameda County)

Physical activity associated with walking and biking can also increase life expectancies and decrease chronic disease and hospitalization. Just walking or biking (or any other physical activity) for at least 150 minutes per week has been shown to help prevent chronic diseases and maintain a healthy weight. Research also shows that shifting from driving to bicycling for short trips may increase life expectancy by up to 14 months. Worldwide, nearly 9 percent of premature deaths are related to a lack of physical activity. In the United States, 9-11 percent of total health care costs are linked to individuals not getting enough physical activity.⁴ In California, physical inactivity was tied to \$20.2 billion of health care costs.⁵

Physical activity and walking/biking infrastructure have been shown to be related. Active Living Research has created the following infographic (Figure 3), demonstrating the linkages between physical activity, walking and biking, sidewalks, and mixed-use neighborhoods. All these components create an environment where physical activity is easier to incorporate into everyday life.

³ Healthy Alameda County. Indicators Dashboard. <http://www.healthyalamedacounty.org/> (viewed 8/3/2017)

⁴ Active Living Research (2016). Moving Toward Active Transportation: How Policies Can Encourage Walking and Bicycling. http://activelivingresearch.org/sites/default/files/ALR_Review_ActiveTransport_January2016.pdf (viewed 8/3/2017)

⁵ Wolstein, J. et al. (2015) Obesity in California. <http://healthpolicy.ucla.edu/publications/Documents/PDF/2015/obesityreport-jun2015.pdf>.



Figure A.2. Connections between physical activity and health outcomes
(Source: activelivingresearch.org/sites/default/files/ALR_Infographic_ActiveTravel_Apr2016.jpg)

Economic Benefits

Household Benefits

The 2008-2012 American Community Survey reported that owning, maintaining and using a motor vehicle accounts for nearly 20 percent of a typical household’s income. In contrast, the cost of operating a bicycle averages just over \$300, and walking costs are negligible.⁶

These costs are resulting in more people choosing not to own a vehicle, and those that do own vehicles may choose to drive it less to save money. In 2010, 8.9 percent of American households did not have a car; in 2015, this percentage increased to 9.1 percent. While this increase is slight, this trend follows

⁶ U.S. Bureau of Transportation Statistics (2009). [Pocket Guide to Transportation](#).

walkability are worth up to \$34,000 more than similar houses in areas with average walkability levels.¹¹ This is due to both the ever-increasing desire of residents to walk and bike and to the aspiration of businesses, services, and destinations to locate in areas where walking and biking is an option. As a bonus to those businesses, studies have found that customers arriving by foot or bike visit businesses more frequently and spend more money per month.¹²

Environmental Benefits

Replacing driving trips with walking or bicycling has multiple environmental benefits as well. Walking and biking, rather than driving, can reduce greenhouse gas emissions; motor vehicle emissions result in 31 percent of carbon dioxide (CO₂), 81 percent of carbon monoxide, and 49 percent of the nitrogen oxides released in the United States every year. The benefit of walking and bicycling is especially important for short trips where walking or biking may be more of an option – 60 percent of auto emission pollution occurs in the first few minutes of the vehicle's operation, making shorter car trips more polluting per mile than longer trips.¹³

Shifting from driving to walking and biking can have dramatic impacts. If the nationwide percentage of biking and walking trips was increased from 12 percent to 15 percent, this would result in fuel savings of 3.8 billion gallons a year. This mode shift would also reduce greenhouse gas emissions by 33 million tons per year, or the equivalent of replacing 19 million conventional cars with hybrids.¹⁴ Replacing car trips with walking and bicycling trips can also reduce the presence of particulate matter in the air, which improves air quality and benefits older adults, children, and those with respiratory and cardiovascular problems.

¹¹ Cortright, Joe. Walking the Walk: How Walkability Raises Home Values in U.S. Cities.

¹² The Clean Air Partnership (2010). [Bike Lanes, On-Street Parking and Business: Year 2 Report](http://www.tcat.ca/wp-content/uploads/2016/08/BikeLanes_Parking_Business_BloorWestVillageNewCover.pdf). Viewed at http://www.tcat.ca/wp-content/uploads/2016/08/BikeLanes_Parking_Business_BloorWestVillageNewCover.pdf ¹³

Pedestrian and Bicycle Information Center. Environmental Benefits of Bicycling and Walking. http://www.pedbikeinfo.org/data/factsheet_environmental.cfm (viewed 8/3/2017)

¹⁴ Rails to Trails Conservancy (2008). The Case for Increased Federal Investment in Bicycling and Walking. Viewed at <https://www.railstotrails.org/resourcehandler.ashx?id=2948>.

Livability Benefits

As mentioned above, the increased property values of neighborhoods with higher walkability and bikeability shows how people value those characteristics. More people walking and bicycling means more “eyes on the street” which improves safety, encourages more activity, and enhances community cohesion.

The ability to walk and bike also improves the quality of life for residents. A study conducted in Montreal indicated that people who walk, bike, and ride commuter rail are more satisfied with their commutes than those who drive (or take metro and the bus).¹⁵ Eighty-five (85) percent of people who walked were satisfied with their commute, and 82 percent of people who biked were satisfied with their commute. These satisfaction levels are higher than those of drivers (77 percent of people who drove were satisfied with their commute).¹⁶

Walking and biking can also improve an individual’s performance once they arrive at their destination. Walking and biking to school has been shown to boost learning and memory in children and increases cognitive performance for teenagers with intellectual and developmental disabilities.¹⁷

The Unincorporated Areas of Alameda County is seeking to build upon and enhance the existing walking and biking infrastructure and programs so that residents and visitors can benefit from these positive impacts of walking and biking. Before developing a plan for new and enhanced projects and programs, understanding the adopted plans and policies for the Unincorporated Areas of Alameda County is an important step. The following section summarizes the adopted plans and policies for the Unincorporated Areas of Alameda County.

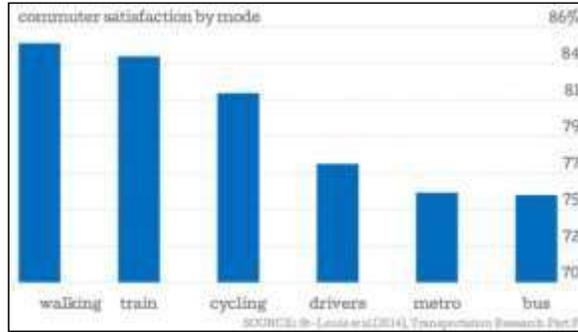


Figure A.4. Commuter satisfaction by mode
(Source: <https://www.citylab.com/transportation/2014/08/which-mode-of-travel-provides-the-happiest-commute/378673/>)

¹⁵ Jaffe, Eric. Which Mode of Travel Provides the Happiest Commute? <https://www.citylab.com/transportation/2014/08/which-mode-of-travel-provides-the-happiest-commute/378673/> (viewed 8/3/17)

¹⁶ The study also found that 84 percent of people were satisfied with their commute on commuter rail (train); this was higher than the satisfaction levels of people who biked (82 percent). The researchers believe this “speaks to the ability to be productive on the train.”

¹⁷ Rupert, Jennifer. Health Benefits of Walking and Biking to School. Viewed at <https://www.portlandoregon.gov/transportation/article/281464>

