



Bicycling & Walking in the United States

2018 BENCHMARKING REPORT



Bicycling and Walking in the United States: 2018 Benchmarking Report

Sixth Edition

By the League of American Bicyclists

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The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or the Agency for Toxic Substances and Disease Registry.

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You can find an electronic copy of this report, and prior Benchmarking Reports at

<https://bikeleague.org/benchmarking-report> and
<http://bikingandwalkingbenchmarks.org>



About the League of American Bicyclists

The League of American Bicyclists (the League) was founded in 1880 as the League of American Wheelmen. From its inception it has been a membership organization, working on behalf of its members to improve conditions for people who bike. In the 1880s, the League led the “Good Roads” movement to pave city streets for bicycling, and the League continues to lead the way towards safer, more comfortable bicycling today. The League works with its more than 17,000 individual members, 350-member advocacy organizations, and 6,000 bicycle safety education instructors to build a Bicycle Friendly America for everyone.

The League is proud to continue the work of the Alliance for Biking and Walking by presenting the *Sixth Edition of Bicycling and Walking in the United States: A Benchmarking Report*. This report is intended to be a guide to publicly available data on bicycling and walking, and the public policy that supports creating a healthy, active America through bicycling and walking. We hope you enjoy the data and discussions in this report.

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Introduction

“ Our society now recognizes that everyone has the right to have and use pedestrian facilities. ”

Photo credit: 2018 National Bike Summit by Brian Palmer

Quote credit: FHWA, *Designing Sidewalks and Trails for Access, Part II of II: Best Practices Design Guide* (2001) At 2-11. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalk2/index.cfm

IN THIS CHAPTER

Bicycling and Walking in the United States: 2018 Benchmarking Report is the continuation of the Benchmarking project started by the Alliance for Biking and Walking in 2007. In this introduction you can learn about the history of the Benchmarking project and key data reported over time.

Use the Introduction to learn how to get the most from the Benchmarking Report or grab initial takeaways before diving more deeply into the data and discussion in the report.

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» EXECUTIVE SUMMARY

The Alliance for Biking and Walking began using the Benchmarking Report on Bicycling and Walking in the United States (Benchmarking Report) to track data on these two modes of transportation in 2007. This is the sixth edition of the Benchmarking Report and the first edition published by the League of American Bicyclists (the League). The League is proud to continue this publication to provide a resource for practitioners and partners interested in making biking and walking better.

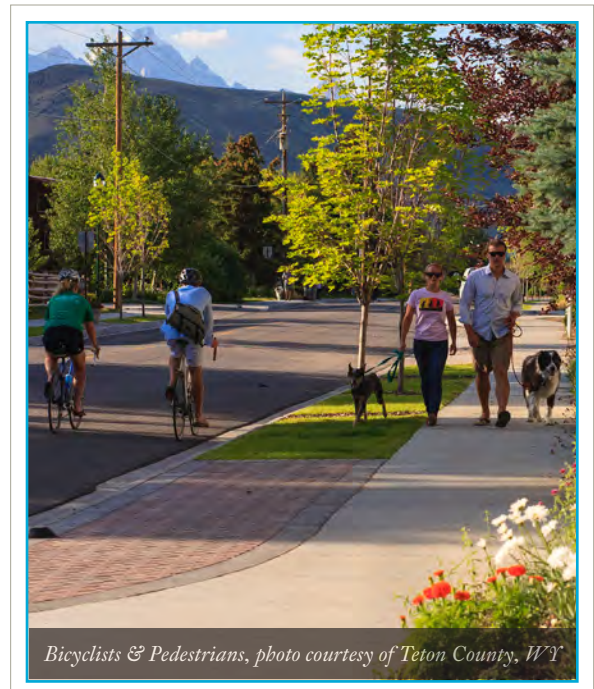
State of Bicycling & Walking in the United States

» SAFETY

Based on the data available from the National Highway Traffic Safety Administration, more people died in 2016 while bicycling and walking than in any year in a quarter century. Over the course of the six editions of the Benchmarking Report, the 3-year average for bicyclist fatalities increased by 102 deaths to 795 (a 14.7% increase) and the 3-year average for pedestrian fatalities has increased by 767 deaths to 5,464 (a 16.3% increase).

The increase in bicyclist and pedestrian deaths exceeds a general increase in traffic fatalities. In 2007, the first year the Benchmarking Report was published, people who biked and walked made up 12.9% of traffic fatalities. The most recent available data, from 2016, show that people who bike and walk now make up 18.2% of traffic fatalities. Although efforts have been made to improve conditions for people who bike and walk, this trend points to a continued need to boost safety.

Despite increases in bicyclist and pedestrian fatalities nationwide, some states and cities experienced more people bicycling and walking – and fewer fatalities. For example, Oregon has the nation’s lowest rate of bicyclist fatalities per bike commuter (1.7 deaths per 10,000 bicycle commuters), with a 30.9% decrease in the number of bicyclist fatalities (from an average of 11 deaths per year from 2007-11 to 7.6 deaths per year from 2012-2016) and a 46.5% increase in the number of bicycle commuters (from 29,156 in 2007 to 42,725 in 2016). This suggests that bicyclist and pedestrian fatalities are not inevitable when people bike and walk more but may be reduced through proactive policy, infrastructure, education, and other community investments in bicycling and walking.



Bicyclists & Pedestrians, photo courtesy of Teton County, WY

Unfortunately, the data also points toward regional differences that have only widened during the Benchmarking project. For example, nine of the 10 most dangerous states for bicyclists are in the south and seven of the 10 most dangerous states for pedestrians are in the south (based on rates of fatalities per commuters). Between 2011 and 2016, four of those nine most dangerous southern states for bicyclists became more dangerous and six of those seven most dangerous southern states for pedestrians became more dangerous. In contrast, six of the 10 safest states for pedestrians are in the midwest and 6 of the 10 safest states for bicyclists are in the west (based on rates of fatalities per commuters).

» HEALTH

The Benchmarking Report tracks four chronic diseases that can be managed or prevented by physical activity, such as bicycling and walking. Unfortunately, for each of these four chronic diseases, at least 42 states saw an increase in the prevalence of each disease over the course of the Benchmarking project.

At the state level, the prevalence of these conditions is associated with rates of bicycling and walking. For example, the five states where less than .2% of workers bike to work – Alabama, Arkansas, Mississippi, Tennessee, and West Virginia all appear in the top 10 for the prevalence of diabetes, high blood pressure, and obesity. Physical activity can help prevent these conditions and making it easier and safer to bike and walk is likely to go a long way towards helping people be more physically active.

» RATES OF BIKING & WALKING

Over the course of the Benchmarking project, both biking and walking have become more prevalent. For bicycling, this appears to be a commute-related change. Data from the National Household Travel Survey (NHTS) shows no change in the percentage of trips by bike, but data from the American Community Survey shows a 50% increase in the rate of people biking to work. For walking, the increase appears outside of commuting to work, where a modest 8% increase in walking to work is surpassed by a 13.3% increase in the percentage of all trips by foot.

Unfortunately, more state and city data on non-commute trips by foot or bike are not available. The reported increase

in pedestrian trips from the National Household Travel Survey does not indicate how walking has changed in states and cities. The data on walking to work from the American Community Survey is hard to reconcile with the increase observed in the NHTS: only 14 states saw an increase in the rate of walking to work and only five of these saw an increase larger than the increase for the national percentage of trips by foot from NHTS. More data would help to identify where trips by foot are increasing and what interventions are effective at encouraging more people to choose to walk to improve their health and physical activity.

While increases in the rate of biking to work have been widespread – 88% (44) of the 50 most populous cities in the United States saw an increase in the rate of biking to work between 2010 and 2016 – they have also been concentrated. The 10 cities with the most bicycle commuters in 2016 contributed just over 44% of new bicycle commuters during that time. Some cities with significant increases in the rate of biking to work also saw significant increases in the rate of walking to work: both Detroit and Miami were in the top five for growth in the rate of biking and walking to work.

» REGIONAL DIFFERENCES IN RATES OF BIKING & WALKING

Regional differences continue to appear in studies of bicycling and walking commuter rates. The southern region has lower rates of bicycling and walking to work than elsewhere in the United States – with eight southern states ranking among the lowest 10 state rates of walking to work, and nine southern states ranking among the lowest 10 rates of biking to work. This observation is reinforced by the fact that two southern states are among the bottom 10 for the largest decreases in walk-to-work rates, and four southern states are among the bottom 10 for the largest decreases in bike-to-work rates. However, some southern states show growth in their efforts to support biking and walking to work; South Carolina, Virginia, Arkansas, and West Virginia were in the top 10 rates of growth in walking to work, and four states—Virginia, Louisiana, Georgia, and Kentucky—ranked in the top 10 for rates of growth in biking to work.

States in the west and east make up nine of the top 10 rates for walking to work and all of the top 10 rates of biking to work. While four of the 10 states with the highest rates of walking to work also had a top 10 increase in the rate of walking to work, only one of the top 10 states for biking to

work—Massachusetts--had a top 10 increase in the rate of biking to work. Massachusetts is the only state in the top 10 for the rate of biking to work in 2016 outside of the west, and no western state had a top-10 growth rate for the rate of biking to work.

Signs of Progress

There has been incredible progress in planning, programming, and project implementation related to bicycling and walking over the course of the Benchmarking project. Every single indicator for the efforts by federal, state, and local governments collected and compiled by the Benchmarking project saw an increase in effort since the first Benchmarking Report published in 2007. Some of these changes are impressive:

- The number of states with a Complete Streets policy has more than tripled, from 9 states to 34;
- The number of the 50 most populous cities with a Complete Streets policy increased 500%, from 8 cities to 40;
- The average obligated dollar value of federal transportation funds spent on biking and walking per capita has more than doubled from \$1.41 per person to \$2.93 per person;

- The number of the 50 most populous cities with a public bike share system has increased nearly 9 times, from 5 cities to 44; and
- The average number of bicycle and pedestrian city staff per 100,000 city residents in the 50 most populous cities has at least doubled from 0.4 staff persons per 100,000 to at least 0.82 staff persons per 100,000.

In recent years, the Benchmarking data points towards cities moving more aggressively than states to plan for bicyclists and pedestrians. Complete Streets policies and bicycle/pedestrian master plans now cover almost all of the 50 most populous cities – with 40 and 49 of those cities having each, respectively.

The 34 states with a Complete Streets policy averaged an over 20% growth in the rate of biking to work between 2007 and 2016; the 16 without such a policy averaged 6.1%. Nearly half of the states with decreased rates of people biking to work were states without a Complete Streets policy, despite those states comprising less than a third of total states. Similarly, walk-to-work rates of states without a Complete Streets policy dropped 9.1%, more than double the decrease observed in the 34 states with such a policy (-4.2%). Similarly, differences are clear in rates of biking and walking to work between states with and without bicycle/pedestrian master plans: States with plans showed better rates of growth or smaller rates of decrease.



Celebration, photo courtesy of St. Petersburg Bicycle Co-op

FIGURE 1.1.1 - SNAPSHOT OF KEY DATA ¹

| CATEGORY | NATIONAL AVG. | STATE / CITY | HIGH | LOW |
|-----------------------------------------------------------------------|---------------|--------------|-------------------------|-----------------------------------------------------------------|
| Share of Commuters who Bike to Work | 0.6% | States | Oregon: 2.2% | Arkansas, Tennessee, West Virginia, Alabama, & Mississippi: .1% |
| | | Cities | Portland (OR): 6.5% | Oklahoma City (OK): .2% |
| Share of Commuters who Walk to Work | 2.7% | States | Alaska: 7.6% | Alabama: 1.2% |
| | | Cities | Boston (MA): 14.8% | Fort Worth (TX): 1.2% |
| Percent of Fatalities that are Bicyclists (2012-16) | 2.2% | States | Florida: 5.1% | South Dakota & West Virginia: .4% |
| | | Cities | Sacramento (CA): 9.4% | Omaha (OK): 0% (no bicyclist fatalities) |
| Percent of Fatalities that are Pedestrians (2012-16) | 16% | States | New Jersey: 27.5% | Wyoming: 4.1% |
| | | Cities | San Francisco (CA): 55% | Cleveland (OH): 12.6% |
| Percent of Federal Transportation Dollars spent on Biking and Walking | 2.6% | States | Florida: 3.9% | Oklahoma: .05% |
| | | Cities | Data not available | Data not available |
| Per Capita Federal Transportation Dollars spent on Biking and Walking | \$2.93 | States | Alaska: \$10.03 | Oklahoma: 8¢ |
| | | Cities | Data not available | Data not available |



¹ See Chapter IV: Show Your Data Figure 2.7.2 Complete Streets policies for more information about the type of policy in each state.

» USING THE BENCHMARKING REPORT

Bicycling and Walking in the United States: 2018 Benchmarking Report is divided into five chapters. Each chapter provides the user with a different perspective on the data compiled for the report.

1 » INTRODUCTION

This chapter provides context for the Benchmarking Report, including a description of the project's history, goals and objectives, and data development methodology.

2 » FIND YOUR ANGLE

Six vignettes describe people who promote bicycling and walking through their jobs, using data in the Benchmarking Report. Their stories provide models for other people interested in maximizing the use of such data to inspire and enable more bicycling and walking.

3 » MAKE YOUR CASE

Ten distinct sections delve into issues that affect bicycling and walking. In each section, “cases” explore topics within the section and provide data that might help move the discussion forward. Each section also includes guidance on “Advancing Understanding” (identifying areas where data could be improved), “Embracing Equity” (discussing demographic, social, and economic differences), and “Making the Health Connection” (identifying the role of bicycling and walking within the larger realm of public health).

4 » SHOW YOUR DATA

This data-focused chapter provides important statistics, trends, and other research-based indicators related to bicycling and walking at the national, state, and large city levels. The 100-plus tables and charts share data on bicycling and walking that is otherwise less accessible to the public and can be used for longitudinal or comparative analyses.

5 » APPENDIX

More information on the methods used to create this report can be found in this appendix of surveys, data sources, and other material pertinent to discussions.

» HIGHLIGHTED TRENDS

The following tables summarize data pulled from each of the six editions of the Benchmarking Report on Bicycling and Walking. Each year listed refers to the publication year of the Benchmarking Report. To learn more about data referenced here, please see Chapter IV: Show Your Data and Chapter V: Appendix. *Note that “NR” equals “Not Reported in Benchmarking Report in that Year of Publication.”*

» NOTES

* The count of advocacy organizations was based on the number of members of the Alliance for Biking and Walking for each report through 2016. The 2018 report data are based on members of the League of American Bicyclists.

** The survey used for this data changed substantially between the 2016 and 2018 reports. Changes included questions related to Bicycle and/or Pedestrian Advisory Committees, annual bicycle and/or pedestrian-related conferences, and drivers’ licensing questions related to bicycling and walking.

*** When interpreting safety statistics, it is important to note that these numbers derive from the sum of all bicyclist or pedestrian fatalities involving a motor vehicle and all unintentional injuries divided by the number of bicyclist or pedestrian commuters. They do not represent fatalities or injuries that occur among commuters but instead use the number of bicyclist or pedestrian commuters as a proxy measure for the amount of bicycling or walking in the United States.

FIGURE 1.3.1 - ADMINISTRATIVE PRIORITIES

| DATA/DESCRIPTION | BENCHMARKING REPORT YEAR | | | | | |
|----------------------------------------------------------------------------------------------|--------------------------|------|------|------|------|------|
| | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 |
| STATES # of counts/surveys of pedestrians | NR | NR | 24 | 36 | 37 | 39 |
| STATES # of counts/surveys of bicyclists | NR | NR | 24 | 37 | 37 | 39 |
| STATES # of bike/ped master plans | NR | 25 | 28 | 32 | 34 | 34 |
| STATES # of Complete Streets policies | 9 | 17 | 26 | 27 | 30 | 31 |
| CITIES # of bike/ped master plans | NR | 35 | 39 | 45 | 46 | 49 |
| CITIES # of Complete Streets policies | 8 | 18 | 19 | 23 | 28 | 40 |
| CITIES # of annual spending target for bicyclist and pedestrian projects and programs | 8 | 6 | 9 | 10 | 16 | 15 |

FIGURE 1.3.2 - AVAILABLE RESOURCES

| | DATA/DESCRIPTION | BENCHMARKING REPORT YEAR | | | | | |
|---------------|-------------------------------------------------------------------|--------------------------|--------|--------|--------|--------|--------|
| | | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 |
| STATES | Avg. obligated federal funds for bicycling and walking per capita | \$1.41 | \$1.58 | \$2.73 | \$3.10 | \$2.52 | \$2.93 |
| STATES | Avg. % of obligated federal funds for bicycling and walking | 1.3% | 1.4% | 1.9% | 2.1% | 2.0% | 2.6% |
| STATES | # of statewide advocacy organizations | 32 | 35 | 43 | 43 | 50 | 44** |
| STATES | # of Bicyclist and/or Pedestrian Advisory Committees | NR | 18 | 24 | 37 | 37 | 28* |
| CITIES | Avg. bike/ped staff per 100k population | 0.4 | 0.6 | 0.8 | 0.8 | 1.0 | 0.8 |
| CITIES | # of city advocacy organizations | 32 | 34 | 36 | 39 | 58 | 117* |
| CITIES | # of Bicyclist and/or Pedestrian Advisory Committees | NR | 32 | 36 | 36 | 40 | 41 |

FIGURE 1.3.3 - IMPLEMENTATION

| | DATA/DESCRIPTION | BENCHMARKING REPORT YEAR | | | | | |
|---------------|---------------------------------------------------------------------|--------------------------|------|------|------|------|------|
| | | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 |
| STATES | # with annual bicyclist and/or pedestrian-related conference | NR | 14 | 24 | 26 | 33 | 32** |
| STATES | # of states with driver test questions on bike/motorist interaction | NR | 24 | 33 | 38 | 46 | 31** |
| CITIES | # with a bikeshare system | NR | NR | 5 | 18 | 25 | 44 |
| CITIES | # with bike to work day events | NR | 36 | 43 | 50 | 48 | 47 |
| CITIES | # with Open Streets events | NR | 10 | 20 | 27 | 30 | 43 |
| CITIES | # with Bicycle Friendly Community designation | NR | NR | 30 | 35 | 37 | 35 |
| CITIES | # with Walk Friendly Community designation | NR | NR | NR | 9 | 12 | 12 |

FIGURE 1.3.4 - MODE SHARE

| | DATA/DESCRIPTION | BENCHMARKING REPORT YEAR | | | | | |
|-------------------------------------|-------------------------|--------------------------|------|------|------|------|------|
| | | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 |
| AVERAGE OF ALL STATES | % of commuters who walk | 2.5% | 2.8% | 2.9% | 2.8% | 2.8% | 2.7% |
| AVERAGE OF ALL STATES | % of commuters who bike | 0.4% | 0.5% | 0.6% | 0.6% | 0.6% | 0.6% |
| AVERAGE OF 50 LARGEST CITIES | % of commuters who walk | 4.4% | 4.8% | 4.8% | 5.0% | 5.0% | 4.9% |
| AVERAGE OF 50 LARGEST CITIES | % of commuters who bike | 0.7% | 0.7% | 0.9% | 1.0% | 1.2% | 1.2% |

FIGURE 1.3.5 - PUBLIC HEALTH

| | DATA/DESCRIPTION | BENCHMARKING REPORT YEAR | | | | | |
|----------------------|-----------------------------------|--------------------------|-------|-------|-------|-------|-------|
| | | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 |
| US POPULATION | % Meeting physical activity level | 49.1% | 49.5% | 51.0% | 51.7% | 50.8% | 50.5% |
| US POPULATION | % Living with obesity | 24.4% | 26.3% | 26.9% | 27.8% | 29.4% | 30.1% |
| US POPULATION | % Living with hypertension | 25.5% | 27.8% | 28.7% | 30.8% | 31.4% | 30.9% |
| US POPULATION | % Living with diabetes | 7.3% | 8.0% | 8.3% | 9.5% | 9.7% | 10.5% |
| US POPULATION | % Living with asthma | 8.0% | 8.4% | 8.8% | 9.1% | 9.0% | 9.3% |

FIGURE 1.3.6 - TRAFFIC SAFETY

| | DATA/DESCRIPTION | BENCHMARKING REPORT YEAR | | | | | |
|----------------------|----------------------------------------------|--------------------------|-------|-------|-------|-------|-------|
| | | 2007 | 2010 | 2012 | 2014 | 2016 | 2018 |
| US POPULATION | % of roadway fatalities that are pedestrians | 11.2% | 11.3% | 11.7% | 12.9% | 14.1% | 16.0% |
| US POPULATION | % of roadway fatalities that are bicyclists | 1.7% | 1.8% | 1.8% | 1.9% | 2.2% | 2.2% |
| US POPULATION | Pedestrian fatalities per 10k commuters*** | NR | NR | 11.0 | 11.0 | 11.9 | 13.3 |
| US POPULATION | Bicyclist fatalities per 10k commuters*** | NR | NR | 9.2 | 8.5 | 8.7 | 9.0 |
| US POPULATION | Pedestrian injuries per 10k commuters*** | 326 | 309 | 352 | 438 | 400 | 361 |
| US POPULATION | Bicyclist injuries per 10k commuters*** | 3,497 | 3,179 | 2,626 | 2,950 | 2,511 | 2,597 |

» HISTORY OF THE BENCHMARKING PROJECT

The Benchmarking Project has compiled data on bicycling and walking in the United States since a pilot study in 2003.

In 2007, the Thunderhead Alliance released the first Benchmarking Report on bicycling and walking in the United States with data from all 50 states and the 50 most populous U.S. cities. The initial Benchmarking Report highlighted available national data on bicycling and walking, and used surveys distributed through Alliance member organizations to collect information that was not otherwise available about issues such as state and city policies, funding sources, and education efforts.

By the second edition of the Benchmarking Report (2010), the Thunderhead Alliance – originally named after the 1996 meeting of 12 leaders of bicycling and walking advocacy groups at the Thunderhead Ranch in Wyoming – had rebranded as the Alliance for Biking and Walking (Alliance) to better reflect its work and growth, to 160-member groups.

Beginning with the 2010 Benchmarking Report, the Alliance began publishing the report biennially with updates in 2012, 2014, and 2016. Over five editions, the Benchmarking Report expanded to include data on additional cities – 17 mid-sized cities were added in 2014 – and on evolving changes in bicycling and walking practices over time. As an example, bike share systems were first reported on in 2012, when five cities had bike share systems. In 2016, the Alliance worked with the American Public Health Association (APHA) and Institute of Transportation Engineers (ITE) to create an interactive website version of the Benchmarking Report. That website, bikingandwalkingbenchmarks.org, launched in April 2017.



Advisory shoulders in use, photo courtesy of Hanover, NH

The 2018 Benchmarking Report on Bicycling and Walking is the sixth edition and the first published by the League of American Bicyclists. It aims to update data and analyses found in the five previous editions. The 2018 Benchmarking Report follows the format adopted by the Alliance for the 2016 Benchmarking Report and attempts to include all cities referenced in the report since 2014.

The League of American Bicyclists (League) is a nonprofit bicycle advocacy organization with more than 350 bicycle and pedestrian advocacy member groups. Founded in 1880, the League was instrumental in the Good Roads movement that advocated for paved roads. In 2012, the League began working cooperatively with the Alliance on a shared survey of state departments of transportation.

When the Alliance ceased operations in 2016, its Board of Directors voted to provide the League with all Alliance intellectual property, including the Benchmarking Report. The League shares many of the goals of the Alliance, whose mission was “to create, strengthen, and unite state/provincial and local bicycle and pedestrian advocacy



Public Participation, photo courtesy of the Colony, TX

organizations.”² For more information on similarities and differences between the League and Alliance, please see Part III: Make Your Case—Engaged Public.

In taking on the Benchmarking Report, the League continued data collection and reporting in a manner that allows longitudinal comparisons with past Benchmarking Reports. These efforts included:

- Reviewing the table of contents from each of the prior Benchmarking Reports,
- Reviewing the bibliography of each of the prior Benchmarking Reports,
- Reviewing every data source for charts used in the website bikingandwalkingbenchmarks.org, and
- Reviewing use of benchmarking city survey data from the 2016 and 2014 Benchmarking Reports.

Nevertheless, the 2018 Benchmarking Report contains several changes to its surveys and data collection methods. Those changes reflect the League’s ongoing commitment to its Bicycle Friendly America Program, which has collected data on cities since 1995 and states since 2008. To avoid confusion and minimize data collection burden, benchmarking survey questions were integrated into the League’s existing Bicycle Friendly Community program based on past use. Prior to taking on the Benchmarking Report, the League conducted a review of the Bicycle Friendly State survey in 2016, receiving more than 700 comments from state departments of transportation, state bicycling advocacy organizations, and national biking and walking advocacy organizations.

The League is excited by the opportunity to continue to integrate Benchmarking Report data collection into the Bicycle Friendly America program. The Bicycle Friendly America program has a broad reach, with over 800 communities applying for Bicycle Friendly Community recognition since 2002. This includes 47 of the 50 most populous cities in the United States. By aligning benchmarking survey data collection with this existing and popular program, the League maximizes its data collection ability and minimizes the work of city staff needed for participation in both programs.

² The Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2010 Benchmarking Report* at page 6. Available at <https://bikeleague.org/benchmarking-report>.

Project Goals & Objectives

The goal of the Benchmarking Report is to document, measure, and evaluate conditions for bicycling and walking in the United States. By providing a broad collection of data from the federal government and survey data from state and city governments, the Benchmarking Report provides data and analyses that can support organizations, public officials, planners, engineers, and educators who work to improve communities for people who bike and walk.

The Benchmarking Report began with the first three objectives below. Two more objectives were added in the 2014 report. In the 2018 report, the League continues to embrace the five objectives promoted by the Alliance.

The following objectives guide the development and structure of the Benchmarking Report on Biking and Walking in the United States:

OBJECTIVE 1 » PROMOTE DATA COLLECTION & AVAILABILITY

The Benchmarking Report seeks to make bicycling and walking data easier to find and analyze in two ways: 1) by compiling and analyzing data from federal and/or other national sources of data, and 2) by collecting data through surveys where data are otherwise unavailable.

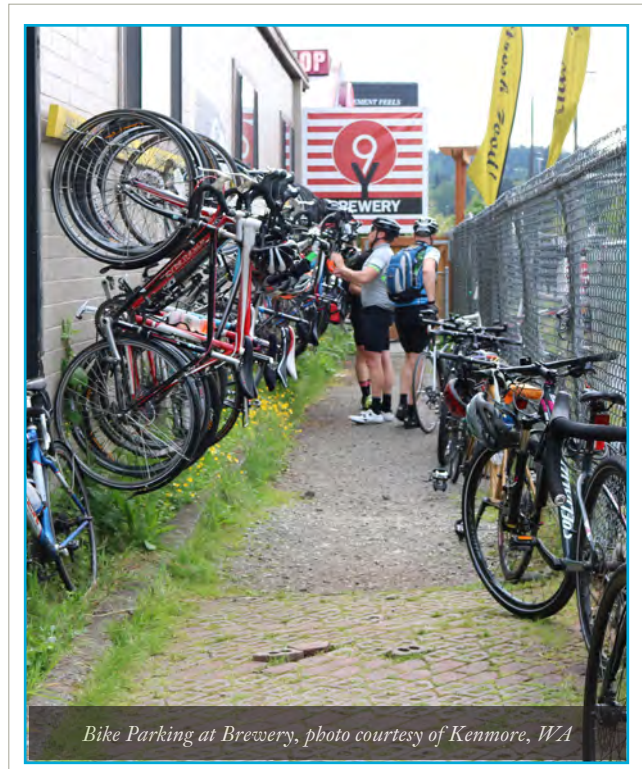
In the 2018 Benchmarking Report, Advancing Understanding sections highlight areas where data related to bicycling and walking efforts can be improved.

OBJECTIVE 2 » MEASURE PROGRESS & EVALUATE RESULTS

The Benchmarking Report provides data in a manner suitable for longitudinal analyses and comparative research. More than 100 data tables and charts in Part IV: Show Your Data summarize such information at the national, state, and city levels, providing the foundation needed for users to understand changes in biking, walking, public health, and efforts to improve biking and walking in the United States.

Where data are available, the Benchmarking Report provides comparisons over time so users can quickly understand any differences. When multiple types of data on a subject are available, such as rates of bicycling and walking trips, data from more than one source are provided to enable comparisons.

Efforts to promote bicycling and walking continue to evolve and have changed markedly over the course of the Benchmarking Report's six editions. The League expects more data on national, state, and city efforts to be added later to reflect any changes. Successes such as widespread adoption of bicycle and pedestrian master plans among large cities provide opportunities to strengthen the League's data collection and understanding around these now common activities, all of which will make the report a continuing valuable resource for users. At the same time, the Benchmarking Report can be a way to enhance partnerships with the expanding collection of groups organized around bicycling and walking, including many that did not exist or have expanded since the time of the Benchmarking Report's initial publication in 2007.



Bike Parking at Brewery, photo courtesy of Kenmore, WA



Winter Biker Selfies, photo courtesy of Harvard University

OBJECTIVE 3 » SUPPORT EFFORTS TO INCREASE BICYCLING & WALKING

The Benchmarking Report compiles data, research, and tools that help make the case for investing in improvements for bicycling and walking. Its information and analysis illustrate current conditions, expand on public knowledge, highlight new initiatives, and identify remaining challenges. Through city-to-city and state-to-state comparisons, the project helps partners, public officials, and agency staff set and track goals to increase bicycling and walking in their communities. The accessible tables and graphics in the Benchmarking Report increase the user’s ability to incorporate current information into their work.

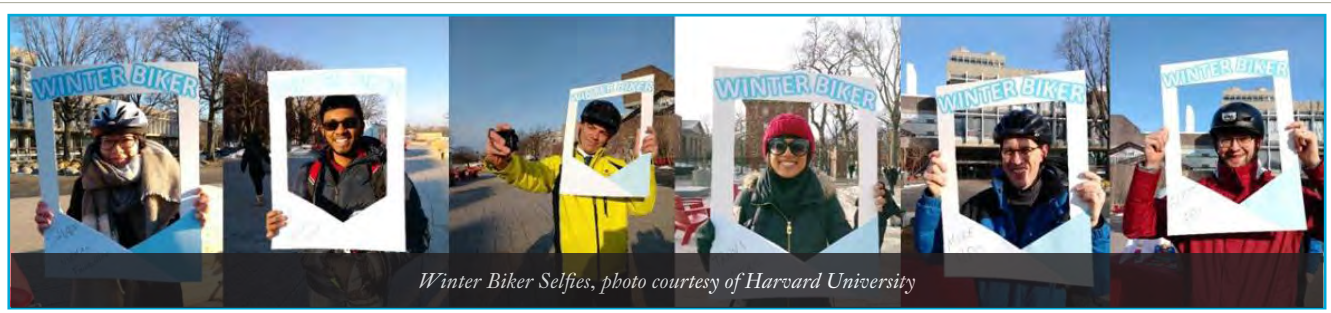
OBJECTIVE 4 » MAKE THE HEALTH CONNECTION

The Benchmarking Report works with the Centers for Disease Control and Prevention (CDC) to highlight the connection between bicycling and walking, and the management and prevention of chronic diseases such as asthma, diabetes, hypertension, and obesity. Data from the CDC’s Behavioral Risk Factor Surveillance System (BRFSS) has been included in the Benchmarking Report since the first edition in 2007.

In the 2018 Benchmarking Report, Making the Health Connection topics are intended to highlight public health efforts that may serve as models for bicycling and walking promotion or otherwise discuss the roles that bicycling and walking play in public health.

OBJECTIVE 5 » STRENGTHEN THE NETWORK OF PARTNERS FOR BIKING & WALKING

The Benchmarking Report strengthens the growing network of bicycle and pedestrian organizations by helping to identify talking points and best practices that support their work. The many graphics throughout the report illustrate data at the city, state, and national levels to address interests and goals of diverse audiences engaged with bicycling and walking partners. Organizations can share these ready-made graphics, including citations to additional research and data sources, to provide educational awareness to decision makers, public agency staff, and other stakeholders.



Winter Biker Selfies, photo courtesy of Harvard University

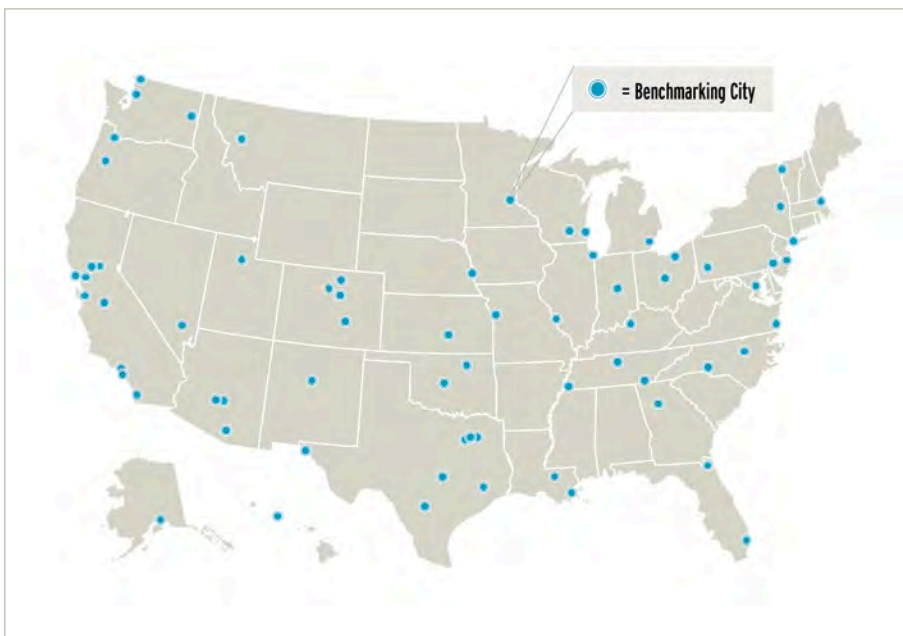
» STUDY AREAS & DATA COLLECTION

The Benchmarking Report began by collecting and reporting data on all 50 states and the 50 most populated U.S. cities. The League determined city populations for this report by using 2016 American Community Survey (ACS) five-year population estimates at the place level.³

The cities studied for this project have shifted over the years, due to changing populations and the addition of small and mid-sized cities to the 2014 Benchmarking Report. Raleigh and Wichita have replaced New Orleans and Honolulu, which were in the original 50 most populous cities included in earlier reports. Raleigh was added to the 2010 Benchmarking Report due to the significant population decrease in New Orleans following Hurricane Katrina. Wichita is among the 50 most populous cities as of the 2014 report. Although New Orleans and Honolulu are no longer among the 50 largest cities, they are included in the report (along with select cities with smaller populations first included in 2014) to take advantage of the already-collected data. Throughout this publication, Washington, DC is discussed as one of the 50 most populous cities, rather than as a state, due to its geographic compactness and urbanized nature.

A list of included cities and their populations can be found in Chapter V: Appendix.

FIGURE 1.5.1 - STUDY AREA LOCATIONS⁴



³ The Benchmarking project tracks data for cities at the “place” level rather than “urbanized area” or Metropolitan Statistical Area (MSA) level. This focuses analyses of trends in the city cores, which are generally more densely developed than suburban and rural communities, and so may have greater opportunities for conversion of car trips to bicycling and walking.

⁴ The Alliance for Biking and Walking. Bicycling and Walking in the United States: 2016 Benchmarking Report page 4. Available at <https://bikeleague.org/benchmarking-report>. (The study area locations for the 2018 and 2016 reports are the same, but Charleston is also included as it was in reports prior to 2016.)

Unless otherwise noted, all averages in this report are un-weighted simple averages. Averages of the states are calculations only of the 50 United States, not any territories or the District of Columbia.

When states are referred to regionally, they are grouped into the regions below. These regions are also used by the League of American Bicyclists' Bicycle Friendly State program.

FIGURE 1.5.2 - STATES BY REGION

| EASTERN REGION | SOUTHERN REGION | MIDWESTERN REGION | WESTERN REGION |
|-----------------------|------------------------|--------------------------|-----------------------|
| Connecticut | Alabama | Illinois | Alaska |
| Delaware | Arkansas | Indiana | Arizona |
| Maine | Florida | Iowa | California |
| Maryland | Georgia | Kansas | Colorado |
| Massachusetts | Kentucky | Michigan | Hawaii |
| New Hampshire | Louisiana | Minnesota | Idaho |
| New Jersey | Mississippi | Missouri | Montana |
| New York | North Carolina | Nebraska | Nevada |
| Pennsylvania | South Carolina | North Dakota | New Mexico |
| Rhode Island | Tennessee | Ohio | Oregon |
| Vermont | Texas | Oklahoma | Utah |
| | Virginia | South Dakota | Washington |
| | West Virginia | Wisconsin | Wyoming |

» SELECTED BENCHMARKS

Public officials and partners can use the Benchmarking Report as an evaluation tool to consistently report on both input and output performance measures.

- **INPUT PERFORMANCE MEASURES** are efforts within the control of public decision makers, such as whether the community has adopted a bicycle and pedestrian master plan. The Benchmarking City and State Survey Tools are the primary way that input performance measures are collected. Where feasible, survey data is compared to publicly available data to report on input performance measures.
- **OUTPUT PERFORMANCE MEASURES** are observable data on bicycling and walking. The Benchmarking Report primarily relies on the compilation of federal datasets to report on output performance measures, such as rates of biking and walking to work.

By reporting both input and output performance measures over time, the Benchmarking Report can be used as an evaluation tool to determine increases in bicycling and walking levels, improvements in public health, and increased safety of bicyclists and pedestrians. The longitudinal data collected in the Benchmarking Reports allow the use of data to compare communities in various ways, including documentation of progress in efforts and outcomes related to bicycling and walking.

The 2018 Benchmarking Report evaluates cities, states, and organizations based on output variables listed in Table 1 and categorized as levels of bicycling and walking, public health, safety, and funding. Input variables (Table 2) are broadly categorized as administrative and legislative priorities, administration and enforcement capacity, advocacy capacity, and implementation. These variables were selected based on use in previous Benchmarking Reports and the quality of available data.

FIGURE 1.5.3 - OUTPUT BENCHMARKS

| | REPORTED FOR CITIES | REPORTED FOR STATES | REPORTED FOR NATION |
|---------------------------------------------------------------------------------|---------------------|---------------------|---------------------|
| LEVELS OF BICYCLING AND WALKING: | | | |
| Pedestrian trips as a share of all trips | | | • |
| Bicycle trips as a share of all trips | | | • |
| Pedestrian commuters as a share of all commuters | • | • | • |
| Bicycling commuters as a share of all commuters | • | • | • |
| Demographics of pedestrian commuters | • | • | • |
| Demographics of bicyclist commuters | • | • | • |
| PUBLIC HEALTH: | | | |
| Physical activity levels | • | • | • |
| Overweight and obesity levels | • | • | • |
| Hypertension levels | • | • | • |
| Diabetes levels | • | • | • |
| Asthma levels | • | • | • |
| Demographics of communities | • | • | |
| SAFETY: | | | |
| Pedestrian and bicyclist fatalities | • | • | • |
| Pedestrian and bicyclist injuries | | | • |
| Fatality rates (fatalities per 10k commuters) | • | • | • |
| Injury rates (injuries per 10k commuters) | | | • |
| Demographics of pedestrian and bicyclist fatalities | | • | • |
| FUNDING: | | | |
| Amount of federal funding obligated to biking and walking projects and programs | | • | • |

FIGURE 1.5.4 - INPUT BENCHMARKS

| | REPORTED FOR CITIES | REPORTED FOR STATES | REPORTED FOR NATION |
|------------------------------------------------------------------------------|---------------------|---------------------|---------------------|
| ADMINISTRATIVE AND LEGISLATIVE PRIORITIES: | | | |
| Pedestrian and bicycle-friendly legislation and ordinances | | • | • |
| Pedestrian and bicycle-friendly policies | • | • | |
| Funding commitments and spending targets for pedestrian and bicycle projects | • | • | • |
| Design guides adopted for pedestrian and bicycle facilities | • | • | |
| Long-term plans for pedestrian and bicycle improvements | • | • | |
| Vision Zero efforts | • | • | |
| Traffic laws | | • | |
| ADMINISTRATIVE CAPACITY: | | | |
| Staffing levels for pedestrian and bicycle projects | • | | |
| Staff training related to pedestrian and bicycle activities and enforcement | • | • | |
| Obligated federal funds for pedestrian and bicycle projects | | • | • |
| Budgeted local funds for pedestrian and bicycle projects | • | • | |
| Bicycle and pedestrian advisory committees | • | • | |
| IMPLEMENTATION: | | | |
| Pedestrian-specific facilities and design | • | • | |
| Bicycle-specific facilities and design | • | • | |
| Pedestrian and bicycle wayfinding and informational materials | • | | |
| Pedestrian education courses | • | | |
| Bicyclist education courses | • | • | |
| Safe Routes to School-related efforts | • | • | |
| Pedestrian and bicycle events and encouragement initiatives | • | | |
| Walk Friendly Community awards | • | | |
| Bicycle Friendly Community awards | • | | |

All sources used for the reported benchmarks are cited in Chapter IV: Show Your Data and referenced in Chapter V: Appendix.

» NATIONAL DATA SOURCES

Whenever possible, the project team collected data for this report from uniform national sources managed by public agencies and organizations. All sources are identified throughout the text and with tables and graphics as relevant. See the Appendix for a summary explanation of each dataset collected. As much as possible, the League used the most recent available data in this report. Due to the lag between federal data releases and publication, the most recent year for most federal data is 2016 throughout this report.

In some cases, data come from independent studies. Full citations for these studies are included as footnotes.

» STATE & CITY SURVEYS

In addition to national data sources, the Benchmarking Report has included data from state and local surveys since its inception. These surveys have sought to gather data not otherwise available and to report results, so states and cities might better compare their efforts.

For the 2018 Benchmarking Report, the report production and survey responsibilities shifted from the Alliance to the League. The League has been involved with the Benchmarking Report since 2013, when the organizations began to collaborate on a single state survey that could be used for both the Benchmarking Report and the League's Bicycle Friendly State Program. The 2018 Benchmarking Report continued this alignment by following a similar process for the city survey used by the Benchmarking Report. The League distributed the latter through its Bicycle Friendly Community Program, in which 47 of the 50 largest cities had previously participated. Where cities did not provide updated data, the most recently available data from either the last Benchmarking survey or their most recent Bicycle Friendly Community application were used. A full list of sources used for city survey data is included in the Appendix.

The League collected state survey data between February and June 2017. Surveys were distributed to staff at state departments of transportation and to state advocacy organizations. The Benchmarking Project team used several email and phone campaigns to solicit responses. The response rate was high, with 45 of 50 states completing the survey.

Between August 2017 and February 2018, city survey data were collected from staff identified in previous Benchmarking Report survey efforts, contacts from the Bicycle Friendly Community program, and online searches for bicycle and/or pedestrian staff. The project team again obtained responses by using several email and phone campaigns. The response rate was lower than the state survey, with only 26 of the largest cities fully completing the survey. A full list of the sources used for city survey data is included in the Appendix.

The League entered all data into the Benchmarking Project data collection tool, reviewing and analyzing all data for quality control and insights during the next several months. State and local leaders in the bicycling and walking field across the nation were instrumental in ensuring a high survey response and completion rate.

NOTE: Both state and city surveys collect and report self-reported data from agency staff. While the League has made efforts to verify submitted data where data are publicly available, accuracy cannot be guaranteed.



» LEAGUE MEMBER ORGANIZATION DATA

The League of American Bicyclists has more than 350 state and local member organizations, and maintains their data regarding membership status, location, and other characteristics as a matter of course. The League collected additional data reported in the Benchmarking Report through a SurveyMonkey survey distributed to its organizations to help ensure comparable data to prior reports by the Alliance. That data can be found in Chapter III: Make Your Case Section IX: Engaged Public.

Data Corrections

Due to the nature of this project, the Benchmarking Report is continuously updating data as available. Occasionally, more recent data conflict with previously reported findings. This report represents the most accurate data available at the time of writing and includes corrected findings that may or may not differ from those reported in prior report editions.

The most common corrections made are to data submitted in the benchmarking state and city surveys. As respondents change and interpret questions differently, discrepancies occur.

Project Team

In addition to League staff, the Benchmarking project team includes many individuals who guide the scope of the project and evaluate findings for accuracy and effectiveness. Members of the advisory committee and data review committee are researchers and professionals from diverse specializations and perspectives. The names and affiliations of these distinguished team members are listed at the front of this report.



Woman biking with dogs (@pexels.com)



Cambridge, MA street with pedestrians, photo courtesy of Alliance for Biking and Walking

Footnotes in the Benchmarking Report

Due to the length of the Benchmarking Report, footnote numbers restart in each section to provide easier to follow citations within sections. Sections are the organizational level below chapters throughout the Benchmarking Report.



Bicyclist in light snow, photo courtesy of University of North Carolina at Chapel Hill

Find

your

Angle

“ Growing urban populations will demand that their streets serve not only as corridors for the conveyance of people, goods, and services, but as front yards, parks, playgrounds, and public spaces. ”

IN THIS CHAPTER

The Benchmarking Report provides data and discussion of many topics that affect biking and walking. In Chapter II: Find Your Angle, you will find stakeholders from different sectors discussing why they promote bicycling and walking and the data that helps them in that effort.

Use the Find Your Angle chapter to learn about their efforts, gain inspiration for more topics to explore in Chapter III: Make Your Case, and then discover how to use the report data in Chapter IV: Show Your Data.

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| » TRANSPORTATION AND HEALTH RESEARCHER | 25 |
| » URBAN PLANNER | 26 |
| » LEGISLATOR | 27 |
| » LIVABILITY/COMMUNITY DEVELOPMENT ADVOCATE | 28 |
| » LIVABLE COMMUNITIES SUPPORTER | 29 |
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» A PEOPLE POWERED MOVEMENT

People support biking and walking for a variety of reasons. The Benchmarking Report is intended to provide data from diverse sources, so report users can decide how best to present that data within their communities.

The following six people represent potential users of the Benchmarking Report, and their stories are included here to inspire you as you engage with its myriad data.

“Find Your Angle” is based upon statements that were provided in response to a questionnaire that is reprinted in Chapter V: Appendix.

The views expressed by individuals in this chapter do not necessarily represent the views of the Centers for Disease Control and Prevention. The perspective of an elected official is included to highlight the role of elected officials in promoting biking and walking. This is not an endorsement for public office.



Transportation & Health Researcher

Dr. Melissa Jean Bopp specializes in community-based influences on physical activity, health disparities, and public health approaches to physical activity. Her work has included studies of physical activity choices by college students, including how physical activity resources in neighborhoods and student housing affect physical activity and fitness behaviors.¹ She recently co-authored *Bicycling for Transportation: An Evidence-Base for Communities*, published in 2018 by Elsevier.

HER ANGLE » BIKING & WALKING PROVIDE PHYSICAL ACTIVITY THAT FIGHTS DISEASE

According to Dr. Bopp, the benefits of biking and walking are wide-ranging and extensive. What interests her most are the health benefits associated with participation in active transportation. Regular active travel is associated with a decreased risk of chronic disease, as well as significant physical and mental health benefits. Given the rising costs of healthcare and the economic burden of poor health, prevention is key, and active transportation can play a valuable role.

Her work attempts to understand the factors that impact walking and biking behavior. Like any behavior, the choice to engage in walking and biking is a complex one, and it is important to look at things comprehensively. Dr. Bopp views walking and biking for transportation as an easy “sell” to fitting physical activity into busy lives. Time is the most common barrier to why people are not active, but according to Dr. Bopp, “we all have to travel places on a daily basis, so why not kill two birds with one stone--opt to walk or bike AND get your daily dose of activity?”

DR. MELISSA JEAN BOPP

Associate Professor at the College of Health & Human Development at Pennsylvania State University, State College, PA



HER ANGLE » CURRENT DATA SHOWS GAPS AND NEEDS FOR FURTHER RESEARCH

The Benchmarking Report helps provide a rationale for her work by showing current data on walking and biking in the United States. These data highlight the gaps in knowledge that lead us to our next project, proposal, or joint venture with community partners.

¹ Shaffer, K., Bopp, M. J. (Author, 20%), Sims, D., Papalia, Z., & Bopp, C. M. *The relationship of living environment with behavioral and fitness outcomes by sex: an exploratory study in college-aged students*. International Journal of Exercise Science., retrieved at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5421984/>

One continuing gap is a lack of data on active travel among ethnic minorities, populations with lower socio-economic status, and people living in rural areas. These groups tend to have higher rates of lifestyle-related chronic disease, so it would be helpful to understand their relationship with biking and walking. Such understanding is necessary because it is essential to draw on existing research of the influences for active travel in a given population in order to develop a tailored, more salient message for the group you are trying to target, according to Dr. Bopp. “Messages are always better received and more meaningful--therein more likely to change behavior--if a group feels like the message is built for them,” she says.



BYRON RUSHING

Walking & Bicycling Program Manager
at the Atlanta Regional Commission
Atlanta, GA

Urban Planner

Byron Rushing is the Walking and Bicycling Program Manager at the Atlanta Regional Commission (ARC), which is responsible for regional planning and intergovernmental coordination for the 10-county Atlanta region. He is also president of the Association of Pedestrian and Bicycle Professionals. In 2016, ARC published “Walk. Bike. Thrive!” in support of the Atlanta Region’s 25-year regional plan with the goal of creating walking and bicycling options for everyone in every community in the region.²

HIS ANGLE » BIKING & WALKING PROVIDE A SCALE FOR BETTER REGIONAL DEVELOPMENT

Walking and bicycling are healthy. They are good for the environment. They provide low-cost travel and make communities more equitable. But most importantly for Mr. Rushing, an urban and regional planner, bicycling and walking provide a yardstick for how we should build communities. “Communities scaled [for biking and walking]—a few miles for bike trips and a few blocks for walking trips—are dramatically different from how we currently plan, but [this approach] offer[s] a myriad of benefits—even for people who can’t or won’t use their bike regularly,” Says Mr. Rushing.

HIS ANGLE » DATA TABLES ALLOW ACCESSIBLE COMPARISONS

Working for a regional Metropolitan Planning Organization (MPO), Mr. Rushing spends most of his time on data: prioritizing, benchmarking, and measuring impacts. Each of those functions requires a thorough database of comparable facts to provide insight into national peers and to track progress locally. The Benchmarking Report has been foundational to Mr. Rushing’s work, a document he uses often to put his city and region into perspective within a national context.

² Atlanta Regional Commission. *Bike-Pedestrian Plan – Walk, Bike, Thrive!* Available at <https://atlantaregional.org/plans-reports/bike-pedestrian-plan-walk-bike-thrive/>

Mr. Rushing identifies the biggest asset of the Benchmarking Report as the raw-number tables. Having easily accessible, comparable data—without too many agendas or filters—allows him to cut and slice information and answer the wide range of questions he receives from elected officials, planning staff, and the public. “There are times when we need to set numbers aside and make a moral or ethical decision about the need to invest in our communities,” he says, “but having facts to support an argument makes discussions a lot easier.”

Legislator

Congresswoman Doris Matsui (D-CA) represents California’s 6th Congressional District in the U.S. House of Representatives. The 6th Congressional District encapsulates Sacramento, California. Rep. Matsui is committed to the mutual alliance of federal, state, and local agencies to build transportation infrastructure. She used Sacramento’s regional blueprint plan as a model for the Safe Streets Act of 2015, which proposed a federal Complete Streets policy to ensure America’s roadways are designed with all users in mind, including bicyclists and pedestrians, children, seniors, and the disabled. The Fixing America’s Surface Transportation (FAST) Act of 2015 incorporated some aspects of the Safe Streets Act of 2015.³

HER ANGLE » COMPLETE & SAFE STREET POLICIES ENCOURAGE INNOVATION & MULTIPLE BENEFITS

According to Rep. Doris Matsui, “When we create policy with all transportation users in mind, we provide more people with the ability to choose sustainable transportation options.” By ensuring America’s streets are safe and by increasing the efficiency of our roads for all users, Congresswoman Matsui believes we can save lives while easing congestion, improving public health, and fighting climate change.

³ Smart Growth America. “Safe streets provisions in FAST Act represent a huge step forward in the effort to strengthen local communities.” Available at <https://smartgrowthamerica.org/safe-streets-provisions-in-fast-act-represent-a-huge-step-forward-in-the-effort-to-strengthen-local-communities/>



REPRESENTATIVE DORIS MATSUI (D-CALIFORNIA)

Congresswoman for California’s Sixth Congressional District Sacramento, CA

Making sure our laws can facilitate multiple modes of transportation encourages innovation. Low-stress bike and walking networks encourage residents and workers to use their bikes for local trips for both recreation and commuting. In the Sacramento region, for example, Congresswoman Matsui is proud of the electric bike share system introduced in 2018 – the largest electric-assist bike share system in North America at its launch. Ensuring the country’s transportation landscape is ready to accommodate those types of exciting developments is important.

HER ANGLE » COMMUNITIES EMBRACE BIKING & WALKING FOR MANY REASONS, & NEED DATA TO SUPPORT THAT EMBRACE

Rep. Matsui’s policy priorities rely on data, which means her messaging on those priorities does as well. Data help her decide where and why policy changes will be most

effective, helping her best explain the need for changes to constituents and colleagues. Effective data analyses can help guide the deployment of new pilot projects in communities, where it is important to test the effectiveness and community readiness for projects and programs that encourage bicycling, walking, and ride sharing as options to replace car trips.

“I’m encouraged by how many communities are embracing bicycling and walking as sustainable and beneficial modes of transportation,” says Rep. Matsui. “But I think we have a lot of work to do when it comes to modernizing our infrastructure around those trends. I’m hopeful that we can work together to get that done at a national level.”

With more people living in urban areas and an increasing array of public transportation options available, ensuring that communities are designed with bicycling and walking in mind can be key. Active transportation is an essential component in the development and implementation of sustainable community strategies, reductions of greenhouse gas emissions, and beneficial public health initiatives.

Livability/Community Development Supporter

Luis O. Cardona is Director of Economic Development at the Downtown Partnership of Baltimore (DPOB). The Downtown Partnership oversees the Downtown Management Authority, Baltimore’s oldest and largest business improvement district, which covers 106 city blocks. The partnership supports biking and walking through events such as Bike 2 Work Day and related events in city parks. It also helps small businesses obtain bike parking, recruits businesses to participate in the League of American Bicyclists’ Bike Friendly Business Program, and subsidizes monthly bike share passes for low-income residents.⁴

LUIS O. CARDONA

Director of Economic Development at the Downtown Partnership of Baltimore
Baltimore, MD

HIS ANGLE » BIKING & WALKING ARE CRITICAL TO THE GROWING DOWNTOWN POPULATION OF BALTIMORE

According to Luis Cardona, biking and walking are critical markers in the overall health and attractiveness of the downtown Baltimore district. When residents and visitors are comfortably navigating a city on foot and by bike, it increases the density of people on sidewalks, which encourages increased retail opportunities. Since the city’s downtown resident population is rapidly growing, the Downtown Partnership of Baltimore spends a great deal of time educating its car-oriented business stakeholders on why the partnership supports improved street conditions for bike and pedestrian users. This can be particularly challenging when talk turns to the recent installation of bicycling infrastructure downtown that has frustrated some drivers. However, “the Downtown Partnership recognizes that an increasing number of downtown residents and employees are electing to use bikes as a form of transit, and this represents the next step in the evolution of Baltimore’s central business district,” says Mr. Cardona.



⁴ Downtown Partnership of Baltimore. *Getting Around – Biking*. Available at <https://www.godowntownbaltimore.com/getting-around/biking/index.aspx>

The DPOB has formally supported Complete Streets legislation to support the safety of pedestrians, bicyclists, and transit users on city streets. It also has worked with its sponsor since the ordinance's introduction to refine the language and gain buy-in from entities throughout Baltimore.

HIS ANGLE » PEER CITIES POINT TOWARDS BENEFITS OF IMPROVED BIKING & WALKING

According to Mr. Cardona, “[f]or the past 75 years, downtown Baltimore has been engineered to move drivers in and out of the city at high speeds.” Many powerful local stakeholders use cars to access jobs and are generally unsupportive of changes to city streets that they perceive could disadvantage their rapid movement in and out of downtown. During the past decade, however, downtown Baltimore has become one of the city’s most populated neighborhoods with 42,000 residents as of 2017, and most of these residents do not own cars.

“Our messaging tends to be straightforward and consistent—the more people who feel safe walking and biking downtown, the healthier and more successful downtown Baltimore will be,” Says Mr. Cardona.

Currently, the Downtown Partnership is involved in efforts to widen sidewalks, augment park spaces, and make other improvements to the street-level experience in downtown Baltimore to encourage increased bike and pedestrian usage. It often points to other cities that have made similar improvements and experienced increased sidewalk density, which encourages more retail use. However, the partnership wants to use more data to make a stronger case.

Livable Communities Supporter

Danielle Arigoni is Director of Livable Communities at AARP, and a bike advocate both within AARP and in her community of Arlington, VA. AARP is a nonprofit, nonpartisan organization that empowers people to choose how they live as they age. Find the nearest AARP state to where you live by visiting aarp.org/states, and sign up for a weekly newsletter on livable communities at aarp.org/livable-subscribe.

HER ANGLE » WALKABLE & BIKEABLE LOCATIONS BRING PEOPLE TOGETHER ACROSS GENERATIONS

Ms. Arigoni is convinced that walking and biking infrastructure is the not-so-secret sauce of placemaking.

“As a planner, I’ve always known that good bike and ped infrastructure delivers benefits for everyone, but it’s been truly eye-opening to see what a quality of life difference it can make for older adults in particular.” It’s now clear that the placemaking benefits are so much greater than the sum of a few crossing signals, some bicycles, and painted crosswalks and lanes. Walking and bicycling deliver real health benefits for individuals and the promise of a more sustainable and energy-neutral transportation future for the nation. But more than that, they provide mobility options and independence for people in a country where we typically outlive our ability to drive by between six and ten years.

“It’s really wonderful to see the evidence in the 2018 *Benchmarking Report* that our collective efforts are working for older adults. The percentage of people age 65 or older who regularly walk for exercise or to just get around is far greater today than it was for that age group in 2009. This is exactly the right trend – and a good affirmation that we’re on the right track.”



DANIELLE ARIGONI

Director of Livable Communities,
AARP, Washington, DC

Ms. Arigoni notes that AARP is working actively to promote the kind of pedestrian- and bike-friendly environments that enable people of all ages and incomes to get around. AARP is committed to ensuring that communities where older adults live (and that would be all communities) are supported in their efforts to strengthen community amenities through things like trail expansions, bicycle racks, bike-share programs, and protected walk-bike lanes. “When we can work with communities to implement these changes, we make bicycling and walking safer for everyone, and that makes communities stronger and more livable.”

HER ANGLE » WORKING LOCALLY NATIONWIDE TO ENGAGE COMMUNITIES

AARP works locally nationwide to engage whole communities (not just our members) in “fun with purpose” activities that get people bicycling or walking as a means to combat isolation, promote healthy living and enhance social engagement. “We advance those goals through advocacy, demonstration projects, and through quick-action grants under our Community Challenge program, which funds real and tangible change on the ground. In the last two years, we helped communities promote

bicycling among older adults by financing bicycle racks, expanding bike share access, installing bike-repair stations, advocating for safer street crossings and developing a mobile demonstration kit to promote transportation safety initiatives (including bike lanes) across an entire state.”

AARP also notes the rapid growth in communities that seek to become more “age-friendly” overall, as evidenced by growth in the AARP Network of Age-Friendly States and Communities – now numbering more than 300 communities and three states. Through that Network, AARP staff and volunteers across the country directly support local leaders to increase transportation options as part of the network’s multi-year, locally-driven age-friendly planning process. “Many of our communities have concluded that pedestrian and bicycling infrastructure is essential to ensure that the mobility of older adults doesn’t end when their driving days do. In those communities, everyone wins. Cyclists benefit from protected bike lanes, pedestrians benefit from slower traffic speeds, and drivers benefit from alternatives that reduce congestion.”

The information gathered in the Benchmarking Report helps AARP achieve the goal of creating great places for all people of all ages. “We’re excited to partner with the League of American Bicyclists and so many other national and local organizations to deepen our work in communities. Let’s continue to work together to forge our way toward a livable, age-friendly and walk- and bike-friendly future for all.”

INFORMATION & INSPIRATION FOR LOCAL LEADERS

The AARP Livable Communities initiative creates and distributes free resources and information that put tools and inspiration into the hands of community leaders. The program’s website and newsletter are award-winning. Its publications include the AARP *Walk Audit Tool Kit*, the *Creating Parks and Public Spaces for People of All Ages* guide and the *Where We Live* series. Learn more at AARP.org/Livable.



Pedestrian bridge, photo courtesy of Regional Transportation Commission (RTC), Washoe County

Multimodal Transportation Supporter or Partner

Melody Geraci is the Deputy Executive Director at the Active Transportation Alliance (Active Trans). Active Trans is a nonprofit advocacy organization that works to improve conditions for bicycling, walking, and transit and to engage people in healthy, active ways to get around. Active Trans is a member organization of the League of American Bicyclists and was a founding member of the Alliance for Biking and Walking. At the time of the Alliance's founding, Active Trans was named the Chicagoland Bicycle Federation and the Alliance for Biking and Walking was named the Thunderhead Alliance.



MELODY GERACI

Deputy Executive Director at the Active Transportation Alliance Chicago, IL

HER ANGLE » BIKING & WALKING ARE CRUCIAL COMPONENTS OF A FREE & FAIR SOCIETY

When Ms. Geraci started with Active Trans in 2005, her main motivation for working in transportation advocacy was concern about the environment. But now she says, “What has kept me in this field for 13 years—what gets me up in the morning, so to speak—is the fundamental injustice of a car-centric society.” Ms. Geraci has found that a lack of transportation choices is a major barrier to accessing jobs, education, healthcare, healthy foods, basic services, green space, and more, especially for the most disadvantaged and vulnerable. By orienting everything in communities around cars, policymakers are picking winners and losers as a society, and intentionally disenfranchising the poor, people with disabilities, older adults, people of color, and others. According to Ms. Geraci, “[w]hen communities are abundant with walking, biking and transit options, they are more safe, fair, and humane—and that’s worth fighting for.”

“My basic elevator pitch is that all people should be able to have a high quality of life without needing a car,” she says. “[They should have] the ability to move freely around our communities [as] a civil right and a key component of a free society, and ... communities that are rich with ample walking, biking and public transit options are happier, healthier, kinder, cleaner, safer, and more equitable.”

HER ANGLE » DATA IS CRITICAL FOR LARGE-SCALE CHANGE, BUT DATA ON ALL TYPES OF BIKING & WALKING ARE HARD TO FIND

Active Trans focuses on ‘upstream approaches’ to change. In serving such a large metropolitan region that has thousands of units of government and jurisdictional authorities, they’ve learned that broad-reaching policy and systemic approaches offer them the best opportunity for creating a larger overall impact. Data is critical for making a robust case in support of walking, biking, and public transit. Facts can make or break an argument, particularly when providing educational awareness for policy advancements.

Ms. Geraci says that the data missing on biking and walking is comprehensive usage data, including non-commuter trips. Without having routine collection and dissemination of walking and biking levels, and standard methods for measuring the same, policymakers only get a partial picture of the transportation environment. And without a comprehensive understanding our change strategies are underinformed. At the same time, she says simple statistics, including those based on national data, can help “sell” biking and walking to the public and elected officials.



Make *your*

Case

“

It is only in the 20th century that streets were designed to separate the mobility function from the economic and social functions.

”

Photo credit: Massachusetts Institute of Technology

Quote credit: Walkable Urban Thoroughfares: A Context-Sensitive Approach at p. 3 available at <http://library.ite.org/pub/elcfff43c-2354-d714-51d9-d82b39d4dbad>

IN THIS CHAPTER

The Benchmarking Report provides a wide array of data about bicycling and walking. In Chapter III: Make Your Case, you will find discussions of current issues related to bicycling and walking. It also includes data that come from researchers and may help promote bicycling and walking.

Use the Make Your Case chapter to learn how bicycling and walking can improve communities; which tactics and strategies federal, state, and community governments can adopt to encourage bicycling and walking; and what challenges are limiting efforts to improve conditions for people who bike and walk.

This chapter shares 10 sections organized around themes that affect bicycling and walking. Each section includes up to six topics:

- One to three subtopics **EXAMINING CASES** that look at current issues of bicycling and walking
- A topic on **“ADVANCING UNDERSTANDING”** that identifies areas where data could be improved
- A topic on **“EMBRACING EQUITY”** that explores social, economic, or racial differences related to aspects of bicycling and walking, including barriers to participation faced by different groups
- A topic on **“MAKING THE HEALTH CONNECTION”** that discusses public health in the context of biking and walking.

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SECTION I: HEALTHY COMMUNITIES

IN THIS SECTION, THE BENCHMARKING REPORT DISCUSSES TOPICS THAT LOOK AT THE CONNECTIONS BETWEEN BICYCLING AND WALKING, AND HEALTH. THIS INCLUDES HOW COMMUNITY ACTIONS TO PROMOTE BICYCLING AND WALKING ARE RELATED TO PHYSICAL ACTIVITY PROMOTION, AS WELL AS THE HEALTH BENEFITS OF BICYCLING AND WALKING.

Use this Section to find out about chronic diseases related to physical inactivity and how bicycling and walking can improve personal and community health.

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WHAT IS A HEALTHY COMMUNITY? According to a CDC publication, “A healthy community is one in which local groups from all parts of the community work together to prevent disease and make healthy living options accessible.¹” Another way to think of a healthy community is as the outcome of efforts to promote community health. Community health is the public health concept of “Working at the community level [to promote] healthy living, help[ing] to prevent chronic diseases and bring the greatest health benefits to the greatest number of people in need.²” Together, these definitions suggest healthy communities are focused on processes in addition to outcomes.³

Creating bikeable and walkable communities is an important way to promote health because bicycling and walking are common activities accessible to most people. As stated in *Step It Up! The Surgeon General’s Call to Action to Promote Walking and Walkable Communities*⁴, “Walking is an excellent way for most people to increase their physical activity. It is a powerful public health strategy for the following reasons:

- Walking is an easy way to start and maintain a physically active lifestyle.
- Walking is the most common form of physical activity for people across the country.
- Walking can serve many purposes. It can be a way to exercise, have fun, or get to school, work, or other nearby destinations.
- Making walking easier can help communities by improving safety, social cohesion, and local economies and reducing air pollution.”

Bicycling is not as common as walking. According to data from the Bureau of Labor Statistics, 30.4% of Americans walk as an exercise activity on any given day, while only 3.1% ride a bicycle; even with that percentage difference, bicycling is still one of the 10 most commonly reported exercise activities.⁵ One recent survey found that “34 % of Americans over the age of three [rode] a bike at least once in the last year.”⁶ Bicycling is also an activity accessible to persons with disabilities, and it was reported as one of the five most common physical activities by persons with multiple sclerosis.⁷ As with walking, bicycling can serve many purposes and has many, if not all, of the same community benefits as walking.

Bicycling and walking are often referenced together as active transportation. This may include transit as well because transit users spend a median of 19 minutes a day walking to and from transit.⁸ These active transportation modes are reported in American Community Survey commute mode share data that will form the basis for a variety of analyses found in this report.

1 Centers for Disease Control and Prevention. Public Health Matters Blog (September 18, 2015). *A Healthy Community is a Prepared Community*. Available at <https://blogs.cdc.gov/publichealthmatters/2015/09/a-healthy-community-is-a-prepared-community>.

2 Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Community Health. Chronic Disease: *A Significant Public Health Threat* (November 21, 2017). Available at <https://www.cdc.gov/nccdphp/dch/about/index.htm>.

3 Health Resources in Action. *Defining Healthy Communities* (July 25, 2013) at p. 6. Available at <https://hria.org/wp-content/uploads/2016/10/defining-healthycommunities.original.pdf>.

4 U.S. Department of Health and Human Services. *Step It Up! The Surgeon General’s Call to Action to Promote Walking and Walkable Communities* (2015) at p. 1. Available at <https://www.surgeongeneral.gov/library/calls/walking-and-walkable-communities/call-to-action-walking-and-walkable-communities.pdf>.

5 Bureau of Labor Statistics. *Sports and exercise among Americans* (August 4, 2016). Available at <https://www.bls.gov/opub/ted/2016/sports-and-exercise-among-americans.htm>.

6 Angie Schmitt. Streetsblog USA. *Survey: 100 Million Americans Bike Each Year, but Few Make It a Habit* (March 4, 2015). Available at <https://usa.streetsblog.org/2015/03/04/survey-100-million-americans-bike-each-year-but-few-make-it-a-habit>.

7 Madeline Weikert, Deirdre Dlugonski, Swathi Balantrapu, and Robert Motl. International Journal of MS Care (Spring 2011). *Most Common Types of Physical Activity Self-Selected by People with Multiple Sclerosis*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3882947/>.

8 Lilah Besser and Andrew Dannenberg. American Journal of Preventive Medicine (2005). *Walking to Public Transit: Steps to Help Meet Physical Activity Recommendations*. Available at https://www.cdc.gov/healthyplaces/articles/besser_dannenberg.pdf.

» HOW BICYCLING & WALKING LEAD TO HEALTHY COMMUNITIES

Topic 1 - The Case for Physical Activity as an Intervention for Common Chronic Diseases

Chronic diseases related to physical inactivity are widespread and increasing. In 2008 and 2018, the Physical Activity Guidelines Advisory Committee reviewed the scientific literature on physical activity and concluded that, compared to inactive adults, the most-active adults had approximately a 30% lower risk of premature death from all causes.⁹ Translated to the population level, physical inactivity contributes to an estimated 11% of premature deaths in the United States. The findings have informed the Physical Activity Guidelines for Americans, second edition, which recommends adults move more and sit less and do at least 150 minutes a week of moderate intensity aerobic activity.¹⁰

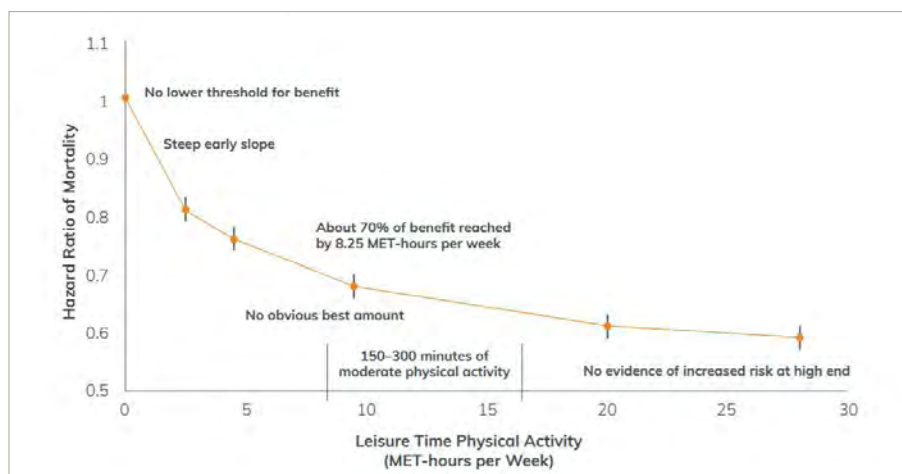


FIGURE 3.1.1 - DATA SHOWING THAT PHYSICAL ACTIVITY DECREASES THE RISK OF DYING PREMATURELY¹¹

⁹ U.S. Department of Health and Human Services. *Physical Activity Guidelines Advisory Committee Report, 2008*. Available at <https://health.gov/paguidelines/report/pdf/CommitteeReport.pdf>. Frank W. Booth, Christian K. Roberts, and Matthew J. Laye. National Center for Biotechnology Information. U.S. National Library of Medicine. Lack of Exercise Is a Major Cause of Chronic Disease. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4241367/#R412>.

¹⁰ U.S. Department of Health and Human Services. *2008 Physical Activity Guidelines for Americans Summary*. Available at <https://health.gov/paguidelines/guidelines/summary.aspx>. See also U.S. Department of Health and Human Services. *Physical Activity Guidelines for Americans 2nd edition (2018)* at p. 8. Available at https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf.

¹¹ U.S. Department of Health and Human Services. *2018 Physical Activity Guidelines Advisory Committee Scientific Report*-Figure F6-2 at p. F6-8. Available at https://health.gov/paguidelines/second-edition/report/pdf/12_F-6_All-cause_Mortality_Cardiovascular_Mortality_and_Incident_Cardiovascular_Disease.pdf.

The Benchmarking Report has focused on chronic diseases related to physical inactivity that are monitored by the CDC's Behavioral Risk Factor Surveillance System (BRFSS). The Benchmarking Report chose five indicators from the BRFSS as benchmarks (references found on following page):

1

PERCENT OF POPULATION MEETING AEROBIC PHYSICAL ACTIVITY GUIDELINES

According to the U.S. Department of Health and Human Services' *Physical Activity Guidelines for Americans*, second edition, adults should avoid inactivity, since adults who participate in any amount of physical activity gain some health benefits. For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity aerobic activity or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity.¹²

2

PERCENT OF POPULATION LIVING WITH OBESITY (BMI ≥ 30)

Obesity is associated with negative health implications, including several chronic diseases. Together with diet, research supports physical activity as an essential strategy for obesity prevention, including active transportation.¹³ Bicycling and walking may reduce obesity, since one study found that these active commuting modes reduce BMI over a one-year period and, conversely, switching from biking, walking, or transit to a personal motor vehicle increased BMI.¹⁴ This observed decrease in BMI was particularly prominent for people who biked to work throughout the studied period.¹⁵

3

PERCENT OF POPULATION LIVING WITH HYPERTENSION

Hypertension, also known as high blood pressure, is when the force of blood flowing through a person's blood vessels is consistently too high.¹⁶ This chronic disease often does not have obvious symptoms but greatly increases the chance of heart attack, stroke, and other health threats.¹⁷ Physical activity can be a component of effective hypertension management.¹⁸

4

PERCENT OF POPULATION LIVING WITH DIABETES

Physical activity is recognized by the American Diabetes Association as a critical part of managing blood glucose and the overall health of people with diabetes or a pre-diabetic condition.¹⁹ Bicycling and walking are aerobic activities that help the body better use insulin by increasing insulin sensitivity and over time can substantially lower cardiovascular and overall mortality risks for people with both type 1 and type 2 diabetes.²⁰ Increased insulin sensitivity means that the body can keep blood glucose levels in the normal healthy range with lower levels of insulin, making blood glucose easier to manage through interventions such as injections or making those interventions less necessary.²¹

5

PERCENT OF POPULATION LIVING WITH ASTHMA

Asthma is a respiratory disease that makes it difficult to breathe, among other symptoms. It can be triggered by exercise, but health practitioners recommend that people with asthma, exercise-induced or not, should regularly exercise.²² Two meta-analyses of studies found "increased risks of new-onset asthma among children who reported low [physical activity]," and "physical activity is a possible protective factor against asthma development."²³

Data on these chronic disease health indicators can be found in each section of Chapter IV: Show Your Data, although. An examination of health disparities (differences in the prevalence of chronic disease incidence associated with demographic, regional, or other factors) for each of these chronic disease health indicators was outside of the scope of the Benchmarking Report. However, health disparities can be significant for different socioeconomic and demographic groups. The American Public Health Association has urged public health and social justice practitioners, organizations, researchers, and philanthropists to support transportation and land use policies that help address inequities, particularly for communities with low incomes and communities of color experiencing health inequities.²⁴

12 Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Nutrition, Physical Activity and Obesity. *Physical Activity, Physical Activity Basics. How Much Physical Activity Do You Need?* (November 12, 2018). Available at https://www.cdc.gov/cancer/dpcp/prevention/policies_practices/physical_activity/guidelines.htm.

13 J. Larry Durstine, Benjamin Gordon, Zhengzhen Wang, and Xijuan Luo. *Journal of Sport and Health Science* (2013). *Chronic disease and the link to physical activity*. Available at <https://www.sciencedirect.com/science/article/pii/S2095254612000701>.

14 Martin A., Panter J., Sührcke M., Oglivie D. *Journal of Epidemiology and Community Health*. *Impact of changes in mode of travel to work on changes in body mass index: evidence from the British Household Panel Survey*. Available at <https://www.ncbi.nlm.nih.gov/pubmed/25954024> (“After adjustment for socioeconomic and health-related covariates, the first analysis (n=3269) showed that switching from private motor transport to active travel or public transport (n=179) was associated with a significant reduction in BMI compared with continued private motor vehicle use (n=3090; -0.32 kg/m²), 95% CI -0.60 to -0.05). ... The second analysis (n=787) showed that switching from active travel or public transport to private motor transport was associated with a significant increase in BMI (0.34 kg/m²), 0.05 to 0.64”).

15 Mytton OT, Panter J, Ogilvie. *Preventive Medicine* (2016). *Longitudinal associations of active commuting with body mass index*. Available at <https://www.ncbi.nlm.nih.gov/pubmed/27311338>.

16 Centers for Disease Control and Prevention. *High Blood Pressure*. Available at <https://www.cdc.gov/bloodpressure/index.htm>.

17 American Heart Association. *Health Threats from High Blood Pressure*. Available at http://www.heart.org/HEARTORG/Conditions/HighBloodPressure/LearnHowHBPHarmsYourHealth/Health-Threats-From-High-Blood-Pressure_UCM_002051_Article.jsp#.WpB650PwYdU.

18 Keith Diaz and Daichi Shimbo. *Current Hypertension Reports* (2013). *Physical Activity and the Prevention of Hypertension*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3901083/> (“Recent epidemiologic evidence has demonstrated a consistent, temporal, and dose-dependent relationship between physical activity and the development of hypertension. Experimental evidence from interventional studies have further confirmed a relationship between physical activity and hypertension as the favorable effects of exercise on blood pressure reduction have been well characterized in recent years.”)

19 Colberg et. al. American Diabetes Association. *Physical Activity/Exercise and Diabetes: A Position Statement of the American Diabetes Association*. Available at <http://care.diabetesjournals.org/content/39/11/2065>.

20 See Footnote 19.

21 Dr. Sheri Colberg. *Diabetes Self-Management. Increasing Insulin Sensitivity* (September 10, 2015). Available at <https://www.diabetesselfmanagement.com/managing-diabetes/treatment-approaches/increasing-insulin-sensitivity/>.

22 American Academy of Allergy, Asthma & Immunology. *Exercise and Asthma*. Available at <https://www.aaaai.org/conditions-and-treatments/library/asthma-library/exercise-and-asthma>.

23 Lene Lochte, Kim Nielsen, Poul Petersen, and Thomas Platts-Mills. *BioMed Central Pediatrics* (2016). *Childhood asthma and physical activity: a systematic review with meta-analysis and Graphic Appraisal Tool for Epidemiology assessment*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4836150/> and Eijkemans M, Mommers M, Draaisma JMT, Thijis C, Prins MH. *PLoS ONE* (2012). *Physical Activity and Asthma: A Systematic Review and Meta-Analysis*. Available at <https://doi.org/10.1371/journal.pone.0050775>.

24 American Public Health Association. *Improving Health Through Transportation and Land-Use Policies* (2009). Available at <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/31/08/21/improving-health-through-transportation-and-land-use-policies>.

Topic 2 - The Case for Individualized Marketing as a Health Intervention

The average one-way bicycle commute is 19 minutes, for a total of nearly 40 minutes of bicycling each commute day.²⁵ –How can we get more people to take advantage of this type of physical activity? One intervention that has demonstrated promise is individualized marketing as a way to provide resources on bicycling to work. Individualized marketing is marketing that is personalized to an individual, often based on data available about that person and with the intent to reflect and appeal to the unique wants and habits of the individual.²⁶

In addition to community efforts that promote biking and walking, evidence exists that individualized interventions can shift people to non-driving transportation options that involve physical activity. According to consultants at Alta Planning + Design, “Individualized Marketing (IM) programs offer households (typically in a targeted neighborhood) transportation resources and events with the goal of reducing drive-alone trips and encouraging greater use of transportation options.²⁷ “As some examples, individualized marketing may be conducted through private companies seeking ways to reduce the costs of employee parking, health professionals helping patients become more physically active, or other people advocating for behavior change. At its core, however, individualized marketing is a series of one-to-one messages based on data about a single person.

Some evidence suggests IM is cost-effective. For instance, Oregon Department of Transportation partnered with the Oregon Health Authority to prepare and apply the Integrated Transport and Health Impact Modeling Tool

(ITHIM) to measure public health benefits from an IM program called “Drive Less Save More: SouthTown.” Conducted in Corvallis, Oregon, this intervention resulted in a 1.4% increase in walking and a 3.8% reduction in the percentage of people driving alone to work. According to ITHIM estimates, these mode shifts may have resulted in \$115,300 in health savings from a decrease in premature mortality and years lived at less than full health.²⁸



BFA - Woman on bike, courtesy of Wisconsin Women Century

25 Brian McKenzie. U.S. Census Bureau. *Modes Less Traveled – Bicycling and Walking to Work in the United States: 2008-2012* (2014). Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf>.

26 Hitesh Bhasin. Marketing 91. *Individual marketing and its impact in today's business environment* (December 25, 2017). Available at <https://www.marketing91.com/individual-marketing/>.

27 Derek Hofbauer, Dana Dickman, and Jessica Roberts. *Alta Planning + Design. Integrated Transport and Health Impact Modeling Tool* (May 2, 2016). Available at <https://blog.altaplanning.com/integrated-transport-and-health-impact-modeling-tool-ithim-80a8c48984af>.

28 See Footnote 27 (the report refers to both “burden of disease” and “disability adjusted life years” according to the World Health Organization “burden of disease measures burden of disease using the disability-adjusted-life-year (DALY). This time-based measure combines years of life lost due to premature mortality and years of life lost due to time lived in states of less than full health.”). World Health Organization. *Mortality and global health estimates*. Available at http://www.who.int/topics/global_burden_of_disease/en/.

Topic 3 - The Case for Bicycle Friendly Communities for Health

The League of American Bicyclists' Bicycle Friendly Community (BFC) program provides insight into the range of actions that communities can and do take as they work to get more people riding bicycles and try to improve bicyclist safety and public health. The League's data show that communities that have received a BFC award have a bicyclist fatality rate that is less than half the fatality rate of communities that apply but do not receive awards.²⁹ As award levels increase, the prevalence of bicycling, safety of bicycling, and prevalence of bicycle infrastructure all increase. Each of these indicators support connections between BFC efforts and better health outcomes.

The BFC Program, started in 1995, was updated to its current "5 E" framework (engineering, education, encouragement, enforcement, and evaluation/planning) in 2002. Since 2002, the League has collected data on bicycling-related efforts by more than 800 communities. The goal of the BFC Program throughout its 23 years has been to meet communities where they are, recognizing that there is no single route to becoming a Bicycle Friendly Community. Indeed, the League believes that each community can capitalize on its own unique strengths to make bicycling better.

Recently, the Bicycle Alliance of Minnesota (BikeMN) used funding from Blue Cross Blue Shield of Minnesota to provide technical assistance and training throughout the state and enabled more than 20 communities, including small and rural towns, to participate in bicycle promotion efforts structured around the BFC program. This work has built on the national BFC Program, resulting in part in a Resource Guide for Minnesota communities;³⁰ BikeMN's capacity-building efforts have been recognized as an approved intervention by the state's Health Improvement Partnership.³¹

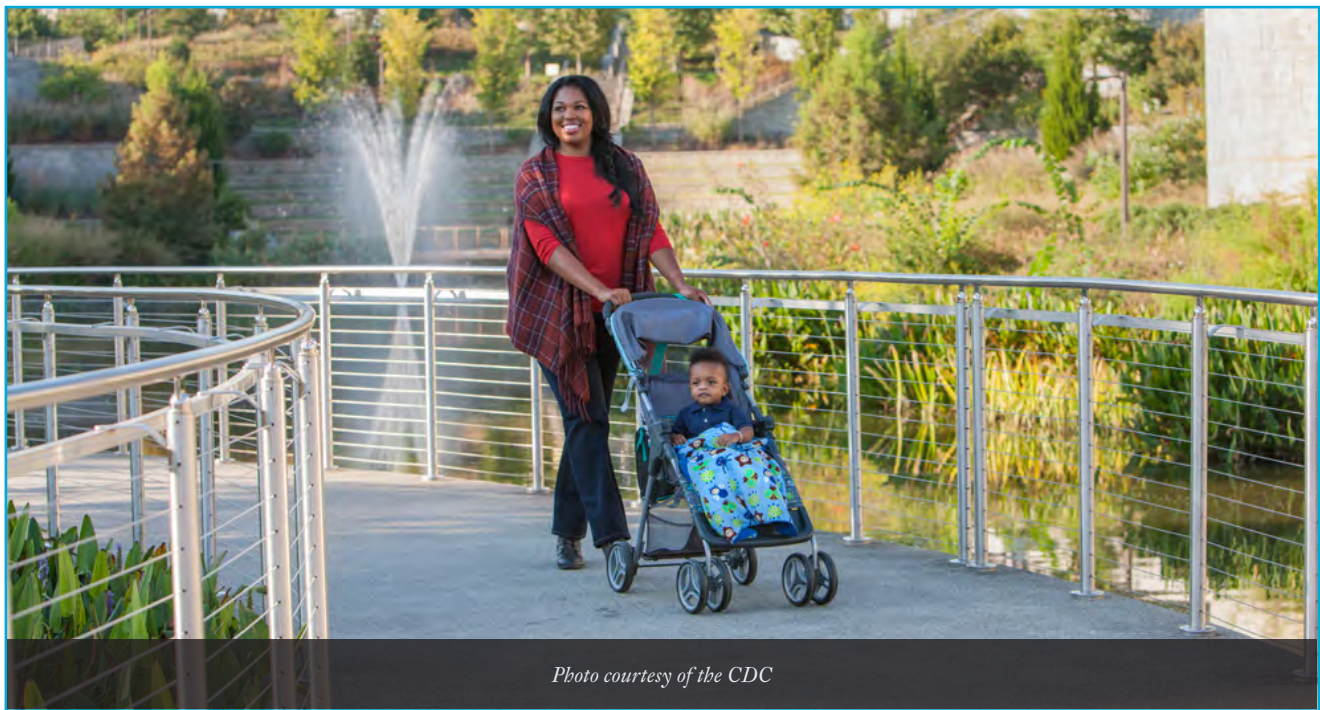


Photo courtesy of the CDC

29 See *The Building Blocks of a Bicycle Friendly Community* on page 42. <https://bikeleague.org/content/building-blocks-bicycle-friendly-communities>.

30 Bicycle Alliance of Minnesota. *Bicycle Friendly Community Resource Guide*. Available at <http://www.bikemn.org/collaboration/bicycle-friendly-community-resource-guide>.

31 Minnesota Department of Health. *Active Living in Communities Implementation Guide* (July 2018). Available at <http://www.health.state.mn.us/healthreform/ship/docs/ship4/ActiveLiving.pdf>.

Despite the diversity of actions reported by communities that apply to the BFC program, some activities are especially common among awarded communities, including the following:

1

BICYCLE INFRASTRUCTURE

Communities that receive at least a Bronze award typically have a bicycle network consisting of various infrastructure appropriate to roadway speeds, and off-street infrastructure such as trails, that is at least 25% the length of the community's street network.

2

BICYCLE EDUCATION IN PUBLIC SCHOOLS

At least 60% of communities that receive a Silver award or better report at least higher-than-average bicycle education in public schools based on the percentage of schools that offer bicycle safety education and whether that education includes on-bike instruction. A community rated "Average" has significant bike education activities in at least one of elementary, middle, or high school but often does not require students to ride a bicycle as part of those activities. A community rated "Excellent" requires students to ride a bicycle as part of their bicycle safety education in at least one education level and holds activities in each education level.

3

ACTIVE STAKEHOLDER GROUPS

At least 90% of communities that receive an Honorable Mention or better report an active advocacy group.

4

BIKE MONTH ACTIVITIES

At least 72% of communities that receive a Bronze or better report seven or more bike month activities. An Average community holds approximately seven types of events during bike month, while an Excellent community may hold 15 or more.

5

BICYCLE AND/OR BICYCLE AND PEDESTRIAN ADVISORY COMMITTEES

At least 94% of communities that receive a Silver BFC award or better report having a BAC or BPAC that meets at least every two months.

6

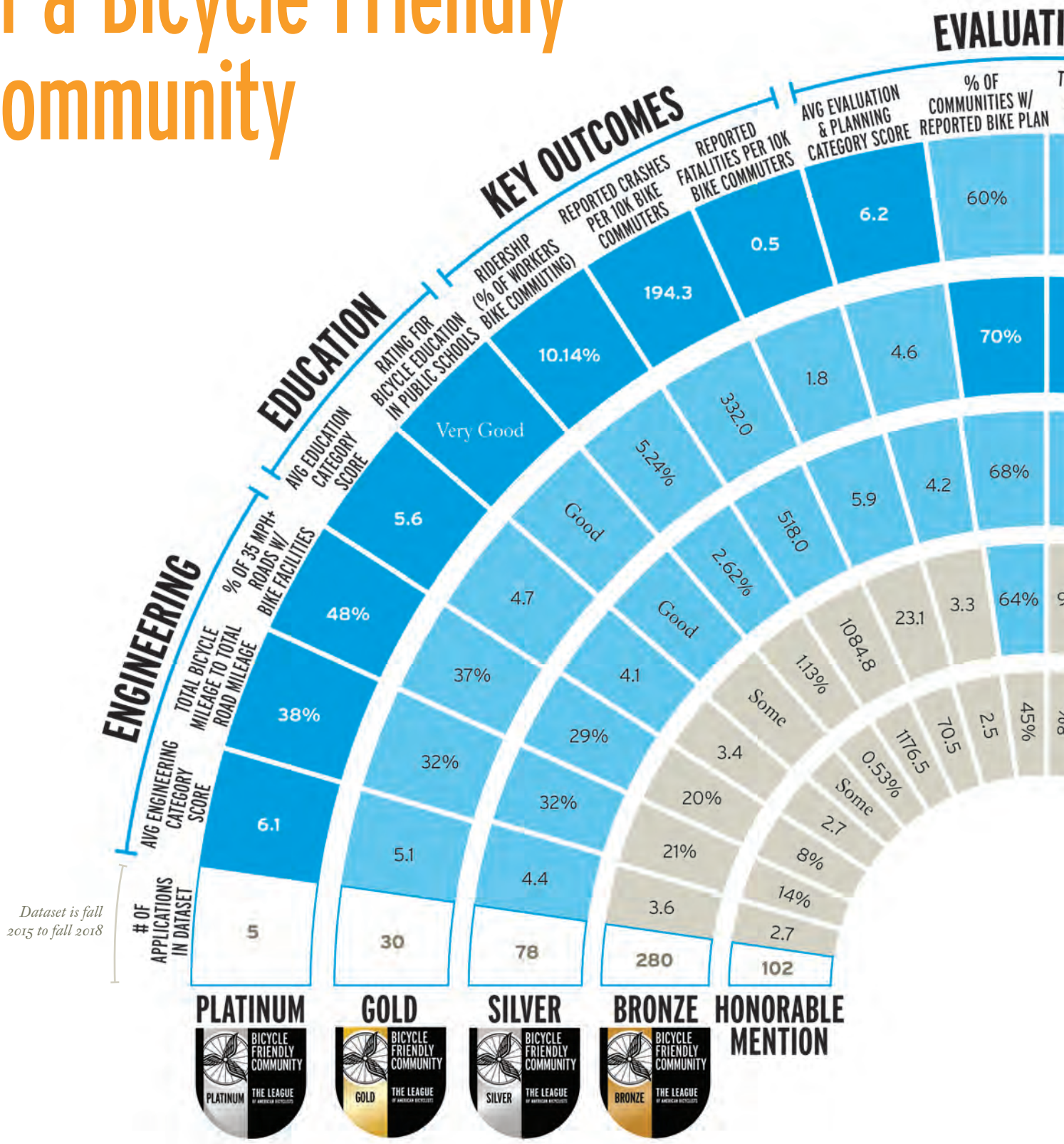
BIKE PLANS

At least 50% of communities that receive Honorable Mention or better report having an active bike plan.

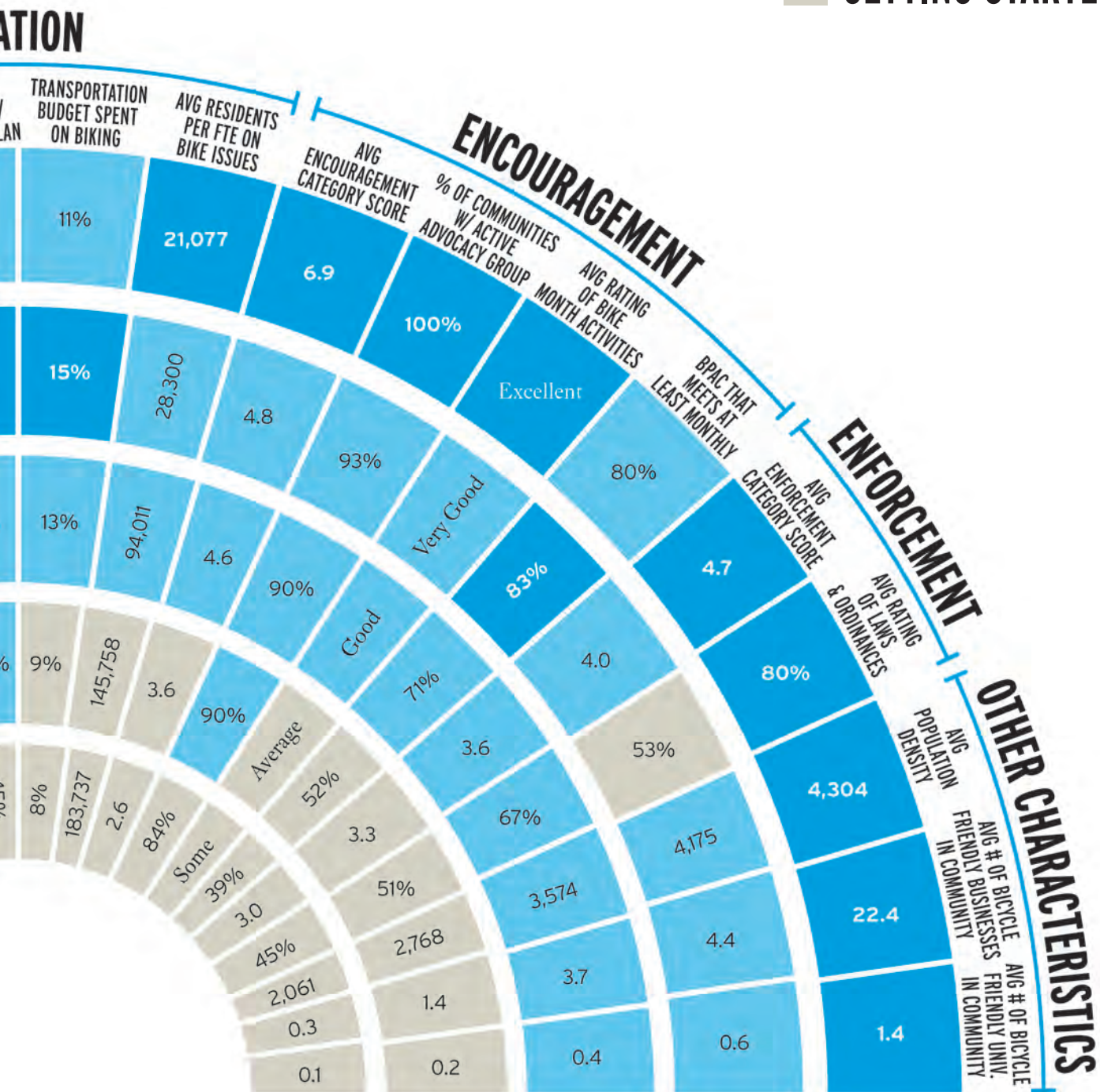
7

A track record of **LOCAL TRANSPORTATION SPENDING ON BICYCLING AND WALKING** that is higher than the 2% typically allocated by federal funding programs (The average community receiving an Honorable Mention or better reported spending 7% or more of its transportation budget on biking and/or biking and walking, although roughly a third of applicants reported that their spending on biking and/or biking and walking was unknown.)

The Building Blocks of a Bicycle Friendly Community



- SETTING THE STANDARD
- MAKING PROGRESS
- GETTING STARTED



There's no single route to becoming a Bicycle Friendly Community. In fact, the beauty of the BFC program is the recognition that no two communities are the same and each can capitalize on its own unique strengths to make biking better. The data in this chart show key benchmark averages from the past 4 years, and over 500 applications, for each BFC award level. Learn more about the BFC program at <https://bikeleague.org/community>.

» ADVANCING UNDERSTANDING HEALTH & TRANSPORTATION

When talking about active transportation and health, a clear connection exists between physical activity and better health outcomes. However, less clear is how the interventions that encourage more people to choose bicycling and walking tie to specific health outcomes. To better communicate the value of changes in transportation behavior to decision makers, researchers have developed health impact models to frame the discussion. Stakeholders can find at least two internationally accepted models for bicycling and walking as health interventions:

1

HEALTH ECONOMIC ASSESSMENT TOOL (HEAT)³² BY THE WORLD HEALTH ORGANIZATION (WHO)

Created “to facilitate evidence-based decision-making, WHO has developed, in collaboration with experts, an online tool to estimate the value of reduced mortality that results from regular walking or cycling.”³³

HEAT works by attaching an economic value of a statistical life to changes in population-level premature mortality based on changes in levels of biking and/or walking. At a basic level it answers the question “If x people cycle or walk y distance on most days, what is the economic value of mortality rate improvements?”³⁴

2

INTEGRATED TRANSPORT & HEALTH IMPACT MODELLING TOOL (ITHIM) BY THE CENTRE FOR DIET & ACTIVITY RESEARCH (CEDAR) IN THE UNITED KINGDOM

“ITHIM refers to a range of related models and tools developed at CEDAR to perform integrated assessment of the health effects of transport scenarios and policies at the urban and national level.”³⁵

ITHIM works by modeling how people are anticipated to choose different transportation modes, including physically active modes, under different scenarios. Changes in health associated with increased physical activity are balanced by increases in risk of injury and exposure to air pollution related to physical activity. ITHIM provides decision makers with an outcome of disability-adjusted life-years (DALY) that is based on estimated premature mortality and years spent living with a chronic disease under various scenarios examined by the ITHIM tool.³⁶

³² World Health Organization. Health economic assessment tool (HEAT) for cycling and walking. Available at <http://www.euro.who.int/en/health-topics/environment-and-health/Transport-and-health/activities/guidance-and-tools/health-economic-assessment-tool-heat-for-cycling-and-walking>.

³³ See Footnote 32.

³⁴ See Footnote 32.

³⁵ Centre for Diet and Activity Research. Integrated Transport and Health Impact Modelling Tool (ITHIM). Available at <http://www.cedar.iph.cam.ac.uk/research/modelling/ithim/>.

³⁶ See Footnote 35.

The National Association of County and City Health Officials (NACCHO) included both HEAT and ITHIM in its Collection of Health Impact Assessment Predictive Modeling Tools.³⁷ This collection features 26 modeling tools, including at least three tools that estimate walking and/or bicycling trips or health effects related to projects or changes in active transportation. Based on NACCHO's data, ITHIM has been used and publicized in places like Sacramento³⁸ and Nashville.³⁹ The use of ITHIM has also been highlighted in a guidebook on Building Healthy & Prosperous Communities, produced by Transportation for America and the American Public Health Association.⁴⁰

To further understanding of the health impacts of transportation projects, additional evaluation studies are needed. The Centers for Disease Control and Prevention provide potential evaluation methods as part of “Be Active: Connecting Routes + Destinations,” which encourages communities to “whenever possible, evaluate impact.”⁴¹ This resource also helps communities understand when evaluation is appropriate.



37 National Association of County and City Health Officials (NACCHO). *Health Impact Assessment*. Available at <https://www.naccho.org/programs/community-health/healthy-community-design/health-impact-assessment>.

38 Alex Karner, Dana Rowangould, Yizheng Wu, Ofurhe Igbinedion, and Jonathan London. National Center for Sustainable Transportation at the University of California Davis. *Development and Application of an Integrated Health Impacts Assessment Tool for the Sacramento Region* (October 2017). Available at https://ncst.ucdavis.edu/wp-content/uploads/2016/10/NCST-TO-033_3-London_ITHIM_Final-Report_OCT-2017.pdf.

39 Whitfield, Meehan, Maizlish, and Wendel. *Journal of Transportation & Health* (2017). *The Integrated Transport and Health Impact Modeling Tool in Nashville, Tennessee, USA: Implementation Steps and Lessons Learned*. Available at <https://www.ncbi.nlm.nih.gov/pubmed/27595067>.

40 Transportation for America. *Healthy Metro Areas Guidebook*. Available at <http://t4america.org/maps-tools/healthy-mpos-guidebook/>.

41 Centers for Disease Control and Prevention. *The Community Preventive Services Task Force's Built Environment Recommendation to Increase Physical Activity Implementation Resource Guide*. Available at <https://www.cdc.gov/physicalactivity/community-strategies/beactive/implementation-resource-guide.html>.

» EMBRACING EQUITY: COMMUNITY HEALTH DEPENDS ON INCLUSIVE ACTIONS

Increasingly, healthcare providers and policymakers are defining healthcare to include not just treatment services, but also socioeconomic conditions that affect health outcomes. These efforts are often based on the work done by public health professionals, who focus on systems, policy, and environmental approaches to improve health. Broadly, the conditions that affect health outcomes are referred to as “social determinants of health.” Some examples of how the public health community has embraced and defined social determinants of health as a basis for addressing health and health inequities are provided below:

- The World Health Organization (WHO) defines social determinants of health as “the conditions in which people are born, grow, live, work, and age. These circumstances are shaped by the distribution of money, power, and resources at global, national, and local levels.”⁴²
- Community health activities often explicitly include activities to address social determinants of health and health disparities through community-level, rather than individually focused, actions. A 2013 report by Health Resources in Action notes that the community health movement focused on “empowerment and community-driven change rather than on pre-determined activities, on process rather than outcomes, on policy change and environmental strategies rather than on individual interventions, and on social determinants of health rather than on the treatment of disease.”⁴³ This focus on community-driven change can be contrasted with transportation safety messaging that often focuses on individual actions.⁴⁴
- The Department of Health and Human Services’ “Healthy People 2020 initiative organizes the social determinants of health around five key domains: (1) Economic Stability, (2) Education, (3) Health and Health Care, (4) Neighborhood and Built Environment, and (5) Social and Community Context.”⁴⁵

42 See Sanne Magnan, National Academy of Medicine. *Social Determinants of Health 101 for Health Care: Five Plus Five* (October 9, 2017). Available at <https://nam.edu/social-determinants-of-health-101-for-health-care-five-plus-five/> (quote from World Health Organization. About social determinants of health. Available at http://www.who.int/social_determinants/sdh_definition/en/).

43 Health Resources in Action. *Defining Healthy Communities* (July 25, 2013). Available at <https://hria.org/wp-content/uploads/2016/10/defining-healthycommunities.original.pdf>.

44 A commonly cited statistic in transportation safety is that more than 90% of crashes are due to human error, implying each human error is an individual error rather than a product of a system that is subject to error. See e.g. Bryant Walker Smith. The Center for Internet and Society. *Human Error as a Cause of Vehicle Crashes* (December 18, 2013). Available at <http://cyberlaw.stanford.edu/blog/2013/12/human-error-cause-vehicle-crashes>.

45 Office of Disease Prevention and Health Promotion. U.S. Department of Health and Human Services. *Social Determinants of Health*. Available at <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources>.

- The American Public Health Association, Public Health Institute, and the California Department of Health created *Health in All Policies: A Guide for State and Local Governments*⁴⁶ as a guide for groups outside of public health to engage with the environmental justice and health equity concepts that have been pursued by public health agencies. This guide calls for increased collaboration since “[r]esponsibility for the social determinants of health falls to many nontraditional health partners such as housing, transportation, education, air quality, parks, criminal justice, energy, and employment agencies.”⁴⁷

Agency staff and partners in the transportation sector also are responsible for addressing social determinants of health and the ways that transportation plays a role in the impact of those determinants. At the federal level, “[t]he Executive Order on Environmental Justice (EJ) directs federal agencies to identify and address disproportionately high and adverse environmental and health impacts on low-income populations and racial and ethnic communities.”⁴⁸ Among transportation partners, the Untokening’s principles state, “Communities have the right to demand and expect healthy environments and EQUAL ACCESS to the benefits of green space—and remediation of past environmental harms.”⁴⁹ The Untokening is “a multiracial collective that centers the lived experiences of marginalized communities to address mobility justice and equity.”⁵⁰

Whether people can safely bike, walk, or use transit and whether they can access jobs or healthcare without access to a car, are important elements of the conditions in which people are born, grow, live, work, and age. While bicycling and walking are often thought of in terms of transportation, and most bike/walk organizations primarily work with transportation agencies,⁵¹ both agencies and organizations may benefit from a shift like the one that has occurred in the health sector through the incorporation of the social determinants of health. Transportation agencies can benefit from thinking beyond travel speeds or congestion metrics, just as healthcare agencies can benefit from thinking about societal factors that influence health outcomes.

TRANSPORTATION AGENCIES CAN BENEFIT FROM THINKING BEYOND TRAVEL SPEEDS or congestion metrics, just as healthcare agencies can benefit from thinking about societal factors that influence health outcomes.



BFA - Bike Pins, courtesy of the League of American Bicyclists

46 American Public Health Association. *Health in All Policies*. Available at <https://www.apha.org/topics-and-issues/health-in-all-policies>.

47 American Public Health Association. *An Introduction to Health in All Policies: A Guide for State and Local Governments*. Available at https://www.apha.org/-/media/files/pdf/factsheets/hiapguide_4pager_final.ashx?la=en&hash=A6776B82FCA90B3346A6B5851697ADEB2448D4E4.

48 U.S. Department of Transportation. *Every Place Counts Leadership Academy Transportation Toolkit* at p. 19. Available at <https://www.transportation.gov/sites/dot.gov/files/docs/ToolkitFinal2017.pdf>.

49 The Untokening. *Untokening 1.0 Principles of Mobility Justice* at p. 20. Available at <https://static1.squarespace.com/static/579398799f7456b10f43afb0/t/5a08797553450af07cb310dd/1510504821822/Untokening+1.0+web.pdf>.

50 The Untokening. Available at <http://www.untokening.org/>.

51 See “Chart III-49: Institutional partners of League of American Bicyclists’ member groups” in Section IX: Engaged Public

SECTION II: SAFE TRANSPORTATION

IN THIS SECTION, THE BENCHMARKING REPORT DISCUSSES TOPICS THAT LOOK AT TRANSPORTATION SAFETY WITH A FOCUS ON THE SAFETY OF PEOPLE WHO BIKE AND WALK.

This includes how the United States compares to peer countries in terms of road safety, as well as how road safety is a public health problem. This section also acknowledges limitations in bicyclist and pedestrian-related data in terms of how the safety of bicyclists and pedestrians is measured.

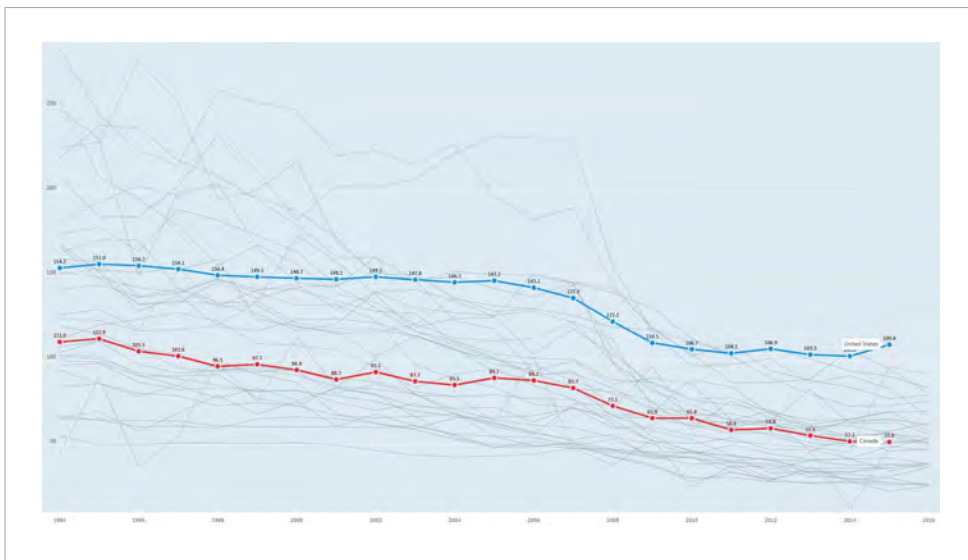
Use this section to learn more about traffic safety issues in the United States and how bicycling and walking are a part of a safer transportation system.

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The United States ranks worse than many comparable nations in traffic safety. According to a 2010 special report by the Transportation Research Board (TRB), “In recent decades nearly every high-income country has made more rapid progress than has the United States in reducing the frequency of road traffic deaths and the rate of deaths per [mile] of vehicle travel.”¹ According to a 2017 report by Ralph Buehler and John Pucher, between 1990-1994 and 2010-2014, the United States made the least progress of 11 Organization for Economic Co-operation and Development (OECD) countries in reducing pedestrian and bicyclist fatality rates per capita.²

According to the National Highway Traffic Safety Administration, 37,461 people died in motor vehicle crashes in 2016, including 5,987 pedestrians (15.98%), and 840 bicyclists (2.24%).³ In 2016, more bicyclists died than in any year since 1991 and more pedestrians died than in any year since 1990.⁴

FIGURE 3.2.1 - PER CAPITA ROAD CRASHES IN OECD COUNTRIES⁵



The United States has the worst record of traffic fatalities per 1,000,000 inhabitants of the 35 OECD countries that shared traffic fatality data in 2015. The rate of traffic fatalities per 1,000,000 inhabitants is slightly more than twice what it is in Canada (the U.S. has a rate of 109.4 deaths per million inhabitants, while Canada has a rate of 51.8).⁶ As discussed in the Transportation Research Board report,

“The experience of these benchmark nations indicates that the successful national programs function effectively at three levels of activity:” 1) management and planning, 2) technical implementation of specific countermeasures, and 3) political support and leadership.⁷

1 Transportation Research Board. *Achieving Traffic Safety Goals in the United States: Lessons from Other Nations* (2011) in preface. Available at <http://onlinepubs.trb.org/onlinepubs/sr/sr300.pdf>.

2 Ralph Buehler and John Pucher. *American Journal of Public Health* (February 2017, Vol 107, No. 2). *Trends in Walking and Cycling Safety: Recent Evidence From High-Income Countries, With a Focus on the United States and Germany* see Figures 1 and 2 at p. 283. Available at <https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2016.303546>.

3 National Highway Traffic Safety Administration (NHTSA). *2016 Webinar Overview : Fatality Analysis Reporting System (FARS)* at p. 9 (November 21 & 28, 2017). Available at <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812482>.

4 See Chapter IV: Show Your Data.

5 Organisation for Economic Co-operation and Development (OECD). *OECD Data on Road Accidents*. Available at <https://data.oecd.org/transport/road-accidents.htm>.

6 See Footnote 5.

7 See Footnote 1 at p. 1.

» SPECIAL TOPIC: THE MOVEMENT FOR ZERO ROAD DEATHS

The state of road safety in the United States has led to several distinct movements organized around the concept that all traffic deaths are preventable and that the only acceptable number of traffic deaths is zero. The concept of framing traffic safety in this way and pursuing an approach that can achieve the goal of zero traffic fatalities began in 1994 in Sweden and was codified in Swedish law by a 1997 Traffic Safety Bill.⁸ Since 1997, Sweden has exported its concept and strategies to more than 60 countries. In 2016, Sweden experienced 270 traffic fatalities, with 27.3 traffic deaths per 1,000,000 inhabitants—about a quarter the per capita traffic fatality rate of the United States.⁹

In the United States, three organizations or initiatives incorporate the idea of Vision Zero into their missions. The following summarizes each group and its work to help people interested in how the work of these groups impacts people who bicycle and walk.

Toward Zero Deaths

Started in 2009,¹⁰ the Toward Zero Deaths movement is composed of national traffic safety organizations and state departments of transportation. Of the Vision Zero-related groups, it is the most centered on individual behaviors. Examples of this focus can be found in the assertion that “[t]he element of the transportation system that contributes most frequently to the occurrence of traffic crashes is the driver”¹¹ and the Venn diagram produced in the Towards Zero Deaths Strategy that identifies how drivers, vehicles, and roadways contribute to traffic deaths.



Photo courtesy of Alliance for Biking & Walking, by Arthur Wendall

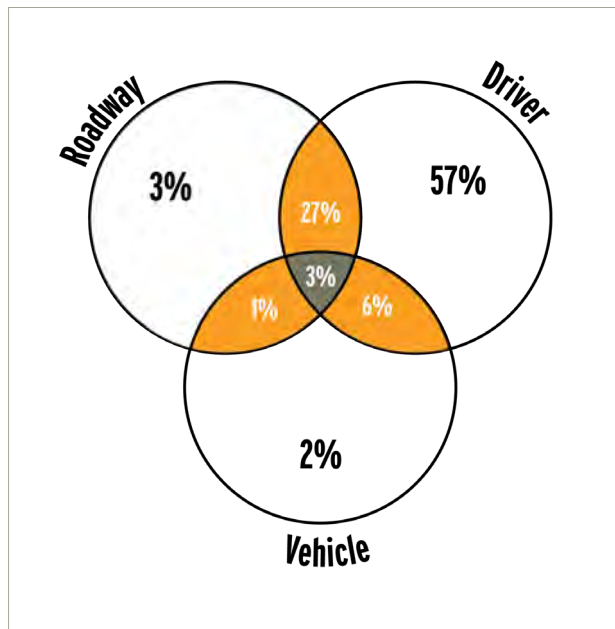
8 Vision Zero Initiative. *About Us*. Available at <http://www.visionzeroinitiative.com/about-us/>

9 See Footnote 5.

10 Toward Zero Deaths. *Background*. Available at <http://www.towardzerodeaths.org/strategy/background/> (the history of TZD timeline does not include dates or years on its timeline).

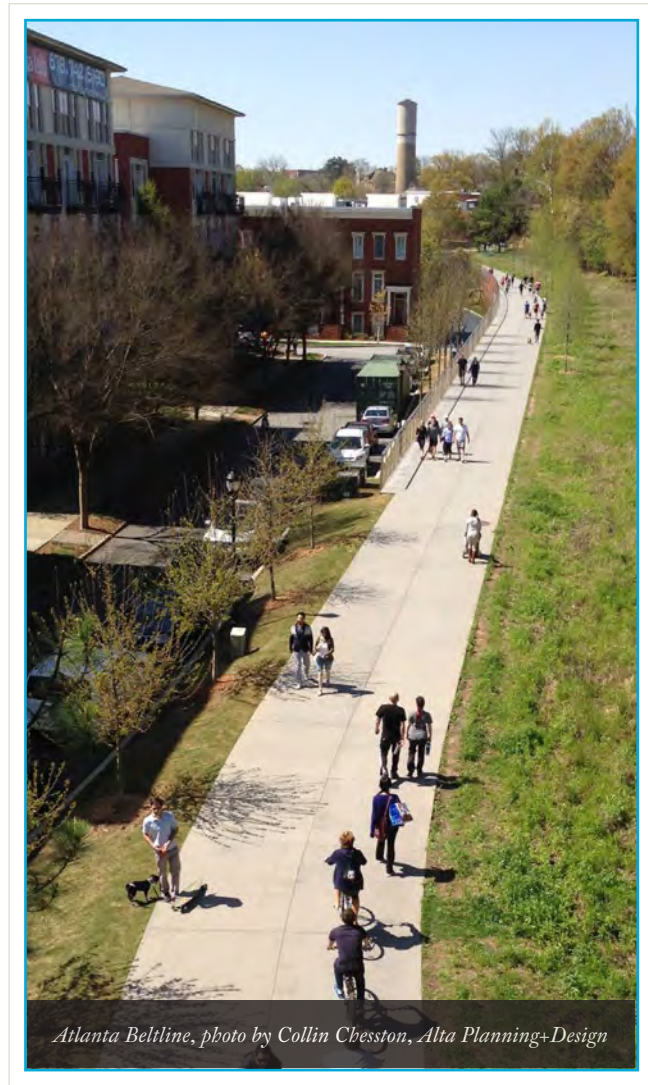
11 Toward Zero Deaths. *Toward Zero Deaths: A National Strategy on Highway Safety* (2014) at p. 12. Available at http://www.towardzerodeaths.org/wp-content/uploads/TZD_Strategy_12_1_2014.pdf.

FIGURE 3.2.2 - CRASH CONTRIBUTORY FACTORS AS DEFINED BY TOWARD ZERO DEATHS' NATIONAL STRATEGY ^{1 2}



When dealing with bicyclists and pedestrians, this group says, “Successfully protecting vulnerable road users relies on a combination of improving infrastructure and planning, enacting, and enforcing legislation, and targeting education programs to specific road user audiences. These initiatives may require that road users behave in a certain way or use protective equipment, which can generate controversies related to personal freedoms, privacy, and the ability to enforce laws.” ¹³

Interventions proposed by the Toward Zero Deaths movement often focus on individual behavior and stress balancing safety and mobility when creating the built environment. ¹⁴ As an example, the Toward Zero Deaths’ National Strategy says, “Elements of the roadway environment, including travel lanes for all motorized vehicles, traffic signs and signals, and bus stops and other transit access points, must be designed to balance the safety and mobility of all travel modes expected to use the roads. This balance is challenging because of the different characteristics and needs of each type of road



user. Road designers must evaluate the expected effect of infrastructure treatments on all types of road users—even treatments intended to address the contributing factors for crashes involving vulnerable users—to make the most appropriate decision for individual situations.” While human behavior may be the primary focus of the Toward Zero Deaths movement, there appears to be no discussion of important contexts that impact human behavior such as land use, access to a vehicle, or poverty that may impact the mode choice or behaviors of people in different communities beyond the design of a road in its strategy.

¹² See Footnote 11 at p. 9.

¹³ See Footnote 11 at p. 23.

¹⁴ See Footnote 11 at p. 25.

Road to Zero Coalition

Started in 2016,¹⁵ the Road to Zero Coalition includes many of the organizations involved in Toward Zero Deaths but is a notably broader movement led by the National Safety Council and several federal agencies. The Road to Zero Coalition also has a more specific goal: “To eliminate traffic fatalities by 2050.” As of January 2018, the Road to Zero Coalition had 629 members, including 156 advocacy and survivor advocacy groups. In April 2018, the Road to Zero Coalition published its first report, “The Road to Zero: A Vision for Achieving Zero Roadway Deaths by 2050.”¹⁶

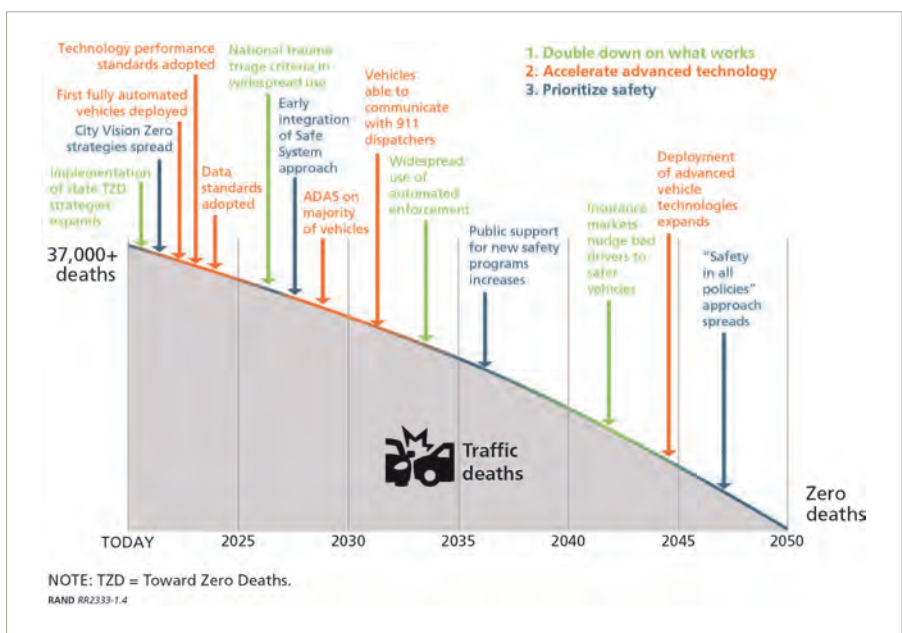


FIGURE 3.2.3 - TIMELINE OF IMPROVEMENTS TOWARDS ZERO DEATHS AS ENVISIONED BY THE ROAD TO ZERO COALITION¹⁷

The Road to Zero Coalition outlined three approaches to achieve zero roadway deaths by 2050:

1 » DOUBLE DOWN ON WHAT WORKS

Use the established network of traffic safety experts in the United States while engaging businesses and political leaders to a greater extent to provide new energy to traffic safety efforts.

2 » ACCELERATE ADVANCED TECHNOLOGY

Continue and reinforce deployment of advanced vehicle technologies while creating new partnerships with emergency medical and trauma systems and others in the public sector to increase the speed of new-technology adoption in all aspects of the traffic safety system.

3 » PRIORITIZE SAFETY

Create a safety culture and spread the adoption of the Safe System approach. “Adopting the Safe System approach involves a fundamental shift from the common assumption that crashes generally happen because of people’s behavior.”¹⁸

¹⁵ National Safety Council. *Road to Zero Presents Plan to Eliminate Roadway Deaths*. Available at <https://www.nsc.org/road-safety/get-involved/road-to-zero>.

¹⁶ See Footnote 15.

¹⁷ Rand Corporation prepared for National Safety Council. *The Road to Zero: A Vision for Achieving Zero Roadway Deaths by 2050* (2018) at xvii. Available at <https://www.nsc.org/Portals/0/Documents/DistractedDrivingDocuments/Driver-Tech/Road%20to%20Zero/The-Report.pdf?ver=2018-04-17-111652-263>.

¹⁸ See Footnote 17 at xvi.

The Road to Zero Coalition goes on to present three principles of a Safe System approach:

1

A SAFE SYSTEM APPROACH ACCOMMODATES HUMAN ERROR.

Rather than focusing on stopping all human error, a Safe System approach focuses on accommodating human error, meaning that errors can be made without catastrophic consequences. As an example, “[s]lowing traffic on streets where pedestrians and bicyclists are present allows more reaction time and reduces injury levels when inevitable conflicts occur.”¹⁹

2

SAFE SYSTEMS SHARE RESPONSIBILITY.

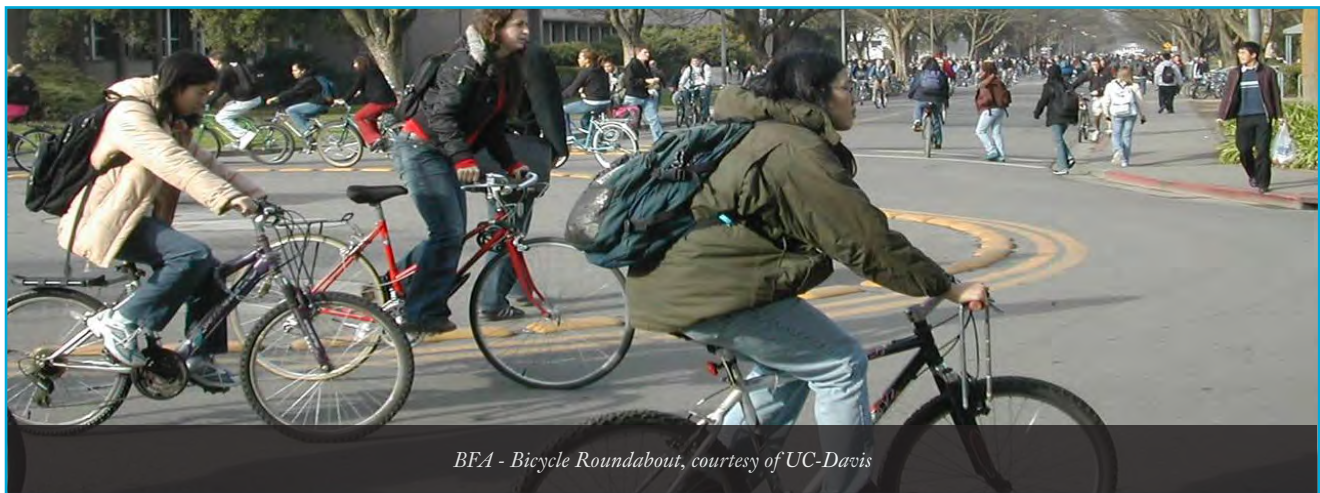
A Safe System approach is characterized by shared responsibility, including roadway design and vehicle design, as well as road user behavior.

3

A SAFE SYSTEM APPROACH IS PROSPECTIVE.

Rather than reacting to crash and fatality data, a Safe System approach looks to identify where crashes might occur in the future and considering all ways that crashes can be prevented.

While each of the principles above is important, the most dramatic change of a Safe System approach is the shift of responsibility from the individual user of the roadway to the people who design the transportation system. While the Toward Zero Deaths National Strategy assigns 57% of the responsibility to drivers, the Safe System approach appears to place the majority of responsibility on the “people who design the transportation system— city planners, traffic engineers, and vehicle designers”²⁰ rather than individuals using the system.



¹⁹ See Footnote 17 at p. 7.

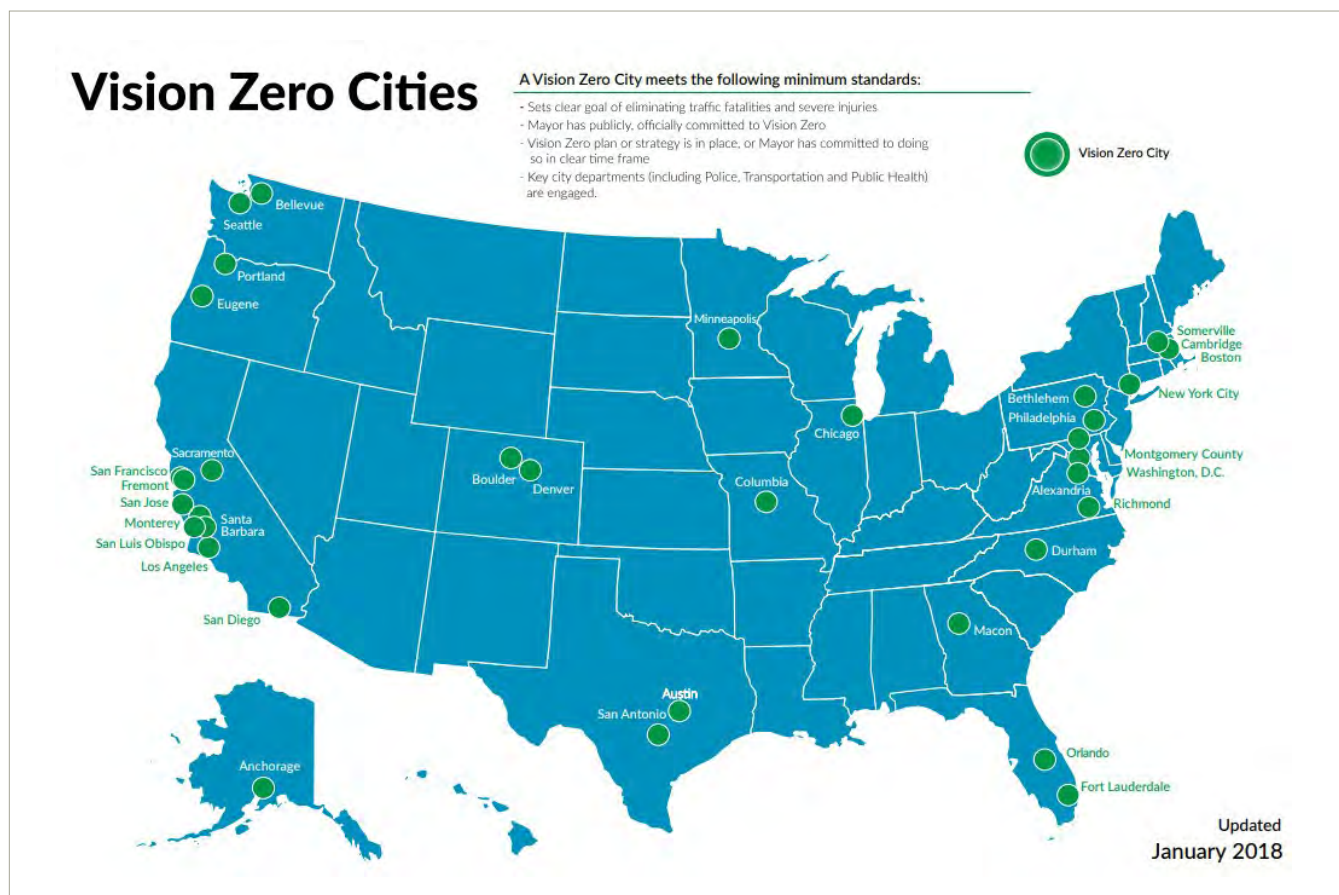
²⁰ See Footnote 17 at p. 7.

Vision Zero Network

Started in 2014, the Vision Zero Network is committed to helping communities reach their goal of Vision Zero--"eliminating all traffic fatalities and severe injuries while increasing safe, healthy, equitable mobility for all."²¹ The Vision Zero Network articulates its goal and approach as "a significant departure from the status quo"²² in at least three ways: 1) acknowledging that traffic deaths and severe injuries are preventable, 2) setting a time frame for eliminating these preventable deaths and injuries, and 3) intentionally pursuing a multidisciplinary approach not centered on any one type of intervention.

The focus of the Vision Zero Network is on process rather than outcomes, although it is explicitly organized around one outcome. Unlike Toward Zero Deaths, which often discusses individual behavior change, the Vision Zero Network's five fundamental aspects of a strong Vision Zero commitment include to "prioritize institutional changes rather than individual behavior changes."²³ The map below shows cities that have met the Vision Zero Network's minimum standards for action on vision zero.

FIGURE 3.2.4 - MAP OF VISION ZERO NETWORK CITIES²⁴



21 Vision Zero Network. *What is the Vision Zero Network?* Available at <https://visionzeronetwork.org/about/vision-zero-network>.

22 Vision Zero Network. *What is Vision Zero?* Available at <https://visionzeronetwork.org/about/what-is-vision-zero>.

23 Pedestrian and Bicycle Information Center. *Vision Zero*. Available at <http://www.pedbikeinfo.org/topics/visionzero.cfm>.

24 Vision Zero Network. *Vision Zero Cities Map*. Available at <https://visionzeronetwork.org/resources/vision-zero-cities>.

» PRIORITIZING BICYCLIST & PEDESTRIAN SAFETY IN TRAFFIC SAFETY EFFORTS

Topic 1 - The Case for Making the Best of Limited Safety Data on Biking & Walking

The Benchmarking Report discusses bicycling and walking safety, not general road safety. Bicycling and walking safety is a lens for general road safety because people who bike and walk are some of the most vulnerable road users, and people who bike and walk generally do not get prominent discussion in traditional road safety reporting, despite the increasing share of fatalities they represent.

Let's examine three principal metrics for road safety for bicyclists and pedestrians: 1) percentage of traffic fatalities by mode, 2) modal traffic fatalities per 100,000 persons, and 3) modal traffic fatalities per 10,000 commuters. The Benchmarking Report uses the word modal as a general term for mode of transportation and to indicate that a metric could be used for any mode of transportation. Each metric is discussed for slightly different reasons:

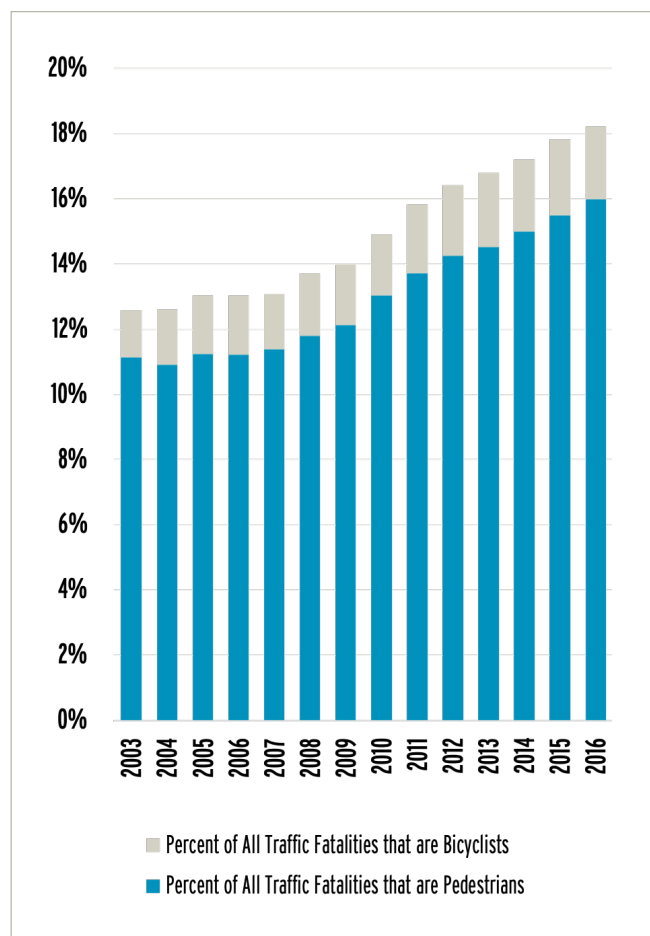
1

MODAL PERCENTAGE OF TRAFFIC FATALITIES

This metric looks at the percentage of traffic fatalities made up of people who used a particular mode of transportation. In recent years, a notable trend has emerged: People who are bicycling and walking represent an increasing percentage of all traffic fatalities.

²⁵ National Highway Traffic Administration (NHTSA). *Fatality Analysis Reporting System (FARS) Encyclopedia*. Available at <https://www-fars>.

FIGURE 3.2.5 - BICYCLISTS & PEDESTRIANS REPRESENT AN INCREASING SHARE OF TRAFFIC FATALITIES ²⁵



This increase is primarily due to pedestrian fatalities, although the raw numbers of both bicyclist and pedestrian fatalities have increased in recent years. In 2016, 835 bicyclist fatalities occurred in the United States, the most since 1991, when there were 836 bicyclist fatalities. Similarly, 5,987 pedestrians were killed in 2016, the most since 1990 and its 6,482 pedestrian fatalities.

2

MODAL TRAFFIC FATALITIES PER 100,000 PERSONS

The Benchmarking Report includes per capita fatality data to allow comparisons among states and communities that have different populations.

Per capita comparisons can be very effective for prompting action. For example, the National Complete Streets Coalition's "Dangerous by Design" reports have identified communities with high rates of pedestrian fatalities by using a mix of per capita and per commuter data, which built the case for action in communities with ongoing problems.²⁶

Per capita data are also very common in public health research. The Centers for Disease Control and Prevention's Web-based Injury Statistics Query and Reporting System (WISQARS) database includes per capita fatality and serious injury estimates by default.²⁷

Expressed per capita, people are much more likely to die in a car crash than as a bicyclist or pedestrian. The rate of pedestrian fatalities per 100,000 persons is approximately 1.8.²⁸ The rate of bicyclist fatalities per 100,000 persons is approximately 0.26.²⁹ The rate of traffic fatalities per 100,000 persons for passenger vehicles is 7.6—nearly four times the rate of pedestrian traffic fatalities and more than 28 times the rate of bicyclist traffic fatalities.³⁰ However, the lack of information on walking and biking in per capita estimates makes interpretation of these risks difficult.

3

MODAL TRAFFIC FATALITIES PER 10,000 COMMUTERS

For passenger vehicle travel, safety statistics frequently include a denominator that shows the distance traveled to provide an indicator of how likely a person is to die per mile driven rather than based on a population rate. This is often presented as motor vehicle fatalities per 100 million vehicle miles traveled (VMT).³¹ In traffic safety discussions around autos, VMT may be called "exposure" because it quantifies a person's risk when exposed to a mile of vehicle travel.

VMT is limited when discussing traffic safety in the context of public health because health outcomes can appear to improve as VMT increases, and vehicle driving has inherent risks of its own. For example, in 2008, the rate of fatalities per 100 million VMT was 1.26 (37,423 people

nhtsa.dot.gov/Main/index.aspx.

²⁶ National Complete Streets Coalition. *Dangerous by Design*. Available at <https://smartgrowthamerica.org/program/national-complete-streets-coalition/dangerous-by-design/>.

²⁷ Centers for Disease Control and Prevention. *Web-based Injury Statistics Query and Reporting Systems (WISQARS) Leading Causes of Nonfatal Injury Reports, 2000-2016*. Available at <https://webappa.cdc.gov/sasweb/ncipc/nfilead.html>.

²⁸ Insurance Institute for Highway Safety Highway Loss Data Institute. *Fatality Facts – Bicyclists*. Available at <https://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/bicycles>. U.S. Census Bureau. American Community Survey B01003 Table 1-year estimate (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

²⁹ See Footnote 28.

³⁰ See Footnote 28.

³¹ See e.g. National Highway Traffic Administration (NHTSA). *Fatality Analysis Reporting System (FARS) Encyclopedia*. Available at <https://www-fars.nhtsa.dot.gov/Main/index.aspx>

THE NUMBER OF FATALITIES PER VMT
is a prominent safety statistic
because it helps people understand
relative risks when comparing
cities, states, or other jurisdictions.

died in traffic fatalities).³² In 2016, the rate was 1.18 (37,461 people died in traffic fatalities).³³ Despite an increase of 38 deaths, an agency or decision maker looking at fatalities per VMT would find a 6% improvement in traffic safety. Regardless, the number of fatalities per VMT is a prominent safety statistic because it helps people understand relative risks when comparing cities, states, or other jurisdictions.

The limited utility of fatalities per VMT was well stated by Frank Haight, the founding editor of the journals *Transportation Research* and *Accident Analysis and Prevention*³⁴, in a 1985 report: “We do not measure the public health hazard by the

fatality rate per distance traveled, a quantity much used in traffic engineering. This ratio is irrelevant to the public health question, just as it might be if we measured lung cancer per quantity of cigarettes consumed, or malaria per mosquito. The similarity is not that mobility and smoking are socially equivalent, but that the vehicle-mile fatality rate, like the per cigarette cancer rate, would confuse cause with effect.”³⁵

For biking and walking, no equivalent statistic of vehicle or person miles traveled is readily available at a sub-national level. Roughly once a decade the miles traveled by walking and biking are estimated by the National Household Travel Survey.³⁶ Recently, several states have undertaken or sponsored research projects to create bicycle and/or pedestrian miles traveled estimates for their states, including Washington³⁷ and Minnesota.³⁸ Developing a miles-traveled metric for bicycling and walking is also part of Oregon’s Bicycle and Pedestrian Master Plan.³⁹



Bike at Capitol, photo courtesy of Bike Sioux Falls

³² See Footnote 31.

³³ See Footnote 31.

³⁴ Karl Kim and Rune Elvik. *Accident Analysis and Prevention* (2005). *A Tribute to Frank Haight*. Available at http://www.academia.edu/2111961/A_Tribute_to_Frank_A._Haight.

³⁵ Halperin. *A Comparative Analysis of Six Methods for Calculating Travel Fatality Risk*, *RISK: Health, Safety & Environment* (1993), at 18 quoting Haight, *Road Safety: A Perspective and a New Strategy*, 16 *J. Safety Resh.* 91 (1985). Available at <https://scholars.unh.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1119&context=risk>

³⁶ See discussion of National Household Travel Survey data in Chapter IV: Show Your Data I: Nation.

³⁷ Krista Nordback, *Washington State Pedestrian and Bicycle Miles Traveled Project*. Available at http://trec.pdx.edu/research/project/708/Washington_State_Pedestrian_and_Bicycle_Miles_Traveled_Project_

³⁸ Dr. Greg Lindsey and Jessica Schoner. *Performance Measures for Bicycling: Trips and Miles Traveled in Minnesota* (2016). Available at <https://conservancy.umn.edu/bitstream/handle/11299/185231/Performance%20Measures%20for%20Bicycling%20in%20Minnesota.pdf?sequence=1&isAllowed=y>.

³⁹ Oregon Department of Transportation. *Oregon Bicycle and Pedestrian Plan* (Adopted May 19, 2016) in strategy 1.1N at p. 31. Available at <http://www.oregon.gov/ODOT/Planning/Documents/OBPP.pdf>.

In the absence of a miles traveled estimate, bicycling and walking commuter (journey to work) data provide a denominator that is useful for highlighting the relative risks of biking and walking in different localities. Use of commuter data has several advantages over use of only the number of pedestrian or bicyclist fatalities, their percentage of all traffic fatalities, or a per capita rate. Most important is that it accounts for differences in the likelihood of people riding or walking in a state or community, which provides additional insights into the relative risks of bicycling and walking between places in the United States. Considerable differences are found in the rates of bicycling and walking among communities throughout the United States, and in some places, these differences have persisted over time. Without using commuter data, those differences could not be accounted for using other nationally available data.

Commuter data also have several limitations, which is why it is not commonly used when discussing passenger vehicle death rates where miles traveled data are available. The biggest limitation is that commuter trips only comprised about 13% of all bicycle trips in 2009 and 20% of all bicycle trips in 2017, according to the National Household Travel Survey.⁴⁰

For pedestrian trips, commuting data are even less representative of actual travel as trips to earn a living were only 6.3% of pedestrian trips in 2009 and 7% in 2017.⁴¹ In this way, commuter data do not provide good insight into total bicycling and walking where trips for other purposes

can also vary across localities. Using commuter data also de-emphasizes people who do not commute such as youths, older adults, and people who do not work or who telework. While commuter data may be used as a way to demonstrate relative risk, it is important that this not lead to bicyclist and pedestrian safety interventions that are only commuter-related.



Topic 2 - The Case for Safety in Numbers

To see how levels of bicycling and walking affect safety, the League of American Bicyclists compared fatality rates in large cities to corresponding bicycle and pedestrian commute mode share. Data for the 50 largest U.S. cities indicates an inverse relationship between bicycling and walking levels and fatality rates.

Cities with the highest rates of pedestrian fatalities are among those with the lowest levels of walking ($r = -0.65$). Similarly, cities with the highest levels of bicycling generally have lower bicycle fatality rates ($r = -0.51$). These results are consistent with previous research.⁴² A 2016 editorial published in the American Journal of Public Health demonstrated that cities in the United States that grew both their bicycle network and number of bicycle trips had decreased rates of crashes, fatalities, and serious injuries per trip, where data were available.⁴³

⁴⁰ See discussion of National Household Travel Survey data in Chapter IV: Show Your Data I: Nation.

⁴¹ See discussion of National Household Travel Survey data in Chapter IV: Show Your Data I: Nation.

⁴² This relationship has been shown in several past editions of the Benchmarking Report, including 2016 and 2014. The 2014 Report included references to Jacobsen and Rutter, 2012; Pucher and Buehler, 2010; Buehler and Pucher, 2012; Elvik, 2009; Jacobsen, 2003; Pucher et al., 2011; Vandenburg et al., 2009.

⁴³ Ralph Buehler and John Pucher. American Journal of Public Health (December 2016, Vol 106, No. 12). *Safer Cycling Through Improved Infrastructure*. Available at <https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2016.303507>.

FIGURE 3.2.6 - SAFETY IN NUMBERS-RATES OF WALKING TO WORK & PEDESTRIAN FATALITIES IN CITIES ⁴⁴

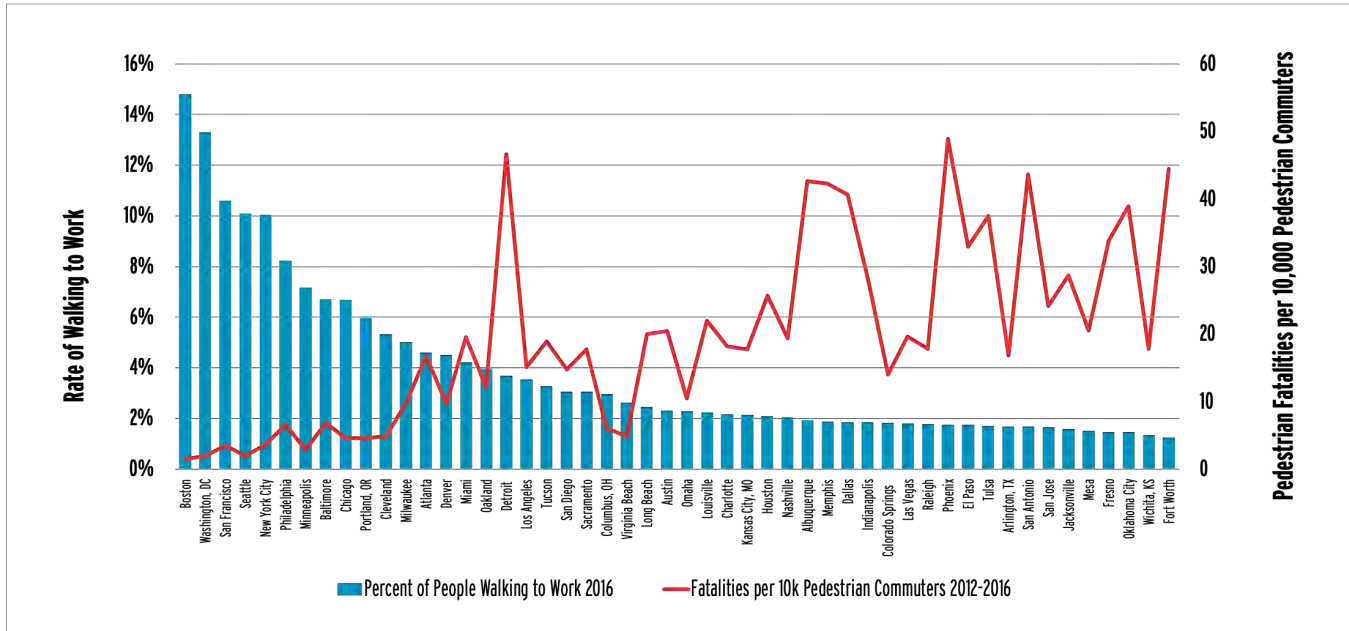
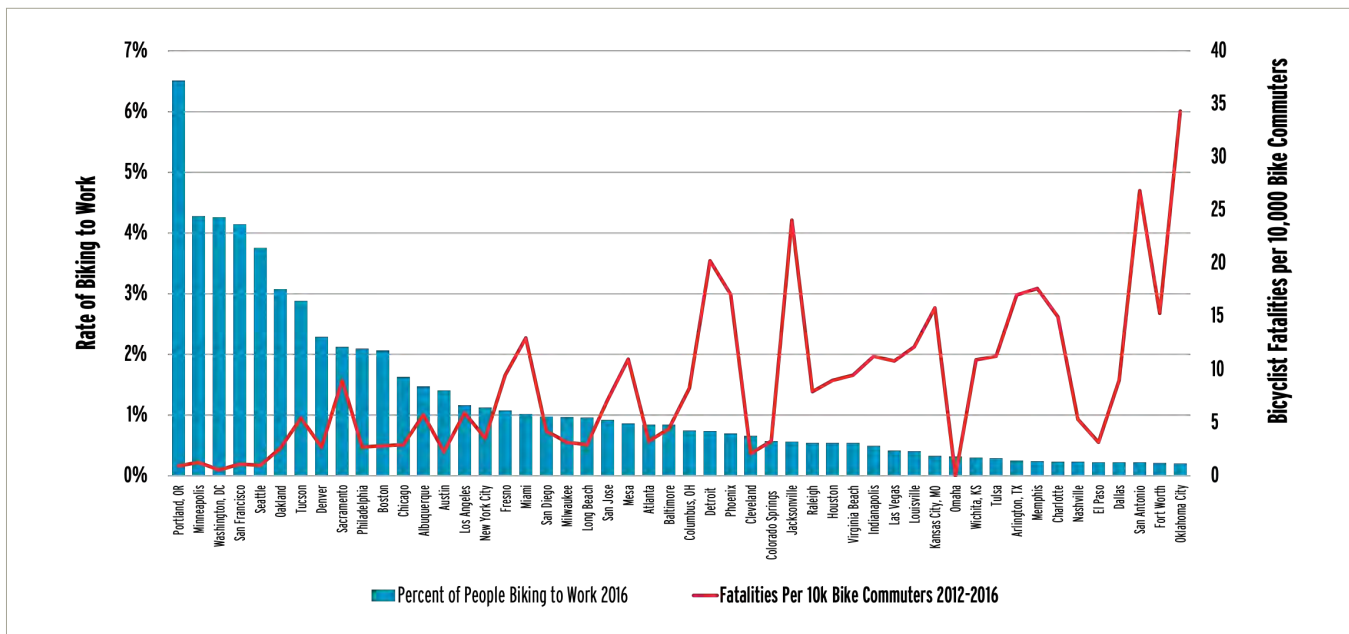


FIGURE 3.2.7 - SAFETY IN NUMBERS-RATES OF BIKING TO WORK & BICYCLIST FATALITIES IN CITIES ⁴⁵



44 U.S. Census Bureau. *American Community Survey Table B08006* 5-year estimate (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. National Highway Traffic Administration (NHTSA). *Fatality Analysis Reporting System (FARS) Encyclopedia* (2012-2016). Available at <https://www-fars.nhtsa.dot.gov/Main/index.aspx>.

45 See Footnote 44.

Safety in numbers has been observed with specificity for pedestrians. One study from Hamilton, Ontario, Canada, found that “drivers seem to expect pedestrians when the pedestrian flow is over 30 pedestrians per hour.”⁴⁶ A prior study in Minneapolis also found, “The ‘safety-in-numbers’ effect was indeed observed in both the raw Minneapolis pedestrian and crash data, as well as the modeled data at the broader sample of intersections.”⁴⁷ This research may suggest a “dose” at which numbers have a safety effect.

While safety in numbers is an observed reality, researchers have less understanding of why the effect occurs. One explanation is that where more bicyclists and pedestrians are present, motorists are more used to sharing the roadways with bicyclists and are more aware of pedestrians at crossings. One recent study of cities in Norway, Denmark, and Sweden observed a seasonal safety in numbers trend, where seasonal weather – such as cold dark days in these Nordic countries – affects the numbers of people bicycling, suggesting that this general awareness of the likelihood of bicyclist presence has an effect on safety in numbers.⁴⁸ However, environmental factors (such as signed routes, bike lanes, and sidewalks) that contribute to increased bicycling and walking likely contribute to increased safety, too.⁴⁹ The relative importance of these factors is not yet known.

Topic 3 - The Case for Mode Shift as a Traffic Safety Intervention

Places with more biking, walking, and transit tend to be safer for all road users.⁵⁰ A shift to modes that have a lower physical capacity for harm such as bicycling and walking may be an effective strategy to reduce road fatalities and serious injuries. Current models of health benefits tend to focus on chronic disease factors associated with physical activity rather than changes in roadway fatalities.⁵¹ Research by the Victoria Transport Policy Institute indicates that “cities where residents average more than 50 annual transit trips have about half the average (per capita) traffic fatality rates as cities where residents average fewer than 20 annual transit trips.”⁵² Research on modal shift suggests that it can be accomplished without an increase in the number of bicyclist and pedestrian deaths.⁵³ Bicyclists and pedestrians cause fewer deaths than do drivers of motor vehicles. For bicyclists and pedestrians, the reduced potential to cause deaths is based on basic physics—it is nearly impossible for a person bicycling or walking to generate the forces equivalent to crashing the average 4,000-pound motor vehicle.⁵⁴

46 Kristin Carlson, Brendan Murphy, Alireza Ermagun, David M Levinson, Andrew Owen. *Safety in Numbers: Pedestrian and Bicyclist Activity and Safety in Minneapolis* (March 2018) Report no. CTS 18-05 at 45 (referencing Leden, L. Accident Analysis and Prevention. *Pedestrian risk decrease with pedestrian flow: A case study based on data from signalized intersections in Hamilton, Ontario* (2002) at 457–464). Available at <http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2656>.

47 Brendan Murphy, David Levinson, and Andrew Owen. *Evaluating the “Safety in Numbers” Effect with Estimated Pedestrian Activity* (2015) at p. 15. Available at <https://conservancy.umn.edu/bitstream/handle/11299/179818/SafetyInNumbers.pdf%3Bsequence=1>.

48 Aslak Fyhri, Torkel Bjørnskau, Aliaksei Lareshyn, Hanne Beate Sundfør, and Rikke Ingebrigtsen. Institute of Transport Economics Norwegian Centre for Transport Research. *Safety in Numbers - uncovering the mechanisms of interplay in urban transport* (2016). Available at <https://www.toi.no/getfile.php/1342933/Publikasjoner/T%C3%98L%20rapporter/2016/1466-2016/summary.pdf>

49 Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2014 Benchmarking Report* at p. 80. Available at <https://bikeleague.org/sites/default/files/2014BenchmarkingReport.pdf>.

50 See, e.g. Richard Florida. CityLab. *The Geography of Car Deaths in America* (10/15/2015). Available at <https://www.citylab.com/transportation/2015/10/the-geography-of-car-deaths-in-america/410494>.

51 See discussion of ITHIM and HEAT in previous section.

52 Todd Litman, Victoria Transport Policy Institute (July 24, 2018). *Safer Than You Think! Revising the Transit Safety Narrative* at p. 3. Available at <http://www.vtpi.org/safer.pdf>. See also American Public Transportation Association. *The Hidden Traffic Safety Solution: Public Transportation* (September 2016). Available at <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Hidden-Traffic-Safety-Solution-Public-Transportation.pdf>.

53 J. P. Schepers and E. Heinen. Science Direct. *How Does a Modal Shift from Short Car Trips to Cycling Affect Road Safety?* Available at <https://www.sciencedirect.com/science/article/pii/S0001457512003119#fig0005>. See also Rune Elvik. Science Direct. Accident Analysis and Prevention (Volume 4(4), July 2009). *The Non-Linearity of Risk and the Promotion of Environmentally Sustainable Transport* at pp. 849-855. Available at <https://www.sciencedirect.com/science/article/abs/pii/S0001457509000876>.

54 Danny Hakim. The New York Times. *Average U.S. Car is Tipping Scales at 4,000 Pounds* (5/5/2004). Available at <https://www.nytimes>.

Many traffic safety efforts do not address the inherent risks of time and distance spent traveling in motor vehicles. As an example, a recent report by the National Governors Association states that the rise in traffic fatalities is due in part to “increased exposure and mobility” but does not identify any strategies that would address that factor, instead focusing on addressing high-risk individual behaviors.⁵⁵ Shifting from motorized modes to non-motorized modes could help address this. Indeed, VMT correlates strongly with increased fatality numbers for all users.⁵⁶

Understanding traffic safety as a population-level public health problem is useful for discussing mode shift and is consistent with public health efforts to focus on prevention rather than treatment. A recent article from researchers in Australia argued that “the safety value of reducing average-risk travel has been underestimated.”⁵⁷ The value of a population strategy of prevention being necessary where risk is widely diffused through the whole population has similarly been articulated for preventive medicine in general.⁵⁸ According to researchers who have adopted a population health perspective, “Optimal reduction in the public health burden attributable to land transport was demonstrated when transport safety risk reduction policies were combined with land use and transport policies that minimized reliance on individual motorized transport and maximized use of active transport modes.”⁵⁹

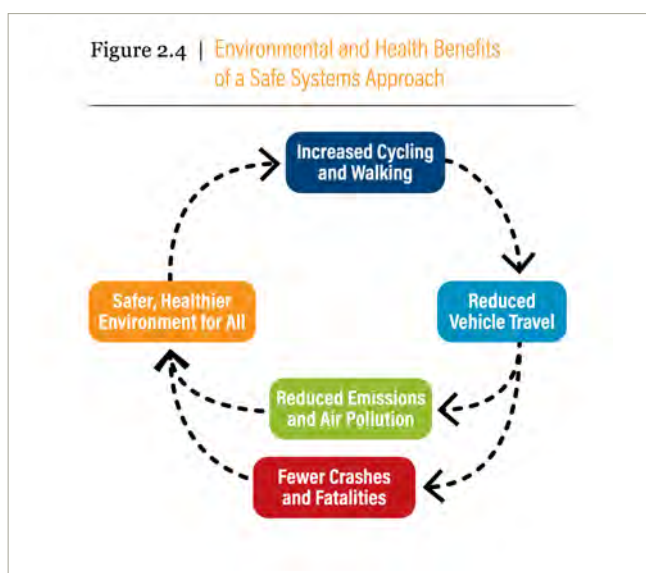


FIGURE 3.2.8 - ENVIRONMENTAL & HEALTH BENEFITS OF A SAFE SYSTEMS APPROACH⁶⁰

Mode shift is not a specific intervention, since it cannot be done through a single project or through a behavioral intervention. Instead, mode shift relies on a multitude of factors that make bicycling, walking, and transit more acceptable to a population than driving. Mode shift also does not target “unsafe” behaviors but rather seeks to move people from modes of travel with higher inherent risks to modes of travel with lower inherent risks. This is a shift from traditional traffic safety interventions that seek to address roadway designs, high-risk behaviors, or other instances where a lower level of safety is observed relative to a performance standard.

[com/2004/05/05/business/average-us-car-is-tipping-scales-at-4000-pounds.html](https://www.iihs.org/average-us-car-is-tipping-scales-at-4000-pounds.html).

55 National Governors Association. *State Strategies to Reduce Highway and Traffic Fatalities and Injuries: A Road Map for States* (2018) at p. 7. Available at <https://www.nga.org/center/publications/state-strategies-to-reduce-highway-and-traffic-fatalities-and-injuries-a-road-map-for-states/>.

56 See Insurance Institute for Highway Safety. *A Projection of United States Traffic Fatality Counts in 2024* (April 2017). Available at <https://www.iihs.org/frontend/iihs/documents/masterfiledocs.ashx?id=2137> (“Each 1% increase in VMT was associated with a 0.96% increase in fatalities.”)

57 M. May et al. / *Journal of Transport Geography* 19 (2011) 1423–1430 at 1426 retrieved at <https://blogs.otago.ac.nz/amc/files/2011/08/May-Tranter-Warn-JTG-road-safety.pdf>. (referencing Johnston, I., 2010. Beyond “best practice” road safety thinking and systems management – a case for culture change research. *Safety Science* 48, 1175–1181)

58 M. May et al. *Journal of Transport Geography* (Volume 19; 2011). *Progressing road safety through deep change and transformational leadership* at p. 1426. Available at <https://blogs.otago.ac.nz/amc/files/2011/08/May-Tranter-Warn-JTG-road-safety.pdf>.

59 Roderick J. McClure, Claudia Adriaola-Steil, Christine Mulvihill, Michael Fitzharris, Paul Salmon, C. Paul Bonnington, and Mark Stevenson. *American Journal of Public Health* (April 2015). *Simulating the Dynamic Effect of Land Use and Transport Policies on the Health of Populations*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4355720/>

60 Ben Welle et al. World Resources Institute, Ross Center. In Collaboration with Bloomberg Philanthropies Foundation. Global Road Safety Facility. *Embarq. Sustainable and Safe: A Vision and Guidance for Zero Road Deaths* at p. 24. Available at http://www.wri.org/sites/default/files/17_Report_Safe_Systems_final.pdf.

» ADVANCING UNDERSTANDING: CURRENT LIMITATIONS ON UNDERSTANDING BICYCLING & WALKING SAFETY

Traffic safety efforts can miss understanding and addressing bicyclist and pedestrian safety needs for a number of reasons, but two issues persist that directly affect most quantitative-based traffic safety efforts:

1

INFORMATION IS LACKING ABOUT BICYCLE & PEDESTRIAN TRAVEL.

Nationally, three data sources provide insights on bicycle and pedestrian travel. Two have been available for the entirety of the Benchmarking Report project, and one is newly available. These data sources generally give a limited picture of bicycle and pedestrian travel or are infrequently available.

- **THE AMERICAN COMMUNITY SURVEY (ACS)** is conducted annually by the Census Bureau and provides data on commuting to work among people aged 16 years or older.
- **THE NATIONAL HOUSEHOLD TRAVEL SURVEY (NHTS)** is conducted once a decade by the Federal Highway Administration, providing data on all trips.
- **THE TRAVEL MONITORING ANALYSIS SYSTEM (TMAS)** has ongoing data collection by states on traffic volumes as reported to the Federal Highway Administration. This data collection system is what is currently used to create the Average Annual Daily Traffic (AADT) volume data or vehicle miles traveled (VMT) data used for motor vehicle traffic safety and engineering discussions.

For people who bicycle or walk, VMT has no equivalent denominator. Several attempts are underway to create equivalent measures, however, and the Travel Monitoring Analysis System recently began accepting non-motorized travel data. Since non-motorized travel monitoring is not yet commonplace, people have used the number of bicyclists and pedestrians heading to and from work as a proxy measure to estimate the safety of biking and walking.

2

AVAILABILITY & QUALITY OF DATA ABOUT BICYCLIST- & PEDESTRIAN-INVOLVED CRASHES ARE LIMITED.

At the national level, only fatality estimates are available in a way that is comparable between states and cities. Serious injury data are available only at the national level, with no disaggregation for other jurisdictions. Further, there are observed biases in what is reported about bicyclist- and pedestrian-involved crashes since crashes that do not cause serious injuries or do not meet monetary damage thresholds often fail to be reported.

The Injury Surveillance Workgroups of the Safe States Alliance recently put out Consensus Recommendations for Pedestrian Injury Surveillance.⁶¹ The 10 recommendations in the report include “Train all primary collectors of pedestrian injury data,” “Include estimates of pedestrian injury exposure so that risk can be calculated,” and “Make pedestrian-specific data collection a routine part of transportation data collection,” while noting “the inability to systematically collect and consistently measure walking exposure (NHTSA, 2013).”⁶² The recommendations defined pedestrian exposure as “an observable period or point during which a pedestrian experiences the possibility of suffering an injury related to the act of being a pedestrian.” They suggest five types of exposure data to use: 1) population data, 2) trip count data, 3) travel time/distance data, 4) commute mode share data, and 5) count data.⁶³

As an alternative to creating appropriate systems to remedy the lack of national data on bicycling and walking, practitioners can promote bicycle- and pedestrian-related interventions based on more readily available motor vehicle data. An example is the National Association of City Transportation Officials (NACTO)’s “Designing for All Ages and Abilities” guidance, which makes bicycle facility recommendations based on motor vehicle speeds and volumes rather than bicyclist-related data.⁶⁴ With this type of guidance, no data on bicycling and walking are needed to recommend facilities for people who bike. However, this type of effort does not address population-level issues with understanding bicycle and pedestrian travel and bicyclist and pedestrian safety.

61 Injury Surveillance Workgroup 8. *Consensus Recommendations for Pedestrian Injury Surveillance*. Atlanta (GA): Safe States Alliance (2017). Available at http://c.ymcdn.com/sites/www.safestates.org/resource/resmgr/ISW8_Report_Final.pdf.

62 See Footnote 61 at p. 11.

63 See Footnote 61 (chapter on “Utilizing Pedestrian Exposure and Risk Data”).

64 National Association of City Transportation Officials. *Designing for All Ages & Abilities: Contextual Guidance for High-Comfort Bicycle Facilities* (December 2017) at p. 4. Available at https://nacto.org/wp-content/uploads/2017/12/NACTO_Designing-for-All-Ages-Abilities.pdf.

» EMBRACING EQUITY: CURRENT TRAFFIC SAFETY PROBLEMS AS A REFLECTION OF DEMOGRAPHIC DIFFERENCES

Benchmarking data have shown persistent over-representation of non-white persons and seniors in pedestrian fatalities. People of age 65 or older were overrepresented in pedestrian fatalities in 35 states. Non-white populations were overrepresented in pedestrian fatalities in 30 states.⁶⁵ This is consistent with other research that suggests that traffic fatalities reflect demographic differences. A report by Smart Growth America's National Complete Streets Coalition found that black pedestrians are 60% more likely than white ones to be killed by cars while walking in the United States.⁶⁶

To learn more about the demographics of people killed while walking and biking, please see Chapter IV: Show Your Data.



Photo courtesy of Appert Insurance Services

65 Note: Pennsylvania did not code any pedestrian fatalities with information on the race of the person killed so it is impossible to comment of the demographics of pedestrians killed by drivers in Pennsylvania using federal fatality statistics.

66 Stefanie Seskin. Smart Growth America. *Dangerous by Design 2014 Highlights Preventable Pedestrian Fatalities* (May 20, 2014). Available at <http://www.smartgrowthamerica.org/2014/05/20/dangerous-by-design-2014-highlightspreventable-pedestrian-fatalities>.

» MAKING THE HEALTH CONNECTION: THE HEALTHCARE COSTS & PREVENTABILITY OF ROAD DEATHS & SERIOUS INJURIES

Traffic deaths and serious injuries are health problems leading to both premature death and significant healthcare costs. A 2015 National Highway Traffic Safety Administration (NHTSA) report indicated that motor vehicle crashes in 2010 (a year in which traffic fatalities were more than 4,000 fewer than in 2016) cost society \$242 billion or the equivalent of \$784 per person (1.6% of 2010 GDP).⁶⁷ The report estimated that medical and emergency services related to motor vehicle crashes resulted in approximately \$24 billion in costs.⁶⁸

The estimated \$242 billion in costs from motor vehicle crashes is nearly three times the estimated costs from congestion, which a 2009 report prepared by HDR, Inc. for the U.S. Department of Transportation estimated at \$85.5 billion per year.⁶⁹

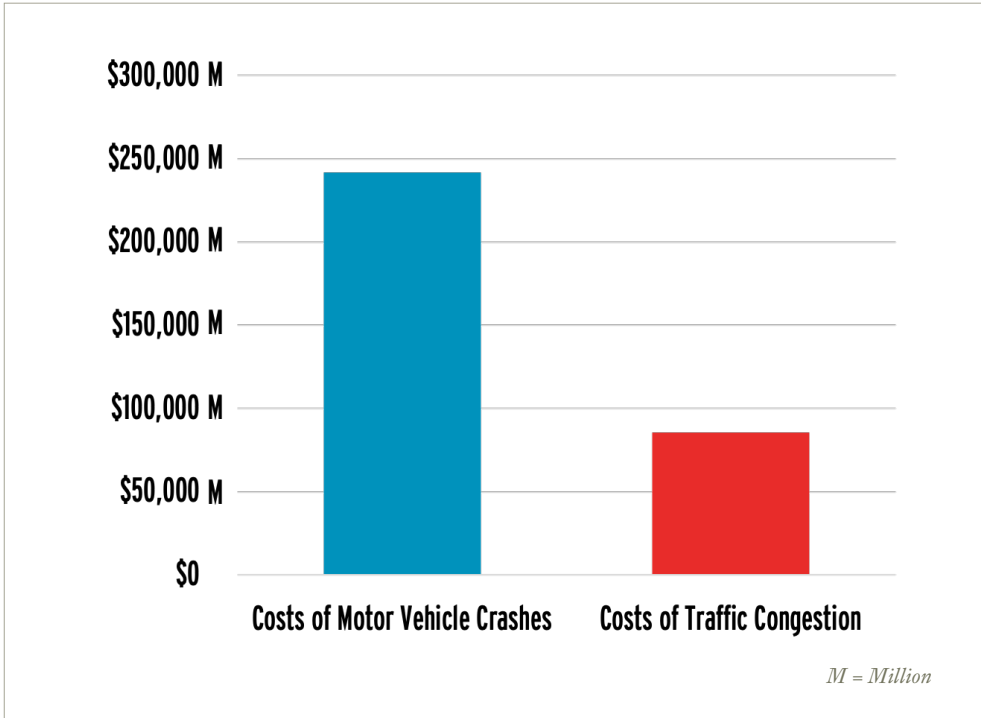


67 National Highway Traffic Safety Administration (NHTSA). *The Economic and Societal Impact Of Motor Vehicle Crashes, 2010* (May 2015 Revised). Available at <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812013>.

68 See Footnote 67 table 14-4 at p. 239.

69 Prepared by HDR for the Office of Economic and Strategic Analysis, U.S. Department of Transportation. *Assessing the Full Costs of Congestion on Surface Transportation Systems and Reducing Them through Pricing* (February 2009) at p. 236. Available at <https://www.transportation.gov/sites/dot.gov/files/docs/Costs%20of%20Surface%20Transportation%20Congestion.pdf>.

FIGURE 3.2.9 - THE COST OF CRASHES VS. THE COST OF CONGESTION ⁷⁰



For the federal government, transportation safety has fiscal impacts on Medicare and Medicaid programs. The same 2015 NHTSA report found that an analysis of Medicaid claims and Healthcare Cost and Utilization Project data concluded that “22% of adults ages 19 to 64 with hospital-admitted crash injuries covered by Medicaid (2.85% of all those admitted) became Medicaid-eligible because earnings losses and medical bills resulting from crash injury left them indigent or disabled.”

⁷¹ These one-time crash events also made it likely that people would continue to receive care through Medicaid, with an estimated “35% of those who convert to Medicaid to pay hospital bills stay on Medicaid indefinitely. The present value of their lifetime Medicaid health care costs averages \$316,000.” ⁷²

⁷⁰ See Footnote 67 table 14-4 at p. 239 (in cited document). See Footnote 69 at p. 236 (in cited document).

⁷¹ See Footnote 67 at p. 236 (in cited document).

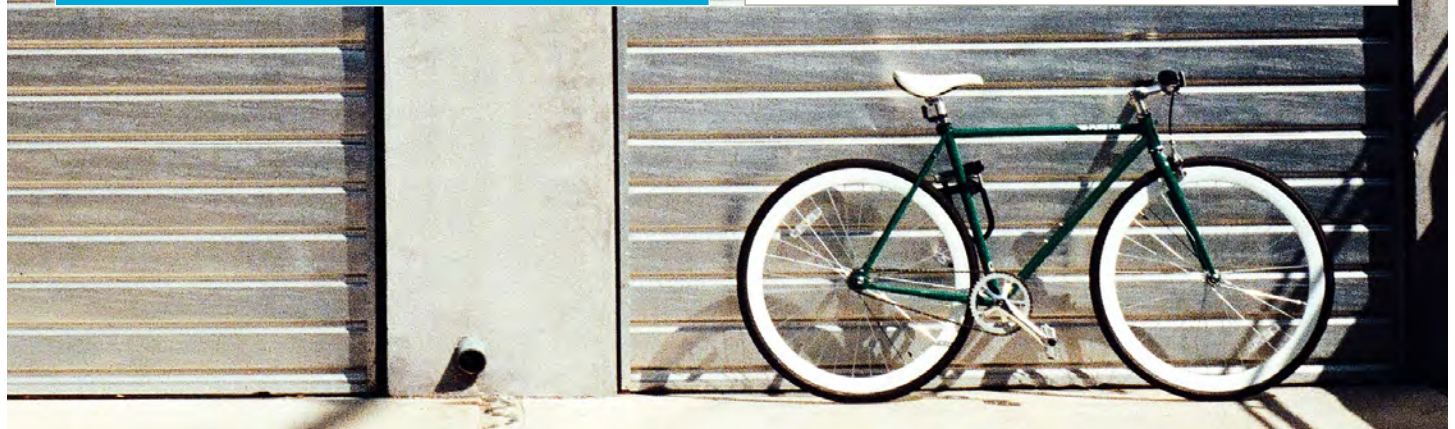
⁷² See Footnote 67 at p. 236 (in cited document).

SECTION III: STRONG ECONOMIES

IN THIS SECTION, THE BENCHMARKING REPORT LOOKS AT THE INTERACTIONS BETWEEN BICYCLING AND WALKING, ECONOMIC DEVELOPMENT, AND INCENTIVES FOR BIKING AND WALKING TO WORK. THIS DISCUSSION INCLUDES HOW ECONOMIC DEVELOPMENT CAN LEAD TO GENTRIFICATION AND THE DISPLACEMENT OF CURRENT RESIDENTS.

Use this section to become more informed about how bicycling and walking are promoted as a part of economic development strategies and within companies as part of employee retention and wellness.

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» BICYCLING & WALKING AS ECONOMIC DEVELOPMENT STRATEGIES

Topic 1 - Cases of Bicycling- & Walking-oriented Economic Development

Placemaking and quality of life initiatives that attract and retain employers and employees are increasingly common economic development strategies.¹ Bicycling and walking are important components of these initiatives. Numerous studies support the argument that biking and walking improvements lead to increased retail sales and property values. A 2013 report by Clifton and colleagues combined a literature review with new data collection and found built environment elements that support bicycling (e.g., bike corrals and parking) were significantly associated with increased bike mode share among patrons of local businesses.² Other evidence suggests built environment changes can improve retail sales for nearby businesses. One case study from Fort Worth, Texas, found an over 100% increase in retail sales after bike lanes and improved bike parking were added to a local commercial street.³

Recent research suggests that property values are higher and more stable where people can easily bike and walk. A recent study of the 30 largest metro areas in the U.S. found that office rental premiums in walkable urban places (“WalkUPs”) were higher than drivable suburban places (\$35.33 per square foot compared to \$20.32 per square foot). Excluding New York City metro as an outlier, WalkUPs still achieved a 44% price premium over drivable suburban places in the other metro areas studied.⁴ A study of Sacramento region neighborhoods found that walkable neighborhoods experienced less of a decline in home values compared to suburban auto-dependent neighborhoods between 2005 and 2012.⁵ In Indianapolis, the Indiana

NUMEROUS STUDIES SUPPORT the argument that biking and walking improvements lead to increased retail sales and property values.

1 Amy Liu and Owen Washburn. Brookings. *A New Generation of Economic Development* (February 24, 2015). Available at <https://www.brookings.edu/blog/the-avenue/2015/02/24/a-new-generation-of-economic-development>.

2 K. Clifton, C. Muhs, S. Morrissey, T. Morrissey, K. Currans, and C. Ritter. Oregon Transportation Research and Education Consortium, OTREC-RR-12-15. *Examining Consumer Behavior and Travel Choices* (February 2013). Available at http://ppms.otrec.us/media/project_files/OTREC-RR-12-15%20Final.pdf.

3 Elly Blue. Excerpt from *Bikenomics: How Bicycling Can Save the Economy* published by TriplePundit (12/9/2013). How Bike Lanes Increase Small Business Revenue. Available at <https://www.triplepundit.com/2013/12/bike-lanes-increase-small-business-revenue/>.

4 C. B. Leinberger and P. Lynch. Smart Growth America (2014). *Foot Traffic Ahead: Ranking Walkable Urbanism in America's Largest Metros*. Available at <http://www.smartgrowthamerica.org/documents/foot-traffic-ahead.pdf>.

5 AARP Livable Communities, Act, Transportation and Mobility Walk Toward Economic Stability: Research on Walkability and Home Value in Sacramento (2012). Available at <https://www.aarp.org/livable-communities/act/walkable-livable-communities/info-12-2012/walk-toward-economic-stability-research-on-walkability-and-home-values-in-sacramento.html>.

University Public Policy Institute estimated that the \$62.5 million, 8-mile-long Indianapolis Cultural Trail has resulted in more than a \$1 billion increase in property values for properties within 500 feet of the trail.⁶

Bicycle tourism can also be a significant economic development strategy for communities, including rural communities:

- A 2012 **OREGON BICYCLE TOURISM STUDY** found that bicycle-related expenditures amounted to nearly \$400 million and supported 4,600 jobs within Oregon.⁷
- The annual economic impact of recreational bicycling and bicycle tourism is estimated at \$924 million for the state of **WISCONSIN**.⁸
- For **NORTH CAROLINA'S OUTER BANKS**, the annual economic impact of bicycle tourists is estimated at \$60 million. In addition, 1,400 jobs are created or sustained annually because of these tourists.⁹
- Every trail visitor to the **VIRGINIA CREEPER TRAIL** generated between \$24 and \$38 per visit. Trail visitors contributed an estimated \$1.2 million annually to the local economy.¹⁰
- The Institute for Tourism and Recreation Research (ITRR) at the **UNIVERSITY OF MONTANA** conducts nonresident surveys year-round throughout the state of Montana. Data from ITRR surveys indicate that an average of 500,000 nonresidents participate in road touring/bicycling in Montana each year and that they spend an average of \$75.75 per day, creating approximately \$38 million in economic activity.¹¹



San Gabriel Elementary Students ride their bikes to school. Photo courtesy of Atascadero Unified School District

6 Jessica Majors and Sue Burow. Indiana University Public Policy Institute, School of Public and Environmental Affairs. *Assessment of the Impact of the Indianapolis Cultural Trail: A Legacy of Gene and Marilyn Glick* (March 2015) at p. 2. Available at <https://s3.amazonaws.com/indyculturaltrail.org/wp-content/uploads/2015/07/15-C02-CulturalTrail-Assessment.pdf>.

7 Travel Oregon. *The Economic Significance of Bicycle-Related Travel in Oregon: 2012*, Dean Runyan Associates (May 8, 2013). Available at <http://industry.traveloregon.com/research/archive/the-economic-significance-of-bicycle-related-travel-in-oregon-2012-dean-runyan-associates>.

8 M. Grabow, M. Hahn, and M. Whited. American Trails. Nelson Institute for Environmental Studies, Center for Sustainability and the Global Environment, University of Wisconsin-Madison (January 1, 2010). *Valuing Bicycling's Economic and Health Impacts in Wisconsin*. Available at <https://www.americantrails.org/resources/valuing-bicyclings-economic-and-health-impacts-in-wisconsin>.

9 North Carolina Department of Transportation. Transportation Research Record Journal of Transportation Research Board (January 2005). *The Economic Impact of Investments in Bicycle Facilities Case Study of the Northern Outer Banks*. Available at https://www.researchgate.net/publication/245561852_Economic_Impact_of_Investments_in_Bicycle_Facilities_Case_Study_of_North_Carolina's_Northern_Outer_Banks.

10 J. M. Bowker, John C. Bergstrom, and Joshua K. Gill. USDA, U.S. Forest Service, Southern Research Station, and the University of Georgia (December 2004). *The Virginia Creeper Trail: An Assessment of User Demographics, Preferences, and Economics*. Available at <https://www.srs.fs.usda.gov/recreation/VCT.pdf>.

11 N. Nickerson, J. Jorgenson, M. Berry, J. Kwenye, D. Kozel, and J. Schutz. Institute for Tourism and Recreation Research Publications (2014). *Bicycle Tourism: Providing Economic Development Opportunities for Montana*. Available at https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=1322&context=itrr_pubs and https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=1225&context=itrr_pubs.

Topic 2 - The Case for Business Investments in Active Transportation

Businesses that invest in biking, walking, and other efforts that allow employees to use active transportation hope to capture at least some of the following benefits of increased physical activity:

- Improved employee health—including reduced cardiovascular risks, especially among women ¹²
- Lower rates of absence—equivalent to one less sick day per year ¹³
- Improved employee productivity, including more-productive organizational behavior and positive employee well-being ¹⁴

Businesses have found it advantageous to invest in biking, walking, and other efforts to shift workers to active transportation. Since its creation in 2008, more than 1,800 businesses have taken part in the Bicycle Friendly Business program of the League of American Bicyclists. In recent years, many of these businesses have invested in bike share programs for their employees. Of the 143 businesses that have applied since 2015, 55% (79) provide shared bicycles directly to employees and/or guests or provide subsidized access to a public bike share program.

FIGURE 3.3.1 - BIKE SHARE PROGRAMS FOR EMPLOYEES AT BICYCLE FRIENDLY BUSINESSES ¹⁵

| BICYCLE FRIENDLY BUSINESSES BY AWARD LEVEL | PROVIDES FREE OR SUBSIDIZED ACCESS TO PUBLIC BIKE SHARE SYSTEM | PROVIDES SHARED BICYCLES TO EMPLOYEES AND/OR GUESTS | PROGRAM FOR PUBLIC OR COMPANY-PROVIDED BIKE SHARE | NO BIKE SHARE PROGRAM PARTICIPATION |
|------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------|-------------------------------------|
| Honorable Mention | 3 | 1 | | 8 |
| Bronze | 8 | 12 | 2 | 36 |
| Silver | 17 | 9 | 4 | 15 |
| Gold | 7 | 8 | 5 | 4 |
| Platinum | 1 | | 1 | 1 |
| All Businesses with Honorable Mention or Above | 36 | 30 | 12 | 63 |

Businesses that support incentives for biking, walking, and other active transportation modes face public policies that prioritize driving. Perhaps the most obvious example is the system of commuter tax benefits in the United States. Qualified transportation fringe benefits allow employers to provide parking, transit, or vanpool payments or accommodations without

¹² County Health Rankings and Roadmap. *Multi-component Workplace Supports for Active Commuting*. Available at <http://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/policies/multi-component-workplace-supports-for-active-commuting>.

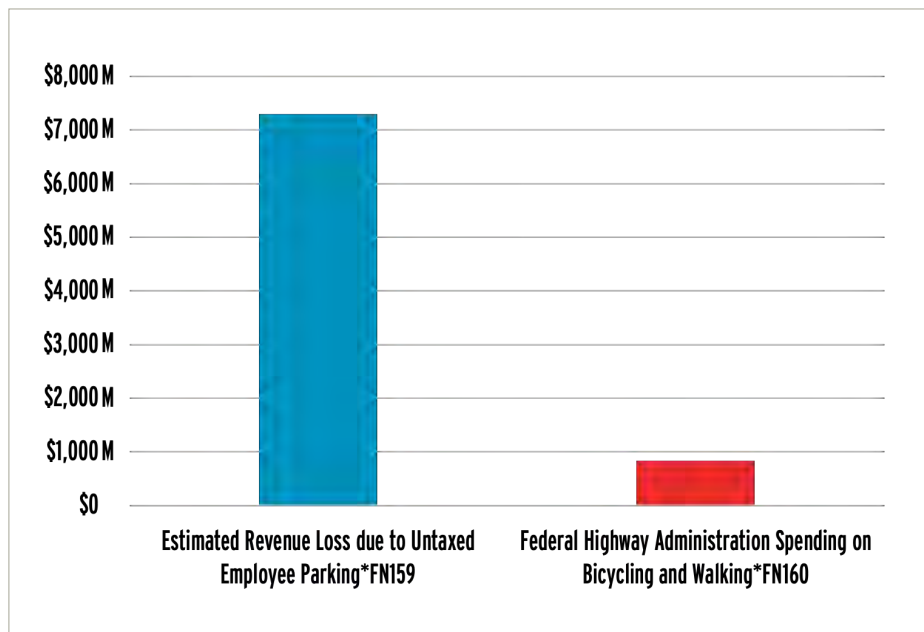
¹³ O. Tristan Mytton, J. Panter, and D. Ogivie. Preventive Medicine (March 2016). *Longitudinal Associations of Active Commuting with Wellbeing and Sickness Absence*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766368>.

¹⁴ N. C. Page and V. O. Nilsson. *Frontiers in Psychology* (2016; Published online January 10, 2017). *Active Commuting: Workplace Health Promotion for Improved Employee Well-Being and Organizational Behavior*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5222872/> (“a more frequent active commute was positively associated with more productive organizational behavior and stronger overall positive employee well-being; whereas a longer passive commute was associated with poorer well-being, although there was no impact on organizational behavior”)

¹⁵ The League of American Bicyclists. Bicycle Friendly Business application data (Summer 2015-Fall 2017).

that value counting as income for either the employer's payroll taxes or the employee's income taxes.¹⁶ Every year the Internal Revenue Service (IRS) forgoes approximately \$7.3 billion in tax revenue due to the commuter parking tax benefit, which allows business to provide tax-free parking and to exempt payments for parking from income and payroll taxes.¹⁷ By comparison, the federal government on average spent an average of just over 11% of this figure, or \$832 million per year, on biking and walking infrastructure between 2013 and 2017.¹⁸

FIGURE 3.3.2 - UNTAXED VALUE OF EMPLOYEE PARKING¹⁹ & FEDERAL SPENDING ON BICYCLING & WALKING²⁰



Until recently, parking tax benefits were available for twice the value of transit benefits. Data from the IRS show that these commuter benefits are primarily offered and used by higher income workers at large employers, with workers in the highest 25% of income offered commuter benefits at more than 6 times the rate of workers in the lowest 25% of income, despite lower-income workers paying a greater portion of their income for transportation.²¹

In 2009, the U.S. Congress decided to provide a tool for businesses to promote active

transportation by creating the bicycle commuter tax benefit. This benefit allowed employers to provide up to \$20 per month to people who bicycled to work for qualified bike-related expenses without that reimbursement being subject to income and payroll taxation.²² Many employers chose to offer this benefit as part of providing “commuter benefits as a recruitment and retention tool to broaden the range of commute options available to employees and to incentivize sustainable behavior and green practices.”²³

16 National Center for Transit Research. *Qualified Transportation Fringe Benefits Summary Table* (last updated 11/2/2018). Available at <https://www.nctr.usf.edu/programs/clearinghouse/commutebenefits/>.

17 Frontier Group and Transit Center (2017). *Who Pays for Parking? How Federal Tax Subsidies Jam More Cars into Congested Cities, and How Cities Can Reclaim Their Streets*. Available at <http://transitcenter.org/publications/who-pays-for-parking>.

18 See Chapter IV: Show Your Data I: Nation for discussion of federal funding for bicycling and walking.

19 See Footnote 21.

20 See Chapter IV: Show Your Data I: Nation for discussion of federal funding for bicycling and walking.

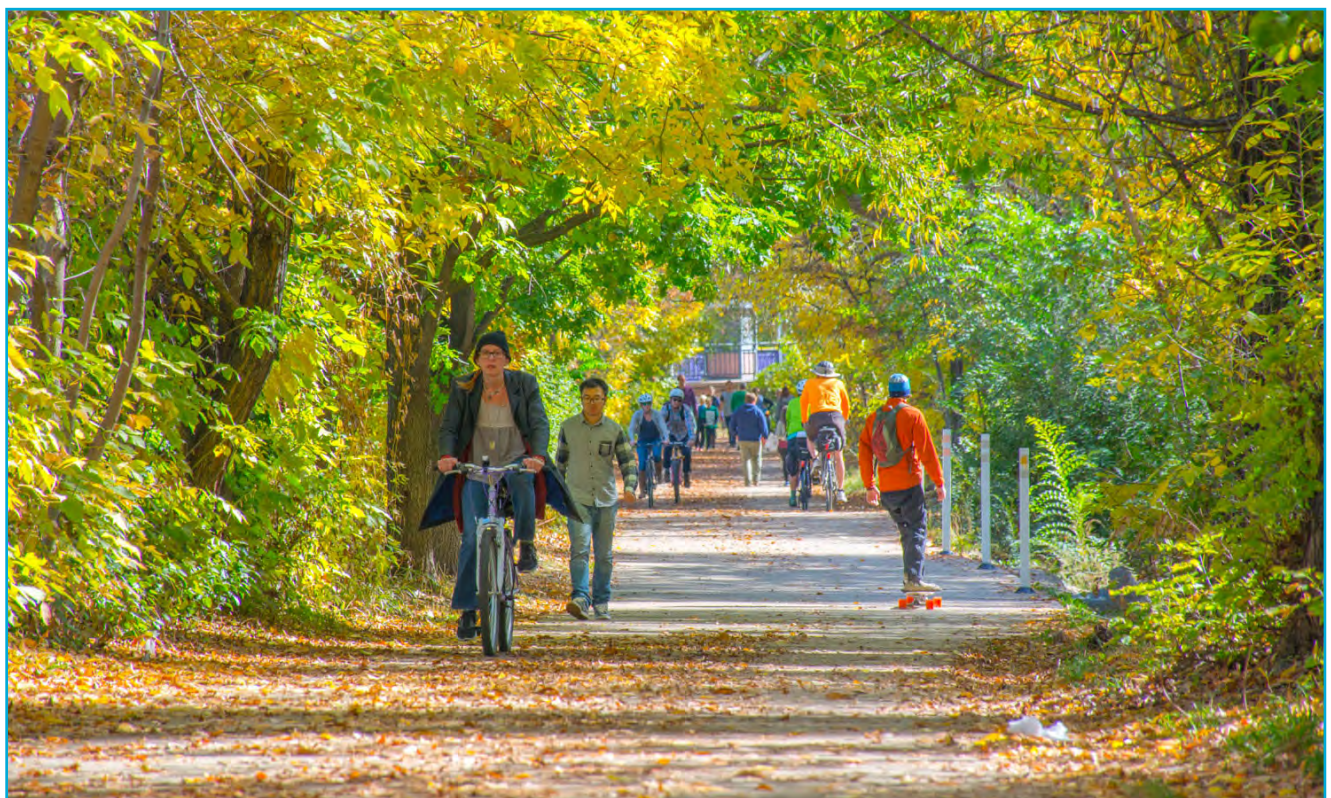
21 K. McLeod. League of American Bicyclists (2017). *Bike Commuter Benefit and Tax Reform*. Available at <http://bikeleague.org/sites/default/files/Bike-Benefit&TaxReform.pdf>.

22 The League of American Bicyclists. *Bicycle Commuter Benefit*. Available at <https://bikeleague.org/content/bicycle-commuter-benefit>.

23 Association for Commuter Transportation. *Getting to Work: Spotlight on Employer-sponsored commuter programs* (January 2017). Available at <http://actweb.org/wp-content/uploads/2017/01/Getting-to-Work-Jan-2017-Final.pdf>. (quoting Nick Amatuzzi, Senior Financial Analyst and Commuter Program Manager at MITRE)

In 2017, the U.S. Congress partially suspended the bicycle commuter tax benefit as part of the Tax Cut and Jobs Act. This was part of a larger change in commuter benefits, which eliminated the ability of employers to deduct the cost of providing commuter benefits. The suspension of the bicycle commuter benefit preserved the ability of employers to deduct their costs related to providing the benefit while making any reimbursements taxable income to employees.²⁴ The Joint Committee on Taxation estimated the suspension of the employee portion of the bicycle commuter benefit as a change with an impact of less than \$5 million per year.²⁵

Despite the partial suspension of the bicycle commuter tax benefit, many employers likely will still look for ways to incentivize bike commuting because many were already offering non-tax preferred bicycling benefits. As an example, data from the League of American Bicyclists' Bicycle Friendly Business Program show that 80% of the 668 businesses that applied between 2009 and 2017 offered at least one incentive for bike commuting.²⁶ While slightly less than 7% of those businesses reported offering the bicycle commuter tax benefit, nearly 40% reported offering cash incentives or other taxable bicycling-related incentives based on bicycle use. Due to the types of businesses that have applied to the program, the table below separates bike shop and bike industry businesses from other businesses



Path with Leaves, photo courtesy of Boulder, CO

24 M. Gerard. National Benefit Services (December 21, 2017). *Newly Passed Tax Cuts and Jobs Act Eliminates Employers' Commuter Benefits Deductions*. Available at <https://www.nbsbenefits.com/newly-passed-tax-cuts-and-jobs-act-eliminates-employers-commuter-benefits-deductions>.

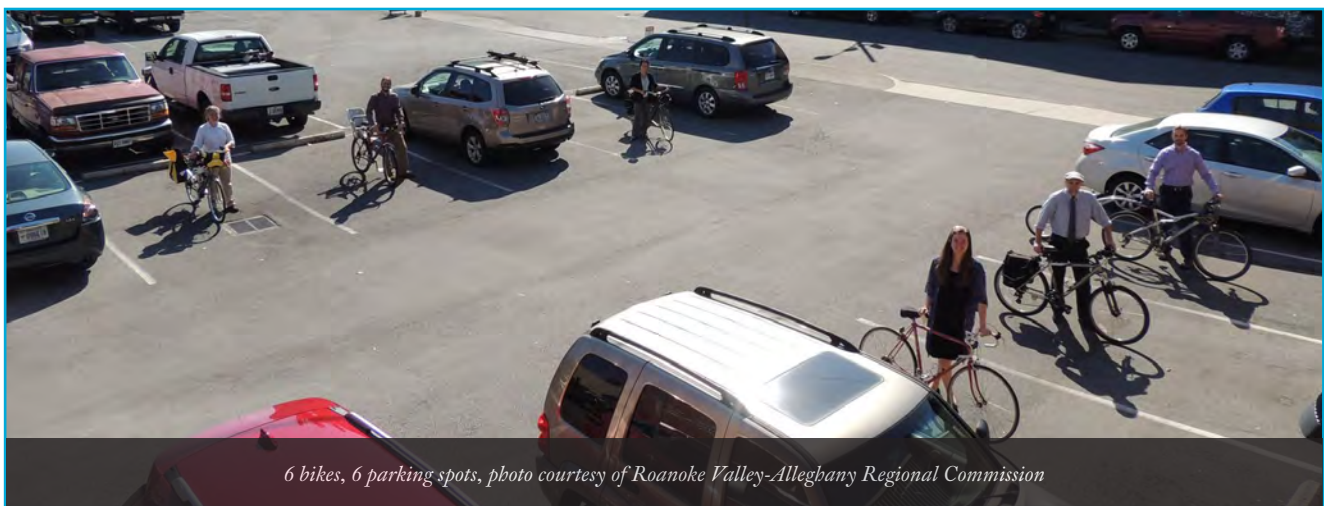
25 Joint Committee on Taxation. JCX-65-17 (December 11, 2017), *Comparison Of The Revenue Provisions Contained In H.R.1, The "Tax Cuts And Jobs Act," As Passed By The House Of Representatives, And As Amended By The Senate*. Available at <https://www.jct.gov/publications.html?func=startdown&id=5049>.

26 The League of American Bicyclists. *Bicycle Friendly Business application data (2009-Fall 2017)*.

FIGURE 3.3.3 - TAX & OTHER INCENTIVES FOR BIKE COMMUTING OFFERED BY BICYCLE FRIENDLY BUSINESSES ²⁷

| COMBINED | TOTAL # | TOTAL % | # BIKE SHOPS & BIKE INDUSTRY | % BIKE SHOPS & BIKE INDUSTRY | NON-BIKE INDUSTRY | % NON-BIKE INDUSTRY |
|--------------------------------------------------------------------------|---------|---------|------------------------------|------------------------------|-------------------|---------------------|
| Total Applications | 668 | | 118 | | 550 | |
| More than 1 option | 408 | 61.08% | 107 | 90.68% | 301 | 54.73% |
| Cash or non-cash, tied to days or miles ridden, or drawings | 264 | 39.52% | 47 | 39.83% | 217 | 39.45% |
| Discounted goods or services | 247 | 36.98% | 107 | 90.68% | 140 | 25.45% |
| On-site tune ups | 185 | 27.69% | 82 | 69.49% | 103 | 18.73% |
| Incentives for customers or guests | 157 | 23.50% | 22 | 18.64% | 135 | 24.55% |
| Other reimbursement for bicycle-related commuting expenses for employees | 99 | 14.82% | 24 | 20.34% | 75 | 13.64% |
| Transit Tax benefit | 81 | 12.13% | 1 | 0.85% | 80 | 14.55% |
| Tax benefit for Bicyclists | 46 | 6.89% | 5 | 4.24% | 41 | 7.45% |
| Car Parking Tax benefit | 41 | 6.14% | 1 | 0.85% | 40 | 7.27% |
| Healthcare premium discounts | 26 | 3.89% | 3 | 2.54% | 23 | 4.18% |
| No Incentives | 133 | 19.91% | 2 | 1.69% | 131 | 23.82% |

A recent report from the European Cycling Federation shows that nine of 11 examined European countries have public policies that provide fiscal incentives for cycling to work, ranging from reimbursements for bike share subscriptions to tax exemptions that cover the purchase of a new bicycle worth up to nearly \$1,000 in U.S. dollars. ²⁸



²⁷ See Footnote 30.

²⁸ Bike2work. *Commuting: Who Pays the Bill* (October 2014) at 12-13. Available at http://www.bike2work-project.eu/en/upload/Resources_Downloads/141117%20Commuting-%20Who%20Pays%20The%20Bill_2.pdf or <http://www.bike2work-project.eu/en/Resources/Library/>.

» ADVANCING UNDERSTANDING: IS MOTOR VEHICLE TRAVEL ESSENTIAL TO COMMERCE?

According to the Federal Highway Administration, “The long-term trend has been for vehicle travel, as measured in total [vehicle miles traveled], to increase at similar rates as economic growth, as measured in gross domestic product (GDP).”²⁹ “From time to time, this correlation may be discussed as an unchangeable fact, so that attempts to decrease VMT are seen as attempts to reduce economic growth or vibrancy. Of three studies of the relationship reviewed by the FHWA, one found that VMT caused changes in GDP—lending support to the premise that travel, and motor vehicle travel in particular, is essential to commerce and economic growth.”³⁰

Some research has focused on the positive public policy goals associated with reducing VMT such as fewer traffic fatalities and reduced emissions, and decoupling VMT and economic growth. One 2011 study found, “For the 98 urban areas included in this study, no significant causal relationship was found between VMT and economic activity in either direction.”³¹ The study authors went on to state, “These findings suggest that policies designed to reduce VMT may be used without the threat of compromising national economic activity.”³²

Others have observed that the link between VMT and economic activity has weakened over time. Chris McCahill of the State Smart Transportation Initiative, an initiative of 18 states to “advance environmental sustainability and equitable economic development,” examined total VMT, VMT per capita, and VMT per \$1,000 in gross domestic product. McCahill found that the relationship between VMT and economic activity “has weakened considerably over the past roughly 20 years. The number of miles driven per \$1,000 of GDP dropped from 240 in 1995 (where it had hovered since before 1970) to 190 in 2016.”³³

FINDINGS SUGGEST that policies designed to reduce VMT may be used without the threat of compromising national economic activity.

29 L. Ecola and M. Wachs. The RAND Corporation. U.S. DOT for Federal Highway Administration (December 2012). *Exploring the Relationship between Travel Demand and Economic Growth*. Available at https://www.fhwa.dot.gov/policy/otps/pubs/vmt_gdp/index.cfm.

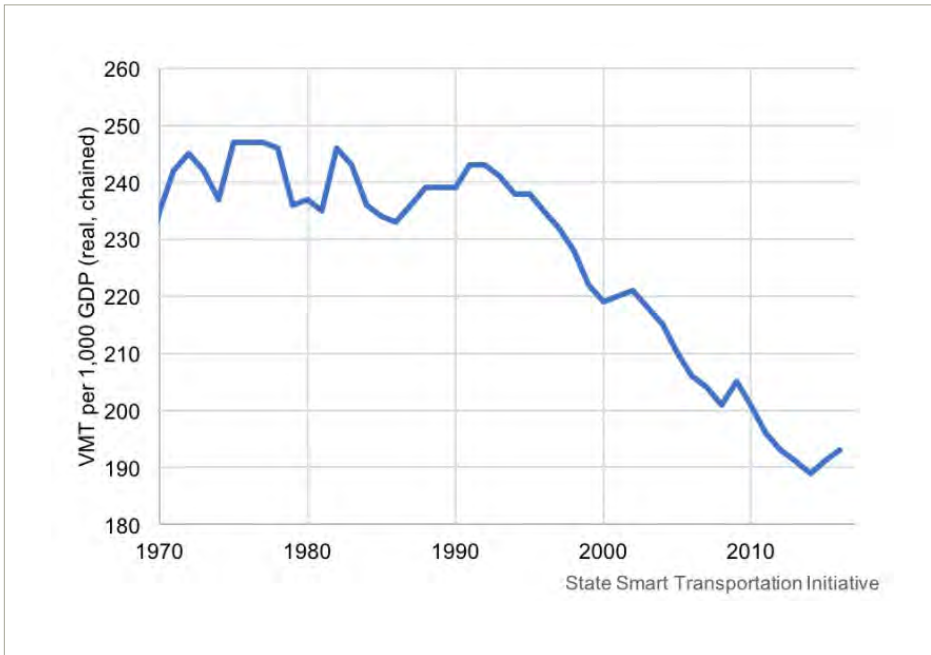
30 See Footnote 33 (under the section “Relationship Between VMT and Economic Growth”).

31 B. McMullen and M. Eckstein. Transportation Research Record 2297 (2012). *Relationship Between Vehicle Miles Traveled and Economic Activity*. Available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.404.6864&rep=rep1&type=pdf>.

32 See Footnote 35 at p. 28.

33 C. McCahill. State Smart Transportation Initiative (May 8, 2017). *VMT Growth Continued, Slowed in 2016*. Available at <https://www.ssti.us/2017/05/vmt-growth-continued-slowed-in-2016>.

FIGURE 3.3.4 - VEHICLE MILES TRAVELED PER \$1,000 GROSS DOMESTIC PRODUCT OVER TIME ³⁴



The FHWA’s 2012 report on “decoupling” economic growth and VMT growth suggested that more research is needed to understand the relationship between VMT and economic activity, VMT reduction policies over time, and how to weigh concerns such as sustainability against measures like GDP or VMT. ³⁵ While this research would be helpful at the national level, some places have adopted policies to reduce VMT and are producing positive results. As an example, Seattle and the state of Washington adopted policies to reduce VMT and made investments in transportation demand management, biking, walking, and transit to achieve those policies. These policy and investment choices have helped “decouple” driving and economic activity, with a 23% increase in jobs leading to only a 3% increase in single-occupancy vehicles. ³⁶



³⁴ See Footnote 37.

³⁵ See Footnote 33 (under the section “Directions for Future Research”).

³⁶ Association for Commuter Transportation. *How Seattle Increased Economic Development But Not VMT* (January 9, 2018). Available at <http://actweb.org/how-seattle-increased-economic-development-but-not-vmt>.

» EMBRACING EQUITY: DEVELOPMENT & DISPLACEMENT

Discussing positive property values associated with biking and walking improvements or the economic benefits of trails, placemaking, and other biking and walking improvements is incomplete without addressing whether everyone has access to those improvements or can share in the gains associated with them.

According to a report by the Robert Wood Johnson Foundation, residents of low-income communities “are less likely to encounter sidewalks, street/sidewalk lighting, marked crosswalks and traffic calming measures.”³⁷ Unfortunately, a 2014 study found that bicycle infrastructure investments in Chicago and Portland, OR were “bias[ed] towards increased cycling infrastructure investment in areas of existing or increasing privilege.”³⁸ This finding lends support to the idea that bicycling and walking investments may perpetuate different provisions of facilities for people of different incomes absent complementary policies to discourage displacement. Policies to discourage displacement include inclusionary zoning, which requires affordable units in new developments; owner occupancy requirements, which reduce absentee landlords and speculation by requiring owner occupancy; and mixed-housing types and sizes, which allow different price points to co-exist.³⁹



Bike shop mural, photo courtesy of Loyola Marymount University

37 K. Gibbs, S. J. Slater, N. Nicholson, D. C. Barker, and F. J. Chaloupka. Bridging the Gap Program, Health Policy Center, Institute for Health Research and Policy, University of Illinois at Chicago (2012). *Income Disparities in Street Features that Encourage Walking*. Available at http://www.bridgingthegapresearch.org/_asset/02fpi3/btg_street_walkability_FINAL_03-09-12.pdf.

38 Elizabeth Flanagan, Ugo Lachapelle, and Ahmed El-Geneidy. Research in Transportation Economics (August 2014). *Riding tandem: Does cycling infrastructure investment mirror gentrification and privilege in Portland, OR and Chicago, IL?* Available at <https://ideas.repec.org/a/eee/retrec/v60y-2016icp14-24.html>.

39 M. Fenton. American Walks. *Equity, Gentrification, and Building More Walkable Communities*. Available at http://americawalks.org/wp-content/uploads/2016/06/AW_WC_Fenton-Equity-Policies.pdf.

» MAKING THE HEALTH CONNECTION: CAPTURING HEALTH-ECONOMIC BENEFITS OF TRANSPORTATION PROJECTS

When transportation investments lead to increased property values or retail sales, these increases can be captured through property or sales taxes. This is often referred to as “value capture” and can be seen directly when a financing mechanism such as tax increment financing—where property taxes are increased according to the incremental property value gains of a defined area⁴⁰—is used. Unfortunately, no well-developed mechanism exists to capture the value of better health outcomes due to active transportation.

At a business level, several opportunities can be identified for value capture, including through reduced health insurance costs. For example, Quality Bicycle Products (QBP), a League of American Bicyclists’ Platinum-awarded Bicycle Friendly Business, realized a 4.4% reduction in employee healthcare costs (an estimated \$170,000) over three years by implementing bike-to-work incentives such as additional contributions to employee Health Savings Accounts and giving credits towards QBP products.⁴¹



40 Puget Sound Regional Council, Growing Transit Communities Partnership. *Value Capture Financing in Washington* (February 2013) at p. 12. Available at <https://www.psrc.org/sites/default/files/valuecapturefinancingreport13-printing.pdf>.

41 League of American Bicyclists. *Quality Bike Products Health and Well-being Program* (2011). Available at https://bikeleague.org/sites/default/files/quality_bike_products_health_reward_program.pdf.

At the community level, the Integrated Transport and Health Impact Modelling Tool (ITHIM) predicts the health benefits of increasing non-motorized transportation and estimates the financial impact of those benefits. Researchers in Nashville, Tennessee, used ITHIM to model three scenarios of increased walking and bicycling and reduced car travel, finding that “[a] cross the range of scenarios, results suggested that 24 to 123 deaths per year could be averted in the region through a 1%-5% reduction in the burden of several chronic diseases. This translated into \$10-\$63 million in estimated direct and indirect cost savings per year.”⁴²

A 2016 report by the Colorado Office of Economic Development and International Trade, the Colorado Department of Public Health and the Environment, the Colorado Department of Transportation, and the Colorado Pedals Project found \$510 million in health benefits for Coloradans due to biking and \$2.7 billion in health benefits due to walking based on the Health Economic Assessment Tool (HEAT) model.⁴³

These studies of health benefits due to bicycling and walking suggest that there is significant value that could be captured by communities if a mechanism to do so was developed.

NO WELL-DEVELOPED MECHANISM exists to capture the value of better health outcomes due to active transportation.



Manhattan from Brooklyn, photo courtesy of Ken McLeod

42 G. P. Whitfield, L. A. Meehan, N. Maizlish, and A. M. Wendel. Journal of Transportation Health (June 2017; 5:172-18). *The Integrated Transportation and Health Impact Modeling Tool in Nashville, Tennessee, USA: Implementation Steps and Lessons Learned*. Available at <https://www.ncbi.nlm.nih.gov/pubmed/27595067>.

43 BBC Research and Consulting, State of Colorado. Prepared for Colorado Office of Economic Development and International Trade. Economic and Health Benefits of Bicycling and Walking in Colorado: 2016 Report (Section I, p. 4). Available at <https://www.codot.gov/programs/bikeped/building-a-bike-ped-friendly-community/bike-walk-study/assets/report-economic-and-health-benefits-of-bicycling-and-walking-in-colorado-2016-report/view>.

SECTION IV: CONNECTED ROUTES

IN THIS SECTION, THE BENCHMARKING REPORT DISCUSSES TOPICS THAT LOOK AT CHANGING PERCEPTIONS ABOUT THE APPROPRIATE GOALS FOR TRANSPORTATION BY STRESSING CONNECTIVITY AND/OR ACCESSIBILITY OVER LONG-HELD METRICS OF MOBILITY. THIS GENERALLY MEANS PROMOTING TRANSPORTATION NETWORKS THAT PROVIDE MORE WAYS TO ACCESS PLACES WITHIN COMMUNITIES WITHIN A REASONABLE TIME RATHER THAN NETWORKS THAT MOVE PEOPLE FASTER OVER LONGER DISTANCES.

Use this section to find out about accessibility and connectivity efforts and how bicycling and walking can help better connect communities.

| | |
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| Topic 1: The Case for Focusing on Short Trips | 82 |
| Topic 2: The Case for Improving Mobility of Households Without Private Cars through Connectivity | 84 |
| Advancing Understanding: New Metrics Needed for Mobility | 87 |
| Embracing Equity: Connecting with Communities, Not Metrics | 89 |
| Making the Health Connection: Physical Activity Is Improved by Connectivity & Access | 90 |

Connectivity is an important part of biking and walking. To understand connectivity as a goal, it is important to think about the aims of a transportation system. For years, one of the primary goals of transportation agencies has been mobility. This section will focus on the community benefits emphasizing connectivity or accessibility.

Below are some definitions of mobility, connectivity, and accessibility that may help you understand the differences among these terms and how those differences might affect perceived success for an agency that embraces one term or another as its performance metric.

FIGURE 3.4.1 - DEFINITIONS OF MOBILITY AND CONNECTIVITY/ACCESSIBILITY

| MOBILITY | CONNECTIVITY OR ACCESSIBILITY |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>“Mobility refers to the time and costs required to travel. Mobility is higher when average travel times, variations in travel times, and travel costs are low. Indicators of mobility are indicators of travel times and costs, and variability in travel times and costs.”¹</p> | <p>“Accessibility (or just access) refers to the ability to reach desired goods, services, activities, and destinations (collectively called opportunities).”²</p> |
| <p>“Mobility is the ability to reach a destination in a time and cost that are satisfactory.”³</p> | <p>“Accessibility data allow communities and planners to measure how well transportation projects will improve connectivity between residents and daily destinations such as work, schools, health care, and grocery stores.”⁴</p> |
| | <p>“At its simplest level, network connectivity addresses the question, ‘Can I get where I want to go easily and safely?’ Multimodal network connectivity adds the dimension of travel choices to the picture: ‘Can I get where I want to go easily and safely in whatever way I choose—for example, walking, bicycling, using transit, or driving?’”⁵</p> |

1 National Academy of Sciences. *Key Transportation Indicators: Summary of a Workshop* (2002), Chapter 3 (Mobility Indicators) at p. 16. Available at <https://www.nap.edu/read/10404/chapter/4>.

2 T. Litman. Victoria Transportation Institute. *Measuring Transportation: Traffic, Mobility and Accessibility* (March 1, 2011) at p. 5. Available at <http://www.vtpi.org/measure.pdf>.

3 The Texas A&M University System. White Paper Prepared for the Urban Transportation Performance Measure Study by Texas Transportation Institute (May 2005). *The Keys to Estimating Mobility in Urban Areas Applying Definitions and Measures That Everyone Understands* at pp. 2-8. Available at <https://static.tti.tamu.edu/tti.tamu.edu/documents/TTI-2005-2.pdf>.

4 The League of American Bicyclists. H.R. 4241: *The Transportation Access and System Connection Act* (2018). Available at http://bikeleague.org/sites/default/files/NBS18_FactSheet_HR4241.pdf

5 Federal Highway Administration. *Guidebook for Measuring Multimodal Network Connectivity* (February 2018). Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_connectivity.

An example of how mobility has been central to transportation in the United States can be found in the Federal Highway Administration's mission statement: "[t]o improve mobility on our Nation's highways through national leadership, innovation, and program delivery." When assessing performance of this mission, FHWA uses the statistic of Travel Time Reliability⁶ as expressed through the Travel Time Index, "the ratio of the peak-period travel time to the free-flow travel time."⁷ Texas A&M University (TAMU) Transportation Institute's Urban Mobility reports based on the Travel Time Index (TTI) have existed for 20 years, and FHWA's Urban Congestion Reports have been published since 2009.⁸

According to a 2015 U.S. DOT white paper, "No national standard or database exists to measure the performance of the transportation system based on access or connectivity for residents or employees."⁹ TAMU recognizes there is a lack of connectivity or accessibility measures focused on access or total travel time for all users and a lack of sufficient data to estimate the travel times for all users. This lack of data is unfortunate as researchers at TAMU report that "[d]oor-to-door travel time... is best described with accessibility measures."¹⁰ According to researchers at TAMU, "There are few datasets at the national or regional level that provide travel by bicycle and walk modes or the share of work at home 'trips.' The ideal data [are] a combination of individual travel surveys for each development pattern type and additional count data for alternative modes"¹¹ This is in clear contrast to motor vehicle data, which is well developed and whose monitoring has been an institutional goal of federal, state, and local transportation agencies for decades.



6 Federal Highway Administration. *Key Outcome Measures – FHWA Strategic Plan* (thru January 2017). Available at https://www.fhwa.dot.gov/policy/measurementplandata_january2017.pdf.

7 Federal Highway Administration, Operations Performance Measurements Program. Office of Operations. *Urban Congestion Reports*. Available at https://ops.fhwa.dot.gov/perf_measurement/ucr.

8 See Footnote 7.

9 U.S. Department of Transportation. *Transportation Connectivity White Paper* (January 5, 2015). Available at p. 2 at <https://cms.dot.gov/sites/dot.gov/files/docs/Connectivity%20White%20Paper.pdf>.

10 See Footnote 3 at p. 4-3.

11 T. Lomax and D. Schrank. Texas Transportation Institute for Mobility Measurement in Urban Transportation (August 2010). *Developing a Total Travel Time Performance Measure: A Concept Paper* at p. 2. Available at <https://static.tti.tamu.edu/tti.tamu.edu/documents/TTI-2010-7.pdf>.

» MAKING THE CASE: MOVING FROM HOW FAR & HOW FAST TO WHY & WHETHER TRIPS ARE MADE

Topic 1 - The Case for Focusing on Short Trips

Short trips are often the best opportunities to walk or bike.¹² According to the 2017 National Household Travel Survey completed by the Federal Highway Administration, 93.8% of walking trips are under 2 miles, and 79.6% of biking trips are under 3 miles.¹³ Overall, 47.1% of all trips are shorter than 3 miles.¹⁴ These distances can be walked or biked in 15 minutes or less and have policy implications.

When planning for transit station access, the Federal Transit Administration has defined that “all pedestrian improvements located within one-half mile and all bicycle improvements located within three miles of a public transportation stop or station shall have a de facto physical and functional relationship to public transportation.”¹⁵ According to the policy, these distances are measured “as the crow flies,” rather than according to distances capable on existing bicycle and pedestrian networks.

This policy can be visualized in Figure 3.4.2, which shows how the Los Angeles County Metropolitan Transportation Authority (LA Metro) has interpreted it. The policy, as provided by FTA, shows a circle for access to stations, but “[i]n reality this access shed is compromised by the street grid, breaks in the access network, location and number of street crossings, and fluctuations in average speed of pedestrians due to crossing characteristics and sidewalk conditions.”¹⁶ The goal of LA Metro is to “coordinate infrastructure investments in station areas to extend the reach of transit, with the ultimate goal of increasing ridership.”¹⁷

SHORT TRIPS ARE OFTEN THE BEST OPPORTUNITIES TO WALK OR BIKE.

According to the 2017 National Household Travel Survey completed by the Federal Highway Administration, 93.8% of walking trips are under 2 miles, and 79.6% of biking trips are under 3 miles.

¹² Brian McKenzie. U.S. Census Bureau. *Modes Less Traveled – Bicycling and Walking to Work in the United States: 2008-2012* (2014). Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf>.

¹³ Federal Highway Administration. 2017 National Household Travel Survey data. Available at <https://nhts.ornl.gov>.

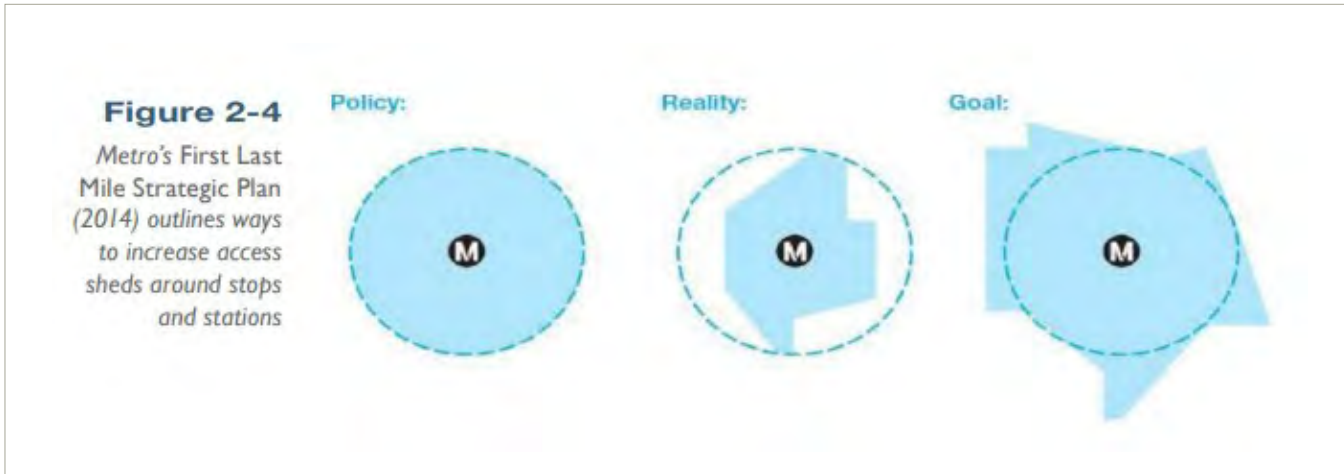
¹⁴ See Footnote 13.

¹⁵ Federal Transit Administration. [Docket No. FTA-2009-0052] *Federal Register*/Vol. 76, No.161 (August 19, 2011). *Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements under Federal Transit Law*. Available at <https://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf>.

¹⁶ LA Metro. *First Mile, Last Mile Strategic Plan* (2014). Available at https://media.metro.net/docs/First_Last_Mile_Strategic_Plan.pdf.

¹⁷ See Footnote 16.

FIGURE 3.4.2 - TRANSIT STATION ACCESS VISUALIZED—A POLICY PERSPECTIVE ¹⁸



While data and policy tell us that people will make short trips by biking and walking, these trips can encounter a variety of barriers. Physical barriers might include railways, highways, and waterways; high-speed roadways without pedestrian or bicyclist infrastructure; and long distances, both from origin to destination and imposed by a lack of safe or legal crossings. These barriers are an ideal place to focus interventions aimed at improving connectivity or accessibility such as integrating transportation and land use planning, reducing distances between key destinations, and improving local pedestrian and bicycle infrastructure.¹⁹ Each of these interventions can reduce the time needed by people biking and walking to access community resources via short trips.

When people communicate that bicyclist and pedestrian infrastructure goes unused, they may miss the barriers and lack of connectivity that prevent its use. A recent study of bicyclist and pedestrian attitudes and behaviors, conducted

by National Highway Traffic Safety Administration (NHTSA), found that the most common reason for not using a nearby bike path, bike lane, or sidewalk was that the facility did not go where the traveler needed to go.²⁰

Similarly, the second highest reason reported for not using sidewalks was that they did not exist along the desired route.²¹ This type of data suggest that improved wayfinding (which provides signage that shows where people can go on bicycle or pedestrian infrastructure) and more comprehensive networks (so bicycle and pedestrian infrastructure exists along desired routes) may be effective at increasing biking and walking, and the use of bicyclist and pedestrian infrastructure.

THE MOST COMMON REASON for not using a nearby bike path, bike lane, or sidewalk was that the facility did not go where the traveler needed to go.

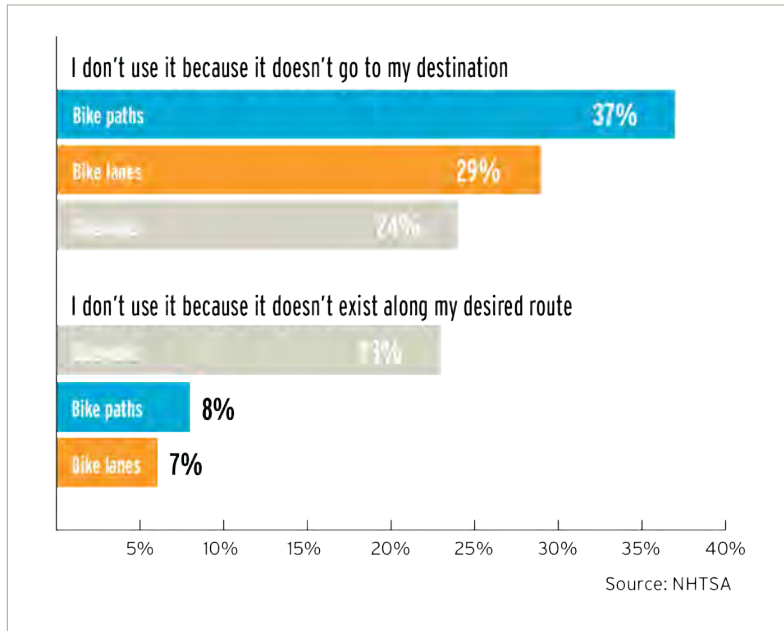
¹⁸ Transportation Research & Education Center, Portland State University. Federal Transit Administration. FTA Rep-No. 0111. *Manual on Pedestrian and Bicycle Connections to Transit* (August 2017) at p. 17. Available at <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/64496/ftareportno0111.pdf>.

¹⁹ U.S. Department of Transportation. *Connectivity—Relationship to Public Health*. Available at <https://www.transportation.gov/mission/health/connectivity>.

²⁰ National Highway Traffic Safety Administration. 2012 National Survey of Bicyclist and Pedestrian Attitudes and Behavior, Volume 2: Findings Report (October 2013). Available at <http://www.nhtsa.gov/staticfiles/nti/pdf/811841b.pdf>.

²¹ See Footnote 20.

FIGURE 3.4.3 - WHY PEOPLE DON'T USE BICYCLING & WALKING INFRASTRUCTURE ²²



Topic 2 - The Case for Improving Mobility of Households Without Private Cars Through Connectivity

Several types of households may lack private cars and face mobility challenges: 1) older adults who have lost the ability to drive, 2) lower-income households that lack ability to pay the costs associated with a private vehicle or choose to prioritize other

expenses, ²³ 3) youth without a driver's license, and 4) certain disabled populations. ²⁴ According to the American Public Health Association, "Nearly one-third of the U.S. population—including children, older adults, people with disabilities, low-income people, women, and rural residents—are transportation disadvantaged (e.g., they are unable to transport themselves or purchase transportation)." ²⁵

Improving connectivity for people without access to a private car can take a variety of interventions, depending on existing connectivity options and reasons for lacking access to a private car. In some cases, lack of access to a private car may be a choice made by persons in a household because of sufficient existing connectivity and transportation options. In other cases, lack of access to a private car may mean significantly reduced ability to access opportunities compared to people with access to a private car. In that case, interventions could likely focus on improving connectivity and transportation options, including walking, biking, transit, and shared mobility services.

A 2011 report by the Brookings Institution found that the typical zero-vehicle household can reach 40.6% of metropolitan jobs. ²⁶ However, the report noted a sharp difference in the number of jobs that could be reached by zero-vehicle households in cities vs. suburbs. Zero-vehicle households that are in cities, were found to be able to reach 47.1% of metro-area

²² See Footnote 20.

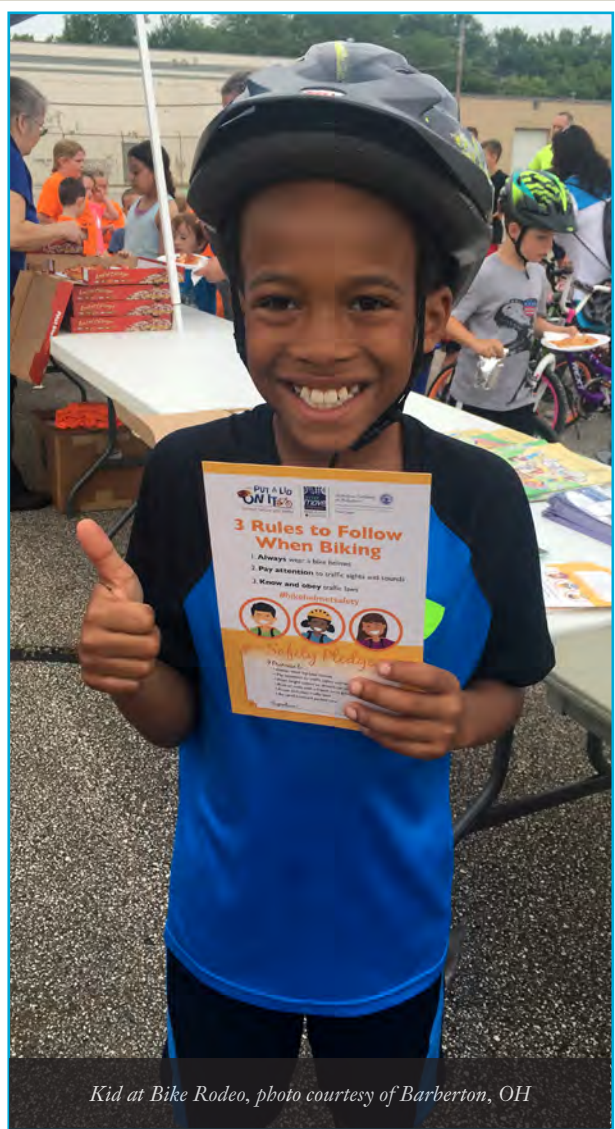
²³ Center for Transit-oriented Development. *Creating Connected Communities: A Guidebook for Improving Transportation Connections for Low- and Moderate-Income Households in Small and Mid-Sized Cities* (April 2014). Available at http://www.huduser.org/portal/publications/pdf/Creating_Cntted_Comm.pdf.

²⁴ M. Fernald (Ed.). Joint Center for Housing Studies, Harvard University. *Housing America's Older Adults: Meeting the Needs of an Aging Population* (2014). Available at http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/jchs-housing_america's_older_adults_2014.pdf.

²⁵ American Public Health Association. Policy Number: 20099. *Improving Health through Transportation—Land-Use Policies* (November 10, 2009). Available at <https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/31/08/21/improving-health-through-transportation-and-land-use-policies>.

²⁶ A. Tomer. Metropolitan Policy Program, Brookings. *Transit Access and Zero—Vehicle Households* (August 2011) at p. 6. Available at https://www.brookings.edu/wp-content/uploads/2016/06/0818_transportation_tomer.pdf.

jobs, almost twice the amount of jobs reachable for zero-vehicle households in suburban areas (25.8% of metro-area jobs).²⁷ In 2014, the U.S. Department of Housing and Urban Development published a guidebook for improving transportation connections for low- and moderate-income households in small and mid-sized cities that included a focus on improving bicycling and walking connections and committed affordable housing in denser areas.²⁸



Kid at Bike Rodeo, photo courtesy of Barberton, OH

Topic 3 - The Case for Identifying & Addressing Missing Links to Increase Connectivity

Our current built environment places difficult obstacles in the paths of people who would like to bike and walk. Several analyses using Level of Traffic Stress methodologies have found that low-stress bicycle facilities are often isolated from each other by high-stress roads, intersections, or limited-access highways.²⁹ In one example, Montgomery County, a Maryland county in the Washington, DC metro area, analyzed over 3,500 miles of streets and trails and found that “while three-quarters of the network qualifies as a low-stress environment, these low-stress areas form ‘islands of connectivity’ separated by major highways and other high-speed roads.”³⁰

Providing connections between existing networks can provide a great improvement for accessibility. In one example, Madison, Wisconsin, found that an overpass or underpass of a limited-access highway could increase access to jobs, shops, and other opportunities within a 15-minute bike ride for more than 5,000 households.³¹

Identifying and addressing missing links in bicycle and pedestrian networks can also be effective ways of increasing the potential access to transit. In one example, planners for the Washington Metropolitan Area Transit Authority found that a large number of people driving to a park and

²⁷ See Footnote 26 at p. 6.

²⁸ See Footnote 23.

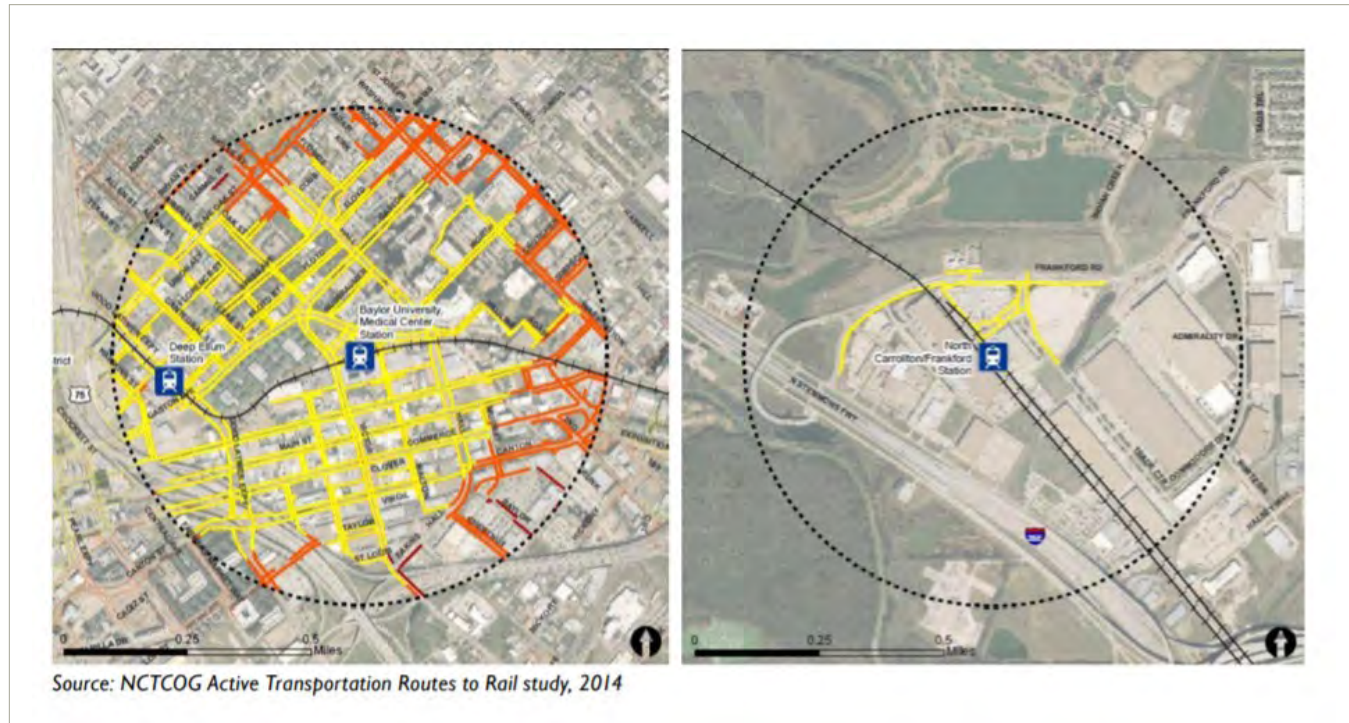
²⁹ Fehr Peers. *Multi-Modal Level of Service Toolkit*. Bicycling Level of Traffic Stress (2014). Available at <http://asap.fehrandpeers.com/wp-content/uploads/2014/08/MMLoS-Tool-Level-of-Traffic-Stress.pdf> (“Currently, most U.S. cities have “islands” of low-stress connectivity for bicycles, but these islands are separated by freeways, high-speed arterials, and other barriers that make bicycling unattractive to most people.”)

³⁰ Montgomery County Planning. *Montgomery County Bicycle Master Plan; Appendix D: Level of Traffic Stress Methodology*. Available at <http://montgomeryplanning.org/wp-content/uploads/2017/11/Appendix-D.pdf>.

³¹ See Footnote 4.

ride lot lived within one to three miles of the lot.³² The proposed reasons for this choice, which prevents people who live further away from using the lot, included a fast-moving multi-lane road bordering the lot, and no direct access except by walking or biking along that fast-moving road. The agency determined that a pathway that provided an alternative access point would bring 1,200 households within a half-mile walk or ride of the transit station, representing potentially \$300,000 in transit fare revenue each year.³³ Similar patterns of limited station access can be observed at many transit stations, leading to renewed interest in station evaluation studies and improving biking and walking networks around transit.³⁴

FIGURE 3.4.4 - TRANSIT STATION ACCESS VISUALIZED—A REAL-WORLD PERSPECTIVE³⁵



32 PlanItMetro. Washington Metropolitan Area Transit Authority. *South Ave Station Auto Access “Hotspots”* (Planning Studies, May 13, 2013). Available at <https://planitmetro.com/2013/05/13/southern-ave-station-auto-access-hotspots>.

33 J. Carrington. Washington Metropolitan Area Transit Authority, Metro. Office of Planning. *Connecting Communities through Walkable Station Areas*. GIS in Transit Conference (September 3, 2015) at slide 22. Available at <https://transitgis.org/download/URISA-GIS-In-Transit-JC-Presentation-2015-08-26sm.pdf>.

34 See Footnote 18.

35 See Footnote 18 at p. 14.

» ADVANCING UNDERSTANDING: NEW METRICS NEEDED FOR MOBILITY

Federal, state, and local agencies that have developed planning, engineering, and design processes based on available mobility metrics cannot move to new accessibility and/or connectivity metrics overnight. This overarching process has at least three sub-processes:

1. **RECOGNIZING THE NEED AND OPPORTUNITY** for connectivity standards or other non-mobility performance measures
2. **CREATING, STANDARDIZING, AND PROMOTING** new connectivity standards
3. **IDENTIFYING, EVALUATING, AND DETERMINING** the continued need for the use of mobility standards or how mobility standards and newer connectivity standards could be weighed in public and expert debates about transportation improvements.

This process can be seen in a recent report from the U.S. Department of Transportation (DOT) that discussed a “number of states, MPOs, and industry groups are working

to develop and implement new performance metrics distinct from the traditional automobile level of service (LOS) model.³⁶ Each of the case studies begins by stating a “Case for Change,”³⁷ moving into discussion of implementation and application of performance measures. Lastly, the “Insights and Lessons Learned” concludes

with a summary of how the agency’s experience with new performance metrics affects its continued use of traditional mobility metrics.

It is worth noting that the U.S. DOT spends time discussing misconceptions about how mobility measures are embedded in

transportation policy, stating, “No federal highway design regulations require the use of [level of service] targets explicitly.... [G]uidance in the Green Book and [Highway Capacity Manual] may be misinterpreted by some state and local transportation experts and decision makers, who may mistakenly perceive the use of LOS alone as federally required.”³⁸

FEDERAL, STATE, AND LOCAL AGENCIES that have developed planning, engineering, and design processes based on available mobility metrics cannot move to new accessibility and/or connectivity metrics overnight.

36 Office of Policy, Transportation Policy, U.S. Department of Transportation. *Evolving Use of Level of Services Metrics in Transportation Analysis* (December 7, 2017). Available at <https://www.transportation.gov/office-policy/transportation-policy/level-service-case-studies>.

37 See Footnote 36.

38 See Footnote 36 at 3.

This suggests that many agencies have yet to take the step of recognizing the need and opportunity for new metrics, or they believe they are constrained from following those metrics. For bicycling and walking, the Federal Highway Administration has supported development of multimodal connectivity metrics by looking at various possible metrics such as Bicycle Level of Service, Bicycle Level of Traffic Stress, Bicycle Low-Stress Connectivity, Bicycle Route Quality Index, Pedestrian Index of the Environment, Pedestrian Level of Service, and Pedestrian Level of Traffic Stress.³⁹

These types of performance measures have been included in proposed legislation such as The Transportation Access and System Connection Act of 2017.⁴⁰ The act would create a pilot project to make accessibility data available to five states and 10 metropolitan areas (including six smaller Metropolitan Planning Organizations) to test how that data can be used to optimize transportation systems across modes and communities.⁴¹ This diversity of possible metrics presents a challenge, since standards are not yet set, and communities may be concerned about basing their work on a metric that has not been standardized.



Cyclovía, photo courtesy of New Brunswick, NJ

³⁹ See Footnote 5.

⁴⁰ H.R.4241 — 115th Congress (2017-2018). *The Transportation Access and System Connection Act of 2017*. Available at <https://www.congress.gov/bill/115th-congress/house-bill/4241>.

⁴¹ See Footnote 4.

» EMBRACING EQUITY: CONNECTING WITH COMMUNITIES, NOT METRICS

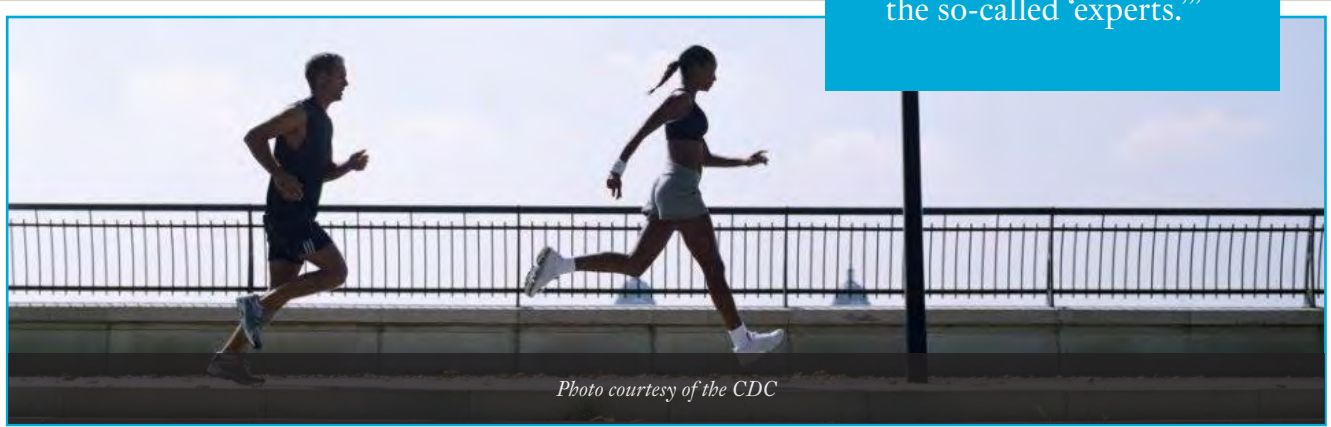
Most of this chapter has focused on mobility and accessibility issues through the lens of developing quantitative tools to be used by experts. Other qualitative data can inform mobility and accessibility issues.

While the process of developing expert tools for transportation is important for relevant agencies, consultants, and other experts, it cannot be the only part of the shift of focus from mobility to something broader than how far and how fast people can travel. A recent poll found that 53% of Americans agreed with the statement, “Everyday Americans understand what the government should do better than the so-called ‘experts.’”⁴² Awareness of current views provides organizations working to improve transportation and communities an opportunity to work to promote new expert systems and engage communities, so that new metrics reflect the needs of communities.

Traditional emphasis on transportation planning and engineering expertise has often been criticized by impacted communities as ignoring historic community distrust of and disillusionment with government agencies. This is particularly acute when they use approaches that have sometimes been characterized as decide, announce, defend.

As biking and walking partners work with agencies to develop new mobility measures focused on connectivity and accessibility, it is important to not simply replace one form of non-inclusive data-driven decision-making for another.

A RECENT POLL FOUND THAT 53% OF AMERICANS agreed with the statement, “Everyday Americans understand what the government should do better than the so-called ‘experts.’”



⁴² Huffington Post, Politics. *Americans Don't Think the Government Needs 'Experts.'* December 8, 2016. Available at https://www.huffingtonpost.com/entry/poll-civil-service-experts_us_5849d515e4b04c8e2baeede9.

» MAKING THE HEALTH CONNECTION: PHYSICAL ACTIVITY IS IMPROVED BY CONNECTIVITY & ACCESS

Connectivity and access are two interventions promoted by The Guide to Community Preventive Services (Community Guide), which collects evidence-based findings of the Community Preventive Services Task Force (CPSTF).⁴³ To improve physical activity, the Community Guide recommends built environment strategies that combine one or more interventions to improve pedestrian or bicycle transportation systems with one or more land use and environmental design interventions to increase physical activity.⁴⁴ The strategies recommended include the following:

1

TRANSPORTATION SYSTEM INTERVENTIONS INCLUDE ONE OR MORE POLICIES & PROJECTS DESIGNED TO INCREASE OR IMPROVE THE FOLLOWING:

- Street connectivity
- Sidewalk and trail infrastructure
- Bicycle infrastructure
- Public transit infrastructure and access

2

LAND USE AND ENVIRONMENTAL DESIGN INTERVENTIONS INCLUDE ONE OR MORE POLICIES, DESIGNS, OR PROJECTS TO CREATE OR ENHANCE THE FOLLOWING:

- Mixed land use environments to increase the diversity and proximity of local destinations where people live, work, and spend their recreation and leisure time
- Access to parks and other public or private recreational facilities

⁴³ The Community Guide. *Community Preventive Services Task Force Findings*. Available at <https://www.thecommunityguide.org/task-force-findings>.

⁴⁴ The Community Guide. *Understanding the Task Force Findings and Recommendations*. Available at <https://www.thecommunityguide.org/task-force/understanding-task-force-findings-and-recommendations>.

These intervention suggestions are based on an evidence review that looked at 90 studies and found that transportation system improvements and land use and environmental design interventions alone do not have the same robust positive effects on physical activity as combined approaches.⁴⁵

An example of effective application of the above intervention strategies is the Minnesota Walks collaboration between the Minnesota Department of Transportation and Minnesota Department of Public Health.⁴⁶ This collaboration identified a goal to “[b]etter coordinate multimodal transportation networks and land use decisions to improve characteristics of the built environment that impact walking, such as design and the location of destinations” and provided 17 strategies for state, regional, and local entities to pursue in pursuit of that goal.⁴⁷ These strategies involved land use regulations, such as eliminating minimum parking requirements, and transportation system improvements, such as investments in pedestrian infrastructure.



From left, League ED Bill Nesper, WABA ED Greg Billing, and Jeff Maroitian Director of DDOT. Photo by Brian Palmer

45 The Community Guide. *Task Force Finding and Rationale Statement* (ratified December 2016). Physical Activity: Built Environment Approaches Combining Transportation System Interventions with Land Use and Environmental Design. Available at <https://www.thecommunityguide.org/sites/default/files/assets/PA-Built-Environments.pdf>

46 Minnesota Departments of Transportation and Health. *Minnesota Walks*. Available at <http://www.dot.state.mn.us/peds/plan/pdf/minnesota-walks-2017-final.pdf>.

47 See Footnote 46 at pp. 26-27.

SECTION V: INFRASTRUCTURE *FOR PHYSICAL ACTIVITY*

IN THIS SECTION, THE BENCHMARKING REPORT EXPLORES HOW AND WHETHER INFRASTRUCTURE FOR BICYCLING AND WALKING IS PROVIDED. THIS INCLUDES THE TYPES OF PEOPLE SERVED BY BICYCLING AND WALKING INFRASTRUCTURE AND WAYS THAT THE BENCHMARKING REPORT HAS TRACKED INFRASTRUCTURE OVER TIME.

Use this section to learn about different types of bicycle and pedestrian infrastructure and ways they promote biking and walking safety.

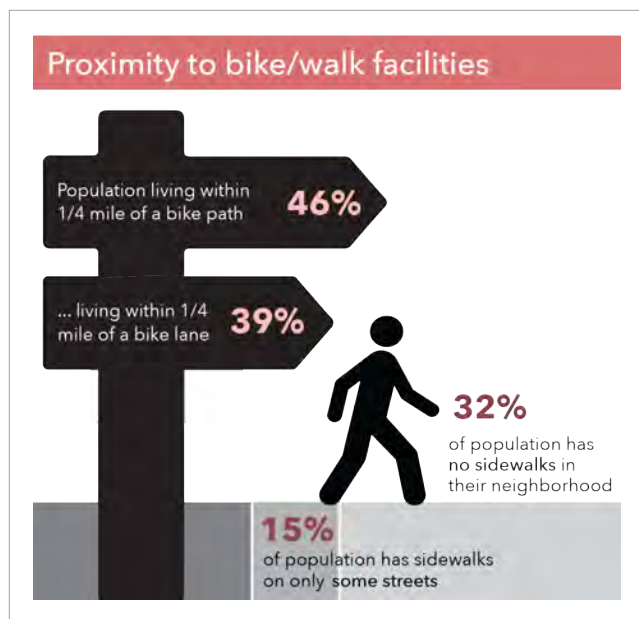
| | |
|-----------------------------------------------------------------------------------------------------------------------|-----|
| Making the Case: Bicycle & Pedestrian Infrastructure Improves Safety for All | 93 |
| Topic 1: Advances in Bicycle & Pedestrian Infrastructure | 93 |
| Topic 2: How Bicyclist & Pedestrian Infrastructure Improves Safety | 99 |
| Topic 3: The Case for Bicycle Infrastructure Increasing Use | 101 |
| Advancing Understanding: The Need for Better Pedestrian & Bicycle Network Data | 102 |
| Making the Health Connection: The Surgeon General's Call to Action to Promote Walking & Walkable Communities | 106 |

» MAKING THE CASE: BICYCLE & PEDESTRIAN INFRASTRUCTURE IMPROVES SAFETY FOR ALL

Topic 1: Advances in Bicycle & Pedestrian Infrastructure

In the initial Benchmarking Report on Bicycling and Walking published in 2007, the authors focused on providing basic information on three types of bicyclist and pedestrian infrastructure: signed bike routes, on-street striped bike lanes, and multi-use paths.¹ In each subsequent editions of the report, discussion of bicycle and pedestrian infrastructure expanded, with an increasing focus on innovative and specialized facilities uncommon in most cities.

FIGURE 3.5.1 - PROXIMITY TO FACILITIES FOR BIKING & WALKING²



While the Benchmarking Report often highlights innovative and specialized infrastructure that cities and states can use to make bicycling and walking safer and more comfortable, surveys suggest that many Americans lack access to basic infrastructure for bicycling and walking. According to a 2012 survey by the National Highway Traffic Safety Administration (NHTSA), 46% of individual respondents across the U.S. stated that they live within a quarter mile of a bike path (“paths away from the road on which bikes can travel”). Only 39% stated that they live within a quarter-mile of a bike lane (“marked lanes on a public road reserved for bikes to travel”). Thirty-two percent of respondents stated that no streets in their neighborhood had sidewalks, and an additional 15% said that only some streets had sidewalks.

¹ The Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2007 Benchmarking Report* at p. 66. Available at <https://bikeleague.org/sites/default/files/2007BenchmarkingReport.pdf>.

² National Highway Traffic Safety Administration. (2013, October). *2012 National Survey of Bicyclist and Pedestrian Attitudes and Behavior*, Volume 2: Findings Report. Available at <http://www.nhtsa.gov/staticfiles/nti/pdf/811841b.pdf>.

FIGURE 3.5.2 - INNOVATIVE OR SPECIALIZED INFRASTRUCTURE FOR BIKING & WALKING FROM PAST BENCHMARKING REPORTS

| INFRASTRUCTURE TYPE | DESCRIPTION | FIRST MENTION IN BENCHMARKING REPORT |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Shared Lane Marking | Often called "sharrows," these markings resemble a bicycle and an arrow painted on a roadway to indicate the direction of travel for bicycles, as well as motorized vehicles. | 2010 |
| Bicycle Boulevards | Also called "neighborhood greenways," a bicycle boulevard aims to give priority to bicyclists by optimizing the infrastructure for bicycle traffic and discouraging motor vehicle traffic. These routes often use "turned stop signs," allowing bicyclists to progress without stopping along the boulevard while cross traffic must stop. | 2010 |
| Woonerfs/Living Streets/Home Zones/Shared Streets | Referred to under a variety of terms, these streets share the concept of prioritizing pedestrians and bicyclists, and keeping motor vehicles at low speeds. | 2010 |
| Colored Bike Lanes | Bicycle lanes with special coloring provide a distinct visual sign that the space is designated for bicyclists. | 2010 |
| Bicycle Traffic Signals | Bicycle traffic signals have specific symbols to direct bicycle traffic. | 2010 |
| Bike Box | This pavement marking uses two stop lines—an advanced stop line for motor vehicles and a stop line closer to the intersection for bicyclists. This allows bicyclists to get a head start when the light turns green to more safely proceed ahead or make a left turn. | 2012 |
| Cycle Track/ Protected Bike Lane/ Separated Bike Lane | This bicycle lane uses physical barriers to separate bike lanes from both cars and sidewalks, creating safe, inviting spaces for people to bike. | 2012 |
| Contraflow Bike Lane | A designated bicycle lane is marked to allow bicyclists to travel against the flow of traffic on a one-way street. | 2012 |
| Bike Share | A public bike sharing system is where bicycles are made available to individuals for short-term use. Bicycles can generally be picked up and dropped off at various docking stations located throughout a system's service area. | 2014 |
| Bike Corrals | This bicycle parking structure converts one vehicle parking space into a parking space for 10 or more bicycles. Corrals are usually located on the street along the curb. | 2014 |

The 2016 Benchmarking Report did not add any additional specialized infrastructure and did not report on the existence of most of the specialized facilities listed above.

Of note, too, is that the innovative and specialized infrastructure types reported on in the past Benchmarking Reports overwhelmingly deal with infrastructure for people who bicycle. To counter any impression that there are not similar innovations or the development of specialized pedestrian infrastructure technologies, several additional pedestrian facilities are identified below.

FIGURE 3.5.3 - ADDITIONAL INNOVATIVE OR SPECIALIZED INFRASTRUCTURE FOR WALKING

| INFRASTRUCTURE TYPE | DESCRIPTION | WHERE TO FIND MORE INFORMATION |
|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Leading Pedestrian Interval | A dedicated pedestrian signal phase at a signalized intersection provides a 3- to 7-second head start for pedestrians before the corresponding green signal for vehicle traffic in the same direction of travel. | NACTO Urban Street Design Guide ³ Pedbikesafe.org ⁴ |
| Rectangular Rapid Flashing Beacons (RRFB) | RRFBs, which supplement standard pedestrian warning signs at unsignalized intersections, use amber LEDs that flash in an irregular pattern to draw attention to a pedestrian crossing a street. RRFBs are activated by a pedestrian, so they only flash when a pedestrian is present. In 2018 a patent dispute related to RRFBs was resolved, and FHWA provided new MUTCD interim approval for RRFB use. | FHWA Interim Approval 21 ⁵ Alta Planning's Discussion of rescission ⁶ Pedbikesafe.org ⁷ |
| High-Intensity Activated CrossWalk (HAWK) beacon or Pedestrian Hybrid Beacon | Developed by the City of Tucson, AZ, in the 1990s to assist pedestrians at unsignalized crossing locations, this infrastructure involves a variety of lighted beacons, signage, markings, and pedestrian detectors (such as pushbuttons). The overall effect is to allow a pedestrian to prompt a red light for traffic and cross safely during that time. | America Walks ⁸ Pedbikesafe.org ⁹ ITE's Unsignalized Intersection Improvement Guide ¹⁰ |
| Raised Pedestrian Crossings | These are raised speed tables that cover an entire crosswalk, so the crosswalk is on the elevated intersection at the same level as the sidewalk, eliminating the need for curb ramps for pedestrians. Often located at a midblock crossing where safety is a priority, and vehicle speeds are a concern. | Pedbikesafe.org ¹¹ NACTO Urban Street Design Guide ¹² ITE's Designing Walkable Urban Thoroughfares ¹³ |

3 National Association of City Transportation Officials. *Urban Street Design Guide: Leading Pedestrian Interval*. Adapted from *Urban Street Design Guide*, Island Press (October 2013). Available at

4 PEDSAFE. Federal Highway Administration. *Pedestrian Safety Guide and Countermeasure Selection System--Leading Pedestrian Interval*. Available at http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=12.

5 M. Knopp. Federal Highway Administration Policy Memorandum, U.S. DOT. *Interim Approval 21—Rectangular Rapid-Flashing Beacons at Crosswalks* (March 20, 2018). Available at https://mutcd.fhwa.dot.gov/resources/interim_approval/ia21/index.htm.

6 Alta Planning + Design. *Rescission of Interim Approval of Rectangular Rapid Flashing Beacons* (Updated March 20, 2018). Available at <https://altaplanning.com/news/fhwa-rescission-interim-approval-rectangular-rapid-flashing-beacons>.

7 See Footnote 4—*Rectangular Rapid Flashing Beacon*.

8 America Walks. *Pedestrian Hybrid or HAWK Beacon*. Available at <http://americawalks.org/pedestrian-hybrid-or-hawk-beacon>.

9 See Footnote 4—*Pedestrian Hybrid Beacon*.

10 CTC & Associates LLC. Bureau of Highway Operations. Transportation Synthesis Report Research and Library Services. *HAWK Pedestrian Signals: A Survey of National Guidance, State Practice, and Related Research* (January 29, 2010). Available at <http://www.ite.org/uiig/mutcd.asp> (discussing a variety of HAWK-like treatments and their compliance with the MUTCD).

11 See Footnote 4—*Raised Pedestrian Crossings*.

12 See Footnote 3—*Raised Intersections*.

13 Institute of Transportation Engineers. *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* at p. 9. Available at <https://ecommerce.ite.org/IMIS/ItemDetail?iProductCode=RP-036A-E>.

FIGURE 3.5.3 (CONTINUED) - ADDITIONAL INNOVATIVE OR SPECIALIZED INFRASTRUCTURE FOR WALKING

| INFRASTRUCTURE TYPE | DESCRIPTION | WHERE TO FIND MORE INFORMATION |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Tactile Walking Surface Indicators/detectable Warning Surface | The use of a detectable surface treatment such as truncated domes or elongated bars alerts pedestrians with vision impairments to the edge of a roadway, potentially dangerous obstacle, or other decision-making point. ¹⁴ | United States Access Board's 2011 Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way (Proposed PROWAG) |
| Pedestrian Lane | A pedestrian lane is separated from the adjacent travel lanes with some form of longitudinal marking, rather than being physically separated as in the vertical separation provided by a sidewalk. It is an interim facility that should be replaced by a sidewalk when possible. ¹⁵ | Small Town and Rural Multimodal Networks ¹⁶ |
| Yield Roadway | A yield roadway is similar to a shared street, but its defining feature is that the "paved two-way travel lane should be narrow to encourage slow travel speeds and require courtesy yielding when vehicles traveling in opposite directions meet." ¹⁷ | Small Town and Rural Multimodal Networks ¹⁸ |

The recent increase in specialized infrastructure for people who bike and walk corresponds with the publication of a wide variety of design guidance on this type of infrastructure. According to data compiled by the Pedestrian and Bicyclist Information Center (PBIC), at least 27 design guides for biking and walking infrastructure have been published since 2004.¹⁹

14 Federal Highway Administration. *Accessible Shared Streets* at p. 9. Available at <https://www.ssti.us/wp/wp-content/uploads/2018/03/to-upload-fhwahep17096.pdf>.

15 Federal Highway Administration. Publication Number: FHWA-HEP-VI-024. *Small Towns and Rural Multimodal Networks* (December 2016) at pp. 507 and 5-8. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf.

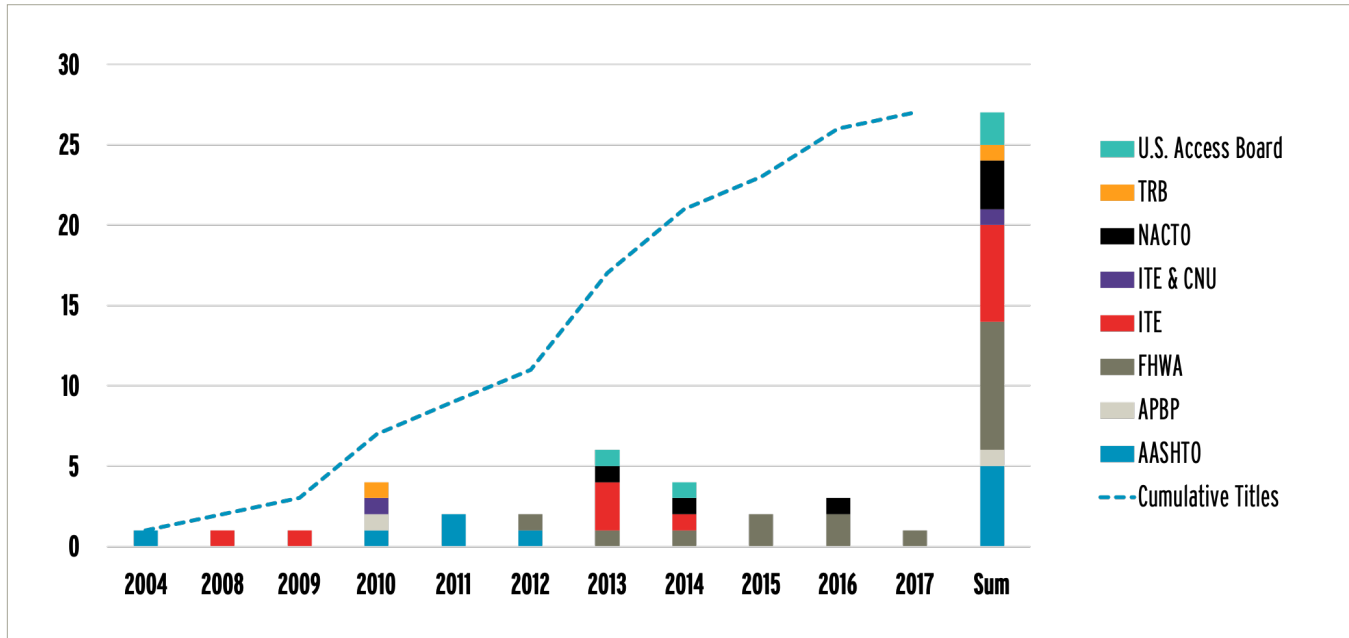
16 See Footnote 15.

17 See Footnote 15 at pp. 2-5 to 2-8.

18 See Footnote 15.

19 Pedestrian and Bicycle Information Center. Design Resource Index. Available at http://www.pedbikeinfo.org/planning/facilities_designresourceindex.cfm retrieved on 2/19/2018. (chart adapted from data)

FIGURE 3.5.4 - RECENT DESIGN GUIDANCE FOR BIKING & WALKING BY PUBLISHER OVER TIME



In coming years, many of the older design guides in the PBIC’s data will be updated, providing opportunities to standardize many “innovative” designs. Standardization is needed, given the variety of labels used for various infrastructure types previously discussed in the Benchmarking Report. AASHTO is likely to update its influential Guide for the Planning and Design of Bicycle Facilities in 2019. It will be interesting to see how or whether the AASHTO update incorporates publications from ITE, FHWA, NACTO, and the U.S. Access Board published since AASHTO last released a bicyclist or pedestrian-related design guide in 2012.

Three additional bicycle infrastructure types were suggested by the Benchmarking Project team for inclusion.



FIGURE 3.5.5 - ADDITIONAL INNOVATIVE OR SPECIALIZED INFRASTRUCTURE FOR BIKING

| INFRASTRUCTURE TYPE | DESCRIPTION | WHERE TO FIND MORE INFORMATION |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Two-Stage turn Queue Box | The two-stage bicycle turn box is an area set aside for bicyclists to queue to turn at a signalized intersection outside of the traveled path of motor vehicles and other bicycles. ²⁰ The first stage is proceeding through an intersection to the queue area, and the second stage is proceeding from the queue area through the intersection in another direction. | NACTO Urban Street Design Guide ²¹ MUTCD Interim Approval ²² |
| Protected Intersection | A protected intersection provides bicyclists with protection from turning vehicles by using corner refuge islands. Bicyclists are set back from the intersection, make two-stage left turns, and can freely make right turns. | http://www.protectedintersection.com/ Evolution of the Protected Intersection ²³ Designing the Protected Intersection ²⁴ MassDOT Separated Bike Lane Planning and Design Guide ²⁵ |
| Advisory Bike Lanes | Advisory bike lanes use a dashed interior stripe to indicate that motor vehicles may enter an advisory bike lane. Advisory bike lanes are recommended for low-speed and volume narrow roadways where entering the advisory bike lane is necessary for two motor vehicles to pass one another. | https://www.advisorybikelanes.com ²⁶ Advisory Bike Lanes in North America ²⁷ |

20 M. Knopp. Federal Highway Administration. *Interim Approval for Optional Use of Two-Stage Bicycle Turn Boxes* (July 17, 2017). Available at https://mutcd.fhwa.dot.gov/resources/interim_approval/ia20/index.htm.

21 NACTO *Urban Bikeway Design Guide, Two-Stage Turn Queue Boxes*. Available at <https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/two-stage-turn-queue-boxes>.

22 See Footnote 20.

23 J. Gilpin, N. Falbo, M. Repsch, and A. Zimmerman. *Alta Planning + Design. Lessons Learned: Evolution of the Protected Intersection* (December 2015). Available at https://altaplanning.com/wp-content/uploads/Evolution-of-the-Protected-Intersection_ALTA-2015.pdf.

24 Fehr and Peers. *Multimodal Safety Challenges Associated with Designing the Protected ‘Dutch’ Intersection*. Available at <http://www.fehrandpeers.com/designing-the-protected-intersection>.

25 Massachusetts Department of Transportation. *Separated Bike Lane Design Guide – Chapter 4: Intersections*. Available at https://www.mass.gov/files/documents/2017/10/26/SeparatedBikeLaneChapter4_Intersections.pdf.

26 Michael Williams. advisorybikelanes.com.

27 Alta Planning + Design. *Advisory Bike Lanes in North America*. Available at https://altaplanning.com/wp-content/uploads/Advisory-Bike-Lanes-In-North-America_Alta-Planning-Design-White-Paper.pdf.

Topic 2 - How Bicyclist & Pedestrian Infrastructure Improves Safety

Just as road infrastructure facilitates safe, accessible routes for motorized vehicles, so too is appropriate infrastructure critical for safe, accessible routes for bicycling and walking.²⁸ A study from Ryerson's School of Occupational and Public Health looked at how transportation infrastructure affects the potential risk of bicyclists in Canada. The study concluded that having infrastructure elements that slow traffic and separate bicyclists from both vehicular traffic and pedestrians (for example, cycle tracks), significantly reduced the risk of injury for bicyclists. It also found that separated paths for bicycling were much safer than painted lanes or sharrows, which seemed to offer little protection.²⁹

Recently, the National Association of City Transportation Officials (NACTO) published guidance for communities seeking to build bicycle networks suitable for people of all ages and abilities. These guidelines stress safety based on the experience of NACTO cities, where “[a]mong seven NACTO cities that grew the lane mileage of their bikeway networks 50% between 2007–2014, ridership more than doubled, while risk of death and serious injury to people biking was halved. Better bicycle facilities are directly correlated with increased safety for people walking and driving as well.”³⁰

BETTER BICYCLE FACILITIES
are directly correlated
with increased safety
for people walking and
driving as well.

Going beyond network mileage, the NACTO guidance includes two factors associated with safety and stress: traffic speed and traffic volume. “These factors are inversely related to comfort and safety; even small increases in either factor can quickly increase stress and potentially increase injury risk.”³¹ These factors also contribute to “near misses”—or non-injury incidents that cause stress—which can

contribute to discouraging people from riding who would otherwise do so.

Speed is a recurring theme in traffic safety. In August 2017, the National Transportation Safety Board issued a report on speed and speeding, concluding “the current level of emphasis on speeding as a national traffic safety issue is lower than warranted.”³² The report states that “[s]peed—and therefore speeding—increases crash risk in two ways: (1) it increases the likelihood of being involved in a crash, and (2) it increases the severity of injuries sustained by all road users in a crash.”³³ As an example of how speed increases the severity of injuries, a 2011 AAA report found that in the United States, there is “a 10% risk of severe injury for people walking hit by a vehicle traveling over 20 mph, [which] increased to 50% if the vehicle was traveling over 30 mph, and 90% over 40 mph.”³⁴ NTSB identified the need to increase public understanding of speed policy and speed enforcement as an area of importance.

28 The Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2014 Benchmarking Report* at p. 149. Available at <https://bikeleague.org/sites/default/files/2014BenchmarkingReport.pdf>.

29 Harris, M., C. Reynolds, M. Winters, et al. Injury Prevention (February 14, 2012). *Comparing the effects of infrastructure on bicycling injury at intersections and non-intersections using a case-crossover design*. Available at <http://injuryprevention.bmj.com/content/early/2013/02/13/injuryprev-2012-040561.full.pdf>.

30 NACTO. *Designing for All Ages and Abilities* at p. 2. Available at <https://nacto.org/wp-content/uploads/2017/12/NACTO-Designing-for-All-Ages-Abilities.pdf>.

31 See Footnote 30 at p. 6. Rachel Aldred. Transportation Research Part A: Policy and Practice 90 (2016). *Cycling near misses: Their frequency, impact, and prevention*. Available at <https://www.sciencedirect.com/science/article/pii/S0965856416303639>.

32 National Transportation Safety Board (July 25, 2017). *Reducing Speeding-related Crashes Involving Passenger Vehicles. Safety Study NTSB/SS-17/01* at 11/97. Available at <https://www.nts.gov/safety/safety-studies/Documents/SS1701.pdf>.

33 See Footnote 32 at 10/97.

34 B.C. Tefft. AAA Foundation for Traffic Safety (2011). *Impact Speed and a Pedestrian's Risk of Severe Injury or Death*. Available at <https://aaafoundation.org/wp-content/uploads/2018/02/2011PedestrianRiskVsSpeedReport.pdf>.

A recent report on Speed and Crash Risk from the International Traffic Safety Data and Analysis Group also highlighted the role of speed on crash occurrence and severity, saying, “[A] 1% increase in average speed results in approximately a 2% increase in injury crash frequency, a 3% increase in severe crash frequency, and a 4% increase in fatal crash frequency.”³⁵

“

“[A]fter 1918, highway design followed a spiral of cause and effect, resulting in faster and faster speeds and wider and wider pavements. The motivating force behind this spiral was the driving speed preferences of the great mass of vehicle operators. The public authorities were never able to impose or enforce speed limits for very long if the majority of drivers considered the limits unreasonably low. Now, many current engineering practices use the 85th percentile speed—or the speed at which the majority of drivers travel—as the method of setting speed limits.”³⁶

- Road Safety Fundamentals; Concepts, Strategies, and Practices that Reduce Fatalities and Injuries on the Road; UNIT 1: Foundations of Road Safety; U.S. Department of Transportation, Federal Highway Administration

”

To reduce the safety risks caused by speeding the NTSB recommended that “the FHWA revise Section 2B.13 of the MUTCD so that the factors currently listed as optional for all engineering studies are required, require that an expert system such as USLIMITS2 be used as a validation tool, and remove the guidance that speed limits in speed zones should be within 5 mph of the 85th percentile speed.”³⁷

This recommendation is based on the NTSB’s finding that “there is not strong evidence that, within a given traffic flow, the 85th percentile speed equates to the speed with the lowest crash involvement rate on all road types”³⁸ and that raising the speed limit to match the 85th percentile speed “generates an undesirable cycle of speed escalation and reduced safety.”³⁹ The NTSB also found that using the 85th percentile speed does not consider vulnerable road users and is not consistent with a Safe Systems approach, where “speed limits are set to minimize death and serious injury as a consequence of a crash.”⁴⁰

Effective speed reduction occurs when streets are designed and built to encourage people to drive more slowly.⁴¹ Traffic calming to reduce speed often explicitly includes facilities for bicyclists and pedestrians, such as pedestrian crossing medians or bicycle lanes that narrow travel lanes.⁴² It is important to note that these designs benefit everyone on the road through reduced risks associated with lower speeds and their value does not depend on bicycle or pedestrian use of these facilities.

35 International Transport Forum. OECD. *International Traffic Safety Data and Analysis Group. Speed and Crash Risk* at p. 5. Available at <https://www.itf-oecd.org/sites/default/files/docs/speed-crash-risk.pdf>.

36 Federal Highway Administration. Safety, Roadway Safety Professional Capacity Building. *Road Safety Fundamentals: Concepts, Strategies, and Practices that Reduce Fatalities and Injuries on the Road*. Available at <https://rspcb.safety.fhwa.dot.gov/RSF/Unit1.aspx>.

37 See Footnote 32 at p. 29.

38 See Footnote 32 at p. 24.

39 See Footnote 32 at p. 24.

40 See Footnote 32 at p. 28.

41 U.S. Department of Transportation. Transportation and Health Tool, Office of Policy (October 26, 2015). *Traffic Calming to Slow Vehicular Speeds*. Available at <https://www.transportation.gov/mission/health/Traffic-Calming-to-Slow-Vehicle-Speeds>.

42 See Footnote 3—Speed Reduction Mechanisms. See also Federal Highway Administration. Course on Bicycling and Pedestrian Transportation. *Lesson 11, Traffic Calming*. Available at https://safety.fhwa.dot.gov/ped_bike/univcourse/pdf/swless11.pdf.

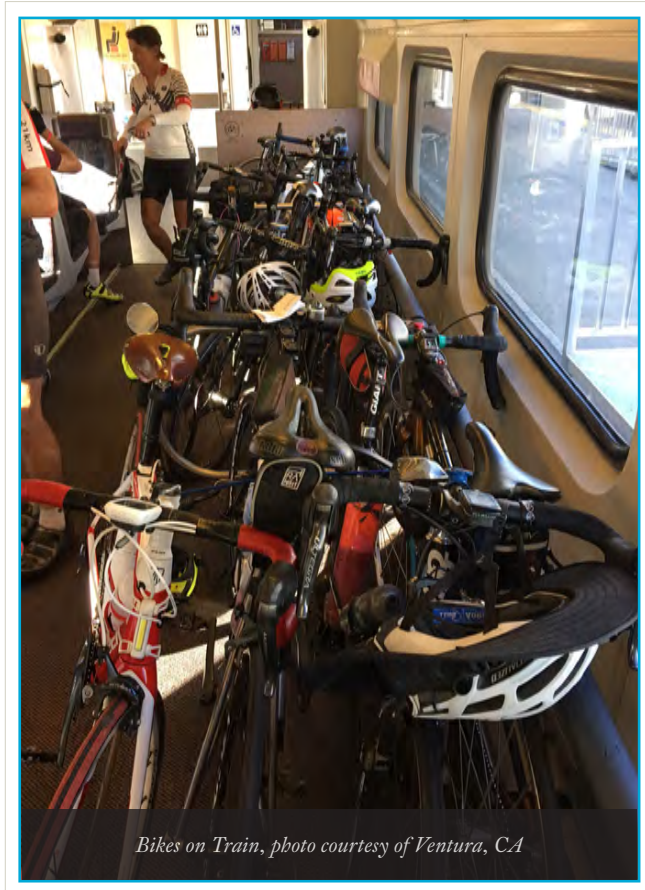
Topic 3 - The Case for Bicycle Infrastructure Increasing Use

Traffic calming features and dedicated bicycle infrastructure can significantly affect bicycling levels. Infrastructure shown to increase bicycling levels include bicycle boulevards, speed humps, curb extensions, pedestrian crossways, and separated bike lanes.⁴³ Studies in Copenhagen; London; Washington, DC; and Montreal have all found that cycle tracks or protected bicycle lanes attract more bicyclists than similar streets without such infrastructure.⁴⁴ Bicyclists were willing to reroute their paths to use specialized infrastructure in Portland, OR, and go the furthest out of their way to cycle on off-street bike paths followed by bicycle boulevards.⁴⁵

Studies have found that women in particular prefer facilities with less motor vehicle traffic and bicycle lanes that are separated from traffic. However, when separated lanes are lacking, bicyclists, regardless of gender, seem to prefer low-volume residential streets without bicycle lanes over high volume roads with on-street bicycle lanes.⁴⁶ A study of consumer behavior in Portland, Oregon, for example, recently reported that for every mile of high-traffic streets within a half-mile of an establishment, the number of bicyclists frequenting that establishment dropped by 1%.⁴⁷

A recent European study probed the limitations of increasing bicycle use by increasing bicycle facilities and “data from 167 European cities suggests that the length of

cycling infrastructures is associated with a cycling mode share up to a rate of 24.7%, in which 1 in every 4 citizens would choose the bicycle for their daily commuting.”⁴⁸ Beyond 24.7%, the availability of bicycle facilities lose their relationship with the percentage of people riding bikes.⁴⁹ In the context of the United States, no city approaches 24.7% mode share with the possible exception of Davis, California, which has had a bicycle commuter mode share near 20% in the past. This study suggests that an increase in the amount of bicycle facilities – in addition to providing “innovative” bicycle infrastructure is an important step towards increasing bicycle use in the United States.



Bikes on Train, photo courtesy of Ventura, CA

43 Dill, J., Handy, S., & Pucher, J. (2013). Report funded by the Robert Wood Johnson Foundation. *How to Increase Bicycling for Daily Travel*. Available at http://activelivingresearch.org/files/ALR_Brief_DailyBikeTravel_May2013.pdf.

44 See Footnote 43.

45 See Footnote 43.

46 See Footnote 43.

47 Clifton, K., Muhs, C., Morrissey, S., et al. (2013). *Examining Consumer Behavior and Travel Choices: A Focus on Cyclists and Pedestrians*. Available at https://nacto.org/docs/usdg/consumer_behavior_and_travel_choices_clifton.pdf.

48 Barcelona Institute for Global Health (IS Global). *European Cities Could Avoid Up to 10,000 Premature Deaths by Expanding Cycling Networks* (January 15, 2018). Available at https://www.isglobal.org/en/new/-/asset_publisher/JZ9fGljXnWpl/content/las-ciudades-europeas-podrian-evitar-hasta-10-000-muertes-prematuras-ampliando-las-redes-de-carriles-bici.

49 F. O'Sullivan. City Lab. *More Bike Lanes Could Save Up to 10,000 Lives a Year in Europe* (January 22, 2018). Available at <https://www.citylab.com/transportation/2018/01/more-bike-lanes-could-save-up-to-10000-european-lives/551111>.

» ADVANCING UNDERSTANDING: THE NEED FOR BETTER PEDESTRIAN & BICYCLE NETWORK DATA

Data on bicycling and walking networks is not well-defined, and systems for reporting on those networks are not commonplace or optimized. Often, nonprofit organizations such as the People for Bikes' Green Lane Project or the League of American Bicyclists' Benchmarking Project collect this data.

The Benchmarking Report was created to help spur better data collection and systems. In the last decade, several difficulties have been associated with tracking changes to the built environment using a survey methodology. Two challenges that have persisted are:

1

ENSURING CONSISTENT REPORTING OF BICYCLE AND PEDESTRIAN INFRASTRUCTURE.

For example, some cities likely have reported centerline miles over time, and others have reported lane miles. Centerline miles are calculated by measuring down the center of all lanes of traffic in a roadway, while lane miles are calculated by multiplying the centerline measurement by the number of through lanes in a roadway. These measurements are not interchangeable, as lane miles are often at least twice the length of centerline miles. Also, quality and usability of infrastructure, such as bicycle lane widths, sidewalk or bike lane pavement quality, and curb ramp types are rarely captured.

2

"INNOVATIVE" FACILITIES HAVE INCREASED DURING THE EVOLUTION OF THE BENCHMARKING REPORT, WITH SOME HIGHLIGHTED FACILITY INNOVATIONS NOW COMMONPLACE & PERHAPS NO LONGER DESIRED.

One instance is the featuring of “sharrows,” or shared lane markings, as innovative bicycle facilities in most editions of the Benchmarking Report. Sharrows were not mentioned in the initial 2007 Benchmarking Report, and in 2010, only 20 of the 50 large cities reported using them. By the 2014 Benchmarking Report, 45 of the 46 large cities citing any bicycling infrastructure reported they used sharrows. This shows fairly rapid adoption of an “innovative” facility. The successful increase of sharrows is likely due at least in part to their official inclusion in the Manual on Uniform Traffic Control Devices⁵⁰ and their low cost. However, a 2016 report found that sharrows do not increase bicycling and do not have a positive safety effect on bicycling.⁵¹

In a best-case scenario for publicly accessible data, data would exist in uniform, government-maintained, publicly accessible systems. One possibility for Benchmarking Report data on infrastructure might be city- or state-maintained Geographic Information System (GIS) databases structured around the FHWA’s Model Inventory of Roadway Elements (MIRE). This would help ensure all cities and states are reporting data in a common format. The long-term benefits of moving to GIS and MIRE-based monitoring of roadways could include easier comparisons between places, the development of standard tools based on GIS and MIRE elements, and a transparent mechanism for incorporating new bicycle and pedestrian facilities as roadway elements for data collection.

As an alternative to government-provided data, crowdsourced data on bicycling and walking infrastructure is becoming available through initiatives such as OpenStreetsMap and mobile applications such as Lanespotter. If cities and states were to rely on various providers of this type of roadway data, then it is possible that there would continue to be data collection issues related to lane mile versus centerline mile measurement and the classification of different types of bicycle and pedestrian facilities.



Private companies also may develop mapping datasets equivalent to or better than city- and state-maintained roadway datasets. Governments are already looking to private companies for data such as bicycle use (e.g., Strava) and other modes of travel (e.g., Sidewalk Labs or Inrix). Private mapping companies are actively developing high-quality, detailed maps to serve automated vehicle deployment, safety, and logistics. This has potential to provide very high-quality data on roadway conditions based on sensors equipped to automated and/or connected vehicles, but it is not clear who would have access to this data and at what the price.

50 Virginia Cycling Federation. *New MUTCD Released—Now with Sharrows!* (December 16, 2009). Available at <https://www.vabike.org/new-mutcd-released-now-with-sharrows>.

51 E. Jaffe. City Lab. *Some Bike Infrastructure Is Worse Than None at All* (February 5, 2016). Available at <https://www.citylab.com/solutions/2016/02/sharrow-safety-bike-infrastructure-lane-chicago/460095/>.

» EMBRACING EQUITY: CONSIDERING WHO IS SERVED BY INFRASTRUCTURE & WHY IT IS PROVIDED

“

“Streets, infrastructure, and transportation are intimately tied to the human experience. For many, mobility is shaped by deliberately designed barriers, including the use of highways or rail lines to divide communities, and the stigmatization of transportation methods used by low-income and communities of color.”⁵²

“Instead of asking how to do something right away, we must re-train ourselves to ask why do something. And ask it several times again.”⁵³

—Naomi Doerner

”

Physical infrastructure cannot be untied from social infrastructure. The development of specialized bicyclist and pedestrian infrastructure and its prevalence in cities, towns, and rural areas can be tracked in projects like the Benchmarking Report. It is much harder to codify, track, and report on the social infrastructure that affects the acceptance of bicycling and walking infrastructure by communities or affects the use of that infrastructure when provided.

As biking infrastructure has expanded, creators have faced questions about who it serves and why it is being created now. This “bikelash” is not necessarily motivated by the “windshield perspective” of motorists who see their right to the road being limited by sharing the road with non-motorists. Instead these questions about who benefits from bicycle infrastructure are raised in some instances because of



Portland, OR, photo courtesy of Shawn Turner (pedbikeimages.org)

⁵² The Untokening. *Untokening 1.0 Principles of Mobility Justice* at p. 9. Available at <https://static1.squarespace.com/static/579398799f7456b1of43afb0/t/5a0879755345oaf-07cb310dd/1510504821822/Untokening+1.0+web.pdf>.

⁵³ N. Doerner. Better Bike Share Partnership. *Active Transportation Intersectionality and the Importance of Listening* (June 7, 2007). Available at <http://betterbikeshare.org/2016/06/07/active-transportation-intersectionality-importance-listening>.

human experiences with power, particularly as expressed through infrastructure, which for some, has a history of dividing communities rather than serving their interests. To understand community resistance to bicycling infrastructure, or how bicycling infrastructure may not in itself serve a community's needs, many turn to the concept of intersectionality.

Intersectionality is a concept that seeks to understand the interplay of identities and inequalities, so experiences of people are more fully understood.⁵⁴ In one formulation, its methodology is “asking the other question.”⁵⁵ As an example, data suggest that women are less likely to bike than men. Research shows the best way to get women on bicycles is to provide them with safe, comfortable, convenient bicycling facilities that are physically separated and protected from motor vehicles or low-speed, low-traffic residential streets (such as bicycle boulevards) where they can avoid the stress of fighting motor vehicle traffic.⁵⁶ However, this analysis and solution may miss the experiences of minority women, women with children, older women, younger women, or any other non-gendered trait that affects the experience of a woman considering whether to ride a bike. The insight of intersectionality is that people experience privilege and oppression in a variety of ways, and one part of their identity does not fully explain their reaction or feelings about an issue.

In an interview with Melody Hoffmann, author of “Bike Lanes Are White Lanes,”⁵⁷ for Greenroom Magazine, Hoffman gave an example of how historical power dynamics could slow efforts to improve biking and walking:

54 T. Calasanti and S. Giles. American Society on Aging. *The Challenge of Intersectionality*. Available at <http://www.asaging.org/blog/challenge-in-intersectionality>. (“Kimberlé Crenshaw (1989), who coined intersectionality to explain the interplay of inequalities that could exclude groups from single-inequality analysis.”)

55 A. Kaijser and A. Kronsell. *Environmental Politics*, 23:3, 417-433 (2014). *Climate Change through the Lens of Intersectionality* at p. 420, “Intersectional methodology can be as straightforward as Matsuda’s ‘asking the other question’ approach. When I see something that looks racist, I ask, ‘Where is the patriarchy in this?’ When I see something that looks sexist, I ask, ‘Where is the heterosexism in this?’ When I see something that looks homophobic, I ask, ‘Where are the class interests in this?’ (Matsuda 1991, p. 1189)” Available at <https://www.tandfonline.com/doi/pdf/10.1080/09644016.2013.835203>.

56 Garrard, J., Dill, J., Handy, S. (2012). Women and Cycling. In Pucher, J., Buehler, R. (Eds.), *City Cycling* (211-234). Cambridge, MA: MIT Press.

57 M. Hoffman. *Bike Lanes Are White Lanes: Bicycle Advocacy and Urban Planning* (July 2016). Available at <http://www.nebraskapress.unl.edu/university-of-nebraska-press/9780803276789>.

58 S. Yeboah-Sampong. Green Room Magazine. *Are Bike Lanes for White People?* (November 16, 2016). Available at <http://www.greenroommagazine.com/blog/2016/10/25/are-bike-lanes-really-white-lanes>.

“When [the Minneapolis Bicycle Coalition] did Open Streets on Lake Street, they got permits to close down the street. But there were some Latinx community groups that were kind of angry that the coalition got their streets closed, because the other groups had been trying to get their festivals on Lake Street, but they could never get it closed. And so it looks like, ‘the powerful white people on bikes get whatever they want, and the Latinxs don’t.’ ... [T]he Coalition’s director worked with those community groups and gave them some tips and tricks to get the street closed, which I think have been successful. So, [use] your power and privilege to help communities, because it builds trust and relationships for future projects.”⁵⁸



Fun Night Ride, photo courtesy of Savannah, GA

» MAKING THE HEALTH CONNECTION: THE SURGEON GENERAL'S CALL TO ACTION TO PROMOTE WALKING & WALKABLE COMMUNITIES

In 2015, then-Surgeon General Vivek Murthy issued *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities*.⁵⁹ The Surgeon General serves as “the Nation’s Doctor,” providing Americans with the best scientific information available on how to improve their health and reduce the risk of illness and injury.⁶⁰

Surgeon General Murthy found many scientific reasons for promoting walking and walkable environments to improve health through physical activity. The report included evidence that communities often lack built environments such as sidewalks for walking. For example, “In 2012, more than three out of every 10 people aged 16 years or older reported that no sidewalks existed along any street in their neighborhood.”⁶¹ In addition, the report noted, “Physical

environments—such as a lack of sidewalks and crosswalks, poor lighting, streets with high-speed traffic, and poorly timed crossing signals—also contribute to increased pedestrian risk.”⁶²

Land use decisions that place destinations farther apart were also found to be contributing to a lack of walking. The Surgeon General found that “[t]he distance between home and school is strongly associated with whether students walk to school.”⁶³ The distance between home and school is important because, while 35% of students who live less than a mile from school walk or bike to school on most days, only 2% of students living 2 miles from school usually bike or walk to school.⁶⁴

59 U.S. Department of Health and Human Services. *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities* (September 9, 2015). Available at <https://www.surgeongeneral.gov/library/calls/walking-and-walkable-communities/index.html>.

60 U.S. Department of Health and Human Services. *About the Office of the Surgeon General*. Available at <https://www.surgeongeneral.gov/about/index.html>.

61 See Footnote 59 at p. 14.

62 See Footnote 59 at p. 14.

63 See Footnote 59 at p. 15.

64 National Center for Safe Routes to School. *How Children Get to School: School Travel Patterns from 1969 to 2009* (2011). Available at <http://www.safekidsgf.com/Documents/Research%20Reports/NHTS%20School%20Travel%20Report%202011.pdf>.

To address these concerns, the Surgeon General’s Call to Action laid out five goals:

1

MAKE WALKING A NATIONAL PRIORITY.

2

DESIGN COMMUNITIES THAT MAKE IT SAFE AND EASY TO WALK FOR PEOPLE OF ALL AGES AND ABILITIES.

3

PROMOTE PROGRAMS AND POLICIES TO SUPPORT WALKING WHERE PEOPLE LIVE, LEARN, WORK, AND PLAY.

4

PROVIDE INFORMATION TO ENCOURAGE WALKING AND IMPROVE WALKABILITY.

5

FILL SURVEILLANCE, RESEARCH, AND EVALUATION GAPS RELATED TO WALKING AND WALKABILITY.

These five goals, but particularly Goal 2 (“Design communities that make it safe and easy to walk for people of all ages and abilities”), promote the need for infrastructure interventions that promote walking.⁶⁵ These infrastructure interventions include the types of specialized or innovative infrastructure discussed in this section and the infrastructure that lowers traffic speeds for many of the same reasons discussed earlier in this section. The Call to Action also noted, “No current surveillance system routinely and comprehensively monitors local neighborhood features of a walkable community.”⁶⁶

⁶⁵ See Footnote 59 at p. 33.

⁶⁶ See Footnote 59 at p. 43.

SECTION VI: EFFECTIVE TRANSPORTATION GOVERNANCE

IN THIS SECTION, THE BENCHMARKING REPORT LOOKS AT THE GOVERNANCE OF AGENCIES RELATED TO TRANSPORTATION PLANNING, CONSTRUCTION, OPERATION, AND MAINTENANCE. THIS INCLUDES DETAILED LOOKS AT SEVERAL FEDERAL TRANSPORTATION FUNDING PROGRAMS.

Use this section to discover mechanisms and programs used by federal transportation agencies to fund bicycling and walking projects.

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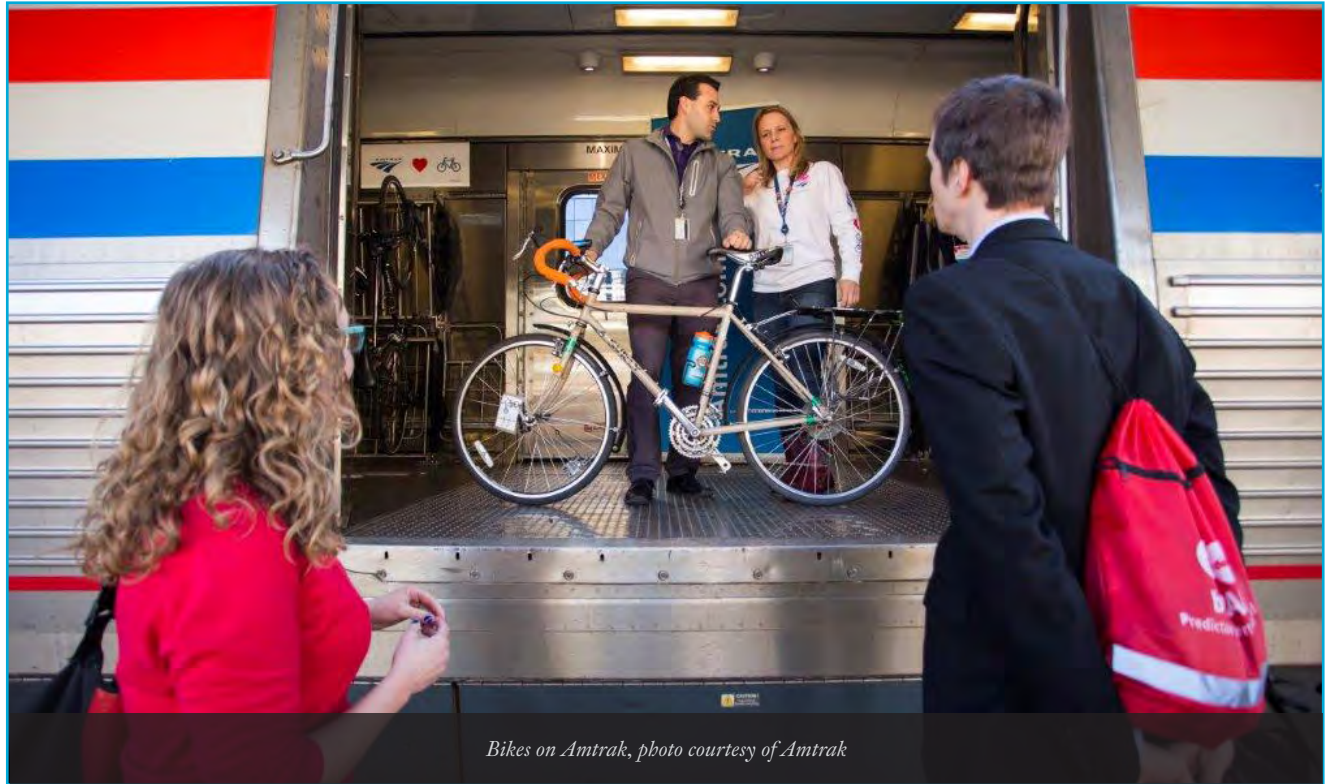
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Bikes on Amtrak, photo courtesy of Amtrak

“[T]he concept of “governance” can be defined to include “elected and nonelected government officers, nongovernmental organizations, political parties, interest groups, policy entrepreneurs ... [and other] relevant actors in the decision-making processes that produce government action.”¹ The literature on governance is premised on the understanding that governance includes public and private players who collaboratively guide public policy and decision-making.²

Many stakeholders are involved in transportation, and their relationships can often differ according to each state or community. The American Association of State Highway and Transportation Officials (AASHTO) lists at least 25 major stakeholders in transportation governance and finance, without listing major entities such as law enforcement, first responders, and the President of the United States.³

This section introduces common transportation governance relationships relevant to either increasing bicycling and walking or making bicycling and walking safer through planning, designing, and building infrastructure. This is not intended to be an exhaustive discussion of each stakeholder and its relationship to other entities regarding public policy and decision-making.

¹ M. Shapiro. Indiana Journal of Global Legal Studies (2001). *Administrative Law Unbounded: Reflections on Government and Governance*. Available at <https://www.repository.law.indiana.edu/cgi/viewcontent.cgi?article=1219&context=ijgls>.

² Eno Center for Transportation, Transit Center. *Getting to the Route of It: The Role of Governance in Regional Transit* at p. 11. Available at <https://www.enotrans.org/wp-content/uploads/Transit-Governance.pdf?x43122>.

³ American Association of State Highway and Transportation Officials. *Transportation Governance and Finance* (November 2016) at p. 19. Available at http://www.financingtransportation.org/pdf/50_state_review_nov16.pdf.

» MAKING THE CASE: UNDERSTANDING TRANSPORTATION GOVERNANCE STRUCTURES TO PROMOTE BIKING & WALKING

Topic 1 - The Governance Model of Federal Funding for Physical Infrastructure

Most of America's built environment is created by three public-sector actors: 1) the federal government, 2) the state governments, and 3) local/regional governments. Interest has also grown in involving private-sector entities in project financing, development, maintenance, and operation.

For most federal transportation funding, the funding governance process looks like the following:

1

CONGRESS AUTHORIZES A PROGRAM, SETS THE ALLOCATION METHOD

FOR FUNDING AUTHORIZED BY THE PROGRAM, AND SETS PROJECT ELIGIBILITY AND OTHER REQUIREMENTS.

The current transportation authorization law is the Fixing America's Surface Transportation (FAST) Act, which was passed by Congress in 2015 and sets policy and funding levels through 2020.⁴

2

THE U.S. DEPARTMENT OF TRANSPORTATION (U.S. DOT)—THROUGH ITS VARIOUS ADMINISTRATIONS SUCH AS THE FEDERAL

HIGHWAY ADMINISTRATION (FHWA) AND FEDERAL TRANSIT ADMINISTRATION (FTA)—ADMINISTERS FUNDING PROGRAMS AS AUTHORIZED BY CONGRESS. GENERALLY, STATES AND LOCAL AGENCIES RECEIVE U.S. DOT FUNDING.

- Formula funding is distributed according to a statutory formula that sets an apportionment level. It may be distributed to a state DOT, a Metropolitan Planning Organization (MPO), or even other public agencies. When funding bypasses a state DOT and goes to another agency within the state, it is called sub-allocated funding, and a state DOT may or may not have a role in how that funding is used.
- Grant funding is distributed according to administrative review of projects per grant program criteria.

⁴ Federal Highway Administration. *Fixing America's Surface Transportation Act or "FAST Act."* Available at <https://www.fhwa.dot.gov/fastact/>.

3

THE RECIPIENT OF FEDERAL FUNDING IMPLEMENTS PROJECTS AND OBLIGATES FEDERAL FUNDING AUTHORITY BASED ON THE ELIGIBILITIES AND REQUIREMENTS OF THE TYPE OF FEDERAL FUNDING RECEIVED. TWO TYPES OF ORGANIZATIONS RECEIVE AND ALLOCATE MOST FEDERAL TRANSPORTATION FUNDS:

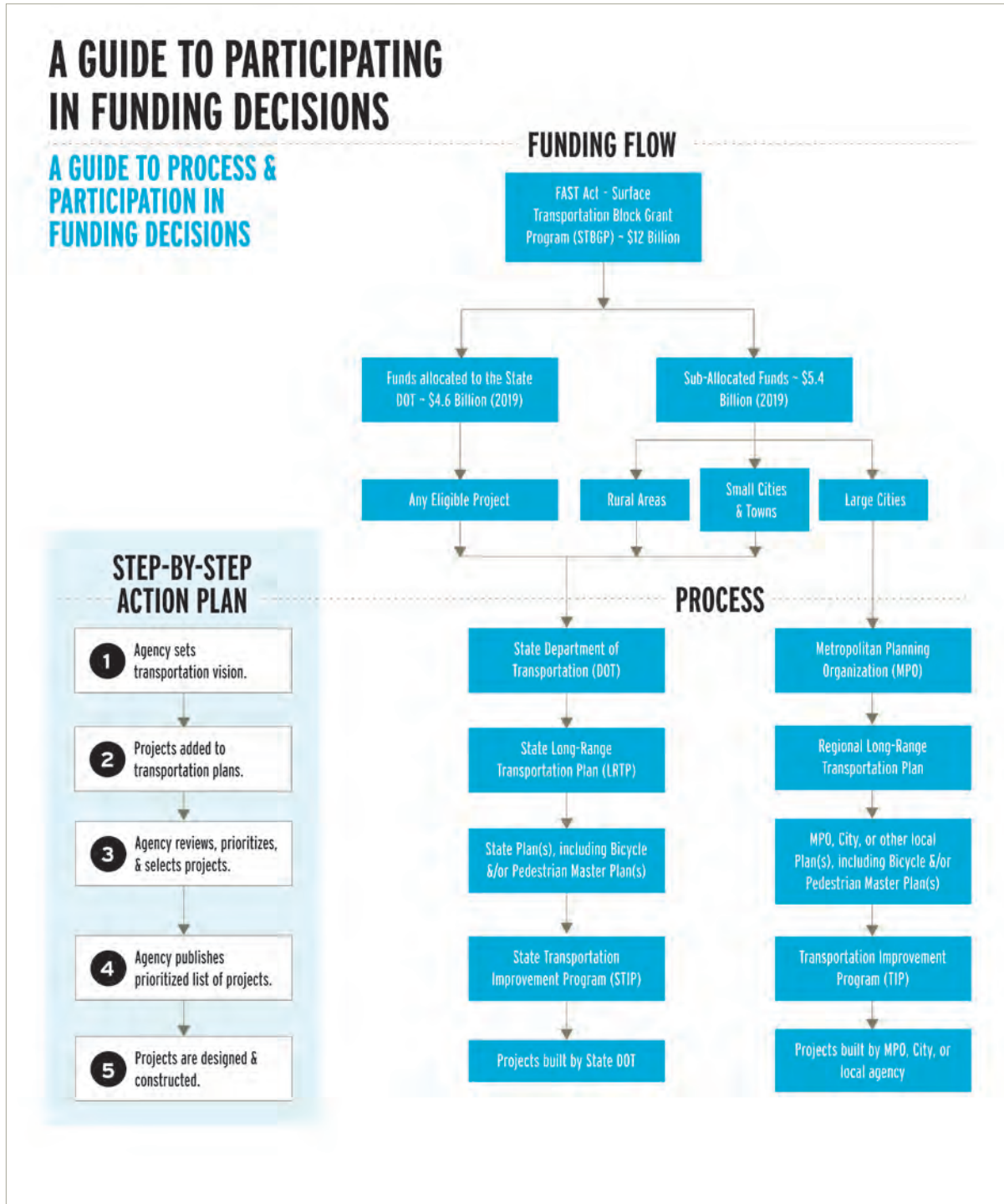
- State DOTs receive federal funding directly and are given authority over funds distributed to local decision makers. For projects to receive federal funding, they must be in a state planning document called a Statewide Transportation Improvement Plan (STIP), which is adopted at least every four years. Each STIP consists of state DOT projects and projects from MPOs.
- MPOs are federally regulated entities composed of multiple local jurisdictions in metro areas with a population over 50,000. The United States currently has more than 400 MPOs, each tasked with creating a Transportation Improvement Plan (TIP) that guides federal investments in its metro area at least every four years. Regional councils perform this function in some areas.

The next two pages provide flowcharts of the Surface Transportation Block Grant Program and the Transportation Alternatives Program. Together, these two programs have provided more than half of the federal funds used for bicycling and walking projects and programs in recent years.



Aerial view of bicycle track at Monterey Road School, photo courtesy of Atascadero Unified School District

FIGURE 3.6.1 - FEDERAL FUNDING THROUGH THE SURFACE TRANSPORTATION BLOCK GRANT PROGRAM

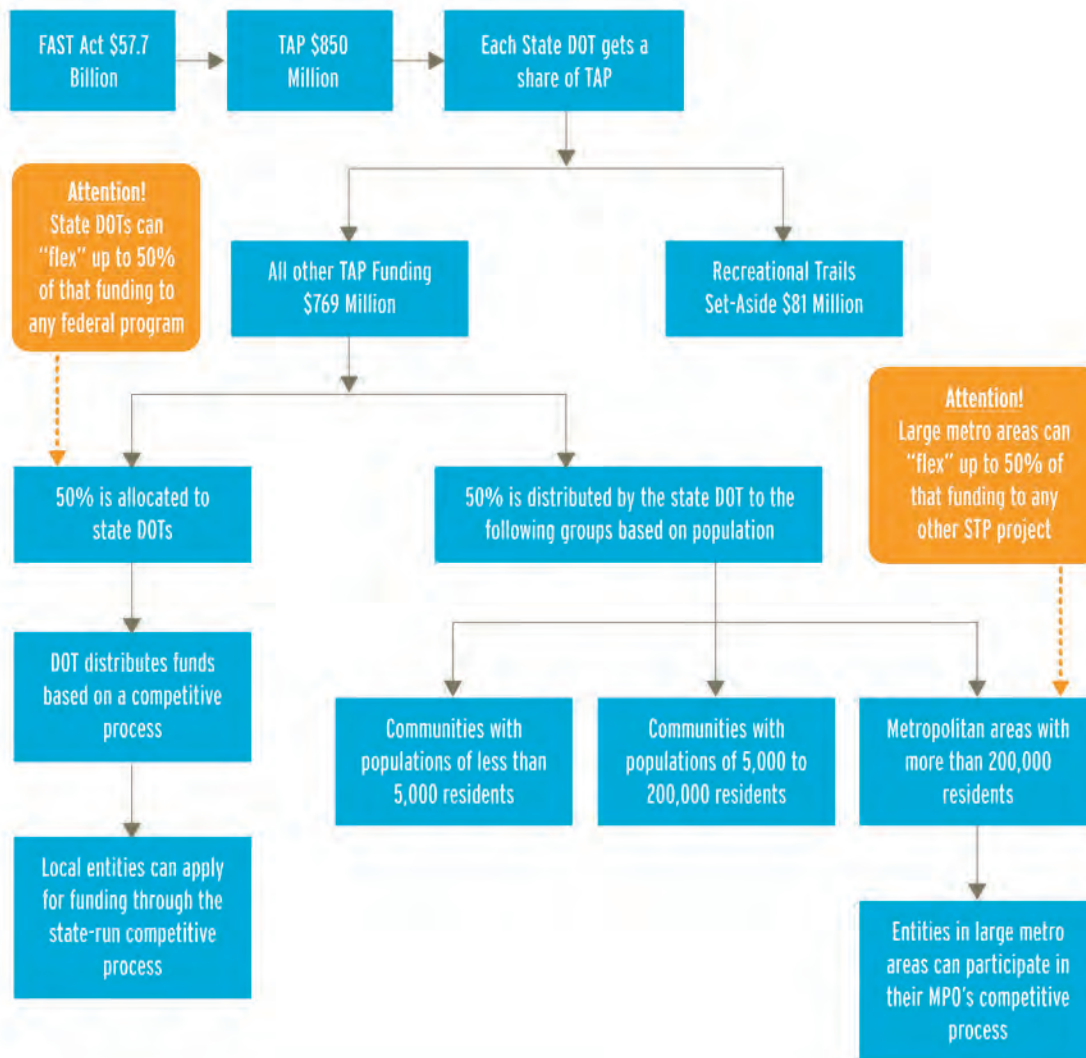


The Surface Transportation Block Grant Program (STBGP) is one of the biggest and most flexible federal funding sources. Under the FAST Act, an increasing amount of STBGP is sub-allocated to local communities. This makes it an attractive source for bicycling and walking investment. Aside from transportation alternatives funds, STBGP is often used for bicycling, walking and multimodal projects due, in part, to the fact that more than 50 percent of STBGP is sub-allocated to local communities of all sizes. In addition, STBGP is one of the few programs that allows funding be spent on bicycle non-infrastructure projects such as education.

FIGURE 3.6.2 - FEDERAL FUNDING THROUGH THE TRANSPORTATION ALTERNATIVES PROGRAM

TRANSPORTATION ALTERNATIVES PROGRAM

(SURFACE TRANSPORTATION BLOCK GRANT PROGRAM, SUBSECTION H)



Local entities eligible to apply for funding are school districts, local governments, local transportation planning agencies, tribal governments, public land management agencies, and transportation safety-related nonprofit organizations.

Under the FAST Act, Congress changed the Transportation Alternatives Program (TAP) from a stand-alone program to a set-aside program within the Surface Transportation Block Grant Program (STBGP). The Federal Highway Administration and most state departments of transportation still refer to these funds as the transportation alternatives program (TAP), but some refer to it as the Transportation Alternatives Set-Aside (TASA). Eligible projects include:

- **ON-ROAD AND OFF-ROAD TRAIL FACILITIES** for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act
- **INFRASTRUCTURE-RELATED** projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs
- **CONVERSION AND USE OF ABANDONED RAILROAD CORRIDORS FOR TRAILS** for pedestrians, bicyclists, or other non-motorized transportation users
- **CONSTRUCTION OF TURNOUTS**, overlooks, and viewing areas
- **COMMUNITY** improvement activities
- **ENVIRONMENTAL** mitigation activities
- **THE RECREATIONAL TRAILS PROGRAM** eligibilities defined under 23 U.S.C. 206 of Title 23
- **SAFE ROUTES TO SCHOOL PROGRAM-ELIGIBLE** projects and activities listed at section 1404(f) of SAFETEA-LU (the federal transportation bill was originally enacted in 2005), including infrastructure-related projects and non-infrastructure-related activities
- **PLANNING, DESIGNING, OR CONSTRUCTING BOULEVARDS** and other roadways largely in the right-of-way of former Interstate System routes or other divided highways

⁵ Federal Highway Administration. *Safety Culture and the Zero Deaths Vision*. Available at <https://safety.fhwa.dot.gov/zerodeaths/>.

⁶ Federal Highway Administration. *Fixing America's Surface Transportation Act or "Fast Act" Fact Sheet-Highway Safety Improvement Program* (last modified February 8, 2017). Available at <https://www.fhwa.dot.gov/fastact/factsheets/hsipfs.cfm>.

Topic 2 - The Governance Model for Road Safety

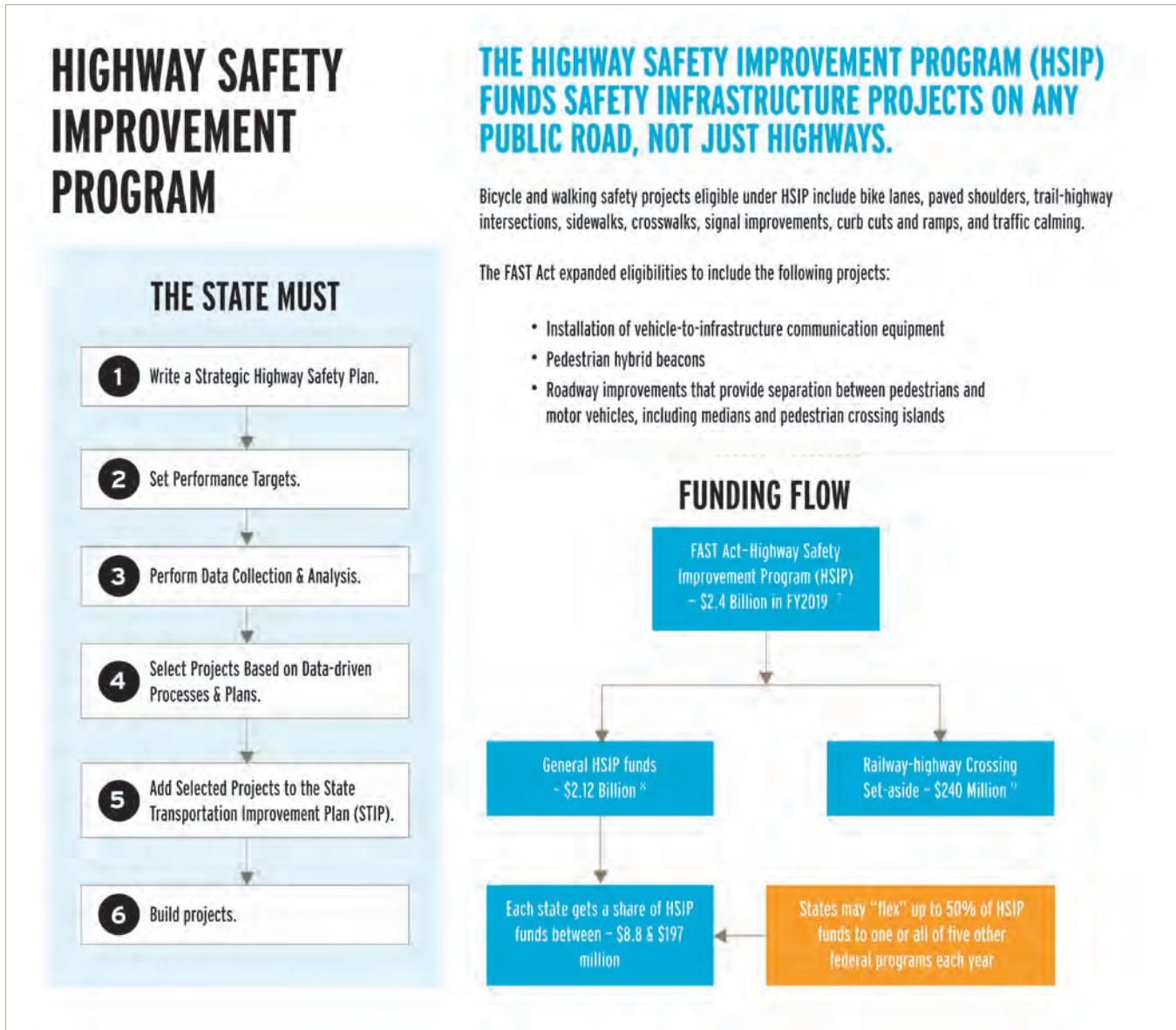
In the United States, road safety is a shared responsibility for a handful of federal agencies organized under the U.S. DOT, but these are generally two types of agencies: 1) modal agencies that build things (i.e., FHWA and FTA) and 2) regulatory agencies that regulate vehicles and behaviors [i.e., the National Highway Traffic Safety Administration (NHTSA) and Federal Motor Carrier Safety Administration (FMCSA)]. This split in responsibilities can be extremely helpful but can also be challenging as agencies and reports may focus on their area of responsibility instead of a more comprehensive or complementary approaches to safety.

In the United States, looking at two agencies can help citizens understand the governance split between built environment and behavioral traffic safety: the FHWA and NHTSA.

The Federal Highway Administration (FHWA) has a strategic goal to ensure the “nation’s highway system provides safe, reliable, effective, and sustainable mobility for all users.”⁵ This is accomplished through the work of the agency and its administration of congressionally authorized funding for roadways, most notably the Highway Safety Improvement Program (HSIP). To receive HSIP funding, each state must develop a State Strategic Highway Safety Plan (SHSP) that is based on safety data and developed by the state transportation department in consultation with at least 10 entities. The SHSP is then used to direct HSIP funding provided to each state (over \$2 billion each year nationwide).⁶

THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) has a strategic goal to ensure the “nation’s highway system provides safe, reliable, effective, and sustainable mobility for all users.”

FIGURE 3.6.3 - FEDERAL SAFETY PLANNING THROUGH THE HIGHWAY SAFETY IMPROVEMENT PROGRAM



The National Highway Traffic Safety Administration’s (NHTSA) strategic plan states, “Safety is NHTSA’s top priority. We are the lead agency for traffic safety in the United States, with the mission to save lives, prevent injuries, and reduce economic costs due to roadway crashes through education, research, safety standards, and enforcement activities.”¹⁰ NHTSA defines

⁷ See Footnote 6.

⁸ Federal Highway Safety Administration. *Highway Safety Improvement Program*. Available at <https://safety.fhwa.dot.gov/hsip>.

⁹ Federal Highway Safety Administration. *Fixing America’s Surface Transportation Act or “Fast Act” Fact Sheet-Railway Highway Crossings Program* (last modified February 8, 2017). Available at <https://www.fhwa.dot.gov/fastact/factsheets/railwayhwycrossingsfst.cfm>.

¹⁰ National Highway Traffic Safety Administration. *Strategic Plan: The Road Ahead, 2016-2020* at p. 11. Available at <https://www.nhtsa.gov/staticfiles/administration/pdf/12532-NHTSA-StrategicPlan-2016-2020.pdf>.

the “Three Lanes on NHTSA’s Road to Zero” as 1) proactive vehicle safety, 2) advanced safety technology, and 3) human choices.

Notably missing is any reference to the built environment, which is outside of NHTSA’s legislative mandate. NHTSA does play a role in supporting built environment changes implemented by FHWA or local communities, but this is within the context of NHTSA’s behavioral safety role (e.g., bicyclist and pedestrian safety is discussed in NHTSA’s strategic plan under Strategic Goal 4: Human Choices – Objective 1: Promote Innovative Solutions for Behavior Safety—Strategy: Reduce Pedestrian and Bicyclist Fatalities.).

Similar to FHWA, NHTSA accomplishes its goals through agency actions and by administering congressionally authorized funding. In NHTSA’s case, two programs support people who promote bicycling and walking: 1) the State and Community Highway Safety Grant Program, and 2) the National Priority Safety Program. These programs are commonly referred to by their sections in the United States Code (USC): sections 23 USC 402 and 23 USC 405, respectively.

The State and Community Highway Safety Grant (402) Program pre-dates the creation of NHTSA¹¹ and is NHTSA’s primary funding program. To receive funding, states must develop and report on grant funding via a Highway Safety Plan (HSP) that uses data-driven performance measures.¹² Until 2012, the HSP (NHTSA) and SHSP (FHWA) were not required to have similar goals or approaches. In 2012, Congress passed the Moving Ahead for Progress in the 21st Century Act (MAP-21), which

required coordination of HSP and SHSP.¹³ The HSP developed by each state is used to direct 402 funds in each state (approximately \$600 million per year nationwide). Funds administered under the 402 program can be used on a wide variety of traffic safety activities, including programs to:

- Improve pedestrian and bicycle safety
- Reduce speeding
- Reduce drug- and alcohol-impaired driving
- Reduce crashes from unsafe driving behavior
- Improve enforcement of traffic safety laws
- Improve traffic records
- Support school-based driver’s education classes

Notably missing from those eligible activities is automated enforcement, which uses cameras, radars, and/or other sensors to issue citations for drivers who do not obey speed limits or red lights. Under current law, “No 402 funds can be spent on the implementation of automated enforcement programs.”¹⁴ However, in a recent report where the National Transportation Safety Board (NTSB) recommended automated speed enforcement, NTSB noted that the Governors Highway Safety Association (GHSA), International Association of Chiefs of Police, American Association of State Highway and Transportation Officials, and National Association of City Transportation Officials have all adopted positions supporting automated speed enforcement.¹⁵ The Centers for Disease Control and Prevention also highlights NHTSA and FHWA speed camera operational guides and notes the effectiveness of automated enforcement at reducing both speeding and crashes.¹⁶ Automated speed enforcement is likely to improve safety for people who bike and walk since they are more sensitive to changes in speed than persons in motor

11 The program was first authorized in 1966. NHTSA was created in 1970. See Governors Highway Safety Association (GHSA). *Section 402, State and Community Highway Safety Grant Program*. Available at <https://www.ghsa.org/about/federal-grant-programs/402>. See also U.S. Department of Transportation. *Understanding the National Highway Traffic Safety Administration*. Available at <https://www.transportation.gov/transition/understanding-national-highway-traffic-safety-administration-nhtsa>.

12 Federal Highway Administration. *Section 402: State Highway Safety Programs* (January 21, 2015). Available at <https://safety.fhwa.dot.gov/legislation-and-policy/policy/section402>.

13 See Footnote 12.

14 See GHSA Footnote 11.

15 National Transportation Safety Board (July 25, 2017). *Reducing Speeding-related Crashes Involving Passenger Vehicles*. Safety Study NTSB/SS-17/01 at 38. Available at <https://www.nts.gov/safety/safety-studies/Documents/SS1701.pdf>.

16 National Center for Injury Prevention and Control Division of Unintentional Injury Prevention. *Fact Sheets, Motor Vehicle Safety, Automated Speed-Camera Enforcement* (December 2, 2015). Available at <https://www.cdc.gov/motorvehiclesafety/calculator/factsheet/speed.html>.

vehicles.¹⁷ You can find more information about state laws regarding automated enforcement in Chapter IV: Show Your Data II: States.

The National Priority Safety (405) Program provides grants for seven priority areas identified by Congress in the Fixing America's Surface Transportation (FAST) Act. The FAST Act created 23 USC 405(h), the priority safety program for non-motorized safety. Through this program, states are eligible for 5% of Section 405 funds, and they received \$13.9 million in Fiscal Year 2018.¹⁸ States are eligible if their annual combined pedestrian and bicyclist fatalities exceed 15% all traffic fatalities, and if states provide a 20% match for funds. In 2017, every state eligible applied for and received funding through the 405(h) program.¹⁹

“[S]tates may use grant funds only for training law enforcement on state laws applicable to pedestrian and bicycle safety, enforcement mobilizations and campaigns designed to enforce those state laws, or public education and awareness programs designed to inform motorists, pedestrians, and bicyclists of those state laws.”²⁰ For more information on eligibility and funding, please see the Chapter IV: Show Your Data I: Nation.

In 2017, the GHSA published “A Right to the Road: Understanding and Addressing Bicyclist Safety,”²¹ which provided examples of how state highway safety offices and others are addressing bicyclist safety using 402 and 405 funds. A similar report on pedestrian safety efforts, *Everyone Walks: Understanding and Addressing Pedestrian Safety*,²² was published in 2015.



17 B. Poole, S. Johnson, and L. Thomas. Pedestrian and Bicycle Information Center (December 2017). *An Overview of Automated Enforcement Systems and Their Potential for Improving Pedestrian and Bicyclist Safety*. Available at http://www.pedbikeinfo.org/cms/downloads/WhitePaper_AutomatedSafetyEnforcement_PBIC.pdf. (“Research on the relationship of speed and crash severity at speeds under 30 mph shows an increase of 1 or 2 mph in vehicle impact speed results in significantly higher risk of severe injury and fatality for pedestrians (Kroyer et al. 2013).”)

18 Data adapted from Governors Highway Safety Administration presentation. *2018 National Bike Summit. Institutional Approaches to Traffic Safety*. Available at <https://bikeleague.org/2018NBSpresentations>.

19 National Highway Transportation Safety Administration. Office of Grants Management and Operations. *FY 2017 154 & 164, S. 402, S. 405 and 1906 Authorized Grant Amounts* (July 24, 2017). Available at https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/154_164_402_and_405_award_summary_-_fy_2017_full_year.pdf.

20 Governors Highway Safety Administration. *National Highway Transportation Safety Administration FY2017 Section 405 Grant Determinations Table*. Available at <https://www.ghsa.org/about/federal-grant-programs/405>.

21 Governors Highway Safety Association. *A Right to the Road: Understanding and Addressing Bicyclist Safety* (September 2017). Available at <https://www.ghsa.org/sites/default/files/2017-09/2017BicyclistSafetyReport-FINAL.pdf>.

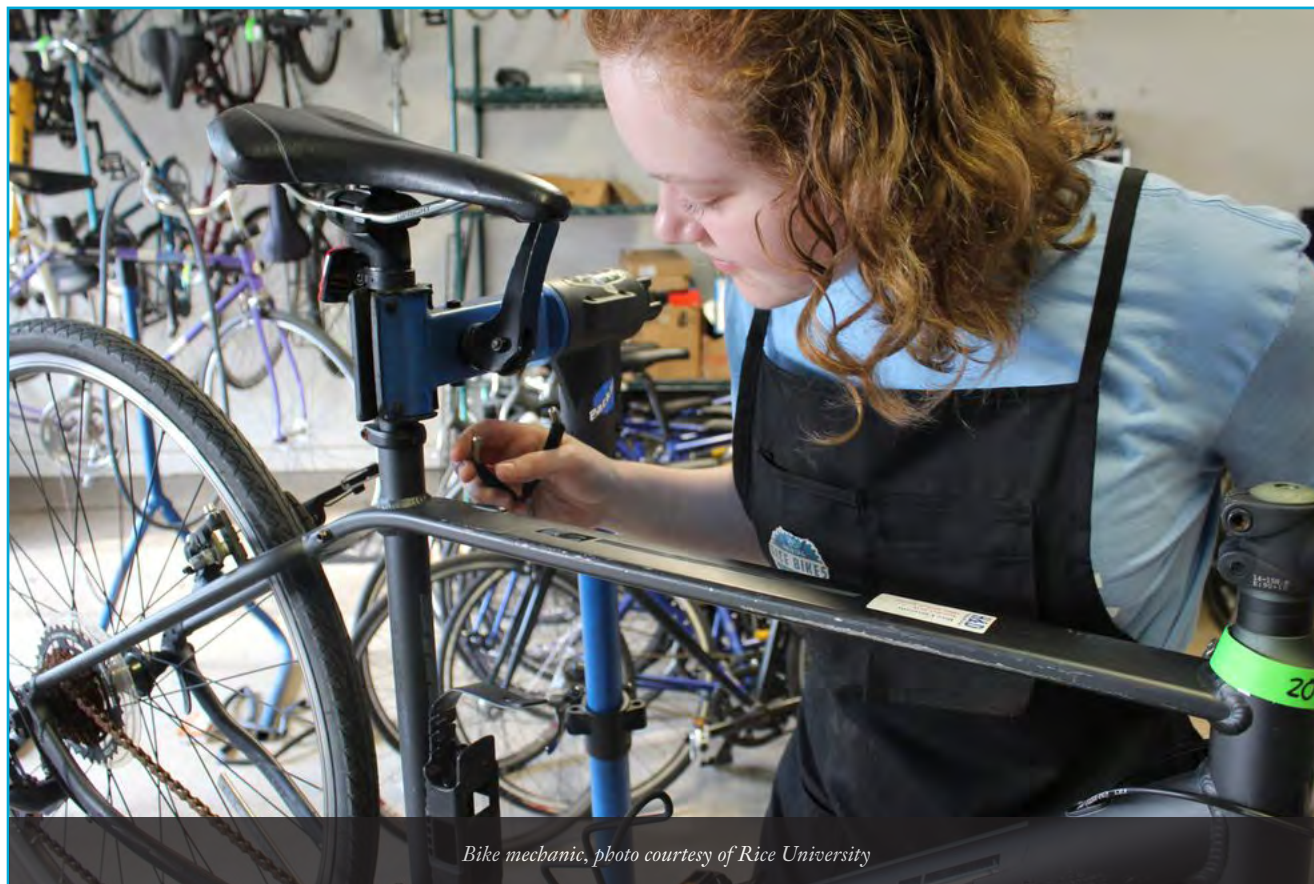
22 Governors Highway Safety Association. *Everyone Walks: Understanding and Addressing Pedestrian Safety*. Available at <https://www.ghsa.org/resources/everyone-walks-understanding-and-addressing-pedestrian-safety>.

Topic 3 - The Governance Model for Building Bicycling & Walking Infrastructure

Bicycle and pedestrian infrastructure can be funded in a wide variety of ways. While funding can shape when and how projects are built, it can also distract from broader trends in how infrastructure is built. Below are some of the ways that communities and states are building biking and walking infrastructure, regardless of funding or financing sources.

FIGURE 3.6.4 - EXAMPLES OF HOW BIKING & WALKING INFRASTRUCTURE IS BUILT

| WHY INFRASTRUCTURE IS BUILT | DESCRIPTION AND EXAMPLE(S) |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| In a routine manner | <p>This is when bicycle or pedestrian infrastructure is built because of existing policies such as Complete Streets that incorporate the creation of bicycle and pedestrian infrastructure in routine activities, such as repaving and resurfacing.</p> <p>In 2016, the FHWA published a guide called "Incorporating On-Road Bicycle Networks into Resurfacing Projects," which found that "the cost for adding bike lanes during a resurfacing project is approximately 40% the cost of adding the lanes as a standalone project."²³ The report also discusses how the City of Oakland, CA, incorporates bike lanes during repaving through its Complete Streets checklist.²⁴</p> |
| According to a capital plan | <p>This is when bicycle or pedestrian infrastructure is built because it is part of a capital plan to improve biking and walking such as a bicycle and/or pedestrian master plan.</p> <p>Louisville, Kentucky's 2010 Pedestrian Master Plan identified \$37.5 million in capital investments to implement high priority improvements identified in the plan.²⁵</p> |
| In response to a crash/crisis | <p>This is when bicycle or pedestrian infrastructure is built because of an event that brings attention to the state of current infrastructure.</p> <p>In 2017, New York City installed a bicycle lane on Classon Avenue in response to the death of a bicyclist in 2016.²⁶ Also in 2017, the Maryland Department of Transportation's State Highway Administration announced that a signal would be installed where the Matthew Henson Trail crosses Veirs Mill Road after two people were killed while crossing at that intersection.²⁷</p> |
| According to a legal settlement or other action | <p>This is when bicycle or pedestrian infrastructure is built because of a legal action that is focused on the insufficiency of infrastructure. The most common type of action is likely to be pedestrian improvements required for compliance with the Americans with Disabilities Act (ADA).</p> <p>Numerous cities have settled lawsuits brought under the ADA. For example, Seattle agreed to build 1,250 curb ramps every year for 18 years as part of a settlement under the ADA.²⁸ Sidewalk funding is further discussed in Chapter 3 Section VII: Funding and Financing Transportation.</p> |
| As an interim or pilot project | <p>This is when bicycle or pedestrian infrastructure is built in a low-cost, often-expedited manner with the provision that the infrastructure is not permanent.</p> <p>In 2016, the city of Macon, GA, created the world's largest pop-up bicycle network with 90 volunteers creating 5 miles of bike infrastructure using paint and cones.²⁹ This one week pop-up network led to bike counts over 800% higher than observed before the network, and 71% of people surveyed supported building a protected bike network in Macon.³⁰</p> |



Bike mechanic, photo courtesy of Rice University

23 Federal Highway Administration. FHWA-HEP-16-025. *Incorporating On-Road Bicycle Networks into Resurfacing Projects* (March 2016) at p. 40. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/resurfacing/resurfacing_workbook.pdf.

24 See Footnote 23 at pp. 18-19 (in cited source).

25 Louisville, Kentucky, Metro. *Pedestrian Master Plan—Sidewalks-Latent Demand* (Chapter 4, Implementation) at 6. Available at https://louisvilleky.gov/sites/default/files/bike_louisville/4_draft_-_chapter_4_implementation.pdf.

26 R. Holliday Smith. DNA Info. Fort Green and Dumbo—Transportation (New York). *Classon Avenue Will Get New Bike Lane Following Death of Cyclist* (June 16, 2017). Available at <http://www.dnainfo.com/new-york/20170616/clinton-hill/new-bike-lane-classon-avenue-lauren-davis-cyclist-death>.

27 K. Ryan. WTOP. *Red Lights Going Up at 2 Md. Pedestrian Crossings* (March 29, 2017). Available at <https://wtop.com/maryland/2017/03/red-lights-going-md-pedestrian-crossings>.

28 S. Fesler. The Urbanist. *SDOT Unveils First Five-Year Pedestrian Implementation Plan* (February 8, 2018). Available at <https://www.theurbanist.org/2018/02/08/sdot-unveils-first-five-year-pedestrian-implementation-plan/>

29 880 Cities. *Macon Connects: Findings from the World's Largest Pop-up Bike Network*. Available at <https://www.880cities.org/images/macon-connects-street-makeover-report.pdf>.

30 See Footnote 29 at p.3 (in cited source).

» EMBRACING EQUITY: ADDRESSING THE LEGACY OF “URBAN RENEWAL”

In a previous era, the federal government spent over \$425 billion to pave 48,000 miles of interstate highways based on a federal map that took them not just through rural areas between cities and states, but also directly through cities.³¹ “By the 1960s, federal highway construction was demolishing 37,000 urban housing units each year.”³²

Former U.S. DOT Secretary Anthony Foxx leaned into this issue with the Every Place Counts and Ladders of Opportunity initiatives and by publicly discussing “his case that bulldozing highways through where poor people lived was public policy in the mid-20th century.”³³ Under the Ladders of Opportunity initiative, three principles for addressing the historic legacy of highway construction in urban areas were proposed:

- **PRINCIPLE ONE:** While transportation needs to connect people to opportunities, it may also “invigorate opportunities within communities.”
- **PRINCIPLE TWO:** Projects take into account communities that “have been on the wrong side of transportation decisions” and figure out ways to make them stronger.
- **PRINCIPLE THREE:** The projects could be built for and by the communities they go through.³⁴

These principles suggest the need for benchmarks identifying communities that have been on the wrong side of transportation decisions, quantifying opportunities within communities, and ensuring projects are built for and by affected communities. One potential benchmark, although not based on past transportation decisions, is the “opportunity zones” designation created in the 2017 Tax Cut and Jobs Act. The “opportunity zone” designation provides favorable tax treatment for private investments in low-income areas designated by states.³⁵

The institutional values or blind spots that led to the building of highways through disenfranchised communities are likely to continue to confront people who seek to improve biking and walking. As highways reach the end of their functional life and are maintained, expanded, or altered, and bicycle and pedestrian networks are built for the first time, it is important that transportation institutions realize the history that may contribute to mistrust of these investments and proactively work with communities affected by projects to mitigate and address their concerns.

31 J. Stromberg. Vox. Highways Guttled American Cities. *So Why Did They Build Them?* (May 11, 2016). Available at <https://www.vox.com/2015/5/14/8605917/highways-interstate-cities-history>.

32 R. Mohl. Poverty & Race Research Action Council. Civil Rights Research. *The Interstates and the Cities: Highways, Housing, and the Freeway Revolt* (Original Release 2002) at p. 2. Available at <http://www.prrac.org/pdf/mohl.pdf>.

33 A. Halsey III. The Washington Post. *A Crusade to Defeat the Legacy of Highways Rammed through Poor Neighborhoods* (March 29, 2016). Available at https://www.washingtonpost.com/local/trafficandcommuting/defeating-the-legacy-of-highways-rammed-through-poor-neighborhoods/2016/03/28/fc6b5ae-f2a1-11e5-a61f-e9c95c06edca_story.html?utm_term=.cfcf3983146a

34 Phillipsen. Smart Cities Dive. *Overcoming U.S. Highway Injustices: From Displacement to Opportunity* (no date listed). Available at <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/overcoming-us-highway-injustices-displacement-opportunity/1168653>.

35 Adam Looney. Brookings Institution (2/26/2018). *Will Opportunity Zones help distressed residents or be a tax cut for gentrification?* Available at <https://www.brookings.edu/blog/up-front/2018/02/26/will-opportunity-zones-help-distressed-residents-or-be-a-tax-cut-for-gentrification/>.

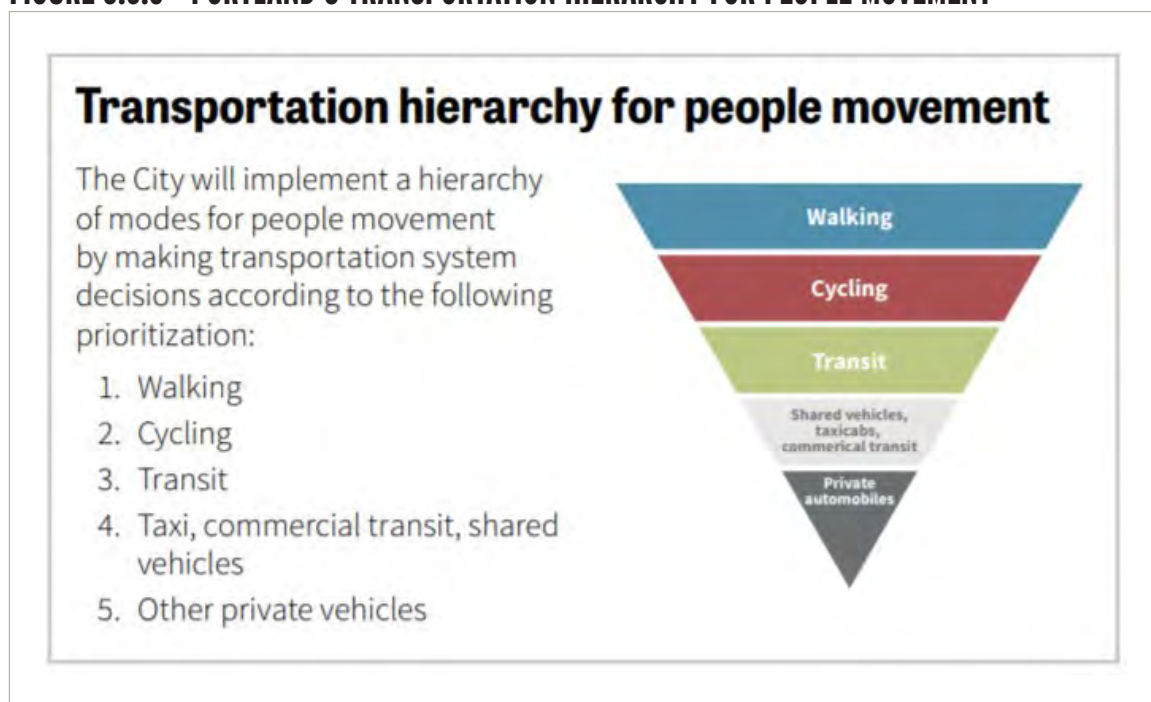
» ADVANCING UNDERSTANDING: EXPLICIT TRANSPORTATION HIERARCHIES

One way communities have begun to change the transportation context is by adopting a transportation hierarchy in their policies, giving a reference point for how they will plan and develop their transportation system.

In Portland, Oregon, this process led to adoption of a “sustainable transportation hierarchy” in its 2009 Climate Plan, which was reaffirmed in its 2015 Climate Plan. Portland’s transportation hierarchy is a statement from the city that it will include the movement of people by walking, cycling, transit, and shared vehicles before private automobiles. While the city’s hierarchy was adopted for environmental reasons, it also reflected the view that costs of various transportation modes such as walking, cycling, and transit are more affordable than transportation by private automobiles.

The formal adoption of an explicit transportation hierarchy in Portland appears to be somewhat unique and no comparative research of city or state hierarchies was found in the development of the 2018 Benchmarking Report.

FIGURE 3.6.5 - PORTLAND’S TRANSPORTATION HIERARCHY FOR PEOPLE MOVEMENT ³⁶



³⁶ City of Portland and Multnomah County. *Climate Action Plan (June 2014): 2050 Vision for Portland and Multnomah County. Local Strategies to Address Climate Change* at p. 86. Available at <https://www.portlandoregon.gov/bps/article/531984>.

SECTION VII: LAWS & ENFORCEMENT TO PROMOTE BIKING & WALKING

IN THIS SECTION, THE BENCHMARKING REPORT EXPLORES THE EFFECTS OF TRAFFIC LAWS AND ENFORCEMENT ON BICYCLING AND WALKING. THESE INCLUDE RECENT DEVELOPMENTS OF TRAFFIC LAWS MEANT TO PROTECT PEOPLE WHO BIKE AND WALK, WAYS THAT SOME LAWS RESTRICT BIKING AND WALKING, AND ENFORCEMENT EFFORTS THAT HAVE IMPACTED PEOPLE WHO BIKE AND WALK.

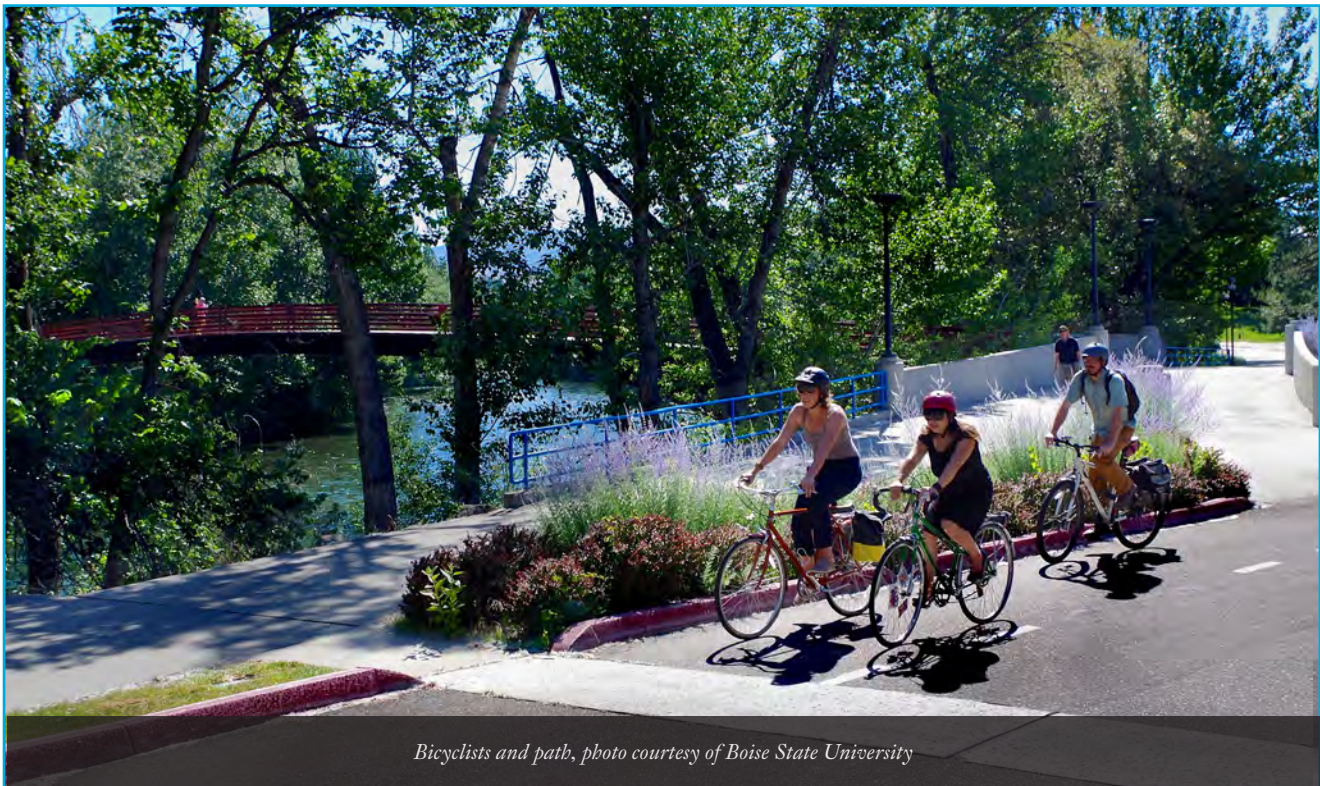
Use this section to understand how bicycling and walking are affected by traffic laws and their enforcement.

| | |
|-----------------------------------------------------------------------------------------------------------|-----|
| Making the Case: Progress on Laws to Protect People Who Bike & Walk | 124 |
| Topic 1: The Case for New Traffic Laws to Protect People Who Bike & Walk | 124 |
| Topic 2: The Case for Freedom of Movement for People Who Bike & Walk | 127 |
| Advancing Understanding: Data on Behaviors in Bicyclist & Pedestrian Crashes | 130 |
| Embracing Equity: Reasons To Be Concerned about Enforcement-related Approaches to Traffic Safety | 132 |
| Making the Health Connection: Public Health Law Efforts To Promote Physical Activity | 135 |

Road safety efforts are often organized around three types of action: 1) education, 2) enforcement, and 3) engineering. This section is concerned with the first two types of action and how they are governed at federal, state, and local levels. This topic is focused on the structures and roles of the stakeholder agencies that educate and execute enforcement of roadway laws, rather than funding issues. Compared to engineering, which is typically governed primarily by a transportation agency, a more diverse set of agencies is involved in governance for road safety education and enforcement.

FIGURE 3.7.1 - AGENCIES BY FOCUS AREA(S) RELATED TO SAFETY ¹

| FOCUS AREA | FEDERAL | STATE | LOCAL |
|----------------------------------|------------------------------------------------|----------------------------------------------|---------------------------|
| Road User Behavior | National Highway Traffic Safety Administration | Highway Safety Offices Health Departments | No Specific Agency |
| Vehicle Design/Technology | Federal Motor Carrier Safety Administration | Departments of Motor Vehicles | No Specific Agency |
| Law Enforcement | No Specific Agency | State Police/ Highway Patrol | Police Departments |



¹ Adapted from Federal Highway Administration. *Road Safety Fundamentals: Concepts, Strategies, and Practices that Reduce Fatalities and Injuries on the Road*. Unit 5: Implementing Road Safety Efforts at Table 5-1. Available at <https://rspeb.safety.fhwa.dot.gov/RSF/Unit5.aspx>.

» MAKING THE CASE: PROGRESS ON LAWS TO PROTECT PEOPLE WHO BIKE & WALK

The Benchmarking Report focuses on laws, rather than law enforcement. Laws are easier to find, assess, and change, and often that change is required before effective enforcement. The reality today is that many of our current laws do not provide protections for bicyclists and pedestrians and were sometimes instead written to restrict the movement of bicyclists and pedestrians. Today, automated enforcement is one example of an area that needs enabling legislation or is likely to be preempted by legislation.²

Topic 1 - The Case for New Traffic Laws to Protect People Who Bike & Walk

Over the last decade, there have been significant advancements in laws that protect people who bike and walk. Two of the most notable national changes are safe passing laws and vulnerable road user laws. At the local level, there have also been advancements in pedestrian-specific protections such as New York City's Right of Way law, which "makes it a misdemeanor crime when a driver fails to yield and kills or injures a person walking in the crosswalk with the right of way."³ These laws are important because they are official reactions to the dangers presented to people who bike and walk and provide legal recourse for people who are injured or killed while biking or walking. This is in contrast to the early development of traffic laws that often sought to restrict people who bike and walk in order to enable the free flow of cars.⁴

Safe passing laws are a reaction to the most common type of crash that leads to the death of a bicyclist—a motorist hitting a bicyclist from behind. The prevalence of this crash type is somewhat disputed, but federal data and other collected data both suggest that, although rare when considering all crashes involving bicyclists and motor vehicles, it is this type of crash that most often leads to the death a bicyclist.⁵

AUTOMATED ENFORCEMENT

is one example of an area that needs enabling legislation or may be preempted by legislation.

² Pedestrian and Bicycle Information Center. *Research Brief: An Overview of Automated Enforcement Systems and Their Potential for Improving Pedestrian and Bicyclist Safety* (last updated December 2017). Available at http://www.pedbikeinfo.org/pdf/PBIC_Brief_AutomatedEnforcement.pdf.

³ Transportation Alternatives. *The New York City Right of Way Law*. Available at <https://www.transalt.org/issues/vision-zero/right-of-way>.

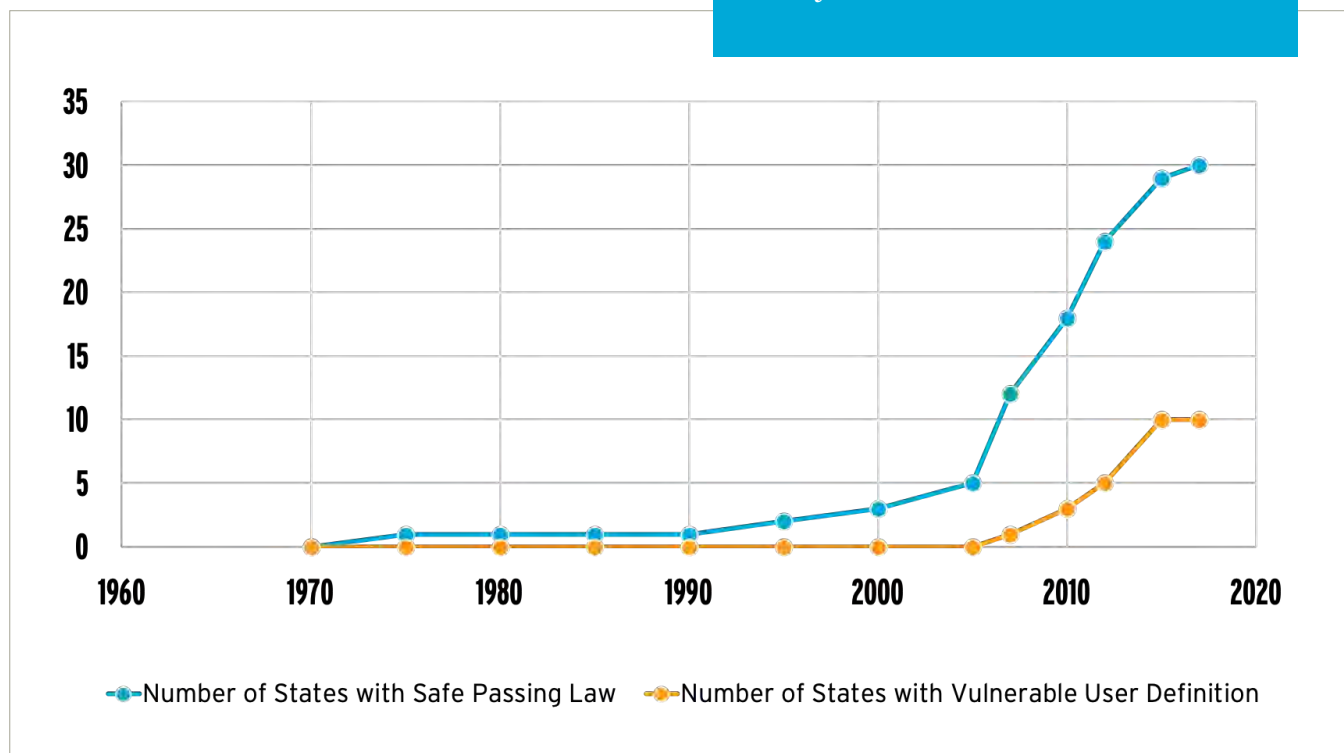
⁴ J. Stromberg. Vox. *The Forgotten History of How Automakers Invested the Crime of "Jaywalking"* (November 4, 2015). Available at <https://www.vox.com/2015/11/15/7551873/jaywalking-history>. See also K. McLeod. 42 *Fordham Urban Law Journal* 869 (2015). *Bicycle Laws in the United States-Past, Present, and Future*. Available at <https://ir.lawnet.fordham.edu/ulj/vol42/iss4/2>.

⁵ The League of American Bicyclists; Every Bicyclist Counts. *Bicyclist Safety Must Be a Priority: Findings from a Year of Fatality Tracking—and the*

“Every state has a variation of a safe passing law, with 36 states and DC explicitly addressing bicyclists. However, the actual distance—typically 3-feet—is defined by 28 states and DC, with Pennsylvania (4-feet) and South Dakota (3-feet on roads with a speed limit at or below 35 mph; 6-feet on roads with speed limits over 35 mph) mandating even greater minimum distances.”⁶ The first safe passing law specifically aimed at protecting bicyclists by defining a safe distance was passed in Wisconsin in 1973. The law did not start to become widespread until the 2000s and has since become the rule in the majority of states.⁷

SAFE PASSING LAWS are a reaction to the most common type of crash that leads to the death of a bicyclist—a motorist hitting a bicyclist from behind.

FIGURE 3.7.2 - STATE ADOPTION OF SAFE PASSING & VULNERABLE ROAD USER LAWS



Urgent Need for Better Data (May 2014). Available at http://bikeleague.org/sites/default/files/EBC_report_final.pdf. (Finding that 40% of advocate-collected bicyclist deaths were attributable to a hit from behind, while 27% of deaths reported by FARS in 2010 using PBCAT crash typing were attributable to a hit from behind.)

⁶ Governors Highway Safety Association. *A Right to the Road: Understanding and Addressing Bicyclist Safety* (September 2017) at pp. 38-39. Available at <https://www.ghsa.org/sites/default/files/2017-09/2017BicyclistSafetyReport-FINAL.pdf>.

⁷ The League of American Bicyclists. *Safe Passing Laws*. Available at https://bikeleague.org/sites/default/files/Safe_Passing_Laws_07_2018.pdf.

Vulnerable road user laws can take many forms, but the League focuses on states with laws that provide a definition of who is a “vulnerable road user” (sometimes also defined as “vulnerable user” or “vulnerable highway user”).⁸ A state can use its definition of who is vulnerable in multiple way:⁹

1

CREATE A BASIS FOR PROSECUTORS TO SEEK HARSHER PENALTIES, where a traffic violation that results in the serious injury or death of a vulnerable road user can result in greater penalties than the same violation that does not result in the serious injury or death of a vulnerable road user.

2

IDENTIFY EDUCATION OR OTHER STATE ACTIONS THAT WILL BE TAKEN TO MAKE VULNERABLE ROAD USERS SAFER.

3

ADDRESS SPECIFIC CIRCUMSTANCES where existing statutes did not provide the same protection to vulnerable road users because they were written with the assumption that only drivers would be involved in those circumstances.

Every state that defines a “vulnerable road user” for any purpose includes people who bike and walk, and many also include a variety of other potential users, including:

1. Users of wheelchairs
2. Law enforcement and other emergency workers
3. People on motorcycles
4. People roller blading
5. People driving farm tractors
6. People herding animals
7. People using an electric personal assistive mobility device
8. Highway workers

The League of American Bicyclists’ Model Vulnerable Road User law provides 11 types of users.¹⁰ Maine’s definition encompasses at least 13.¹¹

Both safe passing laws and vulnerable road user laws share similarities with move over laws created for law enforcement officers. Move-over laws generally provide that drivers should move into an adjacent lane when they are passing a law enforcement vehicle or other emergency vehicle displaying flashing lights on the side of the road.¹² Every state has enacted a move over law.¹³

8 The League of American Bicyclists. *Model Vulnerable Road User Law*. Available at <https://bikeleague.org/content/model-vulnerable-road-user-law>.

9 The League of American Bicyclists. *Bike Law University*. Available at <https://bikeleague.org/content/bike-law-university>. See also League of American Bicyclists. *Vulnerable Road User Laws*. Available at https://bikeleague.org/sites/default/files/VulnerableRoadUser_8_2018.pdf.

10 See Footnote 8.

11 Maine Revised Statutes. *Title 29-A: MOTOR VEHICLES AND TRAFFIC §101. Definitions 91-A Vulnerable User*. Available at <http://legislature.maine.gov/statutes/29-A/title29-Asec101.html>.

12 AAA. *Digest of Motor Laws*. Available at <http://drivinglaws.aaa.com/tag/move-over-law>.

13 National Safety Commission. *Move Over, America campaign*. Available at <http://www.moveoveramerica.com>.

Topic 2 - The Case for Freedom of Movement for People Who Bike & Walk

Streets are a public good, but since the early 1900s, many have been primarily designed for cars. Conscious efforts to restrict the movement of people who bike and walk were common in the past century, since they were seen as necessary to make streets available for the free movement of cars.¹⁴ Over time, this has contributed to auto-dependency and an auto-centric operation and management of the public realm. This has generated a diversity of negative impacts, many of which particularly impact those who lack access to a private vehicle. As we approach an era of automated vehicles, society again has an opportunity to re-assess whether streets are operated as public goods for all people or primarily for the benefit of people with access to one type of technology.

In *Bicycling and the Law*, Bob Mionske provides common law and constitutional arguments for a right to travel that includes non-motorized travel.¹⁵ The early development of traffic laws recognized the right to travel by a mode of a person's choosing as stated by the Supreme Court of Kansas in 1890: "Each citizen has the absolute right to choose for himself the mode of conveyance he desires, whether it be by ... car... or by bicycle ... subject to the sole condition that he will observe all those requirements that are known as the 'law of the road.' The right of the people to the use of the public streets of a city is so well established and so universally recognized in this country that it has become a part of the alphabet of fundamental rights of the citizen."¹⁶

The intervening development of communities designed primarily for car-based travel has inspired some people to restate the right of choice in how a person travels. As an example, Nashville, Tennessee, adopted a nonbinding



"Declaration of Transportation Independence" that states, in part, "Nashvillians should have the right to: Choose whether to drive, take public transportation, walk or bike for the majority of trips ... Decide not to own a car, or to be forced to buy a second one ... Decide not to use a car to make every trip because there is another option..."¹⁷

¹⁴ See Peter Norton. *Technology and Culture. Street Rivals: Jaywalking and the Invention of the Motor Age Street* (April 2007). Available at https://www.researchgate.net/publication/236825193_Street_Rivals_Jaywalking_and_the_Invention_of_the_Motor_Age_Street (detailing the development of jaywalking laws in Los Angeles and the spread of such laws throughout the United States).

¹⁵ Bob Mionske, Steven Magas, and Rick Bernadi. *Bicycling and the Law* at pp. 1-13 (2007).

¹⁶ See Footnote 15 at p. 12, quoting *Swift v. City of Topeka*, Supreme Court of Kansas (1890).

¹⁷ J. Garrison. *Tennessean (USA Today Network). Mayor Briley Signs "Declaration of Transportation independence" for Nashville* (April 2, 2018). Available at <https://www.tennessean.com/story/news/2018/04/02/nashville-transit-briley-declaration/479009002>.

Topic 3 - The Case for Stricter Liability for Drivers

The first pedestrian death involving an automated vehicle provides insights into how the responsibility of people who bike and walk will continue to be a question when automated vehicles are deployed. On March 20, 2018, an Uber self-driving SUV struck and killed 49-year-old Elaine Herzberg while she walked her bicycle across a street in Tempe, Arizona, around 10 p.m.¹⁸

Shortly after Herzberg's death, the police chief of Tempe said, "The driver said it was like a flash—the person walked out in front of them ... [It] appears that the Uber would likely not be at fault in this accident."¹⁹ This reaction has been seen previously for pedestrian deaths caused by motor vehicles. "In the aftermath of crashes between drivers and vulnerable road users, such as pedestrians and cyclists, there's a tendency to blame the victim."²⁰ The tendency of reporters to accept that crashes are inevitable accidents rather than something that can be prevented has led the Associated Press to update its stylebook in 2016 to recommend avoiding the word "accident" in cases where "negligence is claimed or proven."²¹

The first death of a person who was hit by an automated vehicle has raised many questions about how liability could be assigned for this type of case. Is the AV operator responsible? Does a city bear a responsibility for its roadway design? Does a state bear responsibility for allowing AV operators to operate?²²

As liability is re-examined for automated vehicles, there may also be an opportunity to re-examine general driver liability in the United States. Current negligence liability puts people who bike and walk, or their surviving relatives, in a position of proving a driver's negligence.²³ Generally, to prove negligence an injured person must show that there was a duty, a breach of that duty, that the breach caused an injury, and that there were damages from that injury. Traffic laws often establish duties and define how breaches might occur. For instance, a safe passing law that defines a safe passing distance of 3 feet or more establishes a duty of safe passing and a standard for its breach.

"IN THE AFTERMATH OF CRASHES

between drivers and vulnerable road users, such as pedestrians and cyclists, there's a tendency to blame the victim."

18 Troy Griggs and Daisuke Wakabayashi. New York Times (3/21/2018). *How a Self-Driving Uber Killed a Pedestrian in Arizona*. Available at <https://www.nytimes.com/interactive/2018/03/20/us/self-driving-uber-pedestrian-killed.html>.

19 Carolyn Said. San Francisco Chronicle (3/28/2018). *Exclusive: Tempe police chief says early probe shows no fault by Uber*. Available at <https://www.sfchronicle.com/business/article/Exclusive-Tempe-police-chief-says-early-probe-12765481.php>.

20 Meg Dalton. Columbia Journalism Review (4/4/2018). *When covering car crashes, be careful not to blame the victim*. Available at <https://www.cjr.org/analysis/when-covering-car-crashes-be-careful-not-to-blame-the-victim.php> (citing Heather Magusin. Earth Common Journal (October 2017). *If you want to get away with Murder, Use Your Car*. Available at <https://journals.macewan.ca/earthcommon/article/view/1229/1026>).

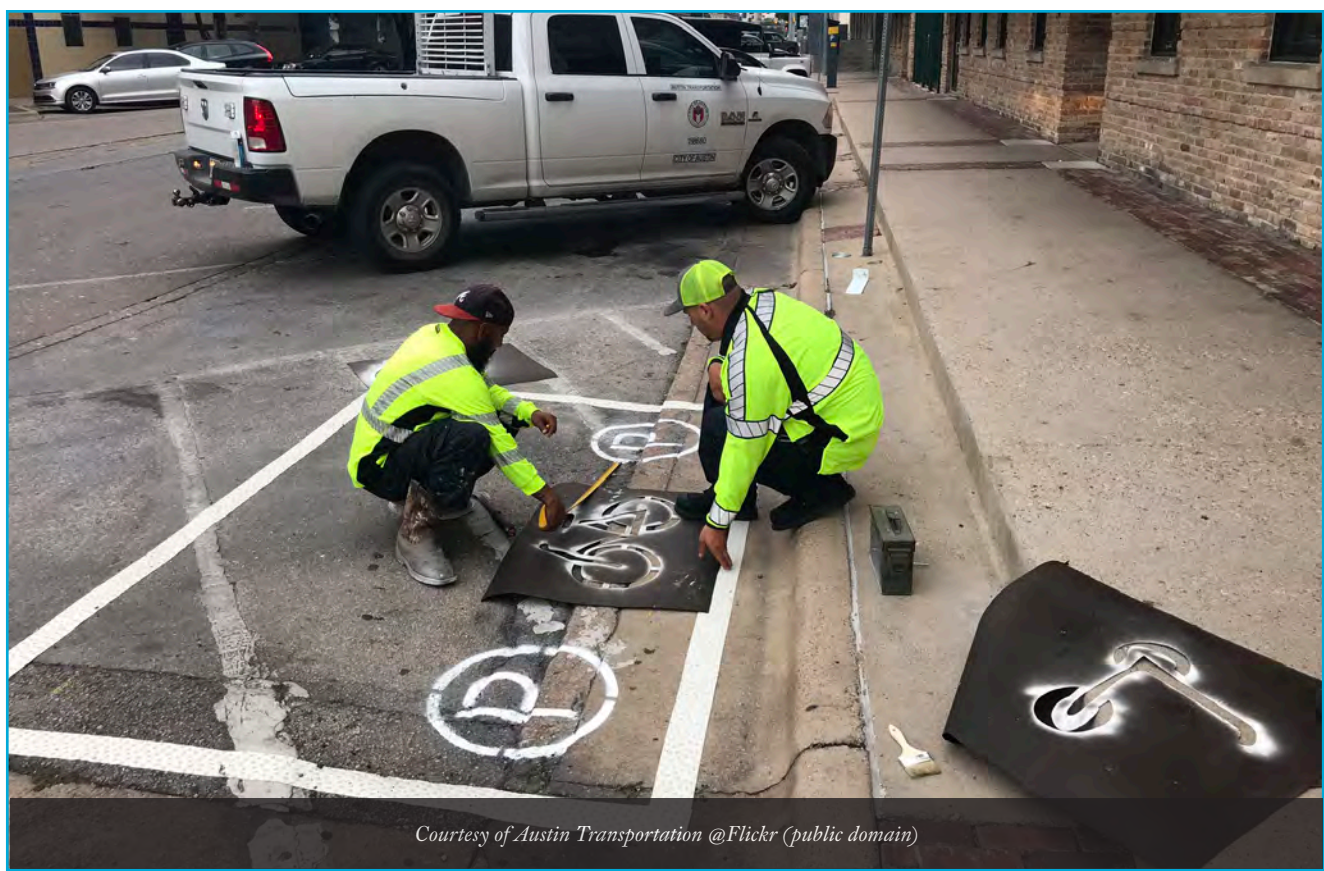
21 See Footnote 20 (crediting the #CrashNotAccident campaign led by Transportation Alternatives, a pedestrian, bike, and public transit advocacy group based in New York City).

22 Ian Bogost. The Atlantic (3/20/2018). *Can You Sue a Robocar?* Available at <https://www.theatlantic.com/technology/archive/2018/03/can-you-sue-a-robocar/556007/>.

23 Colleen Maker. Boston College Environmental Affairs Law Review (Volume 42, Issue 2, 2015). *Strict Liability in Cycling Laws to Ready the Roads for Environmentally Friendly Commuting* at 485. Available at <http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=2176&context=ealr>.

In most countries, civil liability for injuries to people biking and walking follow a different pattern than the one described above. In most countries, when a driver hits a person biking or walking a duty of care to people biking and walking and that a breach of that duty caused the collision is presumed, and the driver must show that they did not breach their duty in order to avoid liability. This liability framework is often referred to as presumed liability, strict liability or reverse onus.²⁴ A bicycle advocacy group in the United Kingdom found that only five countries in Europe did not use some form of presumed or strict liability.²⁵

By shifting the burden to drivers, these laws recognize the multiple ways that injured bicyclists and pedestrians are disadvantaged relative to a driver after a crash, including being injured or unconscious at the time of the crash, lacking sensor data or other data from vehicle systems, and possibly lacking insurance that will pay for legal representation. The shift in burden also recognizes that drivers have more power to avoid harm to a person biking or walking.²⁶ Automated vehicles will likely only reinforce these disparities in power and ability to provide evidence in the aftermath of a crash.



Courtesy of Austin Transportation @Flickr (public domain)

24 David Gardiner. *Bicycle Accidents* (July 13, 2016). Available at <http://www.ottawalawyer.co/english/news/bicycle-accidents.htm>.

25 Cycle Alert. *Presumed Liability: The Facts* (9/28/2015). Available at <http://www.cyclealert.com/presumed-liability-the-facts/> (noting that “The UK and Ireland along with Romania, Cyprus and Malta are the only countries in Europe who are not managing civil claims for compensation following a road traffic collision between a motorist and cyclist or pedestrian under some form of presumed or strict liability legislation.”)

26 See Footnote 23 at 497.

» ADVANCING UNDERSTANDING: DATA ON BEHAVIORS IN BICYCLIST & PEDESTRIAN CRASHES

Law enforcement plays an essential role in the development of data about crashes, through completing crash reports when they arrive on the scene. Crash reports directly lead to what is reported by the National Highway Traffic Safety Administration (NHTSA) in resources such as the Fatality Analysis Reporting System (FARS) and are a critical input in the data-driven process of law enforcement and traffic safety. The NHTSA Fatality Analysis Reporting System (FARS) recently added bicyclist and pedestrian crash typing to its data system, so those crash types can be searched. This was initially attempted in 2012, but that data were withdrawn. Data are now available for 2014, 2015, and 2016.

Existing data on bicyclist and pedestrian crashes are limited, although data availability shows signs of potentially improving. NHTSA has a framework for improving crash data reporting through improved crash reports called the Model Minimum Uniform Crash Criteria (MMUCC). This effort began as a voluntary guideline in 1998, and its 5th edition was published in 2017.²⁷ The MMUCC is updated every five years, with the next update scheduled for 2022.

For bicyclist deaths, the crash types used in 2014-16 included 71 crash types with 30 identifying bicyclist actions, 26 identifying motorist actions, and the remaining 15 not identifying a responsible party. The five most common crash types that killed bicyclists between 2014 and 2016, which accounted for 56% of bicyclist deaths due to motor vehicles, can be found in the following figure:

FIGURE 3.7.3 - MOST COMMON FATAL BICYCLIST CRASH TYPES

| CRASH TYPE | PERCENT OF BICYCLIST DEATHS WITH CRASH TYPE |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Motorist Overtaking - Other/Unknown | 12% of deaths |
| Motorist Overtaking - Undetected Bicyclist | 10% of deaths |
| Parallel Paths - Other/Unknown | 8% of deaths |
| Bicyclist Left Turn - Same Direction | 7% of deaths |
| 4 crash types: <ul style="list-style-type: none"> • Bicyclist Ride Through - Signalized Intersection, • Motorist Overtaking - Misjudged Space, • Unknown Approach Paths, and • Bicyclist Ride Through - Sign-Controlled Intersection | Tied at 5% of deaths each |

²⁷ National Highway Traffic Safety Administration. *About MMUCC*. Available at <https://www.nhtsa.gov/mmucc>.

An analysis of 51 state crash report templates and the MMUCC template in 2014 found that the only consistently included data fields related to bicycling were to indicate that a person was a “pedalcyclist” and whether or not they wore a helmet.²⁸

For pedestrian deaths, the crash types used in 2014-16 included 54 crash types with three identifying pedestrian actions, 10 identifying motorist actions, and the remaining 41 not identifying a responsible party, although some identified actions that did not name a party strongly imply a responsible party (such as five crash types based on some derivative of “standing/walking/running along roadway”). The five most common crash types that killed pedestrians in 2014-2016, which accounted for 57.5% of pedestrian deaths due to motor vehicles, can be found in the following figure:

FIGURE 3.7.4 - MOST COMMON FATAL PEDESTRIAN CRASH TYPES

| CRASH TYPE | PERCENT OF PEDESTRIAN DEATHS WITH CRASH TYPE |
|-------------------------------------------------------------------|----------------------------------------------|
| Pedestrian Failed To Yield | 30% of deaths |
| Not At Intersection - Other / Unknown | 8% of deaths |
| Standing/Walking/Running Along Roadway With Traffic - From Behind | 8% of deaths |
| Dash | 7% of deaths |
| Motorist Failed To Yield | 5% of deaths |

Of the pedestrian fatalities coded with the crash type of “pedestrian failed to yield,” approximately 18% of those pedestrians (885 of the 4,926 “pedestrian failed to yield” deaths reported in 2014-2016) were in a crosswalk when they “failed to yield.” This data is based upon police reports and, depending upon state definitions and training, may include marked and unmarked crosswalks. See Chapter IV: Show Your Data II: States for more information on state laws about drivers stopping or yielding at crosswalks.

While it is great to have better quality data on the crash types that kill bicyclists and pedestrians, the crash type descriptions most commonly associated with bicyclist and pedestrian deaths tend to be vague, including descriptors such as “Other/Unknown.” Continued development of this type of data may help better inform street designs, enforcement actions, and other interventions related to bicyclist and pedestrian safety.

²⁸ Lusk, Anne C, Morteza Asgarzadeh, and Maryam S Farvid. Injury Prevention (2015). *Database improvements for motor vehicle/ bicycle crash analysis*. Available at <http://dx.doi.org/10.1136/injuryprev-2014-041317>.

» EMBRACING EQUITY: REASONS TO BE CONCERNED ABOUT ENFORCEMENT-RELATED APPROACHES TO TRAFFIC SAFETY

National data on law enforcement of all types appears to be less developed than transportation sector data. In recent years, much attention has been paid to the lack of data on the use of force by law enforcement.²⁹ Black Lives Matter organizations have made strong demands for better, more accountable policing³⁰ that could lead to improved data systems useful for a variety of purposes, including improving understanding of the relationship between traffic policing and traffic safety.

Data on enforcement actions is not currently mentioned as a dataset in a recent FHWA Guide for State DOT Safety Data Business Planning.³¹ Organizations involved in the Black Lives Matter movement and other police transparency movements have raised important issues related to police accountability and have created language for further engaging with law enforcement to create more transparency in policing.³² Examples of initiatives to promote more open data on policing include Open Data Policing,³³ the Stanford Open Policing Project,³⁴ the Police Data Initiative,³⁵ the Police Open Data Census,³⁶ and city open-data efforts such as the data portal on police stops by the City of Berkeley, California.³⁷

Several recent examples of law enforcement agencies pursuing enforcement strategies against people who bike and walk appear to be unrelated to stated goals for transportation safety.

29 Kate Wheeling, Pacific Standard (10/10/2017). *How Many People Are Really Killed by Police in the United States?* Available at <https://psmag.com/social-justice/how-many-people-are-killed-by-police-in-the-united-states>.

30 Campaign Zero. *Solutions*. Available at <https://www.joincampaignzero.org/solutions/>.

31 Federal Highway Administration. FHWA-SA-17-047. (July 2017). *Guide for State Department of Transportation Safety Data Business Planning*. Available at <https://safety.fhwa.dot.gov/rsdp/downloads/fhwas17047.pdf>.

32 Nazgol Ghandnoosh, Ph.D., Research Analyst. The Sentencing Project (2015). *Black Lives Matter: Eliminating Racial Inequity in the Criminal Justice System*. Available at <https://sentencingproject.org/wp-content/uploads/2015/11/Black-Lives-Matter.pdf> (defining types of disparities in policing and four types of best practices for reducing disparities).

33 Southern Coalition for Social Justice. *Open Data Policing*. Available at <https://opendatapolicing.com/>.

34 Stanford Computational Journalism Lab and Stanford Computational Policy Lab. *The Stanford Open Policing Project*. Available at <https://openpolicing.stanford.edu/>.

35 The Police Foundation. *The Police Data Initiative*. Available at <https://www.policedatainitiative.org/>.

36 Code for America. *Police Open Data Census*. Available at <https://codeforamerica.github.io/PoliceOpenDataCensus/>.

37 City of Berkeley Open Data. *Berkeley PD – Stop Data*. Available at <https://data.cityofberkeley.info/Public-Safety/Berkeley-PD-Stop-Data/6e9j-pj9p>.

Racial Differences in Enforcement While Bicycling in Tampa, Florida

A 2015 report by the Tampa Bay Times that reviewed 12 years of civil traffic citations in Hillsborough County, Florida, found that Tampa police wrote more than 10,000 bicycle-related tickets between 2003 and 2015.³⁸ Of those tickets, 79% were issued to blacks while blacks made up only 26% of Tampa's population.³⁹

The reporting led to a federal investigation of the Tampa Police Department's practices by U.S. Department of Justice's Community Oriented Policing Services (COPS). COPS concluded that, despite the racial disparities in enforcement, which could not be explained by differences in bicycle ridership or manner of bicycle riding, no evidence of discriminatory intent was found in the enforcement.⁴⁰ Rather than racial discrimination, the COPS report concluded that racial disparities in enforcement were due to place-based differences in enforcement in higher crime areas.⁴¹ The COPS report also concluded that the enforcement data did "not appear consistent with the agency having a strategic focus on bicycle safety" and that a reduction in bicycle citations after reporting on the racial disparities in bicycle tickets "had no discernible effect on the number of bicycle crashes with injuries, the number of stolen bicycles, or the number of Part I crimes generally."⁴²

Unintended Consequences of Data-driven Enforcement in San Francisco

Recent enforcement efforts in San Francisco highlight the difficulty of data-driven enforcement being equally applied to all road users. As part of its Vision Zero goal adopted in 2014,⁴³ San Francisco committed to "Focus on the Five, meaning its police department set a goal to issue half of traffic citations to the five most common causes of collisions and injuries. In San Francisco, those five causes, as identified by an analysis of San Francisco Police Department (SFPD) collision data by the San Francisco Municipal Transit Agency in 2012,⁴⁴ are drivers:

1. Speeding
2. Violating pedestrian right of way in a crosswalk
3. Running red lights
4. Running stop signs
5. Failing to yield while turning

SEVERAL RECENT EXAMPLES OF LAW ENFORCEMENT AGENCIES pursuing enforcement strategies against people who bike and walk appear to be unrelated to stated goals for transportation safety.

38 Alexandra Zayas and Kameel Stanley. Tampa Bay Times. *How riding your bike can land you in trouble with the cops – if you're black*. Available at <http://www.tampabay.com/news/publicsafety/how-riding-your-bike-can-land-you-in-trouble-with-the-cops---if-youre-black/2225966>.

39 Nusrat Choudhury, Deputy Director. American Civil Liberties Union Racial Justice Program (5/14/2015). *If You're Black or Brown and Ride a Bike in Tampa, Watch Out: Police Find that Suspicious*. Available at <https://www.aclu.org/blog/racial-justice/race-and-criminal-justice/if-youre-black-or-brown-and-ride-bike-tampa-watch-out>

40 Greg Ridgeway, Ojmarrh Mitchell, Sheila Gunderman, Cedric Alexander, and James Letten. Office of Community Oriented Policing Services (2016). *An Examination of Racial Disparities in Bicycle Stops and Citations Made by the Tampa Police Department: A Technical Assistance Report*. Available at <https://ric-zai-inc.com/Publications/cops-wo801-pub.pdf>

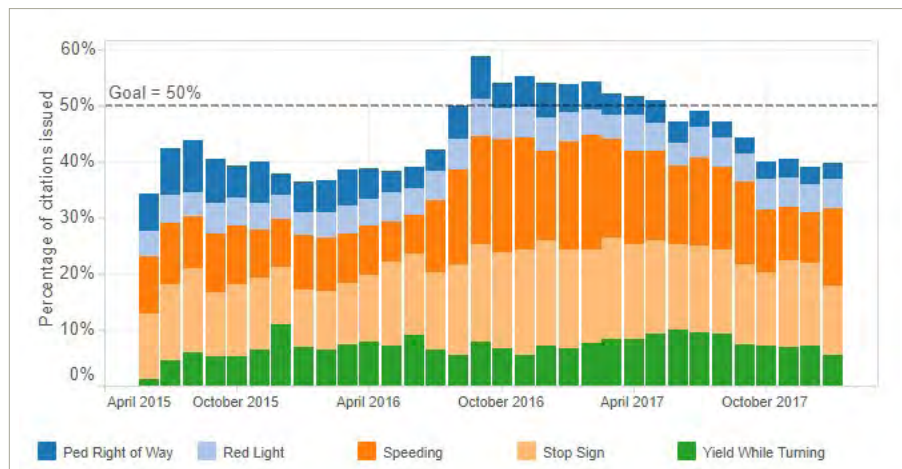
41 See Footnote 40 at p. 3.

42 See Footnote 40 at pp. 4-5 and footnote 18 on p. 10. (Part I crimes include homicide, rape, aggravated assault, robbery, burglary, larceny theft, motor vehicle theft, and arson.)

43 Vision Zero SF. *Two-Year Action Strategy*. Available at <http://visionzerosf.org/about/two-year-action-strategy/>.

44 City and County of San Francisco. *City Performance Scorecards, Percentage of Citations for Top Five Causes of Collisions*. Available at <http://sfgov.org/scorecards/percentage-citations-top-five-causes-collisions>.

FIGURE 3.7.5 - PERCENTAGE OF CITATIONS ISSUED BY SAN FRANCISCO POLICE DEPARTMENT FOR FIVE MOST DEADLY TRAFFIC VIOLATIONS ⁴⁵



In 2015, this data-driven enforcement approach butted up against bicyclists not making full stops along a popular bicycle route called the Wiggle. While each of the Focus on the Five violations were identified to be driver violations, the police captain with jurisdiction over the Wiggle responded to community complaints and applied “Focus on the Five” to issue citations for running stop signs to bicyclists.⁴⁶

The application of “Focus on the Five” to bicyclists, rather than drivers whose violations were responsible for most collisions and injuries, caused a backlash and calls for changes to traffic laws. The SFPD devoted 114 enforcement hours to a two-day enforcement effort to issue citations for running stop signs to bicyclists along the Wiggle.⁴⁷ The bicycle community responded with a protest, whereby bicyclists followed the law scrupulously, with every bicyclist stopping and putting a foot down,⁴⁸ and calling for enacting a local version of the “Idaho Stop” that allows bicyclists to treat stop signs as yield signs.^{49, 50} In 2016, the San Francisco Board of Supervisors passed a policy to deprioritize ticketing bicyclists that roll through stop signs, but that policy was vetoed by the mayor.⁵¹ In 2017, an effort to change the law was introduced in the California legislature but failed in committee.⁵² Also in 2017, Delaware became the second state in the country to allow bicyclists to treat stop signs as yield signs when it enacted the Bicycle Friendly Delaware Act.⁵³ As cities and states pursue data-driven approaches to enforcement this experience highlights the need for being specific about how data drives interventions and considering data-driven policy changes that complement enforcement efforts.

⁴⁵ See Footnote 44.

⁴⁶ Aaron Bialick. Streetsblog SF (7/24/2015). *SFPD Captain Justifies Bike Crackdown By Misconstruing “Focus on the Five.”* Available at <https://sf.streetsblog.org/2015/07/24/sfpd-captain-justifies-bike-crackdown-by-misconstruing-focus-on-the-five/>.

⁴⁷ Bryan Goebel. KQED News (1/20/2016). *San Francisco’s Mayor Vetoes Rolling-Stop Policy for Bicyclists.* Available at <https://www.kqed.org/news/10839061/san-franciscos-mayor-vetoes-rolling-stop-policy-for-bicyclists>.

⁴⁸ Kevin Montgomery. San Francisco Weekly (7/30/2015). *This is What Happened When Bicyclists Obeyed Traffic Laws Along the Wiggle Yesterday.* Available at <https://archives.sfweekly.com/thesnitch/2015/07/30/this-is-what-happened-when-bicyclists-obeyed-traffic-laws-along-the-wiggle-yesterday>.

⁴⁹ San Francisco Bicycle Coalition. *Why We Support a Bike Yield Law for San Francisco* (8/24/2015). Available at <http://www.sfbike.org/news/why-we-support-a-bike-yield-law-for-san-francisco/>.

⁵⁰ Michael Cabanatuan and Kale Williams. San Francisco Gate (7/29/2015). *S. F. bike riders’ Wiggle protest slows traffic.* Available at <https://www.sfgate.com/bayarea/article/S-F-bike-riders-Wiggle-protest-could-stop-6413072.php>.

⁵¹ See Footnote 47.

⁵² Eli Wirtschafter. KQED News (5/9/2017). *Bill to Allow Cyclist to Roll Through Stop Signs Fails.* Available at <https://www.kqed.org/news/11447002/bill-to-allow-cyclists-to-roll-through-stop-signs-fails>.

⁵³ Bike Delaware. *Bicycle Friendly Delaware Act.* Available at <http://www.bikedelaware.org/bfda/>.

» MAKING THE HEALTH CONNECTION: PUBLIC HEALTH LAW EFFORTS TO PROMOTE PHYSICAL ACTIVITY

While the discussion in this section primarily with traffic laws, public health law professionals have often prioritized other legal issues that surround physical activity. Most notably, public health law leaders have promoted shared recreational use of public properties such as schools during non-school hours.⁵⁴ Shared-use agreements are primarily intended to address liability concerns of public school officials, so they can confidently open their facilities to the public for recreational use.⁵⁵ Shared-use agreement language often focuses on staffing responsibilities and the enforceability of the agreement and potential remedies, which further emphasizes that their purpose is to allay liability fears.⁵⁶

Evidence is limited regarding the effectiveness of shared-use agreements leading to increased physical activity, but what does exist is positive.⁵⁷ Shared-use agreements provide increased access to places that can provide physical activity at a low cost because these places already exist in most communities but are underused.



54 Young, D. R., Spengler, J. O., Frost, N., Evenson, K. R., Vincent, J. M., & Whitsel, L. (2014). *Promoting physical activity through the shared use of school recreational spaces: a policy statement from the American Heart Association*. *American journal of public health*, 104(9), 1583-8. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4151914/>.

55 Public Health Law Center at William Mitchell College of Law. *Eliminating Barriers for Community Recreational Use of School Property: Policy Guidance on Liability and Shared Use* (2012). Available at <http://www.publichealthlawcenter.org/sites/default/files/resources/phlc-fs-shareduse-samples-tatute-language-2012.pdf>.

56 Benjamin Winig, and Tony Kuo. *Californian Journal of Health Promotion* (2017). *A Public Health Law Analysis of Shared Use Agreements in Los Angeles County, 2010-2014*. Available at http://www.cjhp.org/volume15Issue2_2017/documents/69-74_Kuo_CJHP2017_Issue2.pdf.

57 County Health Rankings & Roadmaps program of the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute. *Shared Use Agreements*. Available at <http://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/policies/shared-use-agreements>.

SECTION VIII: FUNDING AND FINANCING TRANSPORTATION

IN THIS SECTION, THE BENCHMARKING REPORT DISCUSSES RECENT EXPERIENCES WITH INCREASED FEDERAL FUNDING FOR BIKING AND WALKING PROJECTS, STATE SYSTEMS FOR FINANCING AND FUNDING PROJECTS, LOCAL EFFORTS TO BOOST SPENDING ON BIKING AND WALKING, AND CHALLENGES TO FUNDING BIKING AND WALKING PROJECTS.

Use this section to learn how bicycling and walking projects are funded and what debates exist about transportation funding mechanisms.

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In the United States, the traditional basis for transportation funding is taxes on gasoline and diesel fuels. These taxes make up 66% of revenues for transportation at the federal level.¹ However, they comprise less than 30% of spending on transportation at all levels of government and have been declining as a share of revenues for transportation over time.² The declining value of gas taxes may be due to a variety of factors, including the increase of more fuel-efficient vehicles and the reduction of purchasing power of the federal gas tax due to inflation. The federal gas tax has not been raised since 1993 and has lost nearly 40% of its purchasing power due to inflation since its last increase. These factors are unlikely to reverse in the future and may become even more prominent.

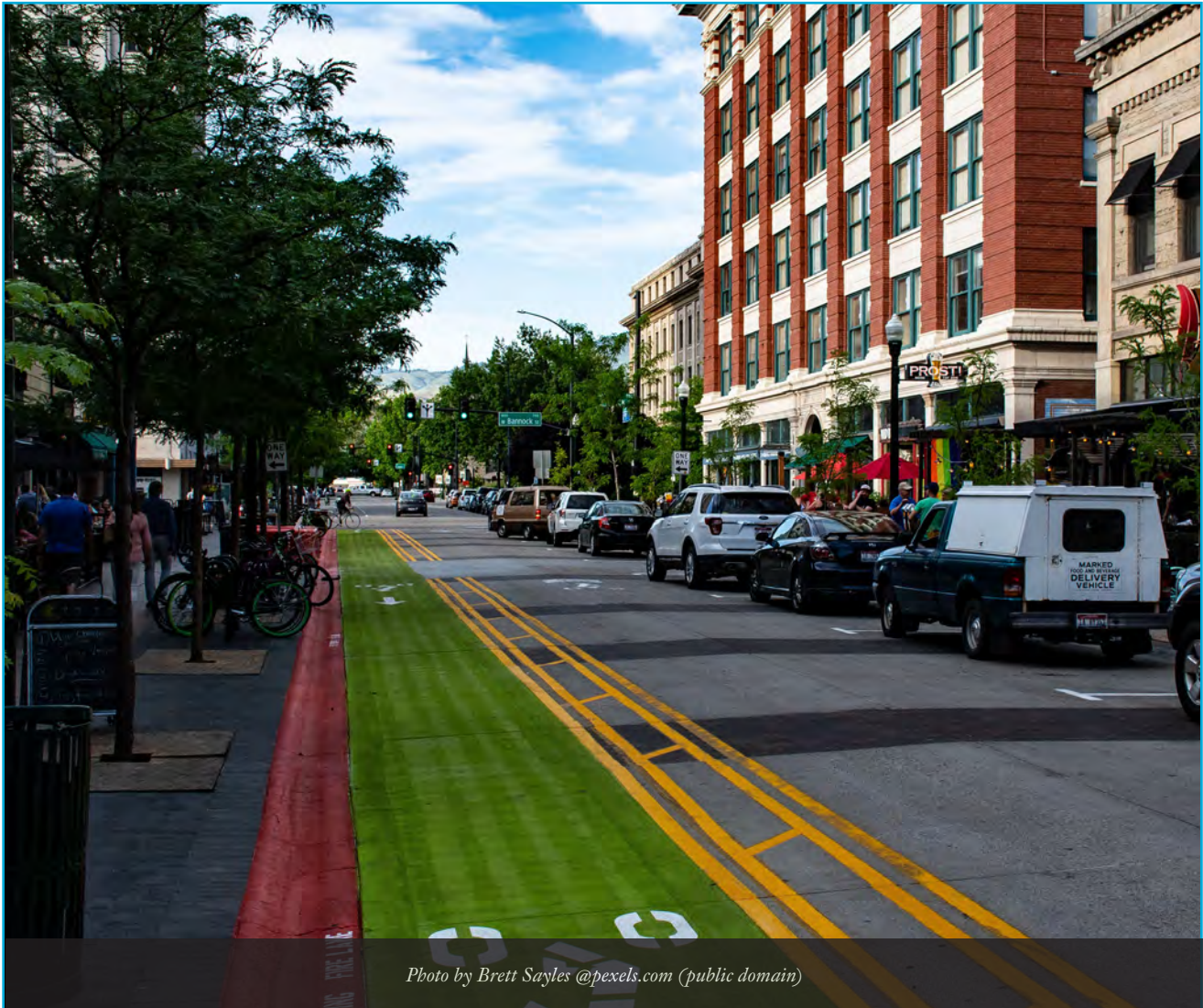


Photo by Brett Sayles @pexels.com (public domain)

¹ The Pew Charitable Trusts (2014). *Pew's analysis of U.S. Census Bureau's Annual Survey of State and Local Governments, 2007-2011*. Available at http://www.pewtrusts.org/-/media/assets/2014/09/ff-transportation-report-horizontal-graphics_v3_123114.pdf.

² See Footnote 1 at Figures 1 and 7.

» MAKING THE CASE: MOVING BEYOND THE BENEFITS PRINCIPLE TO IMPROVE SYSTEM PERFORMANCE

Topic 1 - The Case for Increased Funding for Bicycling & Walking

Bicycle and pedestrian federal spending data come from the Federal Highway Administration (FHWA)'s Fiscal Management Information System. The Benchmarking Report includes data on total obligations, per capita obligations, and the percentage of all obligated federal transportation funding spent on bicycle and pedestrian coded projects for each state. An obligation occurs when the FHWA approves a project and executes a project agreement, at that point “the Federal government [promises] to pay a State for the Federal share of a project’s eligible cost”³ and that promise is called an obligation.

Overall, \$3,797,229,085 in federal transportation funds were obligated to biking- and walking-coded projects between FY2012 and FY2016. This amount represents 1.9% of obligated federal transportation funding during that time period and a per capita funding level of \$2.36 per person.

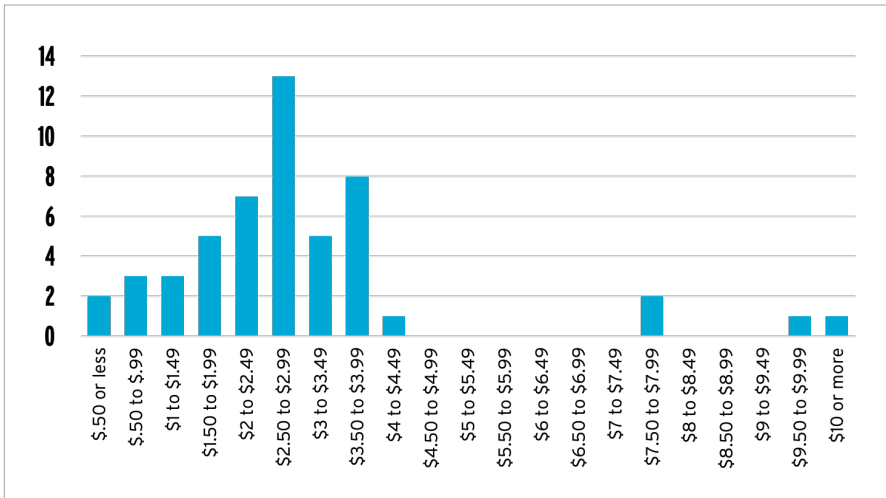
MOST STATES SPEND BETWEEN \$1.50 AND \$3 per capita of their federal transportation funding on biking and walking projects.

Most states spend between \$1.50 and \$3 per capita of their federal transportation funding on biking and walking projects. The four outlier states with per capita obligations over \$7 per person – Alaska, Montana, Delaware, and Vermont - are also among the top 10 for all federal transportation spending per capita. This suggests that these outliers may reflect the way in which federal transportation funds are distributed in general rather than by state preferences for higher rates of investment in biking and walking projects. Although Delaware stands out for having a high rate of obligations to biking and walking projects by any measure.

³ Federal Highway Administration. *Funding Federal-Aid Highways Chapter 4 Obligation of Funding* (January 2017). Available at <https://www.fhwa.dot.gov/policy/olsp/fundingfederalaid/04.cfm>.

The distribution in per capita funding levels can be seen in the chart below.

FIGURE 3.8.1 - STATE PER CAPITA USE OF FEDERAL FUNDS ON BICYCLING & WALKING ⁴



It is difficult to draw conclusions about whether state use of federal transportation funding for biking and walking is increasing or decreasing. This is due to:

1 A ONE-TIME INCREASE IN FUNDING.

Between 2009 and 2014 the American Recovery and Reinvestment Act (ARRA) provided significant funding for transportation in addition to normal federal transportation funding.

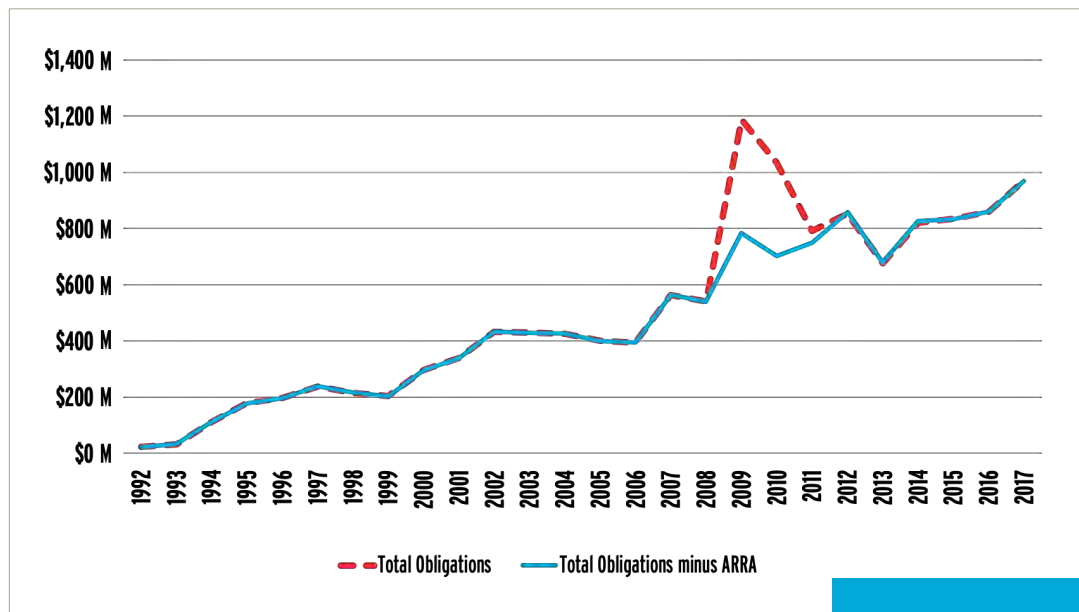
2 CHANGES TO FEDERAL TRANSPORTATION LAW IN 2012 AND 2015 MAY HAVE RESULTED IN REDUCED OBLIGATIONS AS NEW TRANSPORTATION PROGRAMS WERE IMPLEMENTED.

In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) significantly changed federal bicycle and pedestrian funding by combining three programs (Recreational Trails, Safe Routes to School, and Transportation Enhancements) into one program (Transportation Alternatives). In 2015, the Fixing America’s Surface Transportation (FAST) Act also changed the structure and name of federal bicycle and pedestrian funding by altering the Transportation Alternatives Program to the Surface Transportation Block Grant Transportation Alternatives Set-Aside (TASA).

⁴ Federal Highway Administration. Fiscal Management Information System Data for 2012-2016. U.S. Census Bureau. *American Community Survey Table B01003 5-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

Funding changes for biking and walking projects due to ARRA can be seen in the graph below. Due to this shift in available federal transportation funding, states spent \$25,821,237 less on biking and walking projects during FY2012-2016 compared to FY2007-2011.

FIGURE 3.8.2 - FEDERAL SPENDING ON BICYCLING AND WALKING OVER TIME⁵



DESPITE REDUCED AVAILABLE FUNDS SINCE THE END OF ARRA, 22 states spent more federal transportation funding on biking and walking projects in FY2012-2016 than during FY2007-2011.

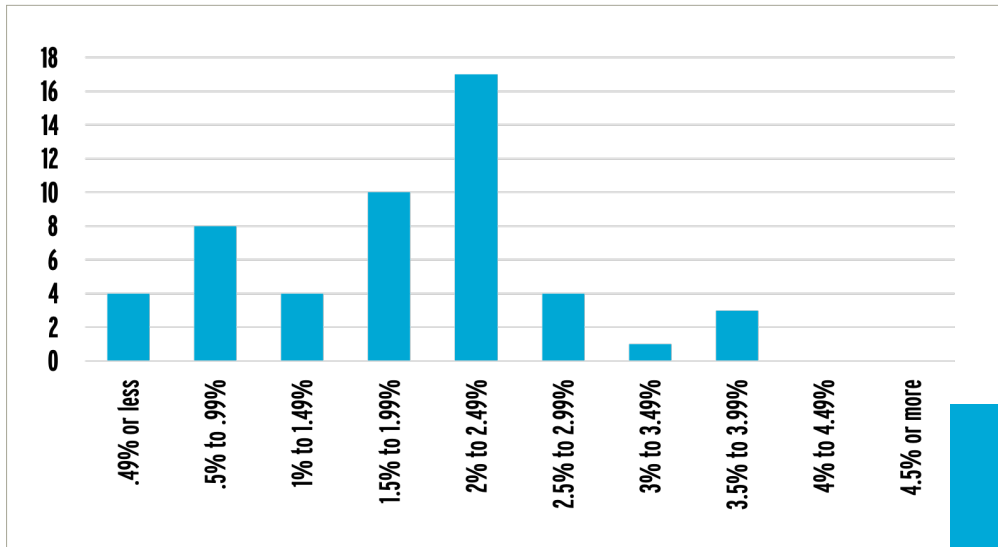
However, in the amount of federal transportation funding spent on biking and walking projects, evidence does point to increased state use of federal transportation funding for biking and walking. Examples include the following:

- Despite reduced available funds since the end of ARRA, 22 states spent more federal transportation funding on biking and walking projects in FY2012-2016 than during FY2007-2011.
- The average percentage of federal transportation funding obligated to biking and walking coded projects increased from 1.8% for FY 2007-2011 to 2.1% for FY2012-2016.
- Twenty-eight states spent a larger percentage of their federal transportation funding on biking and walking projects in FY2012-2016 than in FY2007-2011; one spent the same percentage, and the remainder spent a smaller percentage.

The percentage of federal funding spent on biking and walking projects did not show any outlier states, despite the significant increases in the percentage of funding spent on biking and walking projects in some states. Distribution in percentage of funding levels can be seen in the graph below.

⁵ See Chapter IV: Show Your Data I: Nation.

FIGURE 3.8.3 - STATE USE OF FEDERAL TRANSPORTATION FUNDS ON BICYCLING & WALKING ⁶



NATIONWIDE, THE LEAGUE OF AMERICAN BICYCLISTS' ANALYSIS of FMIS data show that \$2.36 of federal transportation funding per person is spent on bicycling and walking projects.

Nationwide, the League of American Bicyclists' analysis of FMIS data show that \$2.36 of federal transportation funding per person is spent on bicycling and walking projects. FMIS data do not, and cannot, distinguish between spending on biking and walking. When asked to distribute \$100 of taxes on transportation, American voters on average allocated \$26.90 to expand and improve walking and biking paths and sidewalks—far higher than the 2% of federal funding spent on biking and walking, and the \$2.36 per person spent on bicycling and walking. ⁷ For comparison, here are what some other countries spend per capita on bicycling:

- **ENGLAND** spends \$5.28 per capita on bicycling. ⁸
- **THE NETHERLANDS** spends \$29.48 per capita on bicycling. ⁹
- **HUNGARY** (whose GDP per capita is more than four times less than the United States) spends \$4.45 per capita on bicycling. ¹⁰

Transportation funding in the United States does not depend only on federal spending. While state spending data on bicycling and walking projects are not readily available or provided in a uniform format like FHWA obligation data, several states have estimated the current bicycling and walking needs in their states.

⁶ See Chapter IV-Show Your Data I: Nation.

⁷ Rails to Trails Conservancy, designed by Lake Research Partners and Bellwether Research and fielded by professional interviewers from Sept. 9-14, 2014. *American Voters Expect Federal Investment in Walking and Bicycling*. Available at <https://www.railstotrails.org/resourcehandler.ashx?id=5088>.

⁸ P. Walker. The Guardian, Bike Blog (October 21, 2015). *Cycling: Three quarters of Britons Support More Spending on Bike Use*. Available at <https://www.theguardian.com/environment/bike-blog/2015/oct/21/cycling-three-quarters-britons-support-more-spending-bike-use>.

⁹ A. Bador and H. Haubold. European Cyclists' Federation AGM Stockholm (May 28, 2016). *Investments in Cycling and Cost-Benefit Analysis—Overview and New Developments*. Available at https://ecf.com/sites/ecf.com/files/AGM2016_Presentation_HO_CBA_Investment_v2.pdf.

¹⁰ See Footnote 9.

In Colorado, a recent report by the Public Interest Research Group ¹¹ recommended that Colorado invest:

- **“\$243.6 MILLION PER YEAR IN WALKING INFRASTRUCTURE** to build 6,000 miles of missing sidewalks, repair 8,600 miles of inadequate sidewalks in Colorado’s urbanized areas and maintain the whole system.
- **\$229.5 MILLION PER YEAR TO BRING THE BIKING INFRASTRUCTURE** in every city up to the standards of the best communities in Colorado, build regional bicycle routes that connect cities and towns across the state, ensure [its residents and visitors] have safe shoulders on rural roads to allow safe bike travel, and expand bike share programs to increase access to biking options.”

These investments would result in spending of \$43.42 per capita for walking and \$40.91 per capita for biking.

The 2008 Washington State Bike and Pedestrian Plan identified \$1.6 billion in unfunded biking and walking projects from local Transportation Improvement Programs. ¹² That plan contemplated investments over a 20-year time frame, meaning the identified need for biking and walking investments was \$80 million per year or \$10.80 per capita per year. In 2015, the Washington state

legislature passed a 16-year funding bill that provides nearly \$20 million per year for biking and Safe Routes to School projects,¹³ and in 2018, an update to the state’s Bicycle and Pedestrian Plan was announced. ¹⁴

Increases in funding for biking and walking have been shown to lead to boosted rates of biking and walking, and improvements in bicyclist and pedestrian safety. In 2005, Congress authorized the Non-Motorized Transportation Pilot Project (NTPP), which provided \$25 million for four communities in the United States (Columbia, Missouri;

Marin County, California; Minneapolis area, Minnesota; and Sheboygan County, Wisconsin). The NTPP funds leveraged an additional \$59 million in federal, state, and local funds (approximately \$43 per capita annually over four years) leading to a variety of activities such as bicycle and pedestrian planning, infrastructure, and programming. The estimated outcomes of the NTPP were 22.8% and 48.3% increases in the number of pedestrian and bicycle trips across the four communities. ¹⁵ In addition, pedestrian injury

rates declined between 17.9% and 55.1% in each of the four communities, and bicycling injury rates (incidents per number of trips) declined between 8.6% and 38.2% in each of the four communities.¹⁶



11 D. Katz. CoPIRG Foundation (August 17, 2016). *Colorado Needs to Invest \$1.05 Billion Annually in Transit, Walking and Biking*. Available at <https://copirgfoundation.org/news/cof/colorado-needs-invest-105-billion-annually-transit-walking-and-biking>.

12 Washington State Department of Transportation. *Washington State Bicycle Facilities and Pedestrian Walkways Plan, 2008-2027* at pp. 1 and 35. Available at <https://www.wsdot.wa.gov/NR/rdonlyres/F061CF6D-7B96-4E61-BF20-50EAF2716997/0/BikePedPlan.pdf>.

13 B. Trask. Washington Bikes (July 10, 2015). *Washington State Transportation Package Puts Biking Dollars at All-time High*. Available at <http://wabikes.org/2015/07/10/wa-state-transportation-package-puts-biking-dollars-at-all-time-high>.

14 Washington State Department of Transportation. *Announcing the WSDOT 2018 Active Transportation Planning Process*. Available at https://www.wsdot.wa.gov/bike/bike_plan.htm.

15 Federal Highway Administration. FHWA-HEP-14-035 (May 2014). *Nonmotorized Transportation Pilot Program: Continued Progress in Developing Walking and Biking Networks* at v. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp/2014_report/hep14035.pdf.

16 See Footnote 15 at vi.

Topic 2 - The Case for Local Transportation Funding Measures

Bond measures at the local level have successfully provided funding streams for biking and walking projects.

» ALAMEDA COUNTY, CALIFORNIA

Voters passed Measure BB in 2014,¹⁷ which is expected to provide \$651 million for bicycle and pedestrian paths and safety between 2015 and 2045.¹⁸

» ATLANTA, GEORGIA

Voters approved the Renew Atlanta bond program in 2015.¹⁹ The Renew Atlanta bond program provided \$250 million for road projects and has been credited with the City of Atlanta doubling its bike path mileage between 2012 and 2018.²⁰ Since approval of the Renew Atlanta bond program, the city hired its first “chief bicycle officer”²¹ and issued its first annual report on bicycling.²²

» AUSTIN, TEXAS

Voters passed a Mobility Bond in 2016, providing \$720 million that will be spent over eight years.²³ Bicycle and pedestrian projects are included in the Corridor and Local Mobility programs approved by the Bond, which make up roughly 86% of the Bond’s value. The \$137 million dedicated to local mobility projects will be primarily delivered through the city’s Sidewalk Program, Active Transportation Program, Safe Routes to School, Transportation Safety Improvement Program, and Urban Trails²⁴ programs.



17 Alameda County Transportation Commission. *Measure BB Passed with 70 Percent Voter Support: Funds 30-Year Transportation Expenditure Plan* (November 2014). Available at <https://www.alamedactc.org/2014Plan>.

18 Alameda County Transportation Commission. *2014 Alameda County Transportation Expenditure Plan* (January 2014) at 2. Available at https://www.alamedactc.org/files/managed/Document/12934/2014_Transportation_Expenditure_Plan.pdf.

19 Atlanta Bicycling Coalition (2018). *The Renew Atlanta Bond, Passed in 2015, Including Funding for Complete Streets Projects*. Available at <http://www.atlantabike.org/renewatlanta>.

20 Dr. Williams. Atlanta Business Chronicle. *Report Shows Atlanta Bike Path Mileage Doubled Since 2012*. Available at <https://www.bizjournals.com/atlanta/news/2018/03/14/report-shows-atlanta-bike-path-mileage-doubled.html>.

21 M. Blau. Atlanta Magazine. *Becky Katz Wants to Make Atlanta More Bicycle-friendly. She's in for an Uphill Climb* (February 12, 2016). Available at <http://www.atlantamagazine.com/news-culture-articles/becky-katz-wants-to-make-atlanta-more-bicycle-friendly-shes-in-for-an-uphill-climb>.

22 K. L. Bottoms. Atlanta City Council, Department of City Planning. *City of Atlanta 2017 Annual Bike Report*. Available at <https://www.atlantaga.gov/home/showdocument?id=34089>.

23 City of Austin. *The 2016 Mobility Bond Is Putting Austin in Motion*. Available at <https://data.austintexas.gov/stories/s/9krn-a66r>.

24 City of Austin. *Local Mobility Program*. Available at <https://data.austintexas.gov/stories/s/Local-Mobility-Program-Page/9jsz-agwf>.

» DENVER, COLORADO

Measure 2A passed in 2017.²⁵ In this measure, “[m]ore than \$70 million is designated to build missing segments of the sidewalk and bike networks, and \$115 million overall is reserved for bike-ped projects across the city.”²⁶

» DALLAS, TEXAS

Voters approved a \$533-million bond for roadwork that included funding for six major Complete Streets projects and a 50-mile shared use trail network called The Loop in 2017.²⁷ Of the total funding, \$35.6 million is expected to be spent on trails, as well as to leverage an additional \$50 million.²⁸ This influx of funding is significantly above the annual \$500,000 that the City of Dallas has provided for biking improvements in the past.²⁹



Bike Team at Facebook HQ, photo courtesy of Menlo Park

27 R. Monson. Frontburner. D Magazine. *Go Inside Dallas' New Cycling Plans as Bike Share Companies Flood the Streets* (December 15, 2017). Available at <https://www.dmagazine.com/frontburner/2017/12/is-dallas-finally-ready-to-become-bike-friendly>.

28 K. Kalthoff. NBCDFW.com Channel 5. *More Dallas Bike Lanes Are on the Way* (December 21, 2017). Available at <https://www.nbcdfw.com/news/local/More-Dallas-Bike-Lanes-Are-on-the-Way-465789103.html>.

29 See Footnote 27.

30 National League of Cities. Local Infrastructure Funding Report (December 8, 2016). *Paying for Local Infrastructure in a New Era of Federalism*. Available at <https://www.nlc.org/resource/local-infrastructure-funding-report>.

31 A. Tomer and J. Kane. Brookings (January 2018). *Localities Will Deliver the Next Wave of Transportation Investments*. Available at <https://www.brookings.edu/research/localities-will-deliver-the-next-wave-of-transportation-investment>.

ONLY 29 STATES allow local option sales taxes that can fund roads or general funds.

However, not every county, city, or town has access to local revenue sources. Only 29 states allow local option sales taxes that can fund roads or general funds. Even fewer local jurisdictions can raise revenues through local option fuel taxes, with just 15 states allowing that option.³⁰ To learn more about state financing options for transportation, please see Chapter IV: Show Your Data II: States.

A recent Brookings Institution brief noted that localities are increasingly called on to contribute to transportation investments, but both federal and state governments restrict the ability of these localities to raise revenues, and federal funding programs often give states power over local transportation decisions.³¹ Brookings makes several recommendations, saying, “States must be willing to let cities, counties, and regional governments experiment with different taxation schemes.” For the federal government, Brookings recommends prioritizing maintenance, especially in older, slower-growth places, and incentivizing states to remove preemption and allow different local taxation schemes.

25 P. van Heuven. Bicycle Colorado. *Bike and Pedestrian Groups Support Denver's Go Bond Investments* (August 21, 2017). Available at <http://www.bicyclecolorado.org/wp-content/uploads/2017/09/DSP-Bond-Press-Release.pdf>.

26 Bicycle Colorado. Denver Initiative. *Denver's 2017 General Obligation (GO) Bond Delivers for Biking and Walking*. Available at <https://www.bicyclecolorado.org/initiatives/denver>.

Topic 3 - The Case for Pricing Transportation Costs Through Motor Vehicle-Related Fees

The United States has a very low gas tax relative to other countries. The federal gas tax is 18.4 cents per gallon and has not been changed since 1993. State and local governments levy on average an additional 35 cents per gallon for a combined rate of 53 cents per gallon. The average gas tax in the 34 countries of the Organization for Economic Co-operation and Development is \$2.62 per gallon, nearly five times the average gas tax in the United States.³² Among OECD nations, the U.S. gas tax is second lowest (Mexico has no gas tax) and is less than half the gas tax in Canada, which is \$1.25 per gallon.

The low gas tax in the United States results in two anomalies that are not fully appreciated or understood: First, current gas taxation rates do not fully fund road investments (gas taxes only pay for 30% of transportation funding at all levels of government) and, second, negative externalities (costs incurred by society due to motor vehicle use) are not included in the price of gasoline.

Common externalities of motor vehicle use include congestion, serious injuries and deaths due to motor vehicle-involved crashes, climate change, and pollution (which has health effects aside from climate change).³³ The International Monetary Fund's report, "Getting Energy Prices Right,"³⁴ has attempted to quantify the costs imposed on society due to motor vehicle use for over 150 countries. For the United States, the IMF estimates motor vehicle use creates costs of \$1.60 per gallon for gasoline and \$2.10 per gallon for diesel, with 31 cents of this increase due to carbon dioxide emissions and 85 cents due to congestion.³⁵

Max Auffhammer and Michael Anderson at the University of California at Berkeley looked specifically at the costs imposed by crashes and found that those costs were equivalent to 97 cents per gallon.³⁶ They also found the average car on the road was 530 pounds heavier in 2008 compared to 1988, representing a 20% increase in weight; and that heavier vehicles weights significantly increased fatality rates. Auffhammer and Anderson estimated that an increase in the gas tax of 26 cents a gallon would internalize the increased probability of fatality from the increased fleet vehicle weight observed between 1988 and 2008.

Many policymakers question whether the gas tax will continue to be effective as motor vehicles become more fuel-efficient or electrically powered. While the gas tax may be the traditional method of making motor vehicles pay for their infrastructure and external costs, the future may include a variety of other fees, most prominently a vehicle-miles-traveled fee. Externalities may also be tackled by individual fees related to the individual externality. For example, the state of California has raised significant revenue for biking and walking, and other environmental mitigation through a carbon tax that applies to transportation fuels.³⁷

32 K. Pomerleau. Tax Foundation. *How High are Other Nations' Gas Taxes?* (March 3, 2015). Available at <https://taxfoundation.org/how-high-are-other-nations-gas-taxes>.

33 E. Jaffe. Citylab. *The Real Reason U.S. Gas Is So Cheap Is Americans Don't Pay the True Cost of Driving* (January 5, 2015). Available at <https://www.citylab.com/transportation/2015/01/the-real-reason-us-gas-is-so-cheap-is-americans-dont-pay-the-true-cost-of-driving/384200>.

34 Ian Perry et al. International Monetary Fund (July 2014). *Getting Energy Prices Right: From Principle to Practice*. Available at <http://www.elibrary.imf.org/view/IMF071/21171-9781484388570/21171-9781484388570/21171-9781484388570.xml?rskey=kHyJS5&result=1&highlight=true&redirect=true>.

35 Lucas Davis. Energy Institute Blog (1/5/2015). *Raise the Gas Tax*. Available at <https://energyathaas.wordpress.com/2015/01/05/raise-the-gas-tax/>.

36 Michael Anderson and Max Auffhammer. U.C. Berkeley and NBER (final version accepted May 2013). *Pounds that Kill: The External Costs of Vehicle Weight*. Available at https://are.berkeley.edu/~mlanderson/pdf/anderson_auffhammer.pdf.

37 Irvin Dawid. Planetizen (1/6/2015). California's 'Hidden Gas Tax' Arrives, Goes Unnoticed. Available at <https://www.planetizen.com/node/73115>.

» ADVANCING UNDERSTANDING: A LOOK AT SIDEWALK FUNDING

The Benchmarking Report primarily discusses funding for biking and walking projects through nationally available federal data on federal transportation funding. Due to the diversity of state and local government agency structures, legislative involvement in transportation funding, and diverse accounting systems, a similarly comprehensive discussion of biking and walking project funding by state and local government is difficult.

One example of the complexities that arise when attempting to quantify and track investments in bicycling and walking infrastructure can be found in the basic infrastructure for walking: sidewalks. A 2010 survey of 82 cities in 45 states found that 40% of cities require property owners to pay the full cost of repairing sidewalks; 46% share the cost with property owners; and 13% of cities pay the full cost of repairing sidewalks.³⁸ If these 82 cities are representative of most cities in the United States, then most cities are unlikely to have any record of what is spent on sidewalk maintenance because those costs are borne by property owners rather than the city.

Although many cities assign responsibility for sidewalk maintenance to property owners, the federal government,

through the Americans with Disabilities Act (ADA), has created responsibilities for cities to provide and maintain sidewalks. Because of ADA, state and local governments have made many commitments³⁹ to repair and upgrade sidewalks, as an accessible system, including a \$1.4 billion settlement by the City of Los Angeles.⁴⁰ While the U.S. Department of Justice Civil Rights Division provides information on 220 ADA settlements from all 50 states through Project Civic Access, it does not appear that an assessment of the total amount that cities and states have committed to ADA compliance, or how they are progressing on the sidewalk-related portions of those settlements, is currently available.⁴¹

The scope of deficiencies in pedestrian infrastructure needs to be better understood. In 2018, a survey by the Oregon Department of Transportation done in response to an ADA lawsuit by Disability Rights Oregon found that “97% of 26,000 curb ramps inspected weren’t ADA-compliant, and 10 Oregon counties didn’t have a single compliant ramp.”⁴² Without similar assessments of non-compliance and need, it will be difficult to understand the level of investment required to provide universal access for all people to biking and walking infrastructure and the progress made.

38 Donald Shoup. Access Magazine (Spring 2010). *Fixing Broken Sidewalks*. Available at <https://www.accessmagazine.org/wp-content/uploads/sites/7/2016/01/access-36brokensidewalks.pdf>.

39 Anna Clark. NextCity (6/13/2016). *Suing for Sidewalks*. Available at <https://nextcity.org/features/view/ada-compliance-accessible-design-cities-lawsuits-doj>.

40 Sarah Goodyear. Citylab (4/7/2015). *Why L.A.’s \$1.4 Billion Sidewalk Repair Case Is Such a Big Deal*. Available at <https://www.citylab.com/transportation/2015/04/why-las-14-billion-sidewalk-repair-case-is-such-a-big-deal/389793/>.

41 U.S. Department of Justice Civil Rights Division. *Project Civic Access Fact Sheet*. Available at <https://www.ada.gov/civicfac.htm>.

42 Elliot Njus. The Oregonian (2/16/2018). *97% of sidewalk ramps along Oregon highways violate ADA standards, survey finds*. Available at http://www.oregonlive.com/commuting/index.ssf/2018/02/97_of_sidewalk_ramps_along_ore.html.

» EMBRACING EQUITY: A LOOK AT USER FEES IN TRANSPORTATION

The gas tax has traditionally tied transportation funding and financing to the concept that transportation can be, is, and could be funded based on user fees. “The rationale for having user fees is the benefits principle,” says Matthew Gardner, executive director of the Institute on Taxation and Economic Policy.⁴³ The benefits principle is the idea that the person who benefits should pay. But, as Gardner explains, “that principle runs head on into the ability-to-pay principle. Low-income families don’t have the same ability to pay. The \$20 you use to register your car is going to be a much bigger deal for a family below the poverty line.”⁴⁴

The user fee premise of transportation funding is often promoted by drivers, who pay the majority of user fees for transportation. Often discussions about transportation funding focus on who pays and should pay for transportation, rather than on the aims of transportation.



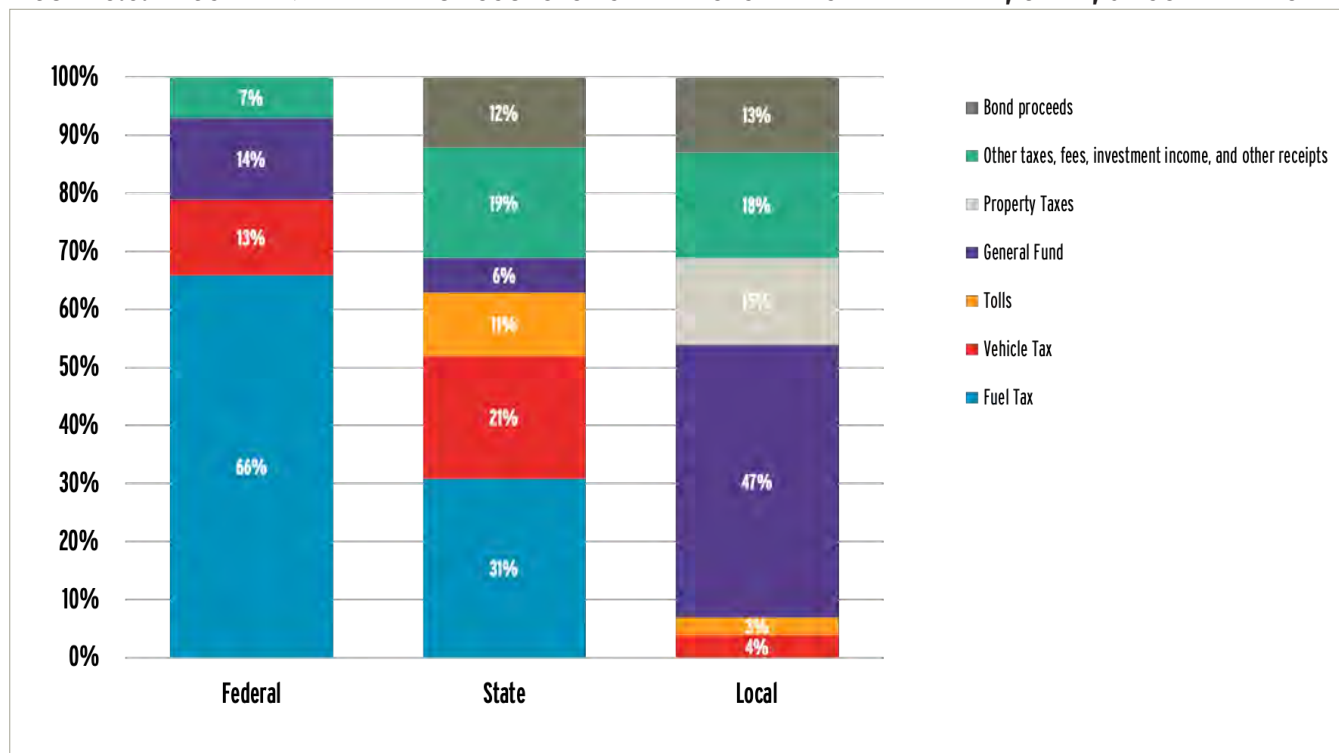
Bike & Bus at University of Kentucky, photo by Mark Cornelison

43 Katherine Barrett and Richard Greene. *Governing* (April 2013). *The Risks of Relying on User Fees*. Available at <http://www.governing.com/columns/smart-mgmt/col-risks-of-raising-non-tax-revenue.html>.

44 See Footnote 43.

An example of this type of discussion can be seen in The Los Angeles Times article, “Bicyclists Shouldn’t Get a Free Ride When It Comes to Repairing Roads,” where an infrastructure lobbyist says, “A lot of them [bicyclists] think they’re basically on the side of angels ... They think it’s OK just to rely on motorists for funding. I think everybody using the system ought to be paying into it.”⁴⁵ Missing from this argument is any discussion about the aims of transportation, consideration of issues like ability to pay, or recognition of the many sources of transportation funding that do not come from user fees, such as property taxes.

FIGURE 3.8.4 - GOVERNMENT REVENUE SOURCES FOR TRANSPORTATION AT FEDERAL, STATE, & LOCAL LEVELS⁴⁶



According to a 2015 report from the Eno Center for Transportation, “academic literature typically cites three major benefits from applying user fees in transportation:

- **MANAGING DEMAND.** User fees can help manage demand by sending a signal to users. Set appropriately, fees can prevent overconsumption and minimize externalities.
- **SETTING A FLOOR AND A CEILING ON INVESTMENT LEVELS.** User fees send a signal to policy makers about how much to spend. If demand for transportation drops, available funds to spend will go down and vice-versa.
- **PROMOTING EQUITY.** User fees can be a more equitable method of funding transportation than other revenue mechanisms, since users are the direct beneficiaries of the system.”⁴⁷

45 George Skelton. Los Angeles Times (9/24/2015). *Bicyclists shouldn't get a free ride when it comes to repairing roads*. Available at <http://www.latimes.com/local/california/la-me-pol-sac-cap-20150924-column.html>.

46 See Footnote 1 at Figure 9.

47 Eno Center for Transportation. *How We Pay for Transportation: The Life and Death of the Highway Trust Fund* (December 2014) at p. 24. Available at <https://www.enotrans.org/wp-content/uploads/2015/09/Highway-Trust-Fund.pdf?x43122>.

Using these three benefits of user fees as a guide, the following chart looks at the gas tax, tolls or other fees related to use, and potential bicycle taxes.

FIGURE 3.8.5 - A LOOK AT THREE FUNDING MECHANISMS FOR TRANSPORTATION

| | MANAGES DEMAND | SETS FLOOR OR CEILING FOR INVESTMENT | PROMOTES EQUITY |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GAS TAX | According to the Eno Center for Transportation, “At current levels, fuel taxes have minimal influence on demand when compared to natural price fluctuations in the fuel market.” ⁴⁸ | Evidence does point to a floor effect, although it may only be a private motor vehicle floor effect. “The Highway Trust Fund acts as a floor on investment, since it has so far ensured that the federal government invests at least as much in transportation as it collects in highway user fees.” | The gas tax is often discussed as regressive because it does not scale with income, but it may not be regressive because low-income households spend a smaller share of their budgets on gasoline than others. ⁴⁹ |
| TOLLS/ CONGESTION PRICING/ TRANSPORTATION NETWORK COMPANY FEES ⁵⁰ | No U.S. city has implemented congestion pricing for a given area, but tolls are widespread. ⁵¹ In northern Virginia express toll lanes adjust pricing dynamically to ensure traffic flows at a predictable pace. ⁵² | Toll roads are one of the more common examples of transportation public-private partnerships (PPP), which means they often generate revenues in excess of the investment, so private organizations can provide a return to their investors. ⁵³ These PPP agreements can ensure a floor on investment through the contract requirement of a certain level of maintenance. ⁵⁴ | According to a 2009 RAND report on congestion pricing, “it can be either regressive or progressive. This depends in large part on how toll revenues are used. For instance, if regions spend revenues in ways that benefit low-income individuals, congestion pricing is more likely to be progressive.” ⁵⁵ |
| BIKE TAX | As discussed in the “Engaged Public” section, most states and cities studied by the Benchmarking Report have expressed a goal to increase biking. This suggests they want more demand for biking and would pursue policies that increase demand rather than reduce it. | Oregon is the only state with a bicycle tax. ⁵⁶ However, Hawaii has had a one-time \$15 bicycle registration fee since 1999. ⁵⁷ According to FHWA FMIS data, Hawaii had three years when it obligated a negative amount to biking and walking projects between FY 2010 and 2016, the only state to have more than one year with negative obligations. This suggests that Hawaii’s registration revenue does not act as a floor on bicycle-related spending. | Census data suggest that people from lower-income households are more likely to bike and walk to work. ⁵⁸ Oregon’s bike tax sought to limit its impact on low-income households by exempting bicycles with a retail price of less than \$200. ⁵⁹ |

48 See Footnote 47 at p. 25.

49 James Poterba. National Bureau of Economic Research Working Paper 3578 (1991). *Is the Gasoline Tax Regressive?* Available at <http://www.nber.org/papers/w3578> (“low expenditure households devote a smaller share of their budget to gasoline than do their counterparts in the middle of the expenditure distribution.”)

50 Winnie Hu. New York Times (2/18/2018). *When Calling an Uber Can Pay Off for Cities and States*. Available at <https://www.nytimes.com/2018/02/18/nyregion/uber-lyft-public-transit-congestion-tax.html>.

51 Federal Highway Administration. *Congestion Pricing: Examples Around the U.S.* Available at https://ops.fhwa.dot.gov/congestionpricing/resources/examples_us.htm and Chicago Metropolitan Agency for Planning. *Congestion Pricing*. Available at <http://www.cmap.illinois.gov/mobility/roads/congestion-pricing>.

52 TransUrban. *Learn the Lanes*. Available at <https://www.expresslanes.com/learn-the-lanes>.

53 Federal Highway Administration. *Public-Private Partnership Concessions for Highway Projects: A Primer* at p. 6. Available at https://www.fhwa.dot.gov/ipd/pdfs/p3/p3_concession_primer.pdf.

54 National Cooperative Highway Research Program. *Legal Research Digest 51* (January 2009). *Major Legal Issues for Highway Public-Private Partnerships* at p. 17. Available at http://www.pwfinance.net/document/research_reports/Research%20Legal%20NCHRP.pdf.

55 Llisa Ecola and Thomas Light. RAND Corporation Technical Report (2009). *Equity and Congestion Pricing: A Review of the Evidence*. Available at https://www.rand.org/content/dam/rand/pubs/technical_reports/2009/RAND_TR680.sum.pdf.

56 Lizzy Acker. The Oregonian (July 7, 2017). *Oregon just passed the only bike-specific tax in the country*. Available at http://www.oregonlive.com/pacific-northwest-news/index.ssf/2017/07/oregon_just_passed_the_only_bi.html.

» MAKING THE HEALTH CONNECTION: HEALTH IMPACT ASSESSMENTS PROVIDE INSIGHTS ON PROJECT OUTCOMES

Health Impact Assessments (HIAs) can be effective at better understanding the effects of current transportation funding and making the case for at least including biking and walking in road projects. While HIAs are often associated with quantifying the positive benefits of investments in active transportation, they can perhaps be more effective at quantifying the harm of auto-oriented development. A “rapid HIA” of a proposed road widening in Lee County, Florida, found negative health impacts to air quality, physical safety, and physical activity for the project that could be mitigated, but not overcome, by including sidewalks and bike lanes.⁵⁷

A review of 30 studies in Europe, Australia, New Zealand, and the United States found that active transportation has positive health benefits, with potential health risks caused by air pollution exposure and traffic crashes substantially outweighed by the positive effects of physical activity.⁵⁸ The Centers for Disease Control and Prevention has played a leading role in promoting Health Impact Assessments, funding one-third of the more than 350 HIAs completed in the United States.⁵⁹ A 2013 white paper from the Pedestrian and Bicycle Information Center found that 22 HIAs have evaluated plans and other proposals that prioritize bicycling and walking.⁶⁰ Transportation sector HIAs made up 21 of 81 HIAs reviewed by the U.S. Environmental Protection Agency in 2015.⁶¹

A REVIEW OF 30 STUDIES in Europe, Australia, New Zealand, and the United States found that active transportation has positive health benefits, with potential health risks caused by air pollution exposure and traffic crashes substantially outweighed by the positive effects of physical activity.

57 Tice Health Impact Assessment Team. *Intermediate Health Impact Assessment: Tice Community Connectivity and Redevelopment Plan HIA* (June 2015). Available at http://lee.floridahealth.gov/programs-and-services/environmental-health/pace-eh2/_documents/tice-hia-final-report.pdf.

58 Mueller et al. Preventive Medicine (July 2015). *Health Impact Assessment of Active Transportation: A Systematic Review*. Available at <https://www.sciencedirect.com/science/article/pii/S0091743515001164>.

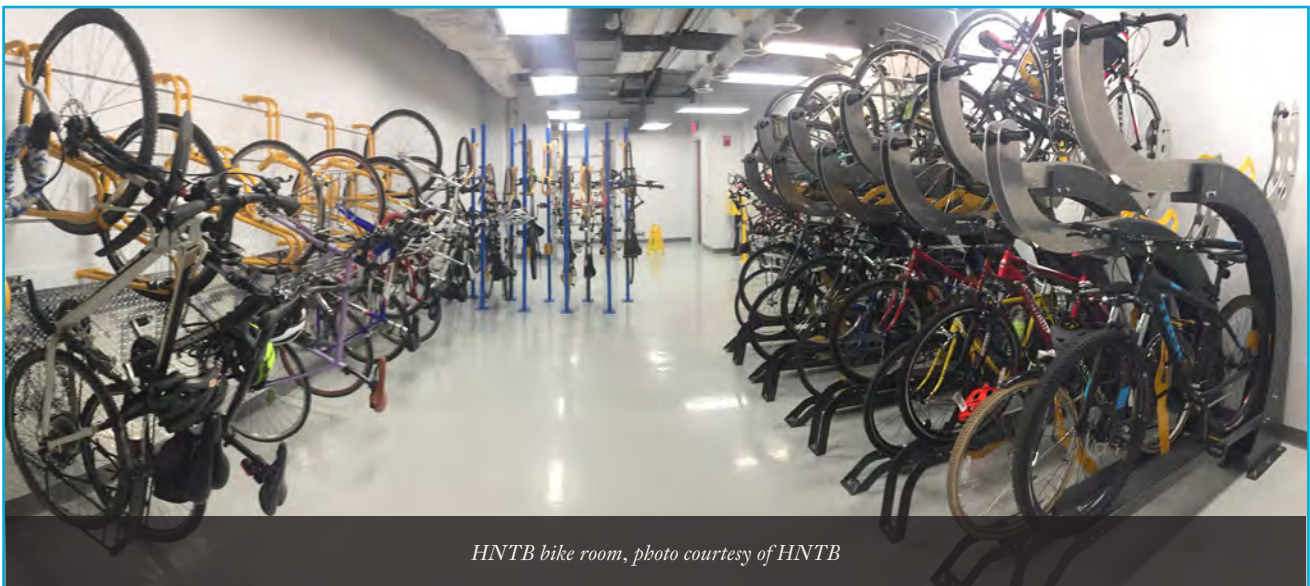
59 Centers for Disease Control and Prevention. National Center for Environmental Health. *CDC's Built Environment and Health Initiative*. Available at https://www.cdc.gov/nceh/information/built_environment.htm.

60 Laura Wagner. Pedestrian and Bicycle Information Center (January 2013). *Using Health Impact Assessments to Evaluate Bicycle and Pedestrian Plans*. Available at http://www.pedbikeinfo.org/cms/downloads/WhitePaper_HIA_PBIC.pdf.

61 U.S. Environmental Protection Agency. EPA/600/R-13/354 (December 2013). *A Review of Health Impact Assessments in the U.S.: Current State-of-Science, Best Practices, and Areas for Improvement*. Available at <https://www.epa.gov/sites/production/files/2015-03/documents/review-hia.pdf>.

FIGURE 3.8.6 - MAJOR STEPS IN CONDUCTING A HEALTH IMPACT ASSESSMENT ⁶⁵

| | |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SCREENING | Would an HIA be useful? If all of the decisions have been made, an HIA probably is not appropriate. If HIA findings most likely would not change any decisions, an HIA would not be useful. |
| SCOPING | Identify which health effects to consider and by what methods. |
| ASSESSING RISKS & BENEFITS | Identify who might be affected and how they might be affected. Use data and research to determine the likelihood, direction, magnitude, and distribution of potential health effects. |
| DEVELOPING RECOMMENDATIONS | Suggest changes to proposals to promote positive health effects or minimize adverse health effects. |
| REPORTING | Present results to decision makers and the public. |
| EVALUATING | Determine whether the HIA will affect public health decisions and the actual effects of those decisions. ⁶⁵ |



62 Hawaii Department of Transportation. *Bike Plan Hawaii Master Plan (2003). Chapter 3-Current Cycling Conditions-3.1 Bicycle Registration and Licensing.* Available at <https://hidot.hawaii.gov/highways/files/2013/02/Bike-Plan-chapter3.pdf>.

63 Brian McKenzie. U.S. Census Bureau. *Modes Less Traveled – Bicycling and Walking to Work in the United States: 2008-2012 (2014)* at p. 13. Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf>.

64 See Footnote 56.

65 Centers for Disease Control and Prevention. *Parks and Trails Health Impact Assessment Toolkit.* Available at https://www.cdc.gov/healthyplaces/parks_trails/default.htm.

SECTION IX: ENGAGED PUBLIC

IN THIS SECTION, THE BENCHMARKING REPORT EXAMINES WHO IS INVOLVED IN PROMOTING BICYCLING AND WALKING AND HOW INSTITUTIONS ENGAGE CITIZENS IN TRANSPORTATION DECISION-MAKING. AS PART OF UNDERSTANDING THE ENGAGEMENT PROCESS IN BICYCLE AND PEDESTRIAN PLANNING, THE SECTION EXPLORES CITY AND STATE GOALS RELATED TO BIKING AND WALKING AS REPORTED IN PAST BENCHMARKING REPORTS.

Use this section to understand agency and advocacy organization involvement in planning for a future where biking and walking are safe, comfortable, and accessible activities for everyone.

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Adding to Person Typologies Used in
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Making the Health Connection:
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“

“Historically, the department conducted open houses at various locations around the state. A presentation by the department was followed by a question-and-answer session, and comments were accepted to a docket for some period of time. With our Minnesota GO Long-Range Vision, we were not seeking responses to projects the department wanted to do; we were looking for a dialogue. Our historical process made dialogue very difficult, particularly with respect to broader themes associated with transportation investments such as quality of life, environmental health, and economic competitiveness.”

- Philip Schaffner, Policy Director,
*Office of Transportation System Management, Minnesota Department of Transportation*¹

”

¹ Stephen Bland. Mass Transit (March 7, 2014). *New Approaches to Public Engagement*. Available at <http://www.masstransitmag.com/article/11316290/new-approaches-to-public-engagement>.

» MAKING THE CASE: MOVING TO BETTER PUBLIC ENGAGEMENT IN TRANSPORTATION

Topic 1 - The Case for Greater Transparency in Transportation Decision Making

The federal process for decision-making is well-defined, with a 2017 report by the U.S. Department of Transportation clearly identifying which agencies/levels of government are responsible for different transportation-related plans.² However, data on these planning processes are frequently unavailable since only three of the eight steps identified in the transportation decision-making process have federally required public components.³ This lack of public involvement and transparency at each step is consistent with an approach to transportation planning that is focused on serving the needs of agencies involved in the transportation planning process, rather than determining and addressing community needs.⁴

The federal government has stated its intention to move to a more publicly engaged planning process. Under the Every Place Counts initiative, U.S. DOT created a toolkit meant to provide a plain-language explanation of the transportation decision-making process to help the public understand the planning process.⁵ The Federal Highway Administration (FHWA) also published a guidebook for engaging low-literacy and limited-English-proficiency populations in transportation decision-making.⁶

A recent report from Texas A&M presents best practices for public involvement in transportation decision-making with suggested methods and evaluation of public involvement. Rather than “Decide, Announce, Defend,” the framework for public involvement in the report is “Observe, Interact, Incorporate.” The authors identified eight practices that can be applied to evaluate public participation processes:

1. Coordinate expectations.
2. Designate resources.
3. Aim for fairness.
4. Stay flexible.

2 U.S. Department of Transportation. *Every Place Counts Leadership Academy-Transportation Toolkit* at p. 27. Available at <https://www.transportation.gov/sites/dot.gov/files/docs/ToolkitFinal2017.pdf>

3 See Footnote 2 at p. 15.

4 See Footnote 2 at p. 12. (describing the traditional transportation planning process). See also Ennio Cascetta and Francesca Pagliara. *Procedia-Social and Behavioral Sciences* (October 2013). *Public Engagement for Planning and Designing Transportation Systems*. Available at <https://www.sciencedirect.com/science/article/pii/S1877042813040421>.

5 See Footnote 2.

6 PBS&J for Federal Highway Administration. *How to Engage Low-Literacy and Limited-English-Proficiency Populations in Transportation Decisionmaking* (February 2006). Available at https://www.fhwa.dot.gov/planning/publications/low_limited/webbook.pdf.

5. Distinguish outputs from outcomes.
6. Use quantitative and qualitative measures consistently.
7. Track results over time.
8. Keep it simple—start small.⁷

The authors also stressed the importance of coordinating processes and goals with public expectations. The chart below was adapted from the International Association for Public Participation and is meant to aid planners in articulating their public participation goals. The chart recognizes that measuring the performance of public participation depends on identified goals and that by selecting the level of involvement for a particular process, an agency can better craft how it measures success of its process. For the public, it may also be instructive to know what to expect from its public agency and how the agency sets its goals for public participation.⁸

FIGURE 3.9.1 - PUBLIC PARTICIPATION SPECTRUM⁹

Table 1. Public Participation Spectrum, adapted from IAP2 (13).

| Levels of Involvement | Public Participation Goal | Promise to the Public |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| INFORM | To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions. | We will keep you informed. |
| CONSULT | To obtain public feedback on analysis, alternatives and/or decisions. | We will keep you informed, listen to and acknowledge aspirations, and provide feedback on how public input influenced the decision. |
| INVOLVE | To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. | We will work with you to ensure your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision. |
| COLLABORATE | To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution. | We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible. |
| EMPOWER | To place final decision making in the hands of the public. | We will implement what you decide. |

Topic 2 - The Case for Bicycle & Pedestrian Planning

The Benchmarking Report has focused on modal plans for biking and walking and has presented survey data on stated goals. These come with limitations because they have been collected over time using binary indicators rather than qualitative indicators. Benchmarking Report data can tell us about the presence of stated goals or plans but not the substance of those goals or plans regarding various issues.

Clear goals are important for public engagement because they can either reflect the input of the public or serve as an expression of the agency’s goal, providing the basis for public input. As noted in the FHWA’s Statewide Pedestrian and Bicycle Planning Handbook, “Public involvement provides the foundation for a good plan and planning process.... [The] public outreach component of the plan development can be as large as one-quarter to one-third of the total cost of the planning process.”¹⁰

⁷ Greg Griffin, Gretchen Stoeltje, Tina Geiselbrecht, Chris Simek, Ben Ettelman, Madison Metsker-Galarza. Texas A&M Transportation Institute. PRC 17-89 F (January 2018). *Performance Measures for Public Participation Methods* at pp. 7-8. Available at <https://static.tti.tamu.edu/tti.tamu.edu/documents/PRC-17-89-F.pdf>.

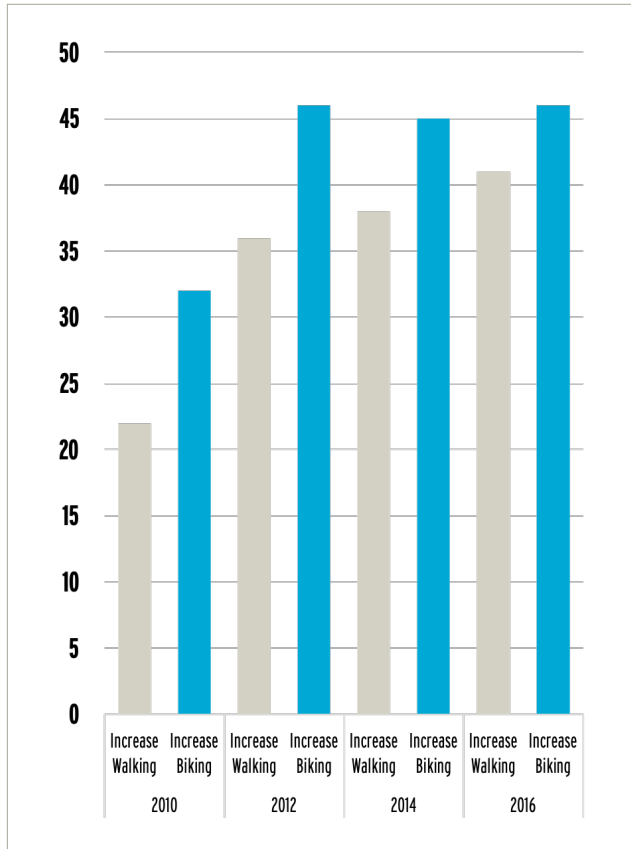
⁸ See Footnote 7 at p. 19.

⁹ See Footnote 7 at p. 20.

¹⁰ U.S. Department of Transportation John A Volpe National Transportation Systems Center for the Federal Highway Administration. FHWA-HEP-14-051 (September 2014). *Statewide Pedestrian and Bicycle Planning Handbook* at p. 36. Available at https://www.planning.dot.gov/documents/Ped-Bike_State_Planning_Handbook.pdf.

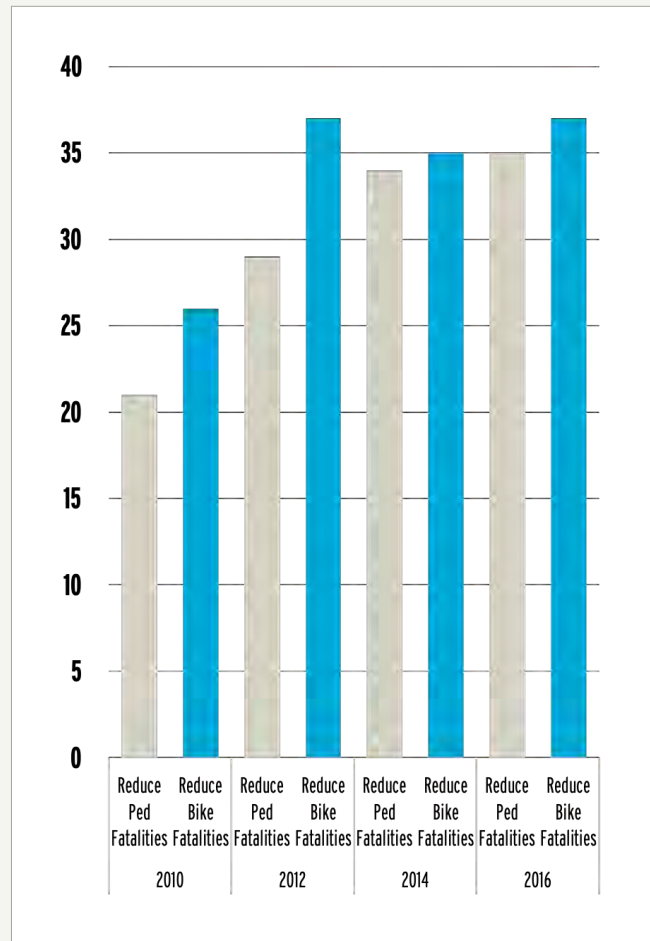
Benchmarking Report data on stated goals and master plan activities have revealed several interesting insights: Cities have been more likely to report stated goals about biking versus walking in every Benchmarking Report period. Over time, walking has gained ground on bicycling in terms of reported goals and is most similar in the number of large cities reporting safety-related goals.

FIGURE 3.9.2 - CITY GOALS OVER TIME TO INCREASE BICYCLING & WALKING



Cities have also been more likely to report a stated goal to reduce bicyclist fatalities than to reduce pedestrian fatalities. This gap is smaller than the gap observed for increasing bicycling and walking, but it is perhaps more worrying since pedestrian fatalities comprise a much larger number and percentage of traffic fatalities than bicyclist fatalities. Also notable is that stated goals for increasing bicycling and walking were more likely to be reported than stated goals to reduce bicyclist and pedestrian fatalities.

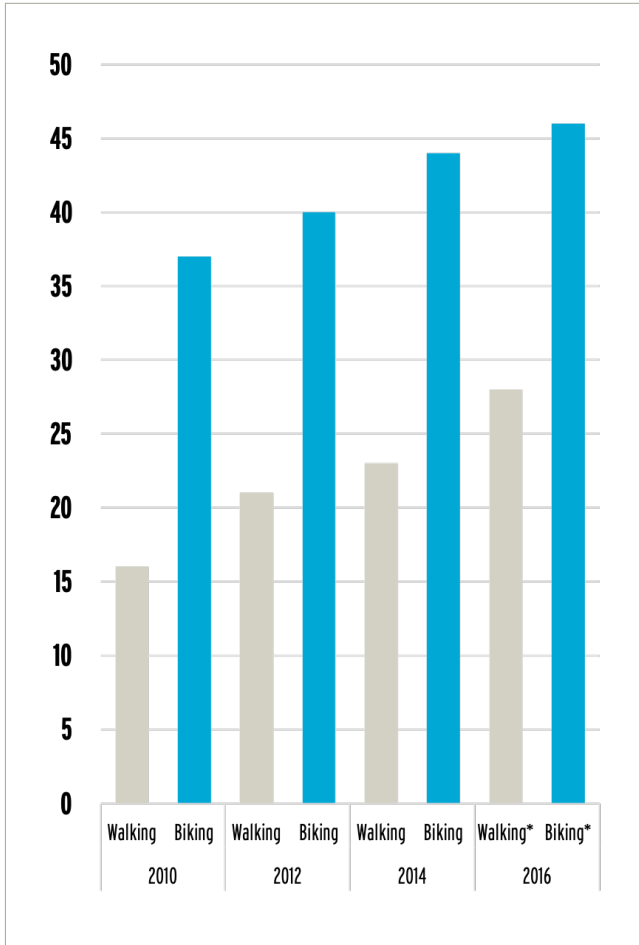
FIGURE 3.9.3 - CITY GOALS OVER TIME TO REDUCE BIKING & WALKING FATALITIES



Benchmarking Report data also suggest that pedestrian master plans are much less common than bicycle master plans. At the city level, at least 18 more cities reported having a bicycle plan than having a pedestrian plan and no pedestrian master plan in each reporting period.¹¹ Cities with at least one of either a bicycle or pedestrian master plan comprised nearly 90% of Benchmarking Report cities cited in 2016.

¹¹ Combined bike/pedestrian master plans were counted as both bicycle and pedestrian master plans. Data compiled from prior editions of the Benchmarking Report.

FIGURE 3.9.4 - CITIES REPORTING A BICYCLE OR PEDESTRIAN MASTER PLAN OVER TIME



The observed differences in stated goals and the bicycle and pedestrian master planning seen in cities are not seen in state-reported plans and goals. States were somewhat more likely to report pedestrian-oriented goals than bicycling-oriented goals. This difference in stated goals occurred despite bicycle master plans being more common than pedestrian master plans in each reporting period. At no time during the past Benchmarking Report periods did more than two-thirds of states report having a bicycle and/or pedestrian master plan.

Since the start of the Benchmarking Project,

- The number of city-reported pedestrian master plans has increased by 150% (from 16 to 40, including combined bike/ped master plans).
- The number of city-reported bicycle master plans has increased by 63% (from 38 to 62, including combined bike/pedestrian master plans).
- The number of state-reported pedestrian master plans has increased by 8% (from 24 to 26, including combined bike/ped master plans).
- The number of state-reported bicycle master plans has increased by 22% (from 27 to 33, including combined bike/ped master plans).

Benchmarking data reveals that cities tend to be more likely than states to pursue bicycle and pedestrian master planning but prefer bicycling-oriented goals to pedestrian-oriented goals. With stated goals and master planning being much more widespread than at the beginning of the Benchmarking Project, the next challenge is to dive into shared metrics across master plans and develop better monitoring systems for goals.

Topic 3 - The Case for Understanding Bicycle & Pedestrian Organizations

The Alliance for Biking and Walking (Alliance) was founded in 1996 by 12 bicycling and walking advocacy organizations. Between 1996 and 2016, the Alliance grew from those initial member organizations, which had a total of 10 full-time employees, to more than 210 member organizations, employing 1,100 full-time workers. Despite this incredible membership growth, the Alliance ceased operations in 2016.

WITH STATED GOALS AND MASTER PLANNING being much more widespread than at the beginning of the Benchmarking Project, the next challenge is to dive into shared metrics across master plans and develop better monitoring systems for goals.

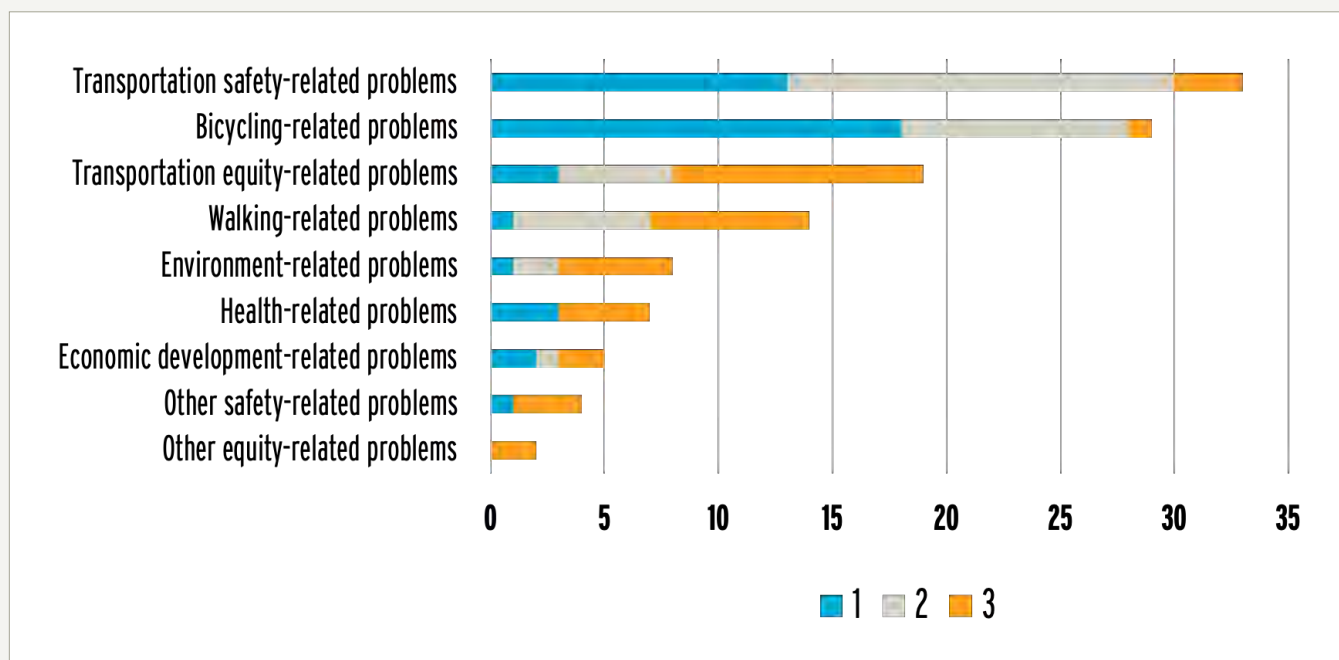
The League of American Bicyclists was founded in 1880 as an individual membership organization. The individual membership of the League was over 100,000 persons in 1898, but the League ceased operations twice between 1900 and 1965. Since 1965, the League has embarked on many projects, always keeping individual membership and the representation of bicyclists as its core values. Like the Alliance, the League has many member organizations engaged in bicycle advocacy. To understand how the League and Alliance members might differ, the League undertook a short survey based on the Alliance's 2015 State of the Movement report.

The League has over 350 member organizations identified as advocacy groups and an additional 600 recreational riding clubs. The League's State of the Movement survey received 43 responses. Similar to the Alliance's data, the League's member organizations primarily devote their activities to bicycling-related issues, with 98% of member organizations identifying bicycling issues as something

they have worked on in the last year compared to 97% of Alliance respondents. League member organizations, according to survey responses, appear to work on both biking and walking issues at a higher rate than during the Alliance's last survey, with 58% of respondents indicating they work on both issues versus 32% of Alliance respondents in 2015.

Much like Alliance members, League members also work at one scale, such as one city or within one state, with around 80% of League and Alliance members working at only one scale in both surveys. League members appear to be slightly more oriented toward state-level activities than Alliance members (44% versus 29%), although League membership data show that 83% of member advocacy organizations identify as local advocacy organizations.

FIGURE 3.9.5 - MOTIVATIONS OF LEAGUE OF AMERICAN BICYCLISTS' MEMBER GROUPS ¹²



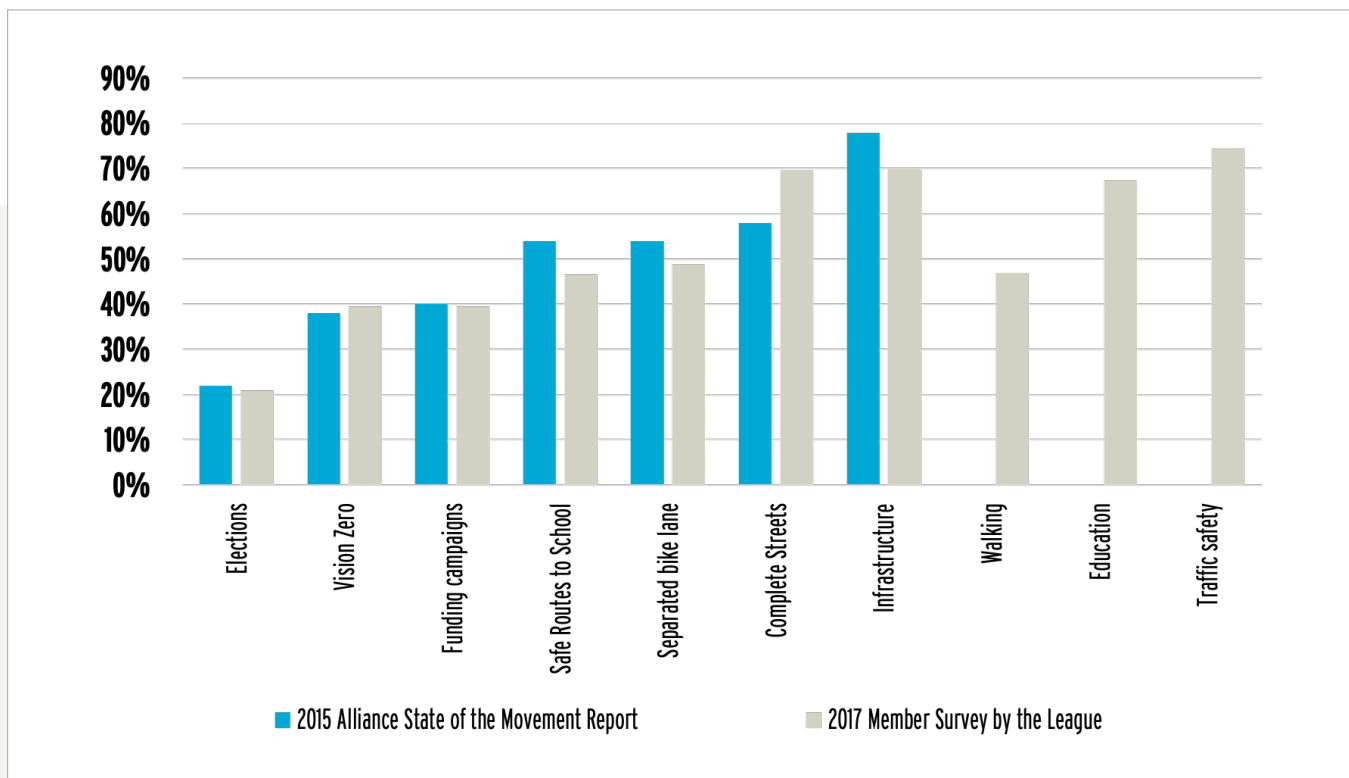
¹² The League of American Bicyclists. 2017 *State of the Movement* member survey.

According to survey respondents, League member groups are highly motivated by bicycling-related problems and transportation safety-related problems, with one of these two motivations being the first most important motivation for 72% of respondents (health, transportation equity, and economic development were the only other motivations to get 5% or more).

These motivations are reflected in campaign activities, with traffic safety campaigns the most reported campaign type among League member groups, followed by infrastructure, Complete Streets, and education. Compared to Alliance data from 2015, League member groups are more likely to pursue Complete Streets and Vision Zero campaigns than Alliance members in 2015. Overall, the campaigns and activities of League and Alliance member groups look broadly similar.

Continuing to monitor the activities and needs of local organizations that use data from the Benchmarking Report is important to ensure that the Benchmarking Report remains a relevant and useful resource.

FIGURE 3.9.6 - TYPES OF CAMPAIGNS DONE BY ALLIANCE FOR BIKING & WALKING & LEAGUE OF AMERICAN BICYCLISTS' MEMBER GROUPS IN THE PREVIOUS TWO YEARS ¹³



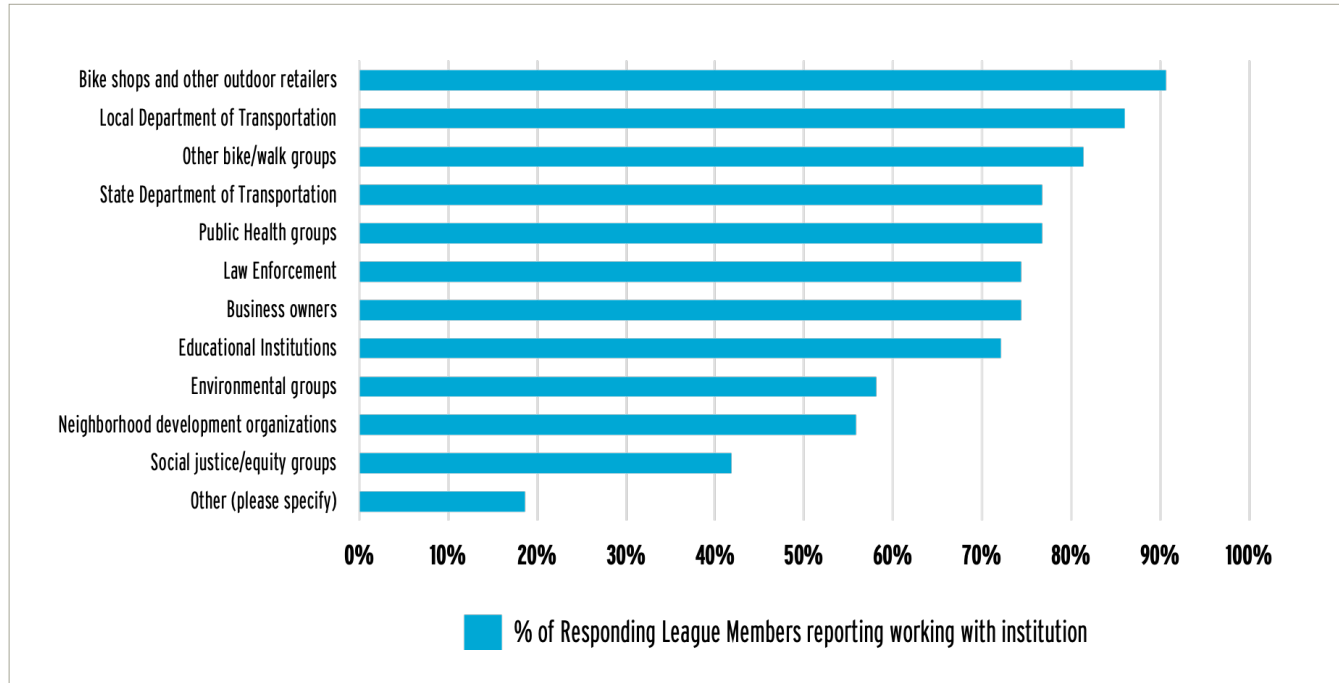
¹³ See Footnote 12 and The Alliance for Biking and Walking, *The State of the Movement: Benchmarking biking and walking advocacy* (November 2015). Available at https://bikeleague.org/sites/default/files/State_of_the_Movement_final.pdf.

» ADVANCING UNDERSTANDING: DEVELOPING GOALS & BENCHMARKS FOR PUBLIC ENGAGEMENT

The Benchmarking Report has not emphasized collection of state-of-practice data and best practices for federally required public involvement plans required by law for transportation planning and for environmental protection.¹⁴ The closest that the Benchmarking Report has come to discussing this type of public involvement is reporting on Pedestrian and/or Bicycle Advisory Committees and Open Streets events.

The League's State of the Movement survey revealed a wide variety of institutions with which member organizations partner. Almost all League respondents said that they had worked with a bike shop in the last two years (91%), as well as local departments of transportation (86%), public health groups (77%), and state departments of transportation (77%). Despite a great interest in working with social justice and equity groups, those groups were the least likely partner group given as an option in the League's survey, with 42% of respondents saying they had worked with such a group in the past two years.

FIGURE 3.9.7 - INSTITUTIONAL PARTNERS OF LEAGUE OF AMERICAN BICYCLISTS' MEMBER GROUPS¹⁵



¹⁴ For easy access to such documents see, Federal Highway Administration. *DOT Public Involvement Reference Tool* (current as of March 1, 2018). Available at https://www.fhwa.dot.gov/planning/public_involvement/reference_tool/.

¹⁵ See Footnote 12.



Photo by Minnesota DOT (@Flickr)

ONE OF THE CHALLENGES FOR DEVELOPING BENCHMARKS AND SHARED UNDERSTANDING of good public involvement may lie in the diversity of groups with whom League member organizations work, State and local departments of transportation, for example, likely have far different public involvement cultures than public health groups or law enforcement.

One of the challenges for developing benchmarks and shared understanding of good public involvement may lie in the diversity of groups with whom League member organizations work, State and local departments of transportation, for example, likely have far different public involvement cultures than public health groups or law enforcement.

In Europe, physical activity groups, obesity prevention groups, and others have joined with the European Cycling Federation to create the ActiveVoice project.¹⁶ The intention of the ActiveVoice project is to build capacity of civil society organizations involved in health-enhancing physical activity. This type of cross-sector capacity building may be a useful model for the United States as biking and walking groups look for partners and a knowledge base for engaging in public policy processes.

¹⁶ European Cyclists' Federation. *ActiveVoice*. Available at <https://ecf.com/projects/activevoice>.

» EMBRACING EQUITY: ADDING TO PERSON TYPOLOGIES USED IN BIKE ADVOCACY

Recently, bicycle advocacy groups have focused on four typologies of people developed by Roger Geller in Portland.¹⁷ Since their development in 2005, the four typologies have been studied nationally¹⁸ and used as a basis for other research about improving bicycling. The development of these typologies was significant because it helped frame public engagement around meeting the expectations of a potential consumer group in addition to current members of organizations, who already likely already identified as bicyclists.

The four typologies of bicyclists are

1. **STRONG AND FEARLESS:** People willing to bicycle with limited or no bicycle-specific infrastructure
2. **ENTHUSED AND CONFIDENT:** People willing to bicycle if some bicycle-specific infrastructure is in place
3. **INTERESTED BUT CONCERNED:** People willing to bicycle if high-quality bicycle infrastructure is in place
4. **NO WAY, NO HOW:** People unwilling to bicycle even if high-quality bicycle infrastructure is in place¹⁹

This typology research found that a majority of people are “interested but concerned” and that the best ways to address the concerns of people who are “interested but concerned” is to intervene in the built environment.²⁰ This is seen in responses showing that more than half of “interested but concerned” persons fear being hit by a car while riding and that they also would be more likely to bike if bike lanes were physically separated by a barrier from cars.²¹ These findings have helped push organizations to reach out more to occasional bicyclists and frame engagement around addressing their concerns through infrastructure.

17 Roger Geller, Bicycle Coordinator. Portland Department of Transportation. *Four Types of Cyclists*. Available at <https://www.portlandoregon.gov/transportation/article/264746>.

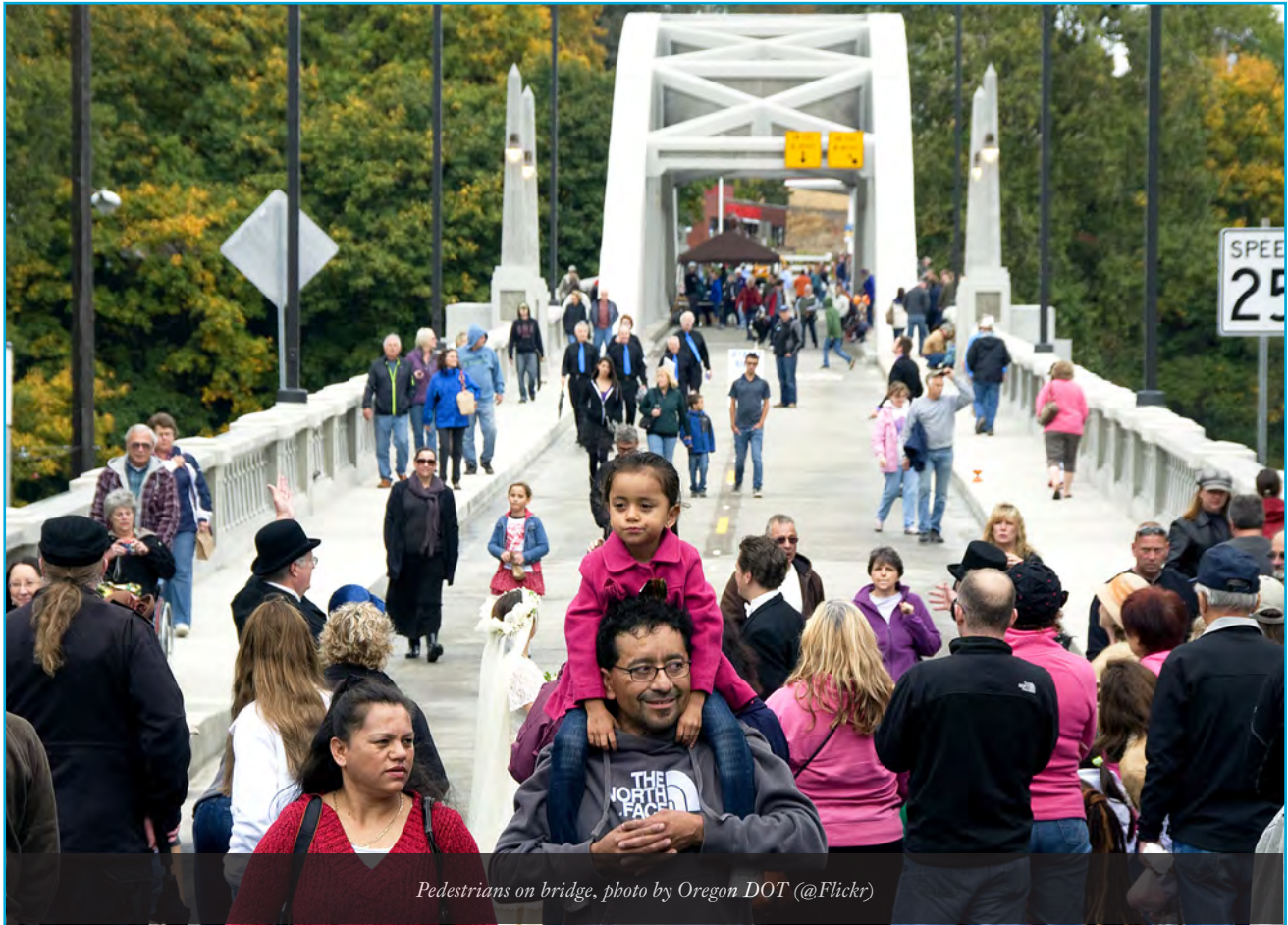
18 Jennifer Dill, Ph.D. Portland State University. *Types of Cyclists*. Available at <https://jenniferdill.net/types-of-cyclists/>.

19 Alta Planning + Design. Medium.com (8/10/2017). *Understanding the “Four Types of Cyclists.”* Available at <https://blog.altaplanning.com/understanding-the-four-types-of-cyclists-112e1d2e9a1b>.

20 See Footnote 18.

21 Michael Andersen, Green Lane Project staff writer. People for Bikes (3/12/2015). *Here are the First Ever National Findings About Interested But Concerned Bikers*. Available at <https://peopleforbikes.org/blog/here-are-the-first-ever-national-findings-about-interested-but-concerned-bikers/>.

The four bicyclist typologies do not appear to have been applied to people who walk. This may reflect that “everyone is a pedestrian” and that most people walk at some point during the day. Research on pedestrian typologies seems oriented toward route behavior.²² Research on getting more people to walk more often seems to focus more on place than persons. While the four typologies have been helpful for bicycle partners, the typologies hold more limitations for pedestrians and others. Social justice organizations point out that the typologies are oriented towards one intervention—infrastructure—and may not address barriers that affect the mobility of all people. A focus on changing culture is also present in bicycle education programming such as the League of American Bicyclists’ Smart Cycling program, which builds confidence by teaching bicycle skills.



Pedestrians on bridge, photo by Oregon DOT (@Flickr)

22 Alexandra Millonig and Norbert Brändle. UCPNavi project (Ubiquitous Cartography for Pedestrian Navigation) supported by the Austrian Funds for Scientific Research. *What Type of Pedestrian Are You? Walking Patterns and Route Preferences of Shoppers*. Available at http://www.streetsblog.org/wp-content/uploads/2009/10/Walk21_2009_Poster_Millonig_Braendle.pdf (proposing four types of pedestrians based on their route preferences).

» MAKING THE HEALTH CONNECTION: COMMUNITY-BASED PARTICIPATORY RESEARCH AS A MODEL FOR PUBLIC ENGAGEMENT

Community and public health organizations have developed Community-Based Participatory Research (CBPR) as a method that allows public engagement to shape research and programming when attempting to understand and change community health issues. According to the W.K. Kellogg Foundation, “CBPR begins with a research topic of importance to the community with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities.”²³

CBPR BEGINS WITH A RESEARCH TOPIC OF IMPORTANCE TO THE COMMUNITY with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities.

According to an article published in the journal *Advances in Nursing Science*, characteristics of the CBPR approach include:

- recognizing the community as a unit of identity,
- building on the strengths and resources of the community,
- promoting co-learning among research partners,
- achieving a balance between research and action that mutually benefits both science and the community,
- emphasizing the relevance of community-defined problems,
- employing a cyclical and iterative process to develop and maintain community/research partnerships,
- disseminating knowledge gained from the CBPR project to and by all involved partners, and
- requiring long-term commitment on the part of all partners.²⁴

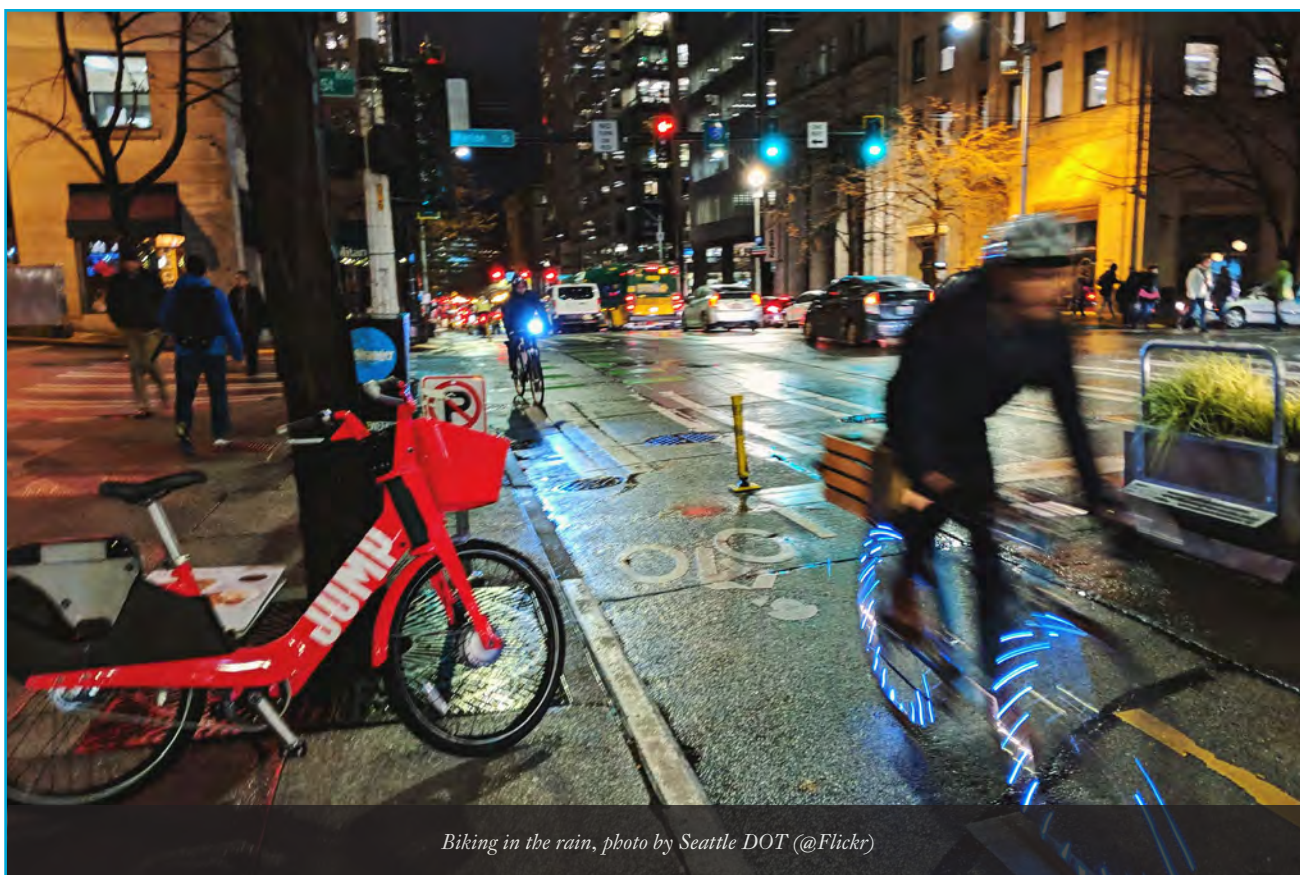
²³ Community-Campus Partnerships for Health. *Community-Based Participatory Research* (quoting Kellogg Community Health Scholars Program (2001)). Available at <https://depts.washington.edu/ccph/commbas.html>.

²⁴ Holkup, P. A., Tripp-Reimer, T., Salois, E. M., & Weinert, C. *Advances in nursing science*. (2004). *Community-based participatory research: an approach to intervention research with a Native American community*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2774214/>.

Research suggests that CBPR approaches may be preferred by groups that have traditionally been underserved or have had a negative experience with government actions. For example, a 2005 article published in the journal *Cancer Control* states, “The majority of tribal Nations prefer, if not mandate, that CBPR be used in most proposed studies involving their communities today.”²⁵

The Tisch College Community Research Center at Tufts University uses CBPR in its Community Assessment of Freeway Exposure and Health, which has demonstrated that elevated levels of ultrafine particles next to highways and major roadways are associated with a higher risk of heart attack and stroke.²⁶ Rather than taking this finding and leaving the community, stakeholders pushed the researchers to help develop a protective zoning ordinance to address the observed risks.

Policylink recommends using tools such as walking and windshield tours, walkability assessment checklists, and other diagnostic tools that can be promoted with members of a community as part of a CBPR approach.²⁷



Biking in the rain, photo by Seattle DOT (@Flickr)

25 Burhansstipanov, L., Christopher, S., & Schumacher, S. A. *Cancer Control* : journal of the Moffitt Cancer Center (2005). *Lessons learned from community-based participatory research in Indian country*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3544402/>.

26 Jonathan M. Tisch College of Civic Life. *Improving Public Health through Community-Based Research* (11/4/2016). Available at <https://tischcollege.tufts.edu/news/improving-public-health-through-community-based-research>.

27 Policylink and U.C. Berkeley School of Public Health. A Report to the California Endowment (2012). *Community-Based Participatory Research: A Strategy for Building Healthy Communities and Promoting Health through Policy Change*. Available at <http://www.policylink.org/sites/default/files/CBPR.pdf>.

SECTION X: EQUITY

IN THIS SECTION, THE BENCHMARKING REPORT DISCUSSES SOCIOECONOMIC AND OTHER CHARACTERISTICS OF PEOPLE WHO BIKE, WALK, AND WORK ON BICYCLING- AND WALKING-RELATED ISSUES. INCLUDED ARE NUMEROUS CHARTS ON THE WORK OF CITIES AND OTHER AGENCIES TO ADDRESS NEEDS OF DIFFERENT SOCIOECONOMIC GROUPS THROUGH BICYCLING-RELATED WORK AND TO LOOK AT THE IMPORTANCE OF WOMEN TO THE FUTURE GROWTH OF BICYCLING.

Use this section to get to know people who bike and walk, and who work on issues related to biking and walking.

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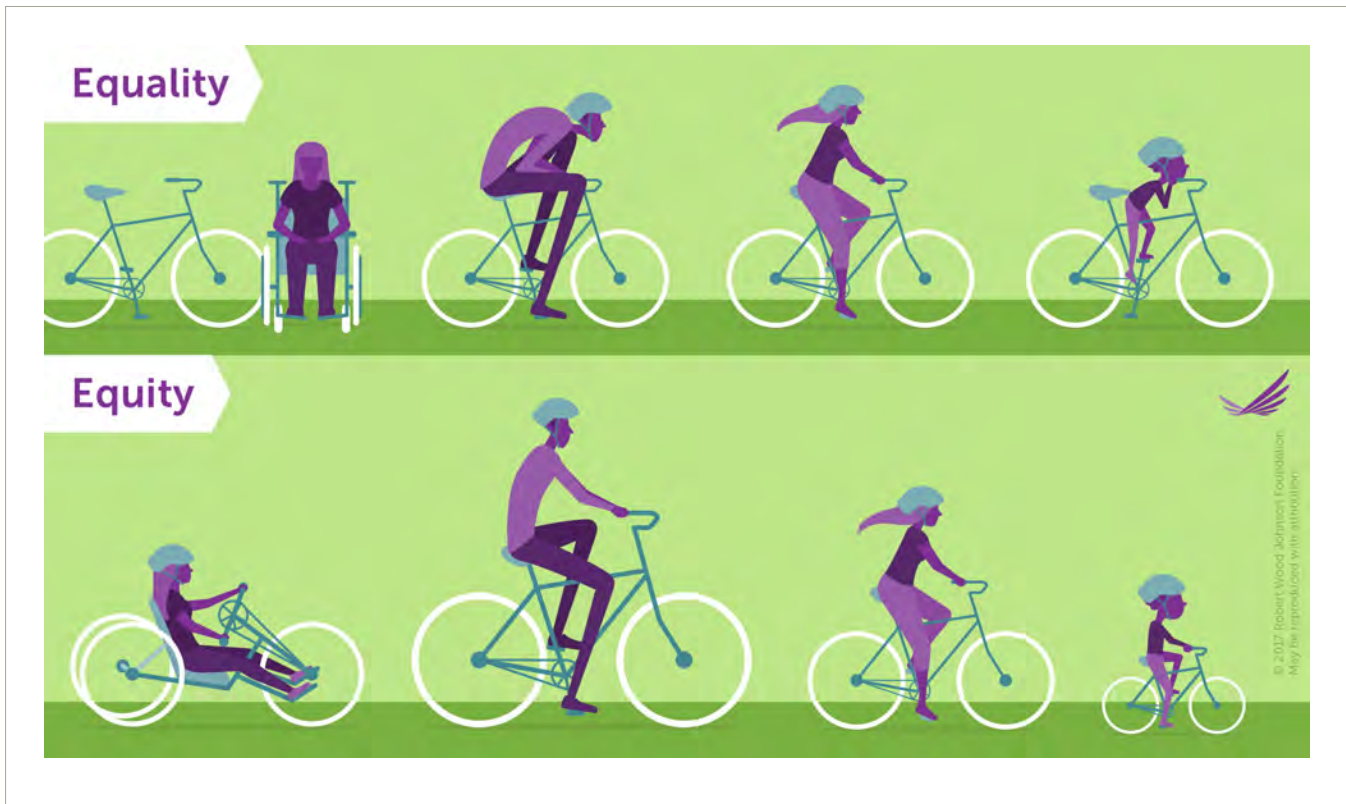
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“Equity addresses the effects of power imbalances and the social, economic, and political differences that generate disparate outcomes for people in arenas like health, education, and employment. Equity recognizes that different people have different barriers to living healthy, fulfilled lives. In order to allow people to get to the same outcome, we need to understand the different barriers and opportunities that affect different groups, and craft our approaches, policies, and programs with those various challenges and needs in mind.”¹

- Safe Routes to School National Partnership report,
At the Intersection of Active Transportation and Equity

”

FIGURE 3.10.1 - VISUALIZING EQUALITY & EQUITY²



¹ Sara Zimmerman, Michelle Lieberman, Karen Kramer, and Bill Sadler. Safe Routes to School National Partnership. *At the Intersection of Active Transportation and Equity* (2014) at p. 3. Available at https://www.saferoutespartnership.org/sites/default/files/resource_files/at-the-intersection-of-active-transportation-and-equity.pdf.

² Robert Wood Johnson Foundation. *Visualizing Health Equity: One Size Does Not Fit All Infographic*. Available at <https://www.rwjf.org/en/library/infographics/visualizing-health-equity.html>.

» MAKING THE CASE: PRIORITIZING PEOPLE, NOT JUST PERFORMANCE MEASURES

Within the transportation sector, there is a movement from person-based decision-making, perhaps exemplified at the federal level by earmarks,³ to quantitative, metric-based decision-making defined by performance measures based on outcomes.⁴ In 2012, federal legislators passed the Moving Ahead for Progress in the 21st Century Act (MAP-21), which established national goals and performance-based approaches for federal transportation planning.⁵

As this movement to transparent, performance-based decision-making continues, further opportunities exist to continue advancing equity. Transparent, performance-based decision-making provides the opportunity for better public involvement and understanding, but affirmative action to ensure community involvement in the transportation decisions that affect them could be the primary goal and may be essential to improving transportation in the United States.

Topic 1 - The Case of People as Policy: Who Are Bicycle & Pedestrian Professionals?

There is a saying that “people are policy,” meaning the people who work in a field or agency are the ones who ultimately deliver the policies proposed by elected officials and supported by the public. In the world of biking and walking, The Association of Pedestrian and Bicycle Professionals (APBP) is composed of the people who turn public support for biking and walking into projects and programs delivered by agencies.

3 Earmarks were stopped as a practice in 2011. Rollcall Staff. Rollcall (7/30/2014). *The Congressional Earmark Ban: the Real Bridge to Nowhere*. Available at https://www.rollcall.com/news/the_congressional_earmark_ban_the_real_bridge_to_nowhere_commentary-235380-1.html. (“The Congressional Research Service specifically defined earmarks as ‘provisions associated with legislation (appropriations or general legislation) that specify certain congressional spending priorities or in revenue bills that apply to a very limited number of individuals or entities...’”)

4 Cambridge Systematics. National Cooperative Highway Research Program Report 446 (2000). *A Guidebook for Performance-Based Transportation Planning* at p. 3. Available at https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_446.pdf (“The impetus for these planning efforts is a group of factors that have increased awareness of a more broad range of goals and objectives for transportation, and that have helped identify the diverse set of customers that the system must serve.”)

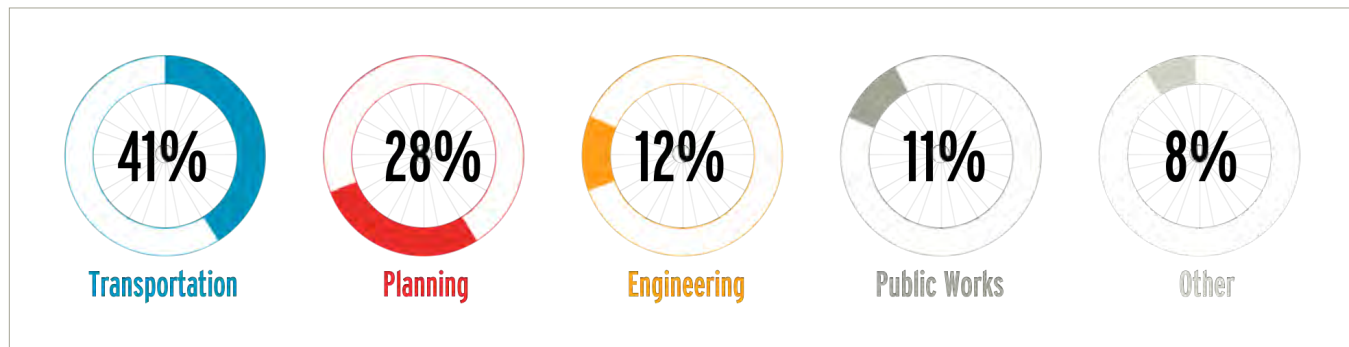
5 Federal Highway Administration. *Model Long-Range Transportation Plans: A Guide for Incorporating Performance-Based Planning* (August 2014) at p. 4. Available at <https://www.ssti.us/wp/wp-content/uploads/2014/10/fhwahep14046.pdf>.

APBP is “a community for practitioners working to create more walkable, bikeable places.”⁶ The early history of APBP was heavily influenced by the decision of Congress to provide federal support for investments in biking and walking in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). Prior to ISTEA, the federal government spent less than \$7 million per year on biking and walking.⁷ With ISTEA, Congress significantly increased the availability of funding for biking and walking, required state departments of transportation to have a bicycle and pedestrian coordinator on staff⁸ and provided \$1 million for a National Bicycling and Walking Study.⁹

Federal support for biking and walking, and the National Bicycling and Walking Study, helped show that demand existed for an organization like APBP. The institutional support for biking and walking at the federal level created by ISTEA included a U.S. Department of Transportation-funded meeting of state bicycle and pedestrian coordinators in 1993.¹⁰ The state bicycle and pedestrian coordinators, who were newly required by federal law, identified the need for better information exchange among people working on bicycle and pedestrian issues, ultimately incorporating APBP in 1998. Since its founding, APBP has grown to more than 1,200 members in the United States and Canada.¹¹

Although APBP was created in part by state bicycle and pedestrian coordinators, according to a 2016 survey of its membership, most members are now employed by local governments (30.4%) or private for-profit entities (30.8%). Regional, state, and federal government employees represent an additional 16.6% of APBP members, meaning that government employees and for-profit entities make up over three-quarters of APBP members, according to the 2016 survey. Nonprofit employees represent less than 10% of APBP members (8.9%).

FIGURE 3.10.2 - WHERE MEMBERS OF THE ASSOCIATION OF PEDESTRIAN AND BICYCLE PROFESSIONALS WORK¹²



6 Association of Pedestrian and Bicycle Professionals. *Mission and History*. Available at https://www.apbp.org/page/Mission_and_History.

7 Susan Handy, Barbara McCann, Linda Bailey, et al. U.C. Davis (7/1/2009). *The Regional Response to Federal Funding for Bicycle and Pedestrian Projects*. Available at <https://escholarship.org/uc/item/26j7x815>.

8 Pedestrian and Bicycle Information Center. *FAQ Results-What is a state Bicycle/Pedestrian Coordinator, and What are the Coordinator's primary responsibilities?* Available at http://www.pedbikeinfo.org/data/faq_details.cfm?id=3308.

9 Pedestrian and Bicycle Information Center. *The National Bicycling and Walking Study: 15-Year Status Report* (May 2010) at 3. Available at http://www.pedbikeinfo.org/cms/downloads/15-year_report.pdf.

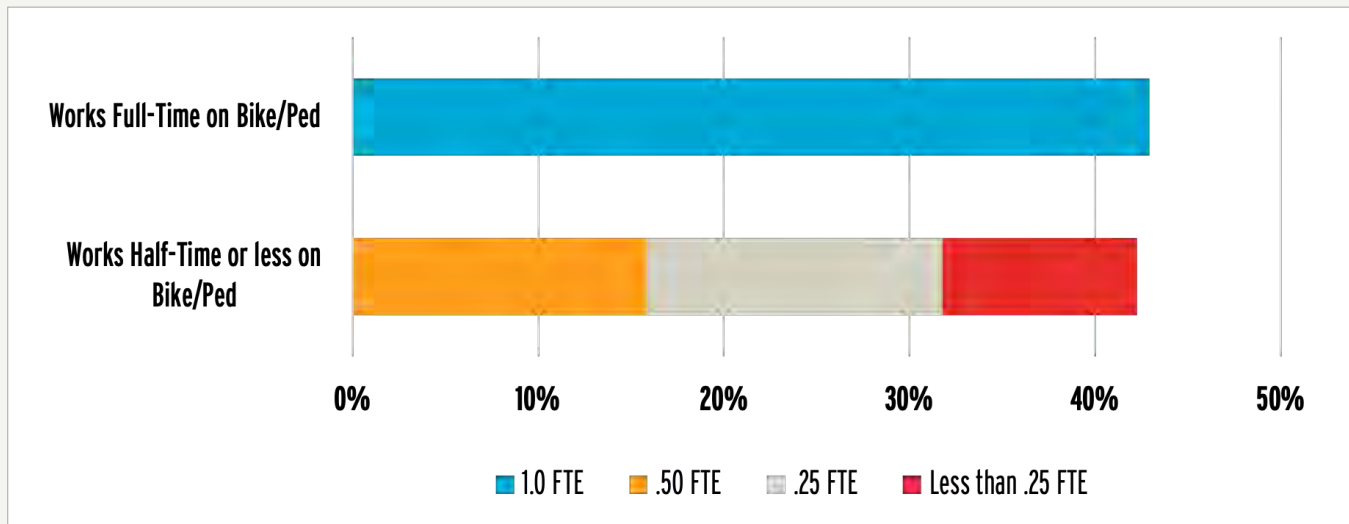
10 See Footnote 6.

11 See Footnote 6.

12 Association of Pedestrian and Bicycle Professionals. *Member Survey* data collected in 2016.

Of the slightly less than half of APBP members who work in government, not including universities, most work in either transportation (40.8%) or planning (27.7%) departments. Government employees from health and parks and recreation departments were less than 10% of APBP members who responded to the 2016 survey, representing 2.9% and 5% of APBP members, respectively. This low level of APBP participation by health department employees may reflect APBP's founding on the basis of new federal support for biking and walking in transportation departments.

FIGURE 3.10.3 - AMOUNT OF TIME MEMBERS OF THE ASSOCIATION OF PEDESTRIAN & BICYCLE PROFESSIONALS SPENT ON BICYCLING & WALKING ISSUES ¹³



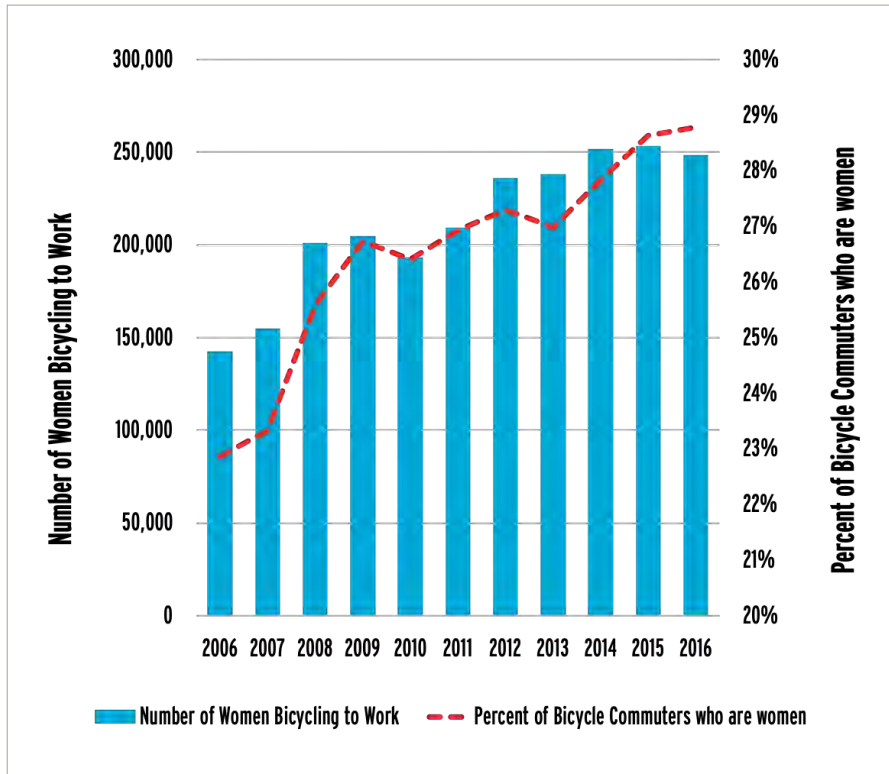
The members of APBP are committed to bettering bicycling and walking in the United States. The average APBP member reports that he or she has been working on bicycle and pedestrian issues for 10 years. However, fewer than half of APBP members reported that they get to spend all of their time on bicycle and pedestrian work (43%). A similar percentage of members reported that they spend 0.5 full-time equivalent (FTE) or less on bicycle and pedestrian work.

Topic 2 - The Case for a Focus on Women to Improve Biking

Equity in transportation often focuses on socioeconomic differences, but gender differences are important, too. Women are underrepresented among people who bike to work, but progress has been made in recent years. Using five-year American Community Survey (ACS) estimates, women have increased from 26% of bike commuters in 2010 to 28% of bike commuters in 2016. Over the same period, women have gone from 46.3% of walk commuters in 2010 to 46.1% of walk commuters in 2016. Women made up approximately 47% of all commuters in both 2010 and 2016.

¹³ See Footnote 12.

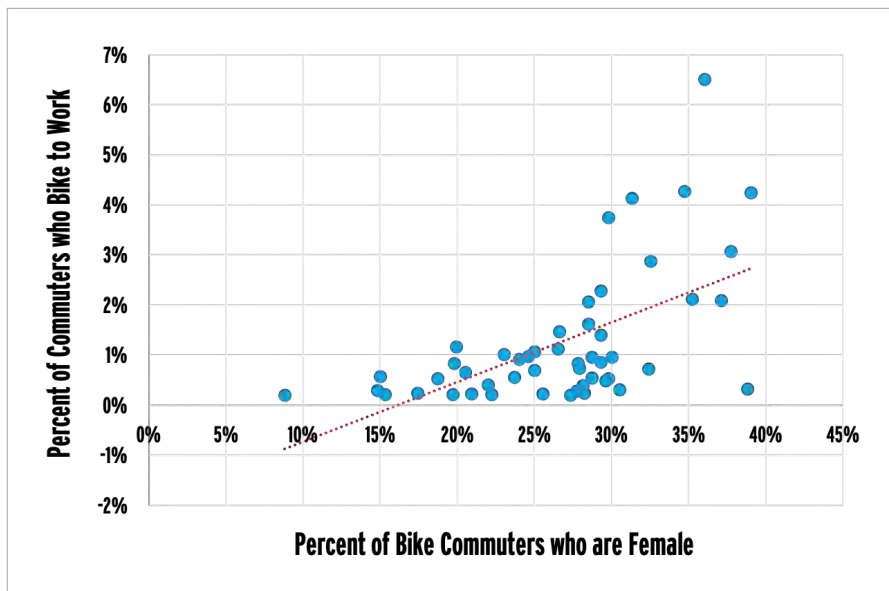
FIGURE 3.10.4 - GROWTH OVER TIME IN WOMEN BICYCLING TO WORK ¹⁴



Between 2010 and 2016, the number of women biking to work increased by 59,522, representing 37% of bike commuters gained during that time.

Among large cities, higher proportions of women bicycling to work are correlated with high rates of biking to work. For example, every city above a 2% bicycle commute mode share has a higher proportion of female bike commuters than the average large city.

FIGURE 3.10.5 - RELATIONSHIP OF WOMEN BIKING TO WORK & OVERALL BIKE MODE SHARE IN LARGE CITIES ¹⁵



As efforts are made to increase bicycling by women and other groups, it is important to understand the physical and non-physical challenges that they might face. One challenge that women face is street harassment, with a 2014 survey finding that 65% of women in the United States have experienced street harassment. That percentage is about 2.5 times the percentage of men (25%) who report street

¹⁴ U.S. Census Bureau. *American Community Survey Table B08006 1-year estimates (2006-2016)*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

¹⁵ U.S. Census Bureau. *American Community Survey Table B08006 5-year estimate (2016)*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. National Highway Traffic Administration (NHTSA). *Fatality Analysis Reporting System (FARS) Encyclopedia (2012-2016)*. Available at <https://www-fars.nhtsa.dot.gov/Main/index.aspx>.

harassment.¹⁶ According to the survey results, “[m]ost of the harassed persons said street harassment happened while they were on the street or sidewalk (67% of women and 43% of men), either on foot (such as walking, standing, sitting, or jogging) or on a bicycle or skateboard.”¹⁷

A focus group of seven female bicyclists in Philadelphia suggested that education and public awareness campaigns publicizing bad traffic behaviors that are sometimes accompanied by sexualized harassment would be a positive step.¹⁸ This is consistent with recommendations from the Safe Routes to School National Partnership that suggest addressing street harassment through workshops and trainings, providing student support and resources, and creating public awareness campaigns, among other efforts.¹⁹

Topic 3 - The Case for Culture as a Priority

Agencies and stakeholders are increasingly seeing the importance of complementing policy with culture as a way to improve safety. As vulnerable populations, including bicyclists and pedestrians, currently bear a disproportionate burden from traffic deaths this cultural change provides an opportunity for those vulnerable populations to benefit. The U.S. Department of Transportation (U.S. DOT)’s Strategic Plan for FY2018-2022²⁰ makes safety its number

one goal, with the strategic objective of creating a systemic safety approach. The plan includes a leadership strategy to: “Establish a departmental commitment to continually improve transportation safety by fostering a positive transportation safety culture across the transportation sector.”²¹ According to the U.S. DOT, a safety culture is one that demonstrates a “commitment to safety over competing goals.”²²

Some organizations take a broader stance on the cultural drivers of safety. For example, in a white paper on traffic safety culture prepared for Toward Zero Deaths: A National Strategy on Highway Safety, “one risk factor that is not currently addressed by most traditional traffic safety paradigms is the ‘culture’ of the society defined by the driving population (and agencies that govern transportation safety). That is, a culture that tolerates or engages in risk while resisting safety interventions will propagate dangerous behaviors and impede traffic safety policy.”²³ This suggests that the development of a safety culture in agencies such as U.S. DOT, or that state DOTs who support Toward Zero Deaths may be impeded by outside cultural influences such as movies, expectations about mobile phone use, or other behaviors outside of the demonstrated behaviors within an agency.

ONE AREA TO OPERATIONALIZE A CULTURE OF SAFETY is in the adoption and implementation of Complete Streets policies.

16 Stop Street Harassment. 2014 *National Street Harassment Report*. Available at <http://www.stopstreetharassment.org/ourwork/national-study/>.

17 Stop Street Harassment. *Unsafe and Harassed in Public Spaces: A National Street Harassment Report* (2014) at p. 21. Available at <http://www.stopstreetharassment.org/wp-content/uploads/2012/08/National-Street-Harassment-Report-November-29-20151.pdf>.

18 See Footnote 17 at p. 58.

19 Safe Routes to School National Partnership. *Fact Sheet – Street Harassment and Safe Routes to School* (2017). Available at https://www.saferoutespartnership.org/sites/default/files/resource_files/street_harassment_and_srts_fact_sheet.pdf.

20 U.S. Department of Transportation. *Strategic Plan for FY2018-2022*. Available at <https://www.transportation.gov/sites/dot.gov/files/docs/mission/administrations/office-policy/304866/dot-strategic-plan-fy2018-2022508.pdf>.

21 See Footnote 20 at p. 7.

22 See Footnote 20 at p. 15.

23 Nicholas J. Ward, Jeff Linkenbach, Sarah N. Keller, and Jay Otto. Western Transportation Institute, College of Engineering, Montana State University. *White Paper No. 2*. Prepared July 7, 2010, for Toward Zero Deaths: A National Strategy on Highway Safety. Available at http://www.towardzerodeaths.org/wp-content/uploads/Draft_TZD_White_Paper_2_Safety_Culture.pdf (draft).

One area to operationalize a culture of safety is in the adoption and implementation of Complete Streets policies. The Complete Streets concept is to proactively include all street users in planning, design, construction, and operation of streets. This concept is now being translated into culture. Movements such as culturally competent Complete Streets focus not just on following a policy, but also on proactively incorporating the values and character of a community into the development of streets. In 2017, the National Complete Streets Coalition revised its Complete Streets policy elements to include considerations of equity into its policy review process.²⁴ “The best Complete Streets policies will specifically highlight communities of concern whom the policy will prioritize based on the jurisdiction’s composition and objectives.”²⁵

At the federal level, the FAST Act showed that Congress believes it is important to ensure that all users are included in transportation decision-making, which it achieves by

requiring state transportation departments to take into account access for all users and modes of transportation when designing and building National Highway System roadways and by mandating that the Secretary of Transportation encourage states and MPOs to adopt safer road design standards inclusive of the needs for all road users.²⁶

As U.S. DOT and the state DOTs who support Toward Zero Deaths work to create a culture of safety, the movement to incorporate equity and inclusion through Complete Streets may provide a value lesson. By incorporating equity, the National Complete Streets Coalition is pushing communities to think about outside influences on what might affect a policy and its effectiveness at addressing vulnerable populations.



24 Smart Growth America and National Complete Streets Coalition. *The Elements of a Complete Streets Policy: Effective 2018*. Available at https://smartgrowthamerica.org/app/uploads/2017/12/CS-Policy-Elements__2017.11.30.pdf.

25 See Footnote 24 at p. 4.

26 American Heart Association. *Fixing America’s Surface Transportation Act (FAST Act)*. (HR 22 sec. 1442. “Safety for Users” requires the Secretary to encourage standard adoption). Available at http://www.heart.org/HEARTORG/General/FAST-Act_UCM_480915_Article.jsp#.WtduqYjwYdU. See also National Complete Streets Coalition. *How does the FAST Act impact Complete Streets projects?* Available at <https://smartgrowthamerica.org/app/legacy/documents/Complete-Streets-FAST-Act-One-Pager.pdf>.

» ADVANCING UNDERSTANDING: THE LEAGUE'S EQUITY ASSESSMENT OF THE BICYCLE FRIENDLY COMMUNITY PROGRAM

Between 2013 and 2014, the League of American Bicyclists underwent an internal equity assessment. The outcome of that effort included a report²⁷ on the League's internal equity work. Among the key findings were the following:

- Equity, diversity, and inclusion (EDI) can be a great driver of innovation within an organizational structure since those concepts are integrated into each program rather than existing as a separate program.
- All organization stakeholders must be included in developing a commitment to EDI.
- All staff must be engaged through assessments of their programs.
- A team of stakeholders and staff should be designated to ensure continuity between work that deals with all programs and stakeholders engaged in the process.

Based on the League's Equity initiative and Women Bike program, changes were made to the Bicycle Friendly Community (BFC) program to collect and assess community efforts related to equity, diversity, and inclusion. An initial question for program communities was whether the community reflected the U.S. population. Based on 322 applications from spring 2015 to spring 2017, Bicycle Friendly Community applicants have

higher median household incomes than the United States (\$59,260 versus \$55,775) and a higher percentage of white populations (67.7% of BFC populations are non-Hispanic whites, while only 62.3% of the United States population is non-Hispanic white).

The League's internal equity assessment led to numerous changes to the BFC application. Data below are from six questions added as a result of the League's equity work.

“ DOES YOUR LOCAL GOVERNMENT HAVE AN INTERNAL EQUITY, DIVERSITY, OR INCLUSION INITIATIVE, COMMITTEE, OR POSITION? ”

Of the 322 communities that applied for a Bicycle Friendly Community award since spring of 2015, slightly less than half (45%) indicated they have some type of EDI initiative, committee, or position.

²⁷ Dr. Adonia Lugo. The League of American Bicyclists. *Integrating Equity in Bike Advocacy: An Interim Report on Internal Equity Assessment at the League of American Bicyclists* (June 2014). Available at http://bikeleague.org/sites/default/files/League_internal_equity_web.pdf.

FIGURE 3.10.6 - MOST COMMON TYPES OF GROUPS TARGETED FOR ADULT BICYCLIST EDUCATION IN BICYCLE FRIENDLY COMMUNITIES ²⁸

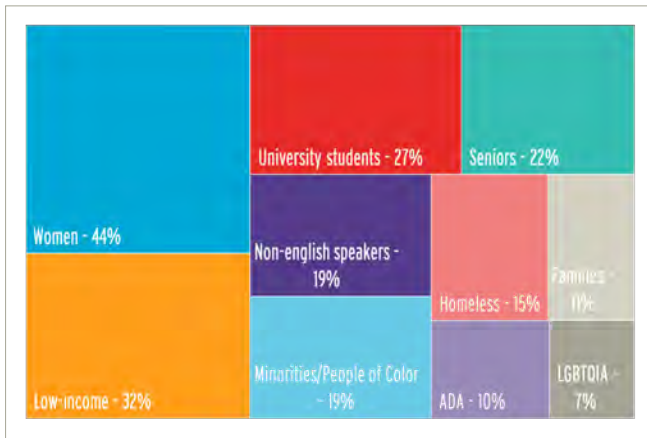
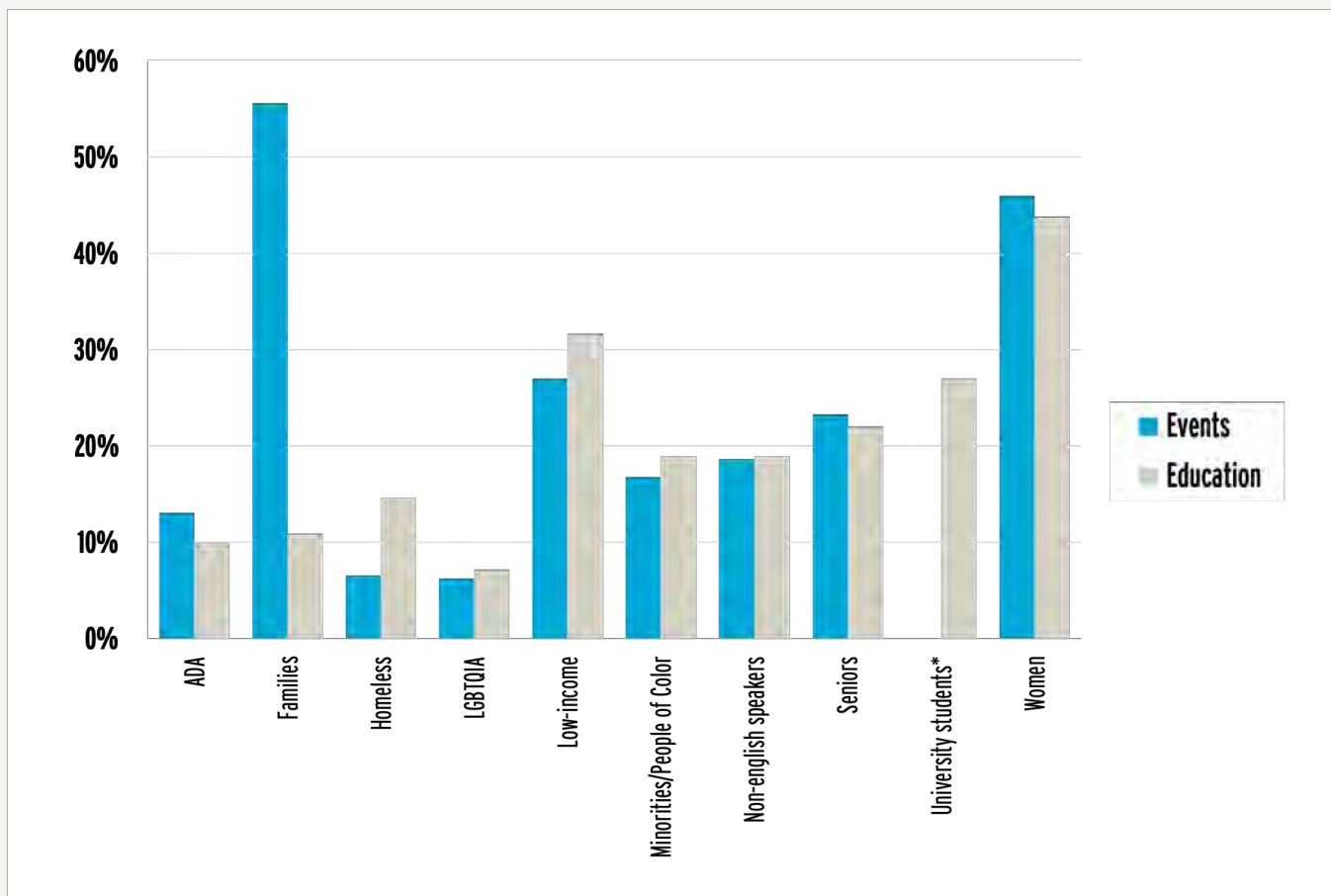


FIGURE 3.10.7 - PREVALENCE OF TARGETED BICYCLIST EDUCATION & TARGETED BICYCLE EVENT MARKETING IN BICYCLE FRIENDLY COMMUNITIES ²⁹



²⁸ The League of American Bicyclists. *Bicycle Friendly Community application data* (Fall 2015 and Spring 2017).

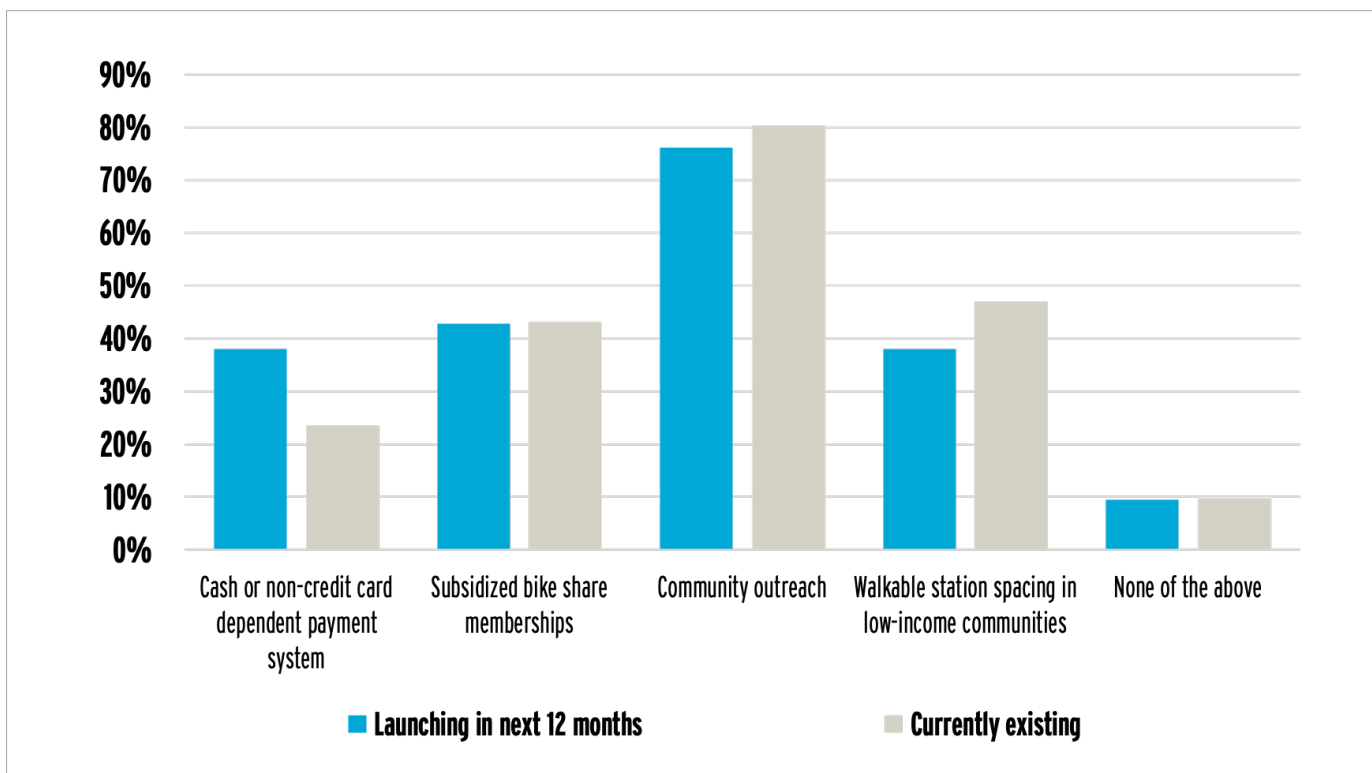
²⁹ See Footnote 28. (*University students were only included in questions about education).

QUESTION E4 IN THE ENFORCEMENT CATEGORY: IS “TRAINING ON RACIAL PROFILING AWARENESS IN MULTIMODAL TRANSPORTATION ENFORCEMENT” OFFERED TO POLICE OFFICERS?

Data show that training on racial profiling awareness in multimodal transportation enforcement is not widespread, with slightly over 10% of applicant communities reporting that this type of training is offered.

QUESTIONS B21H AND B21P IN THE ENGINEERING CATEGORY: “WHAT SPECIFIC EFFORTS, IF ANY, ... MAKE THE BIKE SHARING PROGRAM ACCESSIBLE TO LOW-INCOME POPULATIONS YOUR COMMUNITY?”

FIGURE 3.10.8 - EFFORTS TO MAKE BIKE SHARE MORE ACCESSIBLE IN BICYCLE FRIENDLY COMMUNITIES ³⁰



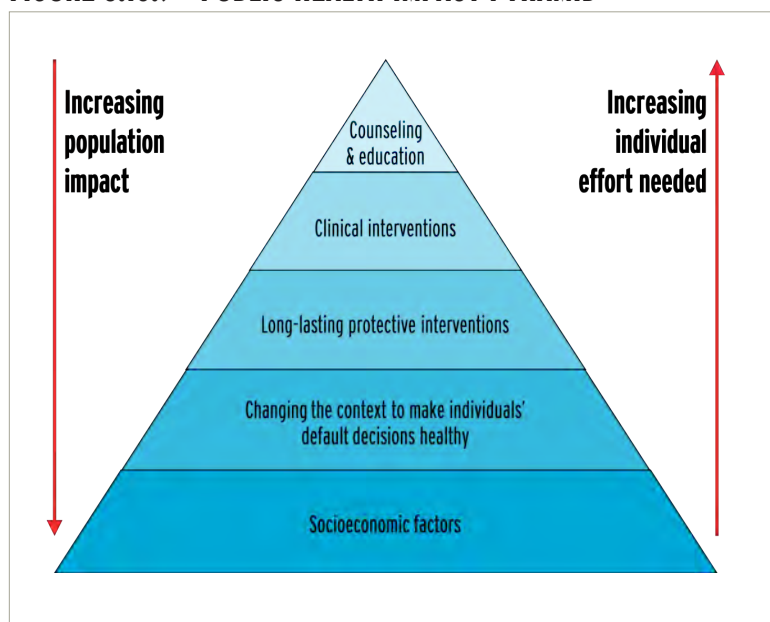
³⁰ See Footnote 28.

» MAKING THE HEALTH CONNECTION: PRIORITIZING SOCIAL DETERMINANTS OF HEALTH

In 2010, then-Director of the Centers for Disease Control and Prevention Dr. Thomas Frieden published “A Framework for Public Health Action: The Health Impact Pyramid.”³¹ The framework proposed by Dr. Frieden placed socioeconomic determinants of health at the base of his pyramid of public health actions because they are pervasive, have a strong correlation with health, and are underdeveloped worldwide, contributing greatly to public health problems such as lack of clean water and sanitation.

“Social injustice is killing people on a grand scale.”
- Commission on Social Determinants of Health, World Health Organization³²

FIGURE 3.10.9 - PUBLIC HEALTH IMPACT PYRAMID³³



The second level of the Health Impact Pyramid presents the area in which people promoting biking and walking likely work: changing the context (through environmental and policy change), so an individual’s default decisions are healthy by including physical activity in their transportation choices. The concept of the Health Impact Pyramid helps show how socioeconomic factors relate to the current work done to change the context of decisions and suggests that engaging in changing socioeconomic factors would support healthier communities.

³¹ Thomas R. Frieden American Journal of Public Health (April 2010). *A Framework for Public Health Action: The Public Impact Pyramid*. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2836340>.

³² World Health Organization. Final Report of the Commission on Social Determinants of Health. Geneva, Switzerland: World Health Organization (2008). *Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health*. Available at: http://whqlibdoc.who.int/publications/2008/9789241563703_eng.pdf.

³³ Thomas R. Frieden. New England Journal of Medicine (October 29, 2015). *The Future of Public Health*. Available at <http://www.nejm.org/doi/full/10.1056/NEJMSa1511248>.



Show *your*

Data

“ Sustainable, inclusive, prosperous, and resilient cities depend on transportation that facilitates the safe, efficient, and pollution-free flow of people and goods... ”

IN THIS CHAPTER

The Benchmarking Report provides data on bicycling and walking for all 50 states, the 50 most populous cities in the United States, and 19 cities that have been included in the Benchmarking Report since 2014. The data provided in the Benchmarking Report comes from the federal government, survey responses from state and city officials, and national non-profit organizations.

Use the Show Your Data chapter to gain comparative and longitudinal data about walking and biking at the national, state, and large city level.

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SECTION I: NATION

This Section provides 27 pages of tables and graphs showing data on bicycling and walking at the national level in the United States of America.

There are two major sources of national data on how many people bike and walk – the National Household Travel Survey (NHTS) and the American Community Survey (ACS). According to the most recently available data, these two sources show different trends for biking and walking:

Walking shows a statistically significant increase in walking trips as a percentage of all trips in the United States according to the 2017 NHTS, but a decreasing percentage of workers are walking to work according to annual ACS data.

Biking shows no change in biking trips as a percentage of all trips in the United States according to the 2017 NHTS, but an increasing percentage of workers are biking to work according to annual ACS data.

While data on the prevalence of biking and walking is mixed, the data on bicyclist and pedestrian safety show recent increases in the number and rate of bicyclist and pedestrian fatalities by almost any measure:

Pedestrians represent over 15% of traffic fatalities in 2016, and there were more than 2,000 more pedestrian fatalities in 2016 compared to 2010.

Bicyclists represented over 2% of traffic fatalities in 2016, and there were more than 200 more bicyclist fatalities in 2016 compared to 2010.

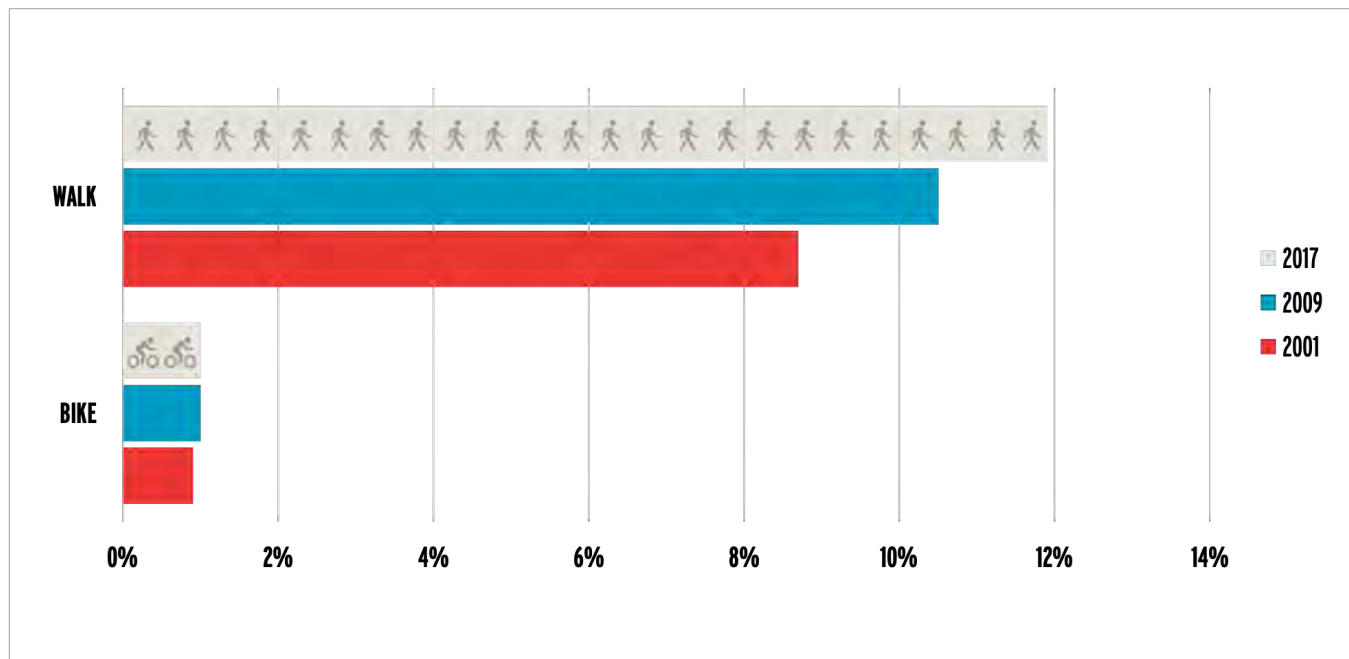
Use this Section to find out about current conditions for bicycling and walking, including demographic data on who is biking and walking, and how the federal government funds bicycling and walking projects and programs.

1.1 - NATION: RATES OF BIKING & WALKING

Trends in Prevalence of Biking & Walking for All Trips

Data from the National Household Travel Survey (NHTS) suggests that bicycling has been relatively stable as a percentage of all trips in the United States.¹ Between 2009 and 2017, about 1% of all trips in the United States were taken by bicycle. This stands in contrast to commuting data, which suggests an increase in the proportion of workers who commute by bicycle.²

FIGURE 1.1.1 - PERCENT OF ALL TRIPS BY WALKING OR BIKING



¹ For 2001 NHTS data see The Alliance for Biking and Walking (2010). *Bicycling and Walking in the United States: 2010 Benchmarking Report*. Available at <https://bikeleague.org/sites/default/files/2010BenchmarkingReport.pdf>.

² Ralph Buehler (2017). *Analysis of National Household Travel Survey data for the League of American Bicyclists*.

Over the same time, there was a statistically significant increase in walking trips as a percentage of all trips, increasing from 10.5% of all trips to 11.9% of all trips. This also stands in contrast to commuting data, which suggests a slight decrease in the proportion of workers who walk to work.³

FIGURE 1.1.2 - BREAKDOWN OF DATA BY TRIPS, TIME, & DISTANCE

| | BIKE TRIPS (Million Daily Bicycling Trips per Year) | MINUTES CYCLED (Billion Minutes) | DISTANCE CYCLED (Billion Miles) | WALK TRIPS (Million Daily Walking Trips per Year) | MINUTES WALKED (Billion Minutes) | DISTANCE WALKED (Billion Miles) |
|-------------|---------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| 2017 | 3,789 | 78 | 8.5 | 44,900 | 621 | 33.7 |
| 2009 | 4,082 | 80 | 9.0 | 41,000 | 614 | 27.9 |

NHTS data on total trips, minutes, and distance of trips by bicycling and walking appear consistent with the data on mode share. The increase in walking trips is statistically significant.⁴ Note: Changes to the methodology of the NHTS between 2009 and 2017 mean that changes in data should be interpreted with caution.⁵



3 Compare to Figure 1.1.2. Trends in Rates of Bicycling and Walking for Commuting.

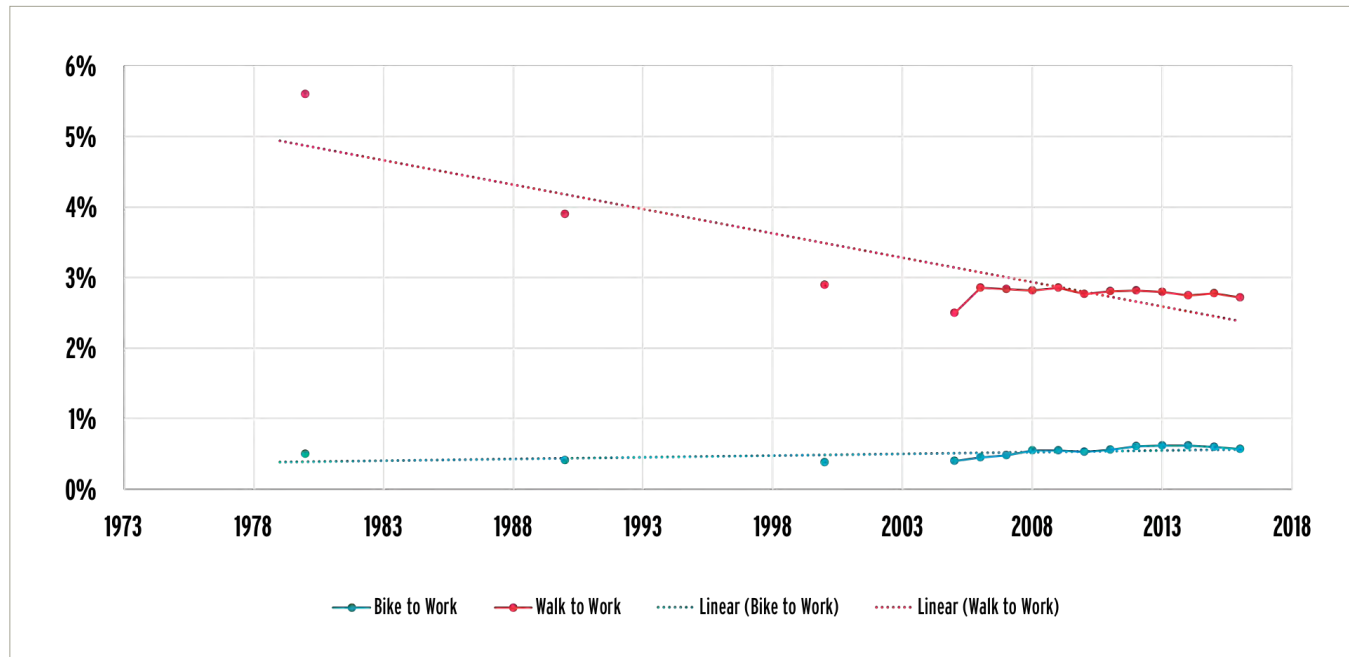
4 Ralph Buehler (2017). *Analysis of 2017 and 2009 National Household Travel Survey data for the League of American Bicyclists*.

5 N. McGuckin and A. Fucci (2017). FHWA-PL-18-019. *Summary of Travel Trends: 2017 National Household Travel Survey*. Available at https://nhts.ornl.gov/assets/2017_nhts_summary_travel_trends.pdf.

Trends in Rates of Bicycling & Walking for Commuting

Data on bicycling and walking to work comes from the U.S. Census Bureau. The decennial census reported on rates of bicycling and walking to work starting in 1980.⁶

FIGURE 1.1.3 - PERCENTAGE OF WORKERS WHO PRIMARILY BIKE OR WALK TO WORK OVER TIME



After the 2000 decennial census, the Census Bureau began using a continuous survey that has become the American Community Survey (ACS). The ACS has provided yearly estimates of the rate of biking and walking to work since 2005. Since ACS data has allowed yearly tracking of rates of biking and walking to work, researchers and practitioners have gained valuable insights into changes in those rates over time.

At a national level, ACS data show that there has been an increase in the rate of commuting to work by bicycle. While the overall proportion of workers who bicycle to work remains low, the prevalence has increased approximately 50%, from .4% in 2005 to .6% in 2016.⁷

Data from the Census Bureau shows considerable decreases in the proportion of workers who walk to work, from a high of 5.6% in 1980 to a low of 2.5% in 2005. After a slight increase in 2006, the proportion has remained near 3%, with slight declines in recent years.⁸

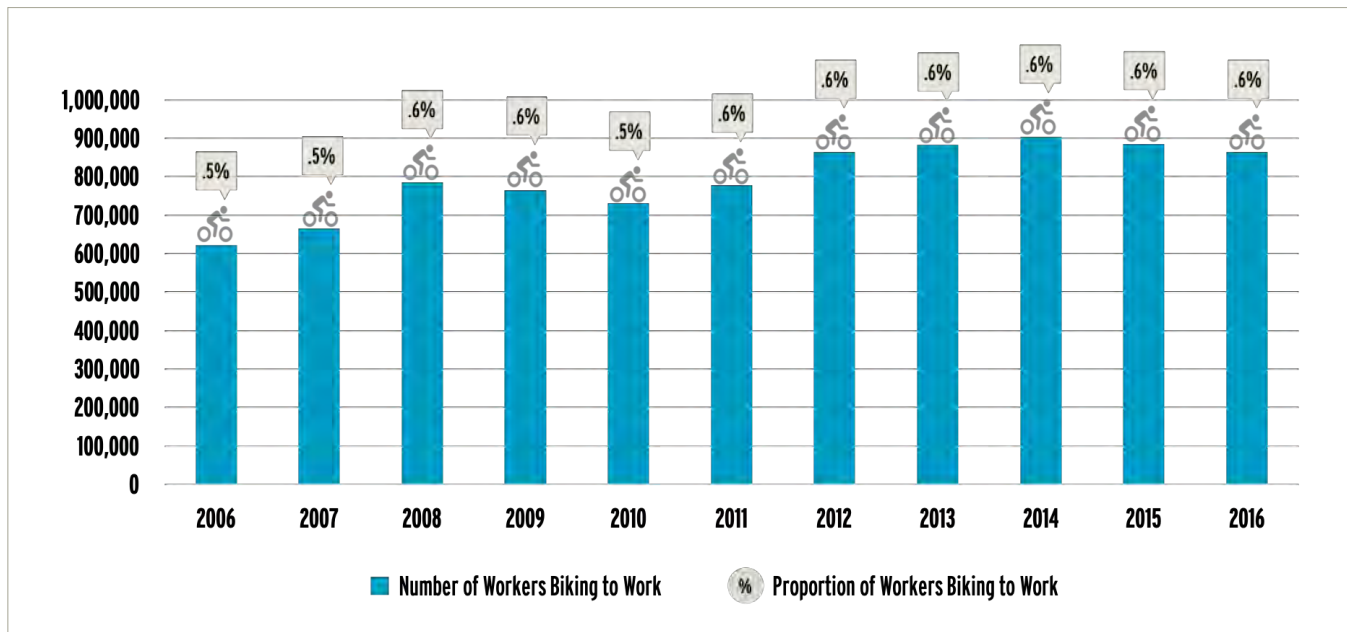
6 U.S. Census Bureau. *Means of Transportation to Work: 1990 and 1980 Decennial Census*. Available at <https://www2.census.gov/programs-surveys/commuting/tables/time-series/journey/mode6790.txt>.

7 U.S. Census Bureau (2006-2016). *American Community Survey Tables B08006, S0801, C08006*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

8 See footnote 7.

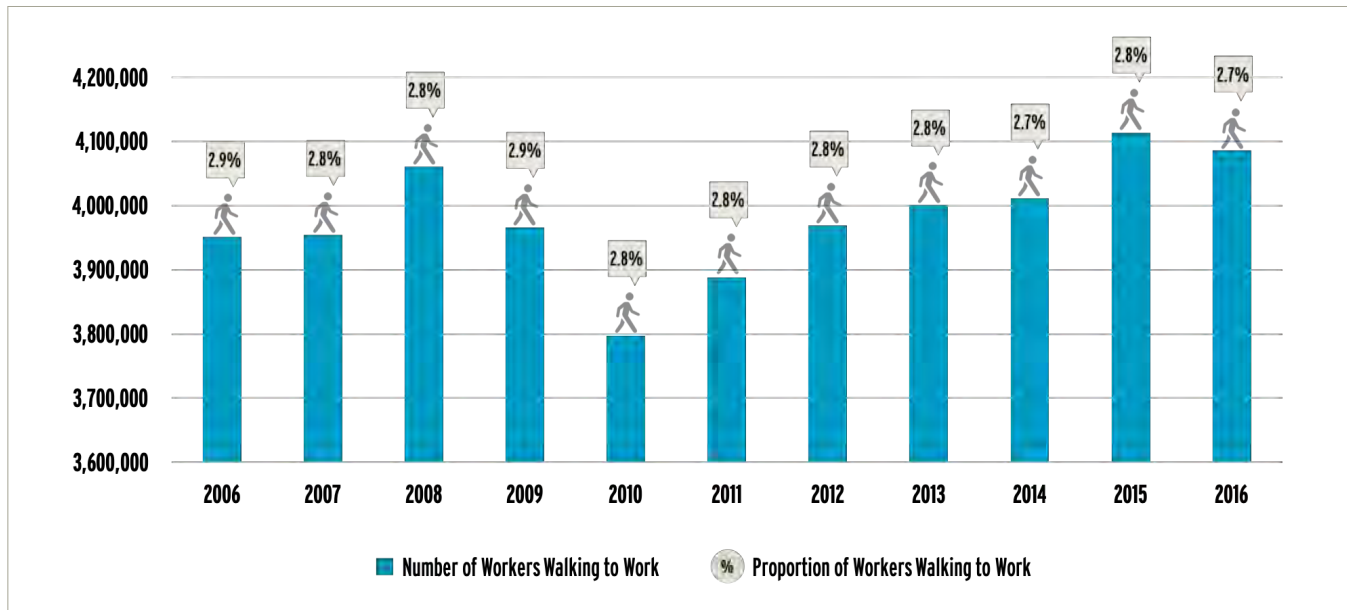
Number & Percent of People Biking to Work ⁹

FIGURE 1.1.4 - NUMBER & PERCENT OF PEOPLE BIKING TO WORK



Number & Percent of People Walking to Work

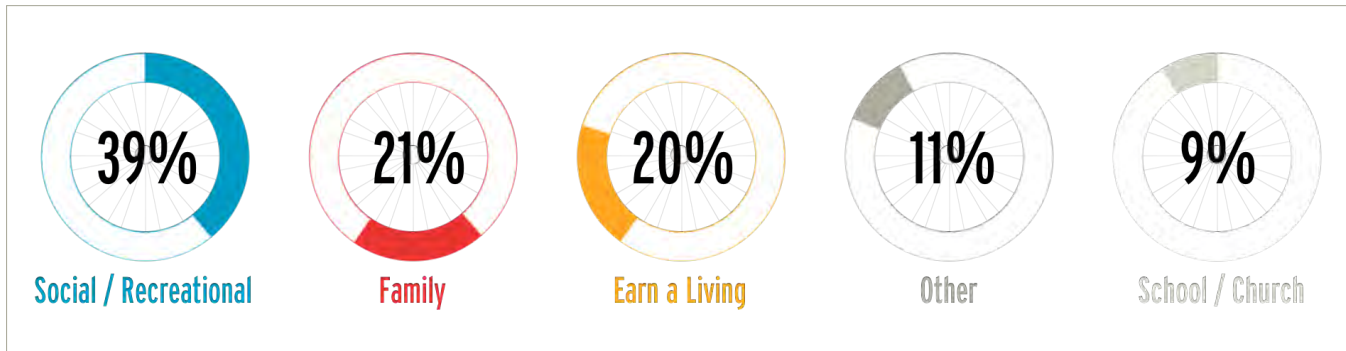
FIGURE 1.1.5 - NUMBER & PERCENT OF PEOPLE WALKING TO WORK



⁹ U.S. Census Bureau (2006-2016). *American Community Survey Tables B08006 1-year estimates*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

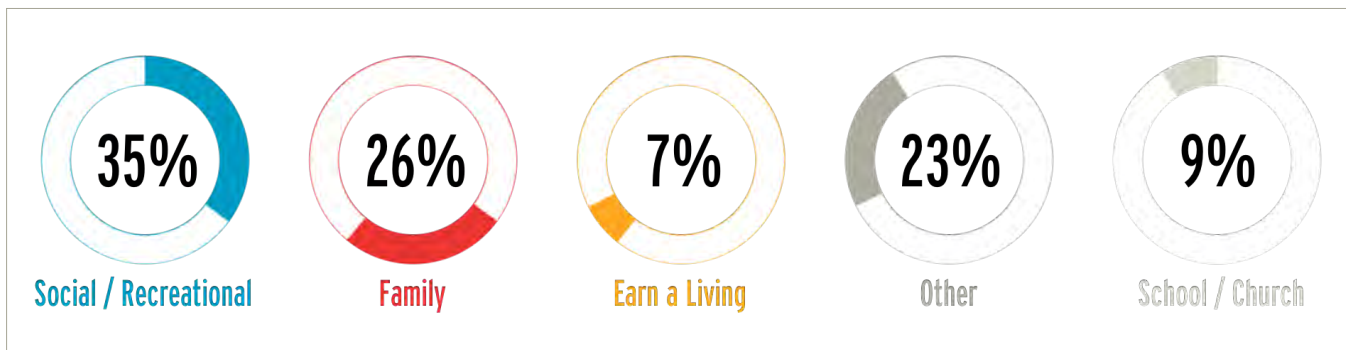
Bicycling Trips by Purpose, According to 2017 National Household Travel Survey ¹⁰

FIGURE 1.1.6 - BIKING TRIPS BY PURPOSE



Walking Trips by Purpose, According to 2017 National Household Travel Survey ¹¹

FIGURE 1.1.7 - WALKING TRIPS BY PURPOSE



Between the 2009 and 2017 NHTS, biking trips to “earn a living” increased from 12.7% of bicycling trips to 20.2% of bicycling trips. This may explain the increase in the rate of bicycle commuting found in ACS data that is not reflected in the unchanged prevalence of biking as a percent of all trips in the NHTS data.

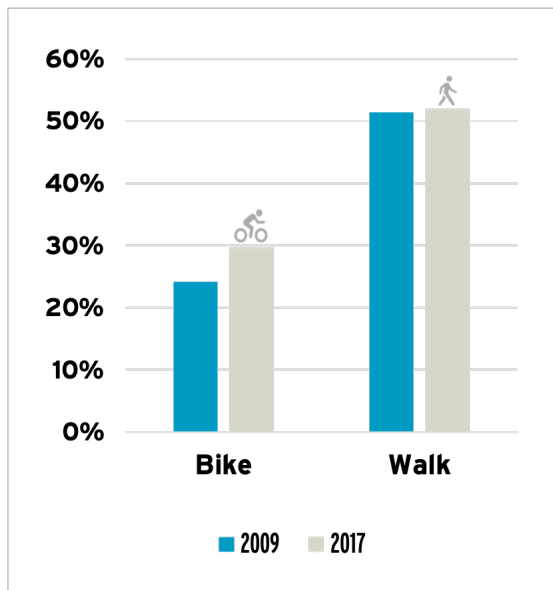
¹⁰ See footnote 2.

¹¹ See footnote 2.

1.2 - NATION: DEMOGRAPHICS OF ACTIVE TRANSPORTATION

Percent of Bicycling & Walking Trips by Women ¹²

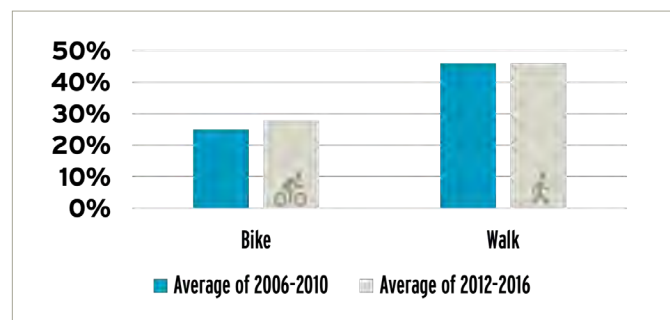
FIGURE 1.2.1 - PERCENT OF TRIPS BY FEMALES



Percent of Bicycling & Walking Commuters Who Are Women ¹³

Commuter to work data show that women are under-represented among people who bicycle, but not among people who walk. This is also seen in all bicycling and walking trips through NHTS data. Nationally, women represent 50.8% of the population of the United States¹⁴ and 47.0% of commuters, but only 30.3% of all bicycling trips and only 28.0% of bicycle commuters. Nevertheless, these relatively modest participation percentages represent increases from prior years.

FIGURE 1.2.2 - PERCENT OF BIKING & WALKING COMMUTERS WHO ARE FEMALE



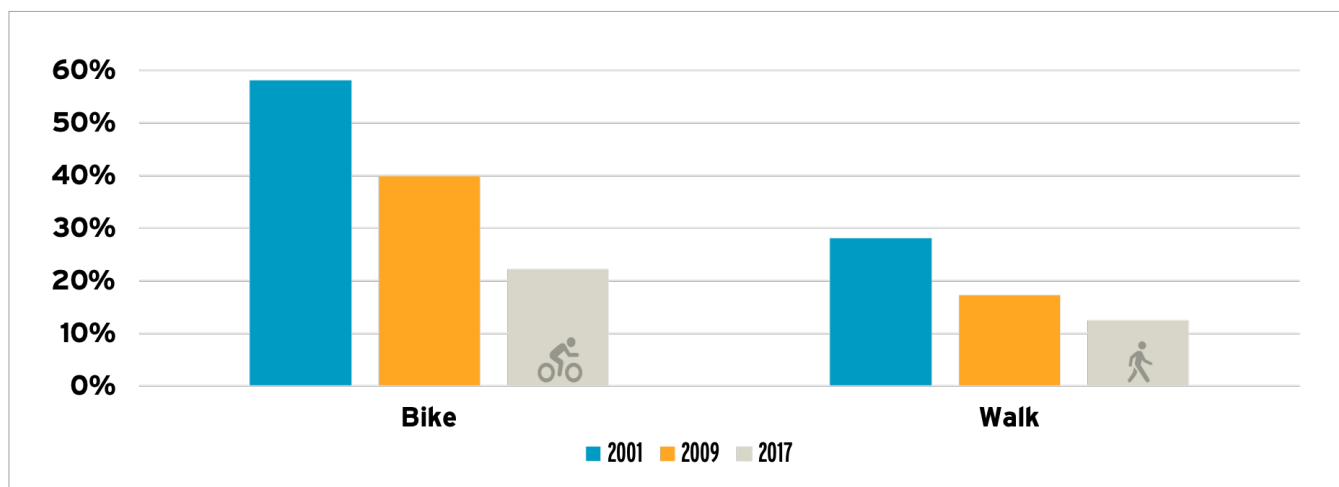
¹² See footnote 4.

¹³ See footnote 9.

¹⁴ U.S. Census Bureau (2016). *American Community Survey Table B01003 1-year estimate*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

Children & Youth Bicycling & Walking ¹⁵

FIGURE 1.2.3 - PERCENT OF TRIPS BY CHILDREN & YOUTH (AGE 5 TO 15)



Data from the NHTS indicates that youth (people under 16 years old) are walking and biking less than in the past. There were significant drops in the percentage of both walking and biking trips by youth.

Historically, youth have represented a disproportionately high percent of bicycle trips. The 2017 NHTS data shows a significant drop to youth representing only 22.1% of bicycle trips, much more closely in line with their percentage of the US population (21.2% according to the 2010 Census). The youth percentage of walking trips also decreased, but not as steeply from 17.2% of trips in 2009 to 12.4% in 2017.

The decreases seen in the proportion of trips by youth completed by biking or walking are also seen in the number of trips, distances, and minutes of by biking and walking.

FIGURE 1.2.4 - BREAKDOWN OF DATA BY TRIPS, TIME, & DISTANCE

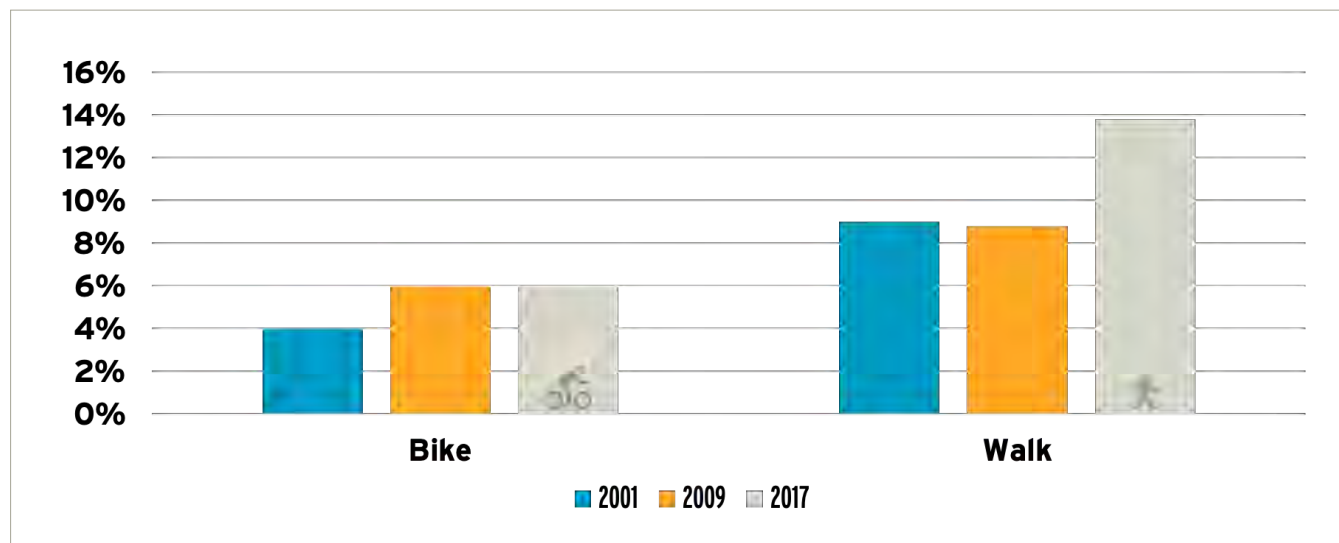
| | BIKE TRIPS (Million Daily Bicycling Trips per Year) | MINUTES CYCLED (Billion Minutes) | DISTANCE CYCLED (Billion Miles) | WALK TRIPS (Million Daily Walking Trips per Year) | MINUTES WALKED (Billion Minutes) | DISTANCE WALKED (Billion Miles) |
|-------------|---------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|-------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| 2017 | 821 | 13 | 0.8 | 5,490 | 75 | 3.0 |
| 2009 | 1,608 | 23 | 1.3 | 6,900 | 95 | 4.1 |

¹⁵ For 2001 NHTS data see The Alliance for Biking and Walking (2010). *Bicycling and Walking in the United States: 2010 Benchmarking Report*. Available at <https://bikeleague.org/sites/default/files/2010BenchmarkingReport.pdf>. Ralph Buehler (2017). *Analysis of 2009 and 2017 National Household Travel Survey data for the League of American Bicyclists*.

However, data from the National Center for Safe Routes to School (NCSRTS) estimates that walking to school increased between 2007/8 and 2014, while biking to school stayed relatively consistent. The NCSRTS data is based on “720,000 parent surveys collected by nearly 6,500 schools throughout the United States starting in 2007 and extending through 2014.”¹⁶ The parent survey “captures the usual travel mode of students and parents’ perceptions about walking and bicycling between home and school.”¹⁷

Seniors Bicycling & Walking

FIGURE 1.2.5 - PERCENT OF TRIPS BY SENIORS (AGE 65+)



Data from the 2017 NHTS shows a statistically significant increase in the percent of walking trips attributed to people over 65 years of age. The percentage of walking trips by people over 65 years of age rose from 8.8% in 2009 to 13.8% in 2017.¹⁸ This increase was greater than the increase in the share of the U.S. population that is aged 65 years or older, which increased from 13.1% in the 2010 Census to 14.5% in the 2016 1-year ACS estimate.¹⁹

After increasing between 2001 and 2009, the percentage of bicycling trips attributable to people over 65 years of age did not change significantly between 2009 and 2017, staying stable at 6% of all bicycling trips according to the NHTS.²⁰

¹⁶ The National Center for Safe Routes to School (2016). Trends in Bicycling to School from 2007 to 2014 at p. 5. Available at http://www.pedbikeinfo.org/pdf/Community_SRTSfederal_Trends.pdf.

¹⁷ See footnote 16.

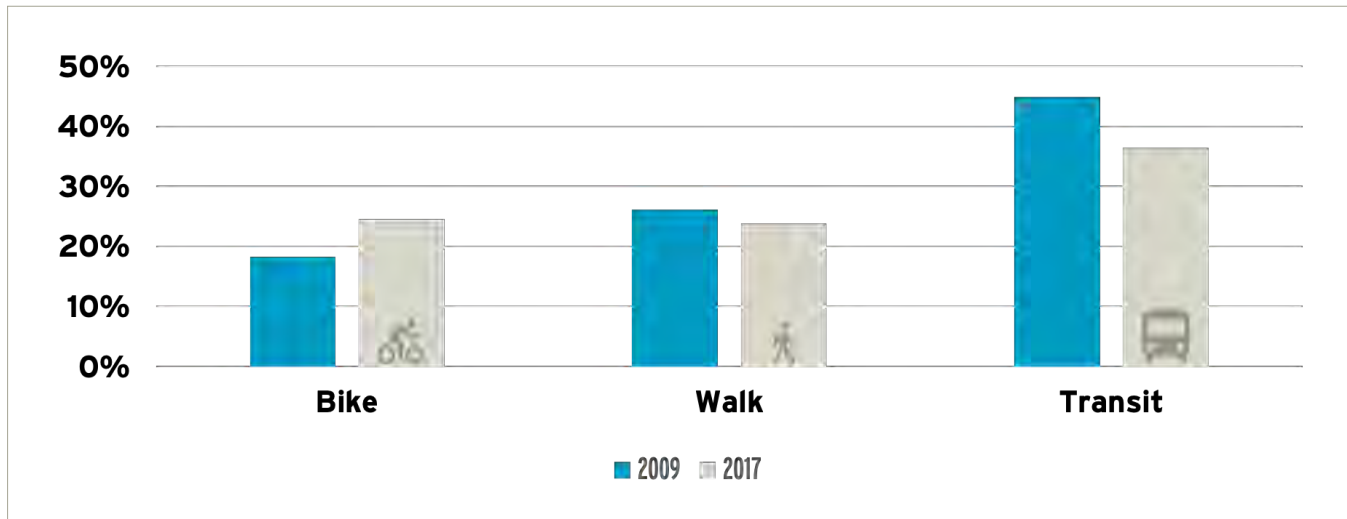
¹⁸ See footnote 4.

¹⁹ U.S. Census Bureau (2016). 2010 Decennial Census and American Community Survey Table B01003 1-year estimate. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

²⁰ For 2001 NHTS data see The Alliance for Biking and Walking (2010). *Bicycling and Walking in the United States: 2010 Benchmarking Report*. Available at <https://bikeleague.org/sites/default/files/2010BenchmarkingReport.pdf>. Ralph Buehler (2017). *Analysis of 2009 and 2017 National Household Travel Survey data for the League of American Bicyclists*.

Low-Income Households Bicycling, Walking, & Using Transit

FIGURE 1.2.6 - PERCENT OF BIKING, WALKING, & TRANSIT TRIPS BY PEOPLE FROM HOUSEHOLDS WITH INCOME OF LESS THAN \$25,000 PER YEAR

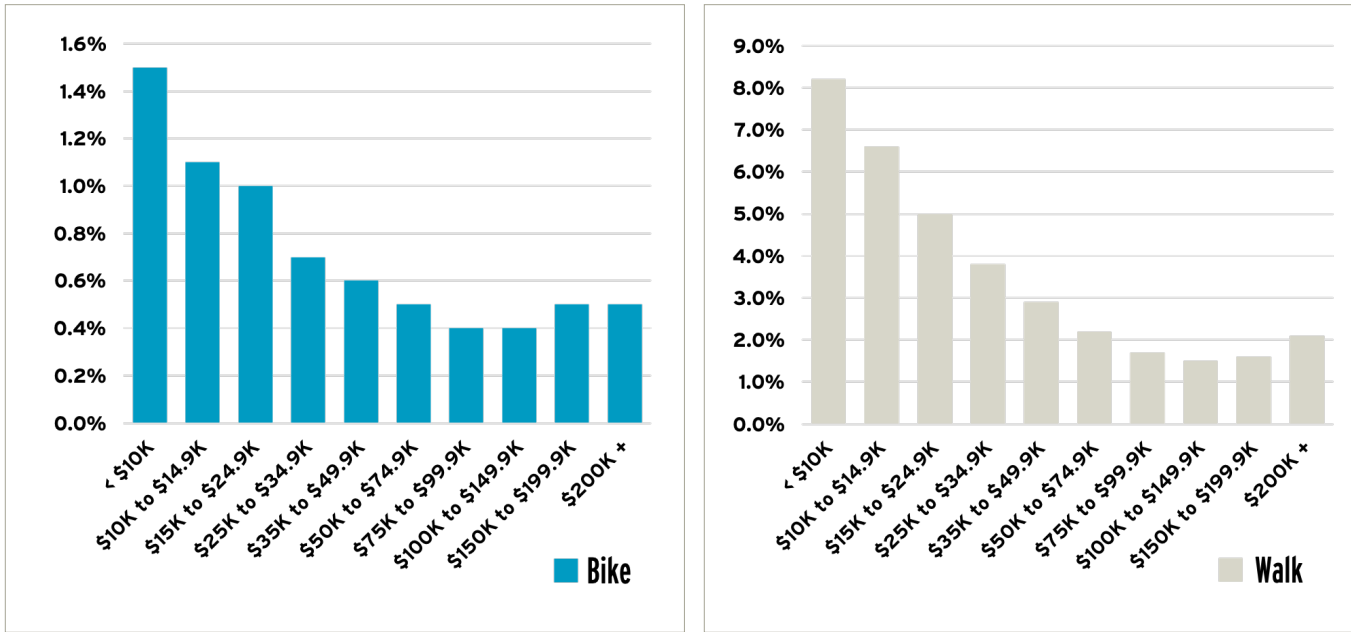


According to the 2017 NHTS, the proportion of bicycling and walking trips made by people from households with low incomes (incomes of less than \$25,000 per year) is similar or slightly more than the percentage of total population from those households (21.2% according to the 2016 ACS). Although people from low-income households represented significantly smaller proportion of transit trips in 2017 compared to 2009, they are still over-represented among transit users.

Data from the Census Bureau has suggested that bicycling and walking are much more common as a means of commute to work at lower income levels. The proportion of workers who walk or bike to work is progressively lower across income categories, up to about \$100,000 per year, beyond which the prevalence is fairly stable or slightly higher at very high-income levels.

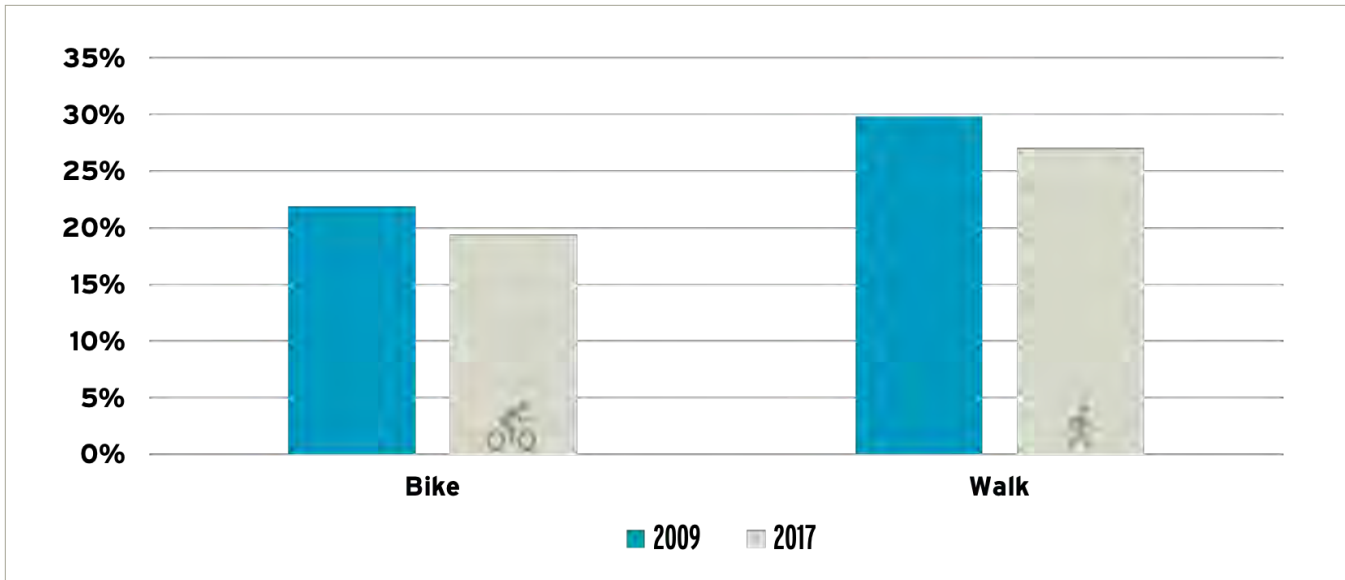


FIGURE 1.2.7 - BIKING & WALKING TO WORK BY HOUSEHOLD INCOME: 2008-2012 ²¹



Bicycling & Walking by People of Color ²²

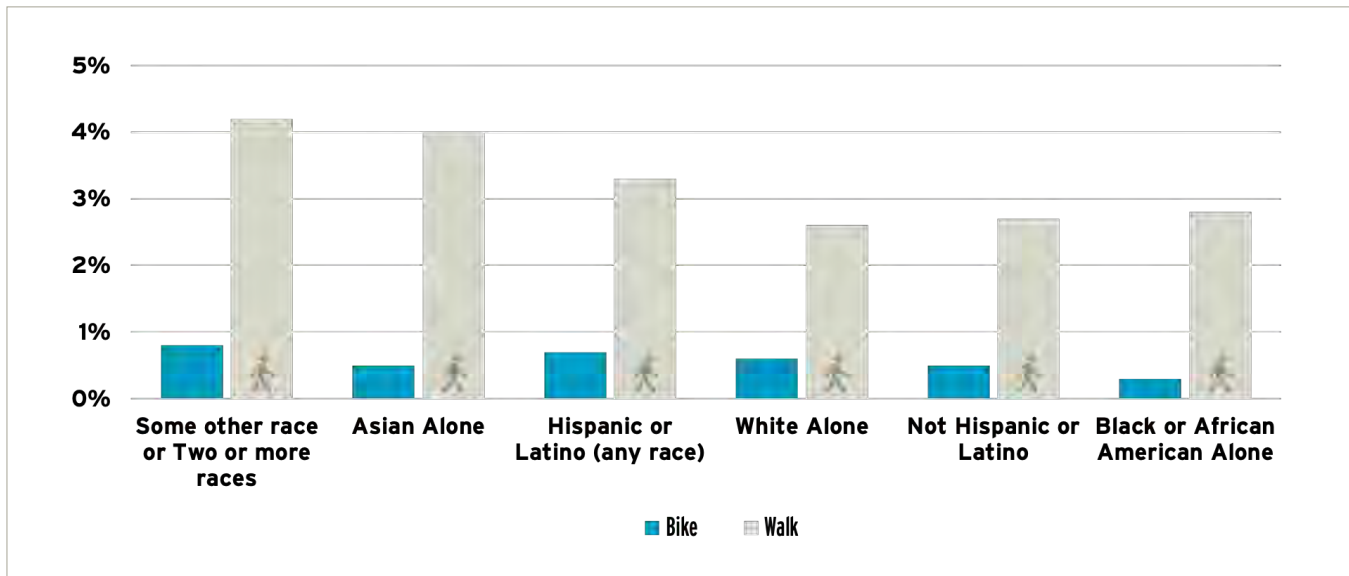
FIGURE 1.2.8 - PERCENT OF BIKING & WALKING TRIPS BY PEOPLE OF COLOR



²¹ U.S. Census Bureau (2014). *Modes Less Traveled*. Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf> (adapted from Figure 11 at p. 13).

²² Ralph Buehler (2017). *Analysis of 2009 and 2017 National Household Travel Survey data for the League of American Bicyclists*. (For this analysis, People of Color means all persons who are not non-Hispanic White).

FIGURE 1.2.9 - RATES OF BIKING & WALKING TO WORK BY RACE & ETHNICITY, 2008-2012



According to the 2010 Census, about 28% of the United States population is non-White.²³ Data from NHTS suggests people of color account for a smaller proportion of bicycle trips (about 19%) than their population share would suggest if all races and ethnicities bicycled at the same rate. For walking, people of color make about 26% of trips, which is closer to their population share. This suggests an opportunity to increase biking as a transportation option among people of color.

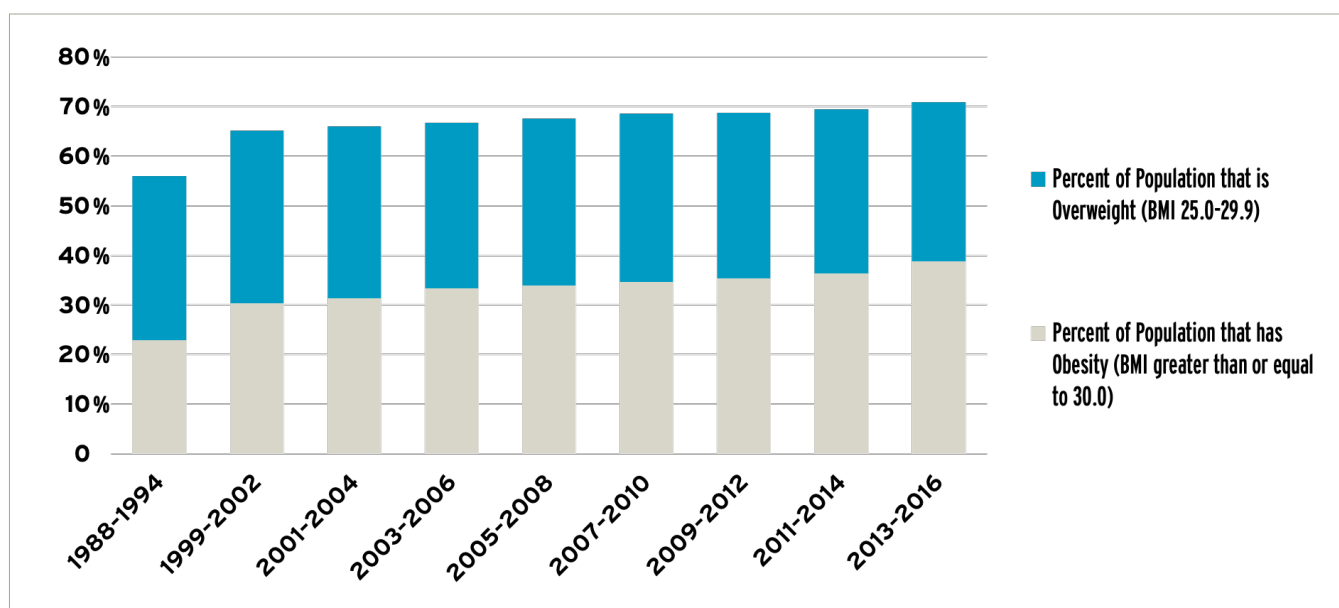


²³ U.S. Census Bureau. 2010 Decennial Census Table QT-P3. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

1.3 - NATION: PUBLIC HEALTH INDICATORS

Percent of Population that is Overweight or Has Obesity ²⁴

FIGURE 1.3.1 - PERCENT OF POPULATION THAT IS OVERWEIGHT OR HAS OBESITY



Body Mass Index (BMI) is a person's weight in kilograms divided by the square of the person's height in meters.²⁵ When using pounds and inches, a conversion factor is used. BMI is often used as a screening tool. It is not a diagnostic tool that assesses the health of an individual. For adults, BMI is interpreted into weight status categories: underweight, normal or healthy weight, overweight, and obese. People who have obesity, compared to people with normal or healthy weight, are at an increased risk for many serious diseases and health conditions.²⁶

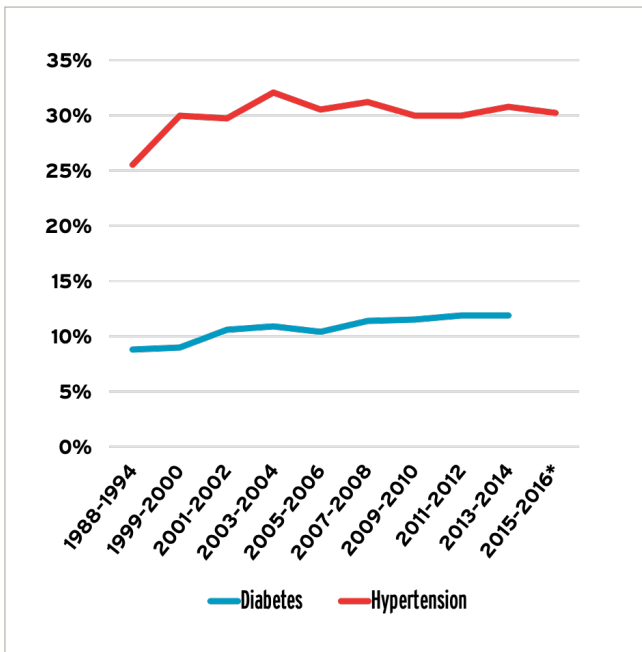
²⁴ Centers for Disease Control and Prevention. *National Center for Health Statistics Table 058*. Available at <https://www.cdc.gov/nchs/hus/contents2017.htm?search=Obesity/overweight>,

²⁵ Centers for Disease Control and Prevention. *About Adult BMI* (last updated August 29, 2017). Available at https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html.

²⁶ Centers for Disease Control and Prevention. *The Health Effects of Overweight and Obesity* (last updated June 5, 2015). Available at <https://www.cdc.gov/healthyweight/effects/index.html>.

Percent of Population that has Diabetes or Hypertension ²⁷

FIGURE 1.3.2 - PERCENT OF US POPULATION WHO HAS DIABETES OR HYPERTENSION



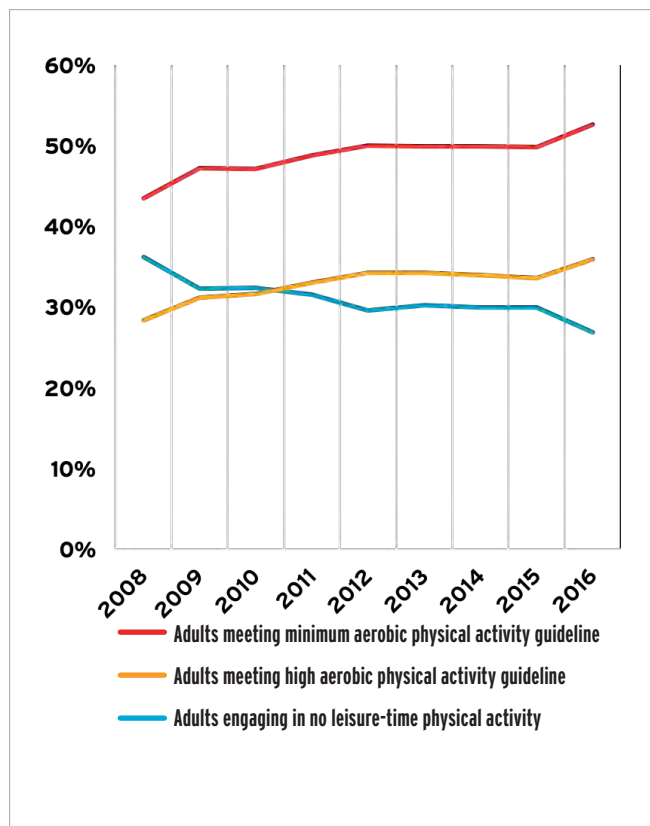
The U.S. Department of Health and Human Services first issued physical activity guidelines in 2008 to provide “evidence-based advice on how physical activity can help promote health and reduce the risk of chronic disease.” Updated guidelines were published in 2018 with additional evidence about “Immediate and longer term benefits for how people feel, function, and sleep” and that “even short episodes of physical activity are beneficial.” You can learn more here: <https://health.gov/paguidelines/second-edition/>.

Physical Activity Over Time ²⁸

The minimum aerobic physical activity guideline is defined as moderate intensity physical activity for 150 minutes per week or more, or vigorous intensity physical activity for 75 minutes per week or more, or an equivalent combination.

The high aerobic physical activity guideline is defined as moderate intensity physical activity for 300 minutes per week or more, or vigorous intensity physical activity for 150 minutes per week or more, or an equivalent combination.

FIGURE 1.3.3 - PHYSICAL ACTIVITY BY ADULTS OVER TIME



²⁷ Centers for Disease Control and Prevention. *National Center for Health Statistics Table 053*. Available at <https://www.cdc.gov/nchs/hus/contents2017.htm>.

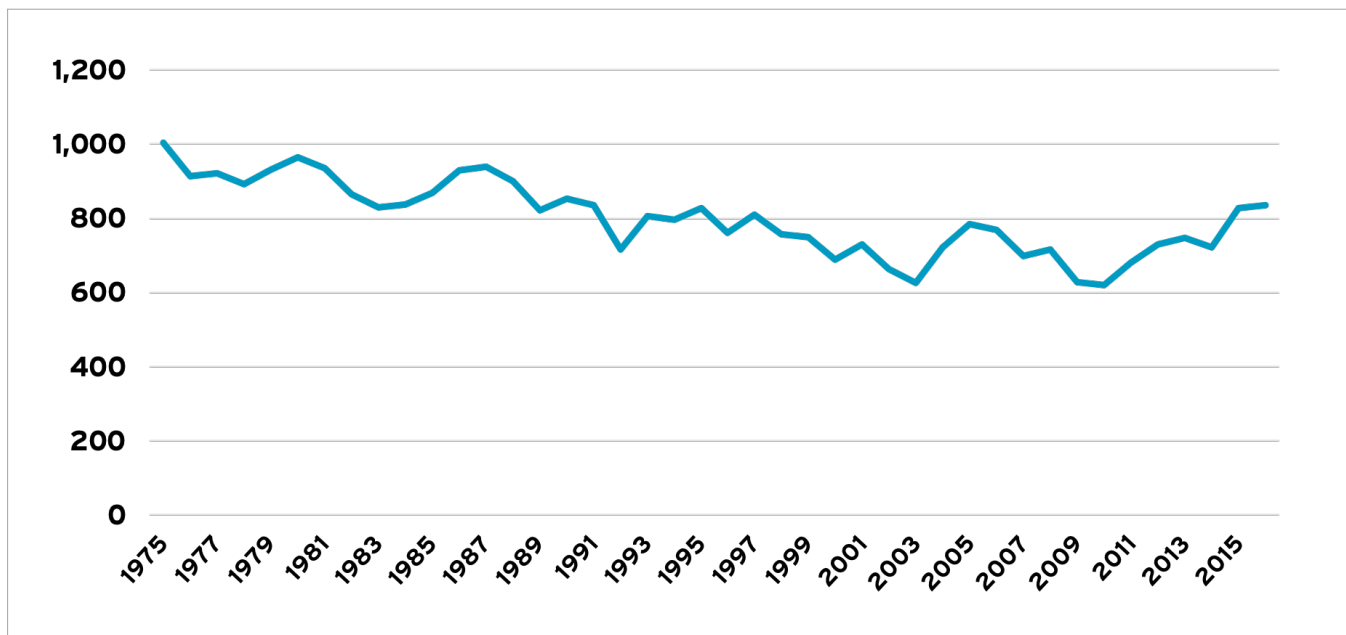
²⁸ Centers for Disease Control and Prevention. *National Health Interview Survey (NHIS)*. Available at <https://www.cdc.gov/physicalactivity/downloads/trends-in-the-prevalence-of-physical-activity-508.pdf>

1.4 - NATION:

BICYCLIST & PEDESTRIAN ROAD SAFETY

Trends in Bicyclist Fatalities

FIGURE 1.4.1 - NUMBER OF ANNUAL BICYCLIST FATALITIES



In 1975, bicyclist deaths were evenly distributed (50/50) between urban and rural land uses.²⁹ Since that time, bicyclist deaths have become increasingly an urban problem, with 71% of bicyclist deaths occurring in urban areas in 2016.³⁰

Most bicyclist deaths occur on arterial roadways, with 61% of bicyclist deaths in 2016 occurring on principal or minor arterial roadways, despite this type of road making up only 10% of the national roadway system.³¹

29 Insurance Institute for Highway Safety. *Fatality Facts*. Available at <http://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/bicycles> (uses data from NHTSA FARS and includes fatalities categorized as “other and/or unknowns”).

30 See footnote 29.

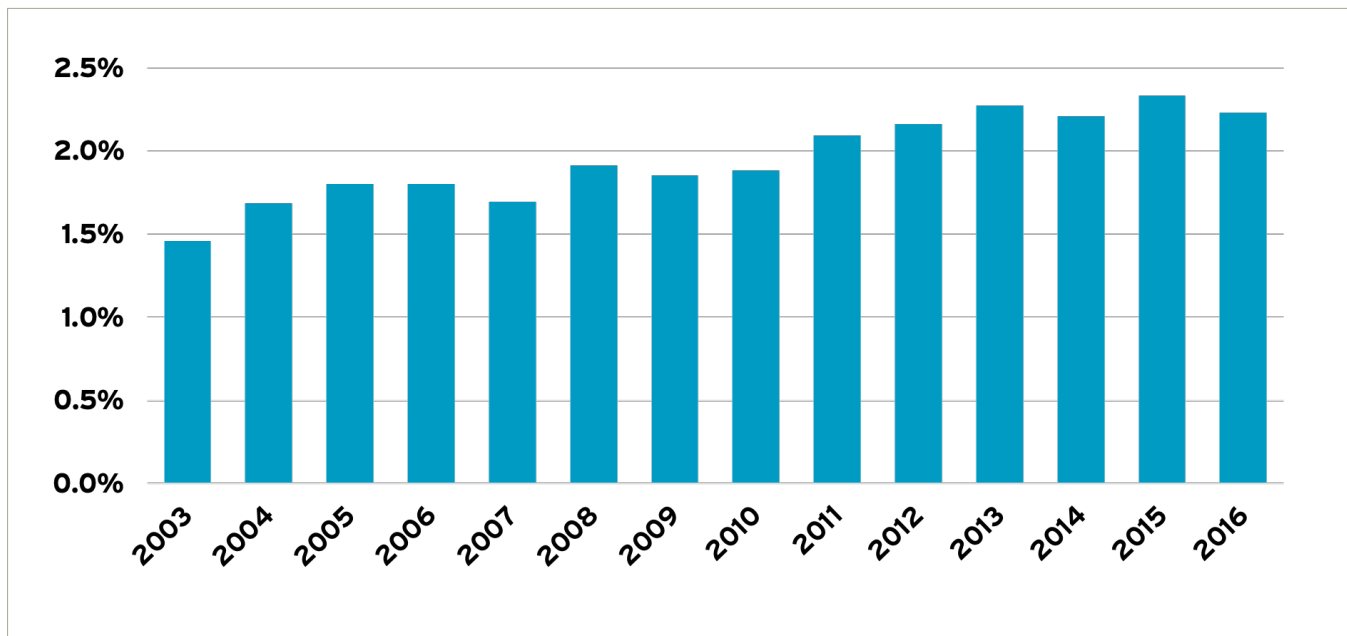
31 National Highway Traffic Safety Administration (NHTSA). *Fatality Analysis Reporting System* (query of 2016 data). Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>.

FIGURE 1.4.2 - BICYCLIST FATALITIES BY ROAD TYPE

| | INTERSTATE | OTHER PRINCIPAL AND MINOR ARTERIALS | MAJOR AND MINOR COLLECTORS | LOCAL |
|---------------------------------------------------------------------------|------------|-------------------------------------|----------------------------|-------|
| PERCENT OF BICYCLIST FATALITIES BY FUNCTIONAL SYSTEM ³⁰ | 2% | 61% | 20% | 12% |
| PERCENT OF ROAD MILES BY FUNCTIONAL SYSTEM ³¹ | 1% | 10% | 20% | 69% |

Bicyclist Fatalities as a Percent of All Road Fatalities

FIGURE 1.4.3 - PERCENT OF ALL TRAFFIC FATALITIES THAT ARE BICYCLISTS



The proportion of all traffic fatalities that are bicyclists has increased in recent years. Bicyclists represent over 2% of traffic fatalities while only accounting for 1% of trips. ³⁴

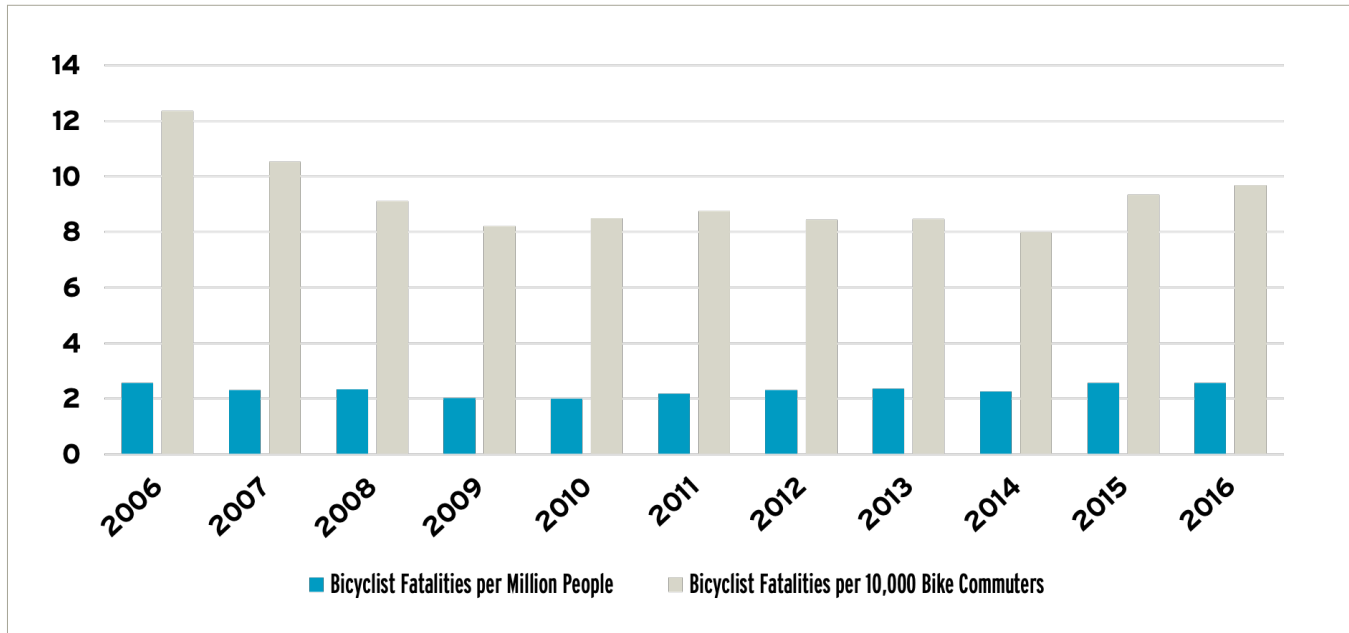
³² See footnote 31.

³³ Bureau of Transportation Statistics (2013). *Table 1-1: Public Road Length, Miles by Functional System*. Available at https://cms.bts.dot.gov/archive/publications/state_transportation_statistics/state_transportation_statistics_2015/chapter-1/table1_1.

³⁴ Compare to I.I.I: Trends in Prevalence of Bicycling and Walking for All Trips.

Bicyclist Fatality Rates Per Capita & Per Bicycle Commuter ³⁵

FIGURE 1.4.4 - BICYCLIST FATALITIES PER CAPITA & PER BICYCLE COMMUTER



The rate of bicyclist fatalities per capita and per estimated bicycle commuters has increased since 2014 for both metrics.

³⁵ Insurance Institute for Highway Safety. *Fatality Facts*. Available at <http://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/bicycles> (uses data from NHTSA FARS and includes fatalities categorized as “other and/or unknowns”). U.S. Census Bureau (2016). *American Community Survey Tables B01003 and B08006 1-year estimates*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

Bicyclist Fatalities, by Race of Bicyclist Killed

FIGURE 1.4.5 - RACE OF BICYCLISTS KILLED IN MOTOR VEHICLE CRASHES, 2014-2016

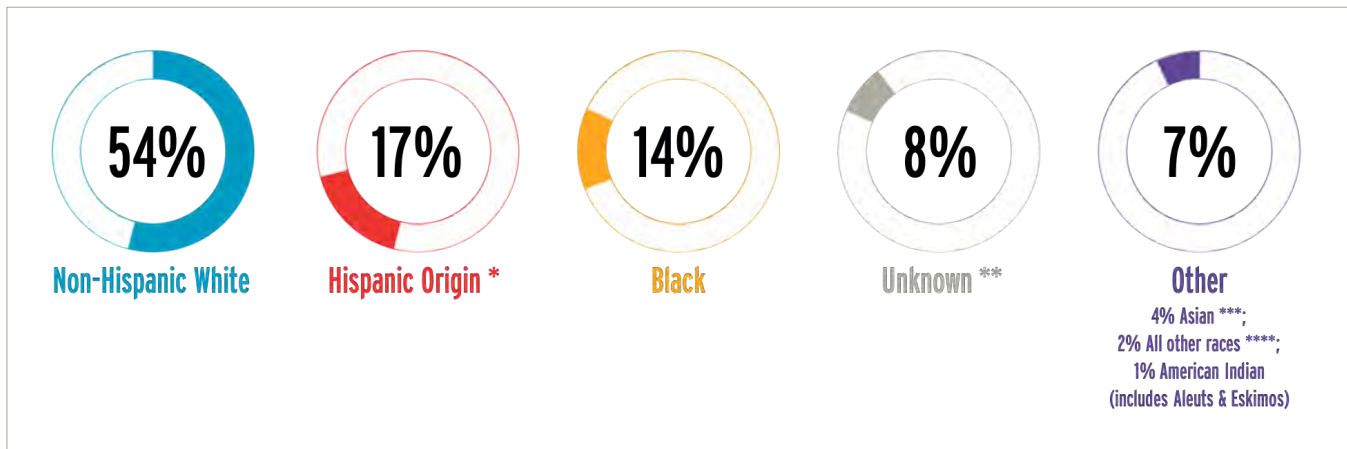


FIGURE 1.4.6 - BICYCLIST FATALITIES BY RACE

| RACE AS REPORTED IN NHTSA FARS DATA | PERCENT OF BICYCLIST FATALITIES, 2014-2016 ^{3 4} | RACE AS REPORTED IN AMERICAN COMMUNITY SURVEY | PERCENT OF POPULATION ^{3 5} |
|-----------------------------------------------|-----------------------------------------------------------|-----------------------------------------------|--------------------------------------|
| Non-Hispanic White | 54% | White alone, not Hispanic or Latino | 61.3% |
| Hispanic Origin* | 17% | Hispanic or Latino | 17.8% |
| Black | 14% | Black or African American | 13.3% |
| Unknown** | 8% | NA | NA |
| Asian*** | 4% | Asian alone | 5.7% |
| All other races**** | 2% | NA | NA |
| American Indian (includes Aleuts and Eskimos) | 1% | American Indian and Alaska Native alone | 1.3% |

* Hispanic Origin includes all people categorized as White and any Hispanic origin, including Mexican, Puerto Rican, Cuban, Central or South American, European Spanish, Hispanic-origin not specified or other origin, and Unknown.

** Unknown includes all people coded as blank.

*** Asian includes all people categorized as Chinese, Japanese, Hawaiian (including part-Hawaiian), Filipino, Asian Indian, Korean, Vietnamese, Other Asian or Pacific Islander, and Asian and Pacific Islander-no specific (individual) race.

**** All other races includes all people categorized as All Other Races, Multiple Races (individual races not specified; ex. “mixed”), and Other Indian (includes South and Central America, any other, except American or Asian Indians).

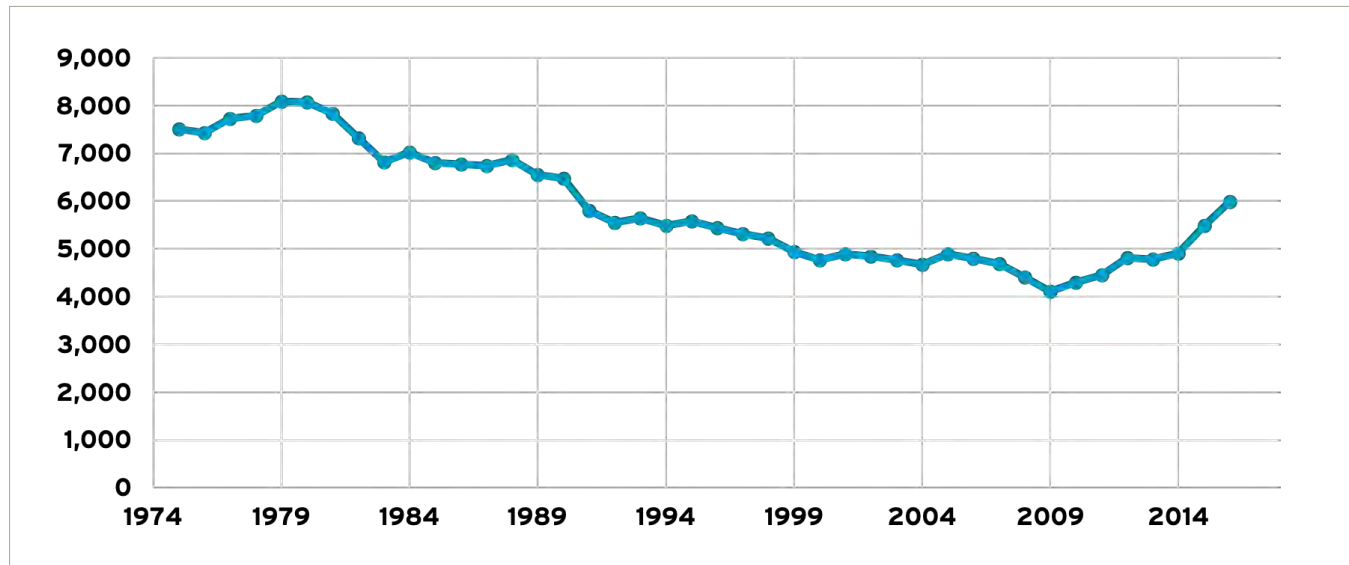
36 NHTSA. *FARS Database*; (Query: Table Option 1; Person Fields “Hispanic Origin,” “Injury Severity,” “Person Type,” and “Race;” Injury Severity = “(4)Fatal Injury (K), Person Type = “(6)Bicyclist.”)

37 U.S. Census Bureau. *United States Quick Facts*. Available at <https://www.census.gov/quickfacts/fact/table/US/RH1225216>

Trends in Pedestrian Fatalities

After decades of declines, the number of pedestrian fatalities per year has increased since 2009.³⁸ A 2011 report by the AAA Foundation for Highway Safety found that the risk of death for pedestrians increased dramatically with speed – so that a pedestrian hit at 30 mph had a 25% risk of death, but a pedestrian hit at 40 mph had a 50% risk of death.³⁹ In 2016, ProPublica organized the data from that study into an interactive tool so that individuals can see how vehicle speeds affect pedestrian survival in crashes.⁴⁰

FIGURE 1.4.7 - NUMBER OF ANNUAL PEDESTRIAN FATALITIES



In 2016, 79% of pedestrian deaths occurred on roads with speed limits of 35 mph or greater. We cannot estimate if this is an over-representation because the U.S. DOT Bureau of Transportation Statistics does not provide data on miles of road by posted speed limit.

FIGURE 1.4.8 - PEDESTRIAN FATALITIES BY POSTED SPEED LIMIT

| SPEED LIMIT OF ROAD | PERCENT OF PEDESTRIAN DEATHS ³⁹ |
|---------------------|--------------------------------------------|
| <35 mph | 18% |
| 35-40 mph | 28% |
| 45 mph+ | 51% |
| Unknown or no limit | 3% |

³⁸ Insurance Institute for Highway Safety. *Fatality Facts*. Available at <https://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/pedestrians>.

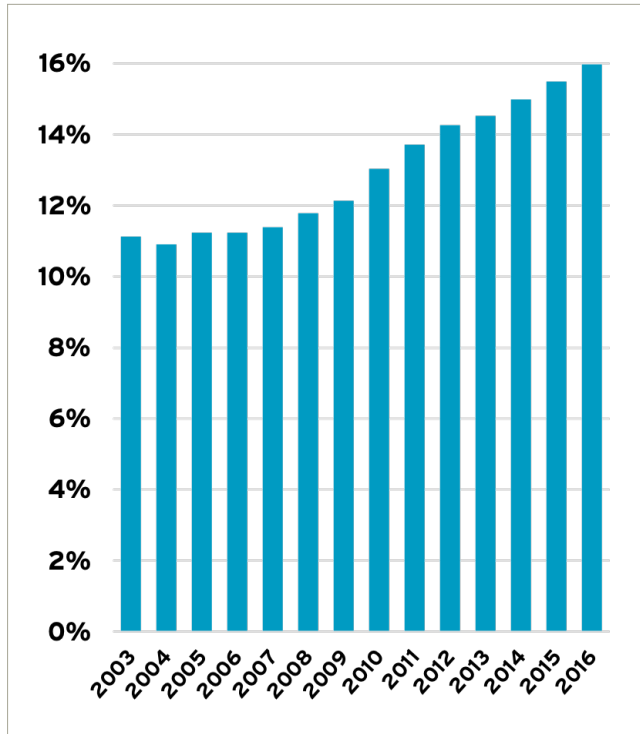
³⁹ Tefft, B.C. AAA Foundation for Traffic Safety (2011). *Impact Speed and a Pedestrian's Risk of Severe Injury or Death*. Available at <http://aaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>.

⁴⁰ Groeger, L. ProPublica (2016). *Unsafe at Many Speeds*. Available at <https://www.propublica.org/article/unsafe-at-many-speeds>.

⁴¹ See footnote 38.

Pedestrian Fatalities as a Percent of All Road Fatalities

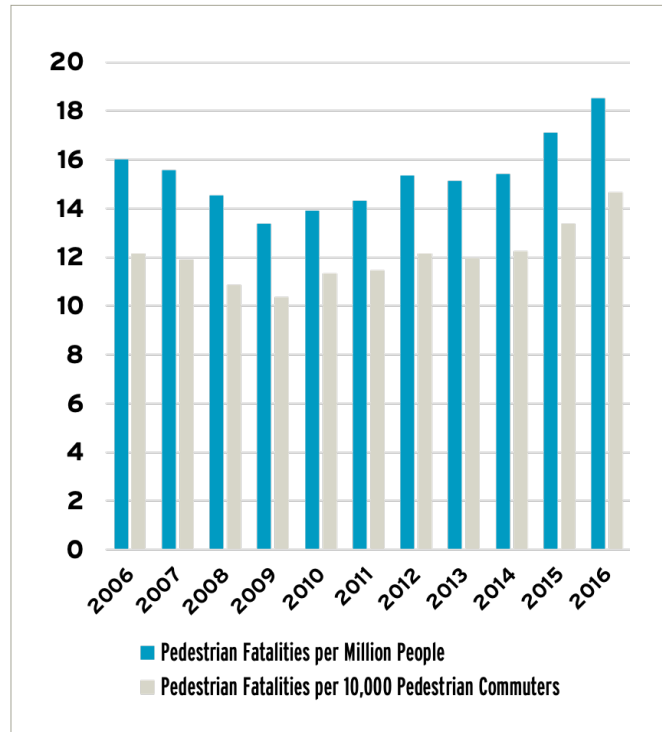
FIGURE 1.4.9 - PERCENT OF ALL TRAFFIC FATALITIES THAT ARE PEDESTRIANS



As with bicyclists, the proportion of all traffic fatalities that are pedestrians has increased in recent years. Pedestrians make up 16% of traffic fatalities while only accounting for about 12% of trips.⁴²

Pedestrian Fatality Rates Per Capita & Per Pedestrian Commuter

FIGURE 1.4.10 - PEDESTRIAN FATALITIES PER CAPITA & PER PEDESTRIAN COMMUTER



The rate of pedestrian fatalities per capita and per 10,000 pedestrian commuters has increased since 2009 for both metrics.⁴³

42 Compare to 1.1.1: Trends in Prevalence of Bicycling and Walking for All Trips

43 Insurance Institute for Highway Safety. *Fatality Facts*. Available at <http://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/pedestrians> (uses data from NHTSA FARS and includes fatalities categorized as “other and/or unknowns”). U.S. Census Bureau (2016). *American Community Survey Tables B01003 and B08006 1-year estimates*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

Pedestrian Fatalities, by Race of Pedestrian Killed

FIGURE 1.4.11 - RACE OF PEDESTRIANS KILLED IN MOTOR VEHICLE CRASHES, 2014-2016

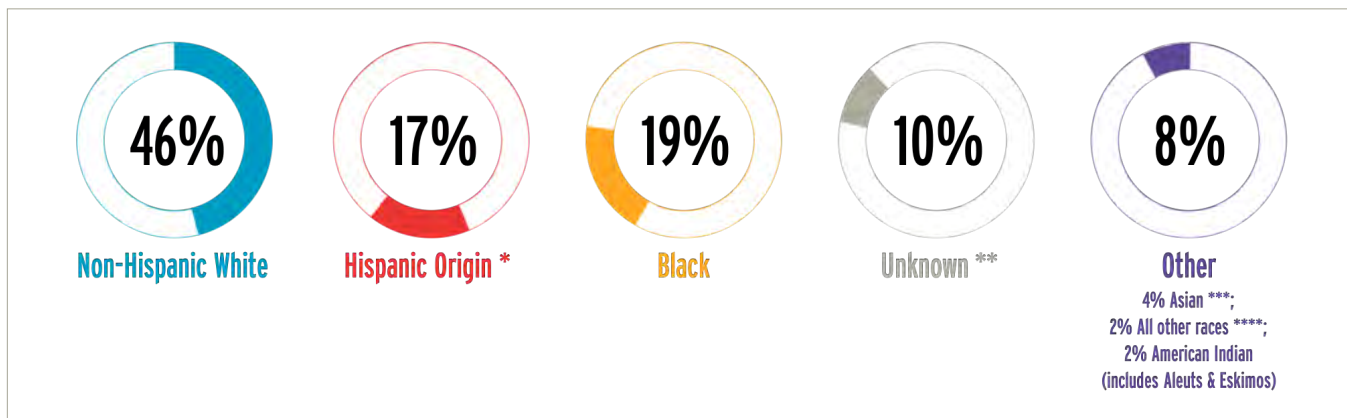


FIGURE 1.4.12 - PEDESTRIAN FATALITIES BY RACE

| RACE AS REPORTED IN NHTSA FARS DATA | PERCENT OF PEDESTRIAN FATALITIES, 2014-2016 ^{4.2} | RACE AS REPORTED IN AMERICAN COMMUNITY SURVEY | PERCENT OF POPULATION ^{4.3} |
|-----------------------------------------------|------------------------------------------------------------|-----------------------------------------------|--------------------------------------|
| Non-Hispanic White | 46% | White alone, not Hispanic or Latino | 61.3% |
| Hispanic Origin* | 17% | Hispanic or Latino | 17.8% |
| Black | 19% | Black or African American | 13.3% |
| Unknown** | 10% | NA | NA |
| Asian*** | 4% | Asian alone | 5.7% |
| All other races**** | 2% | NA | NA |
| American Indian (includes Aleuts and Eskimos) | 2% | American Indian and Alaska Native alone | 1.3% |

Data suggests that black people are over-represented among pedestrian fatalities, with black people accounting for slightly over 19% of pedestrian deaths while representing less than 14% of the US population.

* Hispanic Origin includes all people categorized as White and any Hispanic origin, including Mexican, Puerto Rican, Cuban, Central or South American, European Spanish, Hispanic-origin not specified or other origin, and Unknown.

** Unknown includes all people coded as blank

*** Asian includes all people categorized as Chinese, Japanese, Hawaiian (including part-Hawaiian), Filipino, Asian Indian, Korean, Samoan, Vietnamese, Guamanian, Other Asian or Pacific Islander, and Asian or Pacific Islander-no specific (individual) race.

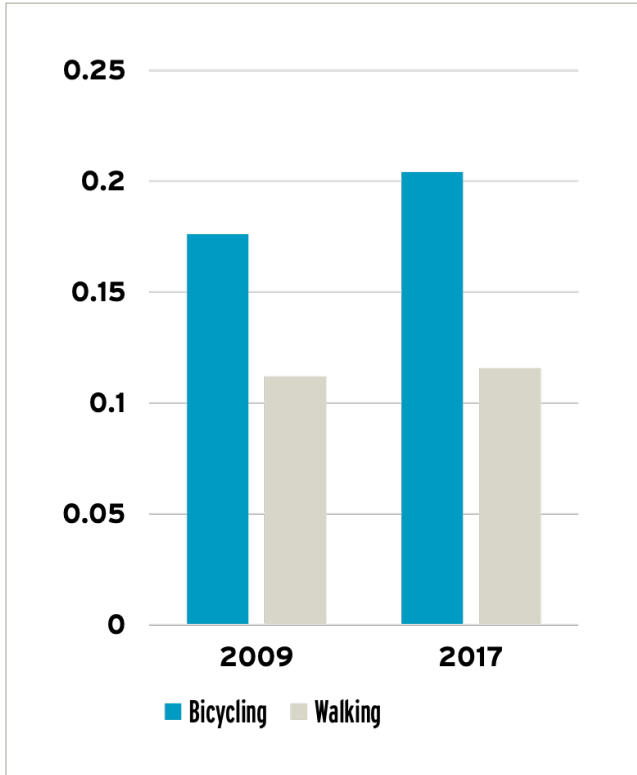
**** All other races includes all people categorized as All Other Races, Multiple Races (individual races not specified; ex. “mixed”), and Other Indian (includes South and Central America, any other, except American or Asian Indians)

44 NHTSA. *FARS Database* (Query: Table Option 1; Person Fields “Hispanic Origin,” “Injury Severity,” “Person Type,” and “Race;” Injury Severity = “(4)Fatal Injury (K), Person Type = “(5)Pedestrian.”).

45 U.S. Census Bureau. *United States Quick Facts*. Available at <https://www.census.gov/quickfacts/fact/table/US/RH1225216>

Bicyclist & Pedestrian Deaths per Million Trips ⁴⁶

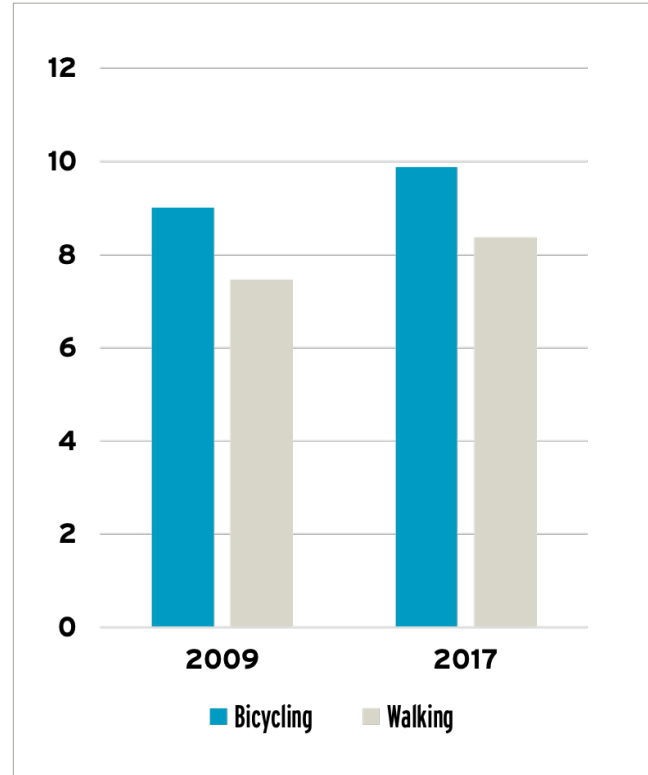
FIGURE 1.4.13 - DEATHS PER MILLION TRIPS



Bicycling appears to be significantly more dangerous than walking on a per trip basis. This may reflect the short distance of many walking trips, with more than 80% of walking trips being 1 mile or less while less than 60% of bicycling trips are 1 mile or less.⁴⁷ The rate of death per million trips increased for both bicycling and walking between 2009 and 2017.

Bicyclist & Pedestrian Deaths per Billion Minutes ⁴⁸

FIGURE 1.4.14 - DEATHS PER BILLION MINUTES



Bicycling continues to appear to be more dangerous than walking when examined by death rate per billion minutes. The rate of death per billion minutes increased for both bicycling and walking between 2009 and 2017.

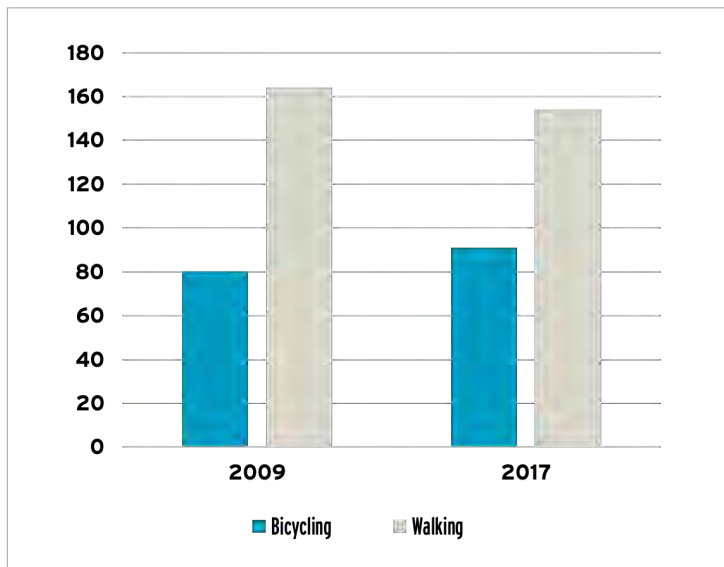
46 Insurance Institute for Highway Safety. *Fatality Facts*. Available at <http://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/pedestrians> (uses data from NHTSA FARS and includes fatalities categorized as “other and/or unknowns”. “2017” data reflects a 5-year average of available fatality data from 2012-2016 and “2009” data reflects a 5-year average of available fatality data from 2005-2009). Ralph Buehler (2017). *Analysis of 2009 and 2017 National Household Travel Survey data for the League of American Bicyclists*.

47 U.S. DOT Federal Highway Administration. *2017 National Household Travel Survey* (Person Trips with Trip distance in miles, derived from route geometry returned by Google Maps API, or from reported loop-trip distance and mode, derived). Available at <https://nhts.ornl.gov/>.

48 See footnote 46.

Bicyclist & Pedestrian Deaths per Billion Miles ⁴⁹

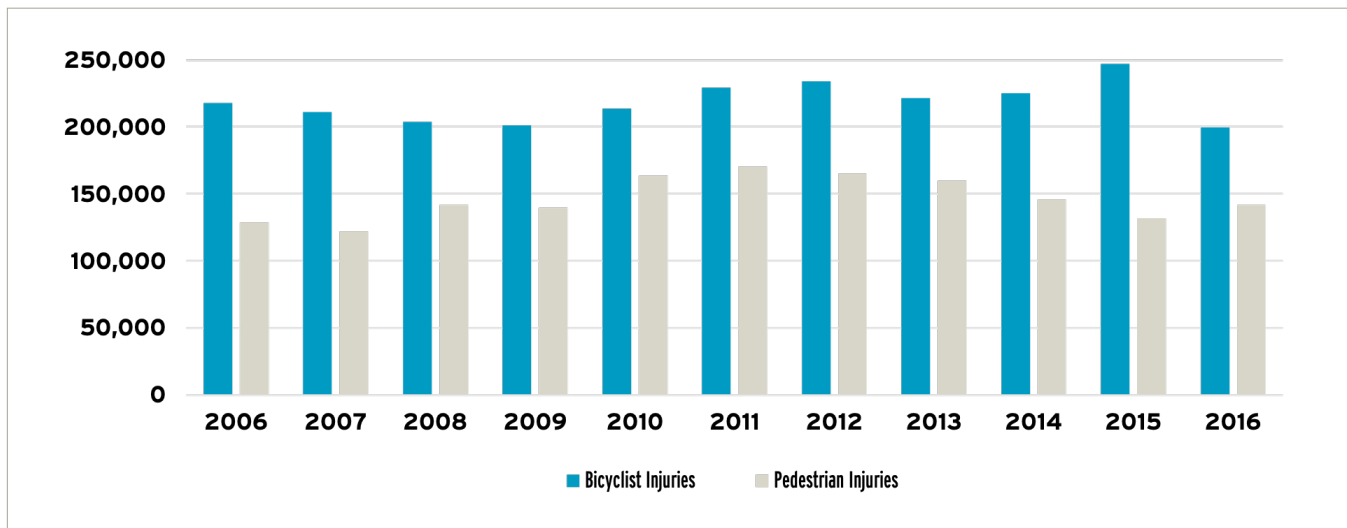
FIGURE 1.4.15 - DEATHS PER BILLION MILES



Unlike the two other exposure measures derived from the National Household Travel Survey (NHTS) – deaths per million trips and deaths per billion minutes – walking appears to be significantly more dangerous than bicycling according to deaths per billion miles. According to the NHTS, the average (mean) bicycle trip length was 2.38 miles while the average (mean) walking trip length was .87 miles. ⁵⁰

On-Road Bicyclist & Pedestrian Injuries ⁵¹

FIGURE 1.4.16 - BICYCLIST & PEDESTRIAN INJURIES



⁴⁹ See footnote 46.

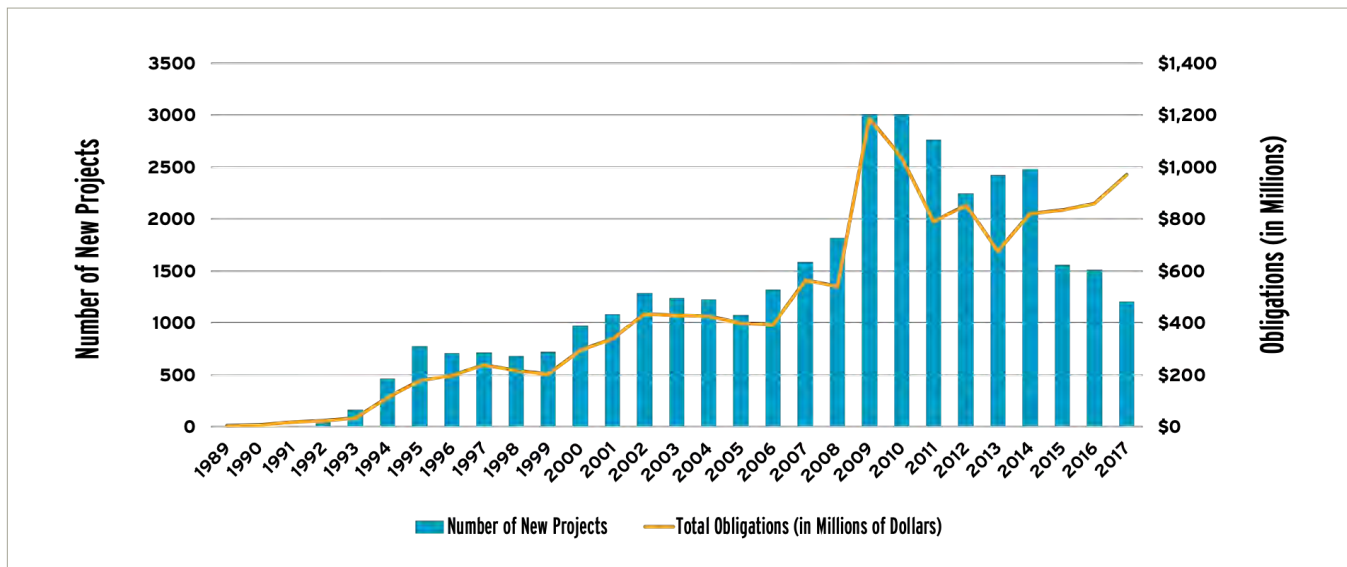
⁵⁰ See footnote 47.

⁵¹ Centers for Disease Control and Prevention Web-based Injury Statistics Query and Reporting System. *On-road non-fatal injuries (2006-2016)*. Available at <https://www.cdc.gov/injury/wisqars/index.html>. Insurance Institute for Highway Safety. *Fatality Facts*. Available at <http://www.iihs.org/iihs/topics/t/pedestrians-and-bicyclists/fatalityfacts/pedestrians>.

1.5 - NATION: FEDERAL FUNDING & PLANNING FOR BICYCLING & WALKING

Federal Funding for Bicycling & Walking Infrastructure ⁵²

FIGURE 1.5.1 - # OF PROJECTS & TOTAL OBLIGATIONS TO PEDESTRIANS & BICYCLE FACILITIES & PROGRAMS BY YEAR



The number of bicycle and pedestrian projects funded by federal programs was not tracked until 1992 after the passage of the landmark Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA created the Transportation Enhancements Program, which for the first time provided a program where bicycle and pedestrian projects were emphasized as three of ten eligible project types. This program provided more than \$1 billion for eligible projects during the six years of funding authorized by ISTEA. Prior to ISTEA,⁵³ federal transportation programs had spent less than \$48 million on bicycle and pedestrian projects in the preceding 18 years.⁵⁴

⁵² Federal Highway Administration. *Federal-Aid Highway Program Funding for Pedestrian and Bicycle Facilities and Programs*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/bipedfund.cfm

⁵³ Fazzalario, J. Connecticut Office of Legislative Research (2003). *RE: Federal Transportation Funds for Bicycle and Pedestrian Facilities*. Available at <https://www.cga.ct.gov/PS98/rpt%5Colr%5Chtm/98-R-0010.htm>.

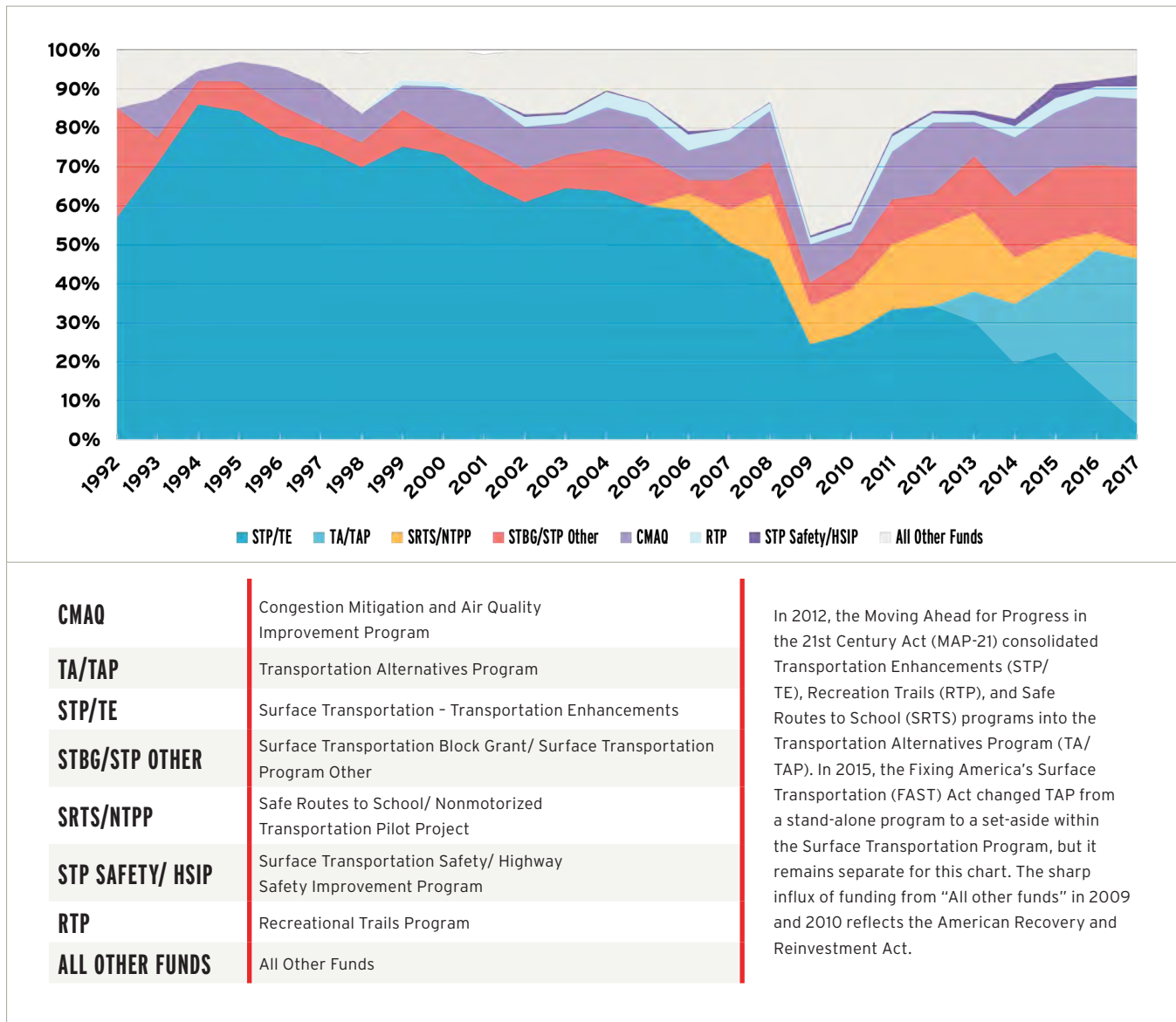
⁵⁴ See footnote 52. See also Federal Highway Administration. *Federal-Aid Highway Program Funding 1988-1991 for Pedestrian and Bicycle Facilities and Programs*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/bipedfund_preistea.cfm.

So far, bicycling and pedestrian funding reached its highest point after the American Recovery and Reinvestment Act of 2009, which provided an influx of “stimulus” funding for transportation infrastructure.

There has usually been a close correlation between federal spending on bicycling and walking and the number of new projects, but since 2014 this relationship seems to have changed – with spending increasing despite fewer new projects.

Federal Funding Programs for Bicycling & Walking Infrastructure ⁵⁵

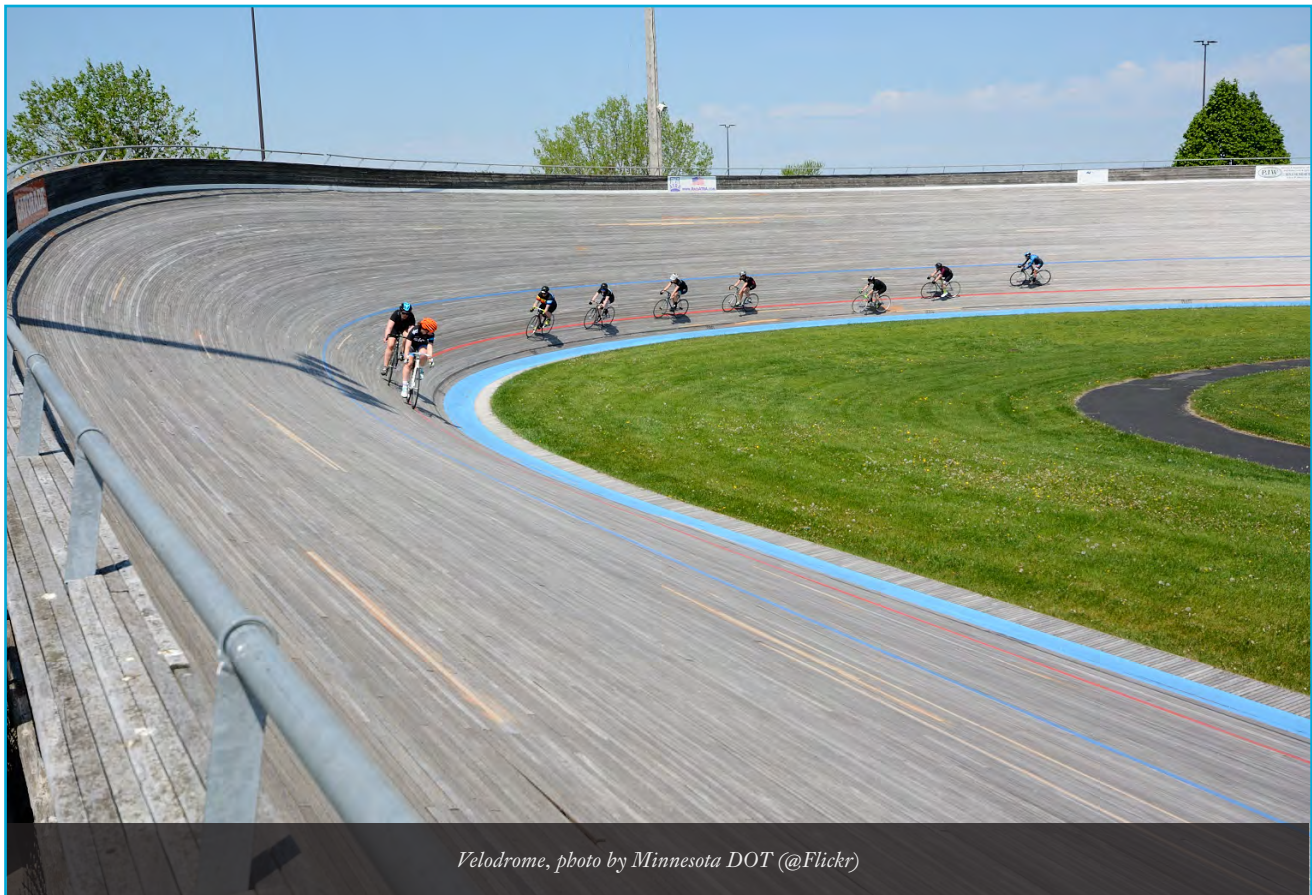
FIGURE 1.5.2 - FEDERAL FUNDING FOR BIKING & WALKING PROJECTS & PROGRAMS BY FHWA FUNDING PROGRAMS



55 Federal Highway Administration. *Federal-Aid Highway Program Funding for Bicycle and Pedestrian Facilities and Programs, FY 1992 to 2017 Obligations*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/bipedfund.cfm.

Over time, bicycle and pedestrian projects have become funded from a broader range of federal funding programs. In 1994, over 85% of funding for bicycle and pedestrian projects came from the Transportation Enhancements Program – which funded at least 50% of bicycle and pedestrian projects until 2008. The prominent increase in “All Other Funds” in the graph above coincides with the American Recovery and Reinvestment Act enacted in 2009. Since 2008, no federal funding program has provided more than 50% of funding for bicycle and pedestrian projects.

The Fixing America’s Surface Transportation (FAST) Act required states to report the number and value of project applications received for TAP funds. In 2016, the first year that states reported the number and value of project applications, states did not fund approximately 50% of applications representing over \$1.3 billion in projects.⁵⁶



Velodrome, photo by Minnesota DOT (@Flickr)

⁵⁶ Federal Highway Administration. *Transportation Alternatives Annual Report*. Available at https://www.fhwa.dot.gov/environment/transportation_alternatives/annual_reports/.

Federal Planning for Biking & Walking

FIGURE 1.5.3 - FEDERAL PLANNING FOR BIKING & WALKING

| YEAR | FEDERAL ACTION |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1991 | The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) is passed by Congress, representing the first major federal commitment to funding bicycle and pedestrian infrastructure. ⁵⁵ |
| 1994 | The 1994 National Bicycling and Walking Study: Transportation Choices for Changing America , produced by FHWA and NHTSA, represented the first comprehensive examination of the state of nonmotorized transportation in the United States. ⁵⁶ |
| 1999 | Pedestrian and Bicycle Information Center created, funded by FHWA and NHTSA. ⁵⁷ |
| 2000 | The FHWA publication, Accommodating Bicycle and Pedestrian Travel: A Recommended Approach , focuses on the design and inclusion of pedestrian and bicycle facilities. ⁵⁸ |
| 2004 | Focus States and Cities launched to focus resources in states and cities with high pedestrian fatalities. ⁵⁹ |
| 2005 | The Safe, Accountable, Flexible, Efficient, Transportation Equity Act: a Legacy for Users (SAFETEA-LU) is passed by Congress, continuing funding for bicycle and pedestrian infrastructure and establishing the Nonmotorized Transportation Pilot Program. ⁶⁰ |
| 2006 | BIKESAFE and PEDSAFE countermeasure selection guides are launched, they have since been updated in 2014 and 2013, respectively. ⁶¹ |
| 2010 | DOT issued its Policy Statement on Bicycle and Pedestrian Accommodations, Regulations, and Recommendations . ⁶² |
| 2010 | U.S. DOT and FHWA released Pedestrian Safety Strategic Plan: Recommendations for Research & Product Development. ⁶³ |
| 2012 | The Moving Ahead for Progress in the 21st Century (MAP-21) Act passed by Congress, consolidated pedestrian and bicyclist funding into the Transportation Alternatives Program (TAP). ⁶⁴ |
| 2013 | On August 20, 2013, FHWA issued a memorandum to support flexibility in pedestrian and bicycle facility design . ⁶⁵ |
| 2014 | U.S. DOT launched Safer People, Safer Streets: U.S. Department of Transportation Action Plan to Increase Walking and Biking and Reduce Pedestrian and Bicyclist Fatalities . |
| 2015 | The Fixing America's Surface Transportation (FAST) Act passed by Congress, requires federally funded projects on the National Highway System (NHS) to consider access for people who bike and walk. |
| 2015 | FHWA released the Separated Bike Lane Planning and Design Guide in May 2015. ⁶⁶ |
| 2015 | Focus States and Cities expanded to include focused resources for states and cities with high bicyclist fatalities. ⁶⁷ |
| 2016 | Traffic Monitoring Analysis System (TMAS) updated to receive and report on pedestrian and bicycle counts. ⁶⁸ |
| 2018 | States publish safety performance targets, including goals for non-motorized fatalities and serious injuries. ⁶⁹ |

CTAB = Congressional Transportation Authorization Bill

Note: References for Figure 1.5.3 can be found on the following page.

57 Federal Highway Administration. *2015 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance Chapter 11 Pedestrian and Bicycle Transportation*. Available at https://www.fhwa.dot.gov/policy/2015cpr/chap11.cfm#_Toc446493398.

58 See footnote 57.

59 Pedestrian and Bicycle Information Center. *What We Do: PBIC Mission*. Available at <http://www.pedbikeinfo.org/whatwedo.cfm>.

60 See footnote 57.

61 Federal Highway Administration. *Pedestrian and Bicycle Safety Focus States and Cities*. Available at https://safety.fhwa.dot.gov/ped_bike/ped_focus/.

62 See footnote 57.

63 Federal Highway Administration. *BIKESAFE Background*. Available at <http://www.pedbikesafe.org/bikesafe/authors.cfm>.

64 U.S. Department of Transportation. *United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/policy_accom.cfm.

65 Federal Highway Administration. *Pedestrian Safety Strategic Plan: Recommendations for Research and Product Development*. Available at https://safety.fhwa.dot.gov/ped_bike/pssp/fhwas10035/.

66 See footnote 57.

67 Federal Highway Administration. *Memorandum: Bicycle and Pedestrian Facility Design Flexibility*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/.

68 Federal Highway Administration. *Separated Bike Lane Planning and Design Guide*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm.

69 Federal Highway Administration. *A Focused Approach to Pedestrian and Bicycle Safety*. Available at <https://www.fhwa.dot.gov/publications/publicroads/17julaug/06.cfm>.

70 Federal Highway Administration. *Coding Nonmotorized Station Location Information in the 2016 Traffic Monitoring Guide Format*. Available at https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/tmg_coding/.

71 Federal Highway Administration. *Safety Performance Management (Safety PM)*. Available at https://safety.fhwa.dot.gov/hsip/spm/state_safety_targets/.

SECTION II: STATES

This Section provides 43 tables and graphs showing data on bicycling and walking in the 50 United States.

There is a notable divergence among states with increases in the rate of bicycling to work happening in most states, but increases in the rate of walking to work happening in only a few states.

- The rate of biking to work increased in 38 states between 2007 and 2016.
- The rate of walking to work increased in only 14 states between 2007 and 2016.

Similarly, the rate of pedestrian fatalities per pedestrian commuters has only fallen in seven states, while the rate of bicyclist fatalities per bicyclist commuters has fallen in 29 states. These data point to the need for states to continue taking action on bicyclist and pedestrian safety – with a strong emphasis on pedestrian safety.

Use this Section to find out about current conditions for bicycling and walking in states and how states are improving conditions for people who bike and walk in order to enable healthy, active transportation.



2.1 - STATES IN CONTEXT: INFLUENCES ON BIKING & WALKING

This section – States in Context: Influences on Biking and Walking – compiled contextual information that may be helpful as you look for potential explanations of differences between states in data related to bicycling or walking found elsewhere in this chapter.

Many of the contextual data were chosen because of studies showing a correlation between that data and rates of bicycling and walking. An example of this is population density which the 2014 Benchmarking Report explored.¹

Other contextual data were chosen because of the importance of better understanding demographic or other structural differences between states. An example of this is state general revenue per capita which may provide insight to the relative resources of a state government but is not directly tied to biking or walking-related issues.

This type of contextual data was first compiled in the 2016 Benchmarking Report.

The following definitions may be useful:

- People of Color means all people who are not reported as “White alone, not Hispanic or Latino” by the Census Bureau. White alone, not Hispanic or Latino are individuals who responded “No, not Spanish/Hispanic/Latino” and who reported “White” as their only entry in the race question.²
- Poverty means persons who individually or in a household have an income that is equivalent to the federal poverty level or less. The federal poverty level is set by the Department of Health and Human Services each year to determine eligibility for a variety of federal programs, such as Medicaid. When the report refers to low-income persons, low-income means workers making 150% of the federal poverty level or less. In 2018, the federal poverty level for an individual was \$12,410 and for a family of 4 was \$25,100.³



Bike to Work Day, photo courtesy of St. Luke's McCall Medical Center

Urban Area ⁴, Population Density ⁵, & State Revenue per Capita ⁶

FIGURE 2.1.1 - URBAN AREA, POPULATION DENSITY, & STATE REVENUE PER CAPITA **

| STATES | % OF URBAN LAND | STATES | POP. DENSITY | STATES | GENERAL GOV'T REVENUE |
|-----------------------|-----------------|-----------------------|--------------|-----------------------|-----------------------|
| New Jersey | 39.7% | New Jersey | 1,025.4 | Wyoming | \$15.40 |
| Rhode Island | 38.8% | Rhode Island | 683.8 | North Dakota | \$14.61 |
| Massachusetts | 38.3% | Massachusetts | 645.4 | New York | \$14.50 |
| Connecticut | 37.7% | Connecticut | 645.2 | Alaska | \$13.93 |
| Delaware | 20.9% | Maryland | 485.0 | Vermont | \$11.20 |
| Maryland | 20.7% | Delaware | 382.5 | Connecticut | \$10.97 |
| Florida | 13.8% | New York | 361.9 | New Jersey | \$10.69 |
| Ohio | 10.8% | Florida | 313.5 | California | \$10.68 |
| Pennsylvania | 10.5% | Pennsylvania | 277.6 | Massachusetts | \$10.66 |
| North Carolina | 9.5% | Ohio | 259.1 | Hawaii | \$10.60 |
| New York | 8.7% | California | 239.8 | New Mexico | \$10.35 |
| Georgia | 8.3% | Illinois | 221.0 | Minnesota | \$10.25 |
| South Carolina | 7.9% | Virginia | 196.7 | Rhode Island | \$9.98 |
| Average of all States | 7.4% | North Carolina | 188.5 | Maryland | \$9.86 |
| New Hampshire | 7.2% | Indiana | 182.1 | Oregon | \$9.84 |
| Illinois | 7.1% | Georgia | 173.5 | Iowa | \$9.75 |
| Indiana | 7.0% | Average of All States | 169.3 | Delaware | \$9.62 |
| Tennessee | 7.0% | Tennessee | 157.8 | Washington | \$9.16 |
| Virginia | 6.7% | South Carolina | 154.9 | Illinois | \$9.15 |
| Michigan | 6.4% | New Hampshire | 142.8 | Average of All States | \$9.02 |
| Hawaii | 6.1% | Hawaii | 130.7 | Nebraska | \$9.01 |
| California | 5.3% | Kentucky | 109.8 | Colorado | \$8.98 |
| Louisiana | 4.6% | Texas | 103.7 | West Virginia | \$8.96 |
| Alabama | 4.4% | Michigan | 102.7 | Pennsylvania | \$8.93 |
| Washington | 3.6% | Washington | 102.2 | Ohio | \$8.69 |
| Kentucky | 3.6% | Alabama | 92.8 | Maine | \$8.67 |
| Wisconsin | 3.5% | Louisiana | 89.4 | Mississippi | \$8.61 |
| Texas | 3.3% | Wisconsin | 88.2 | Michigan | \$8.45 |
| Missouri | 3.0% | Missouri | 87.4 | Kansas | \$8.40 |
| West Virginia | 2.7% | West Virginia | 75.6 | Wisconsin | \$8.35 |
| Mississippi | 2.4% | Vermont | 65.0 | Montana | \$8.35 |
| Minnesota | 2.1% | Minnesota | 63.5 | Virginia | \$8.15 |
| Arkansas | 2.1% | Mississippi | 61.7 | Louisiana | \$8.09 |
| Arizona | 1.9% | Arizona | 60.8 | New Hampshire | \$7.99 |
| Oklahoma | 1.9% | Arkansas | 56.2 | Kentucky | \$7.92 |
| Iowa | 1.7% | Oklahoma | 56.1 | Arkansas | \$7.91 |
| Vermont | 1.7% | Iowa | 55.7 | South Carolina | \$7.88 |
| Colorado | 1.5% | Colorado | 53.2 | Indiana | \$7.80 |
| Kansas | 1.2% | Oregon | 41.6 | Oklahoma | \$7.70 |
| Maine | 1.2% | Maine | 37.6 | North Carolina | \$7.68 |
| Oregon | 1.2% | Utah | 35.9 | South Dakota | \$7.58 |
| Utah | 1.1% | Kansas | 35.3 | Alabama | \$7.55 |
| Nevada | 0.7% | Nevada | 26.6 | Texas | \$7.53 |
| Nebraska | 0.7% | Nebraska | 24.7 | Utah | \$7.35 |
| New Mexico | 0.7% | Idaho | 20.1 | Missouri | \$7.30 |
| Idaho | 0.6% | New Mexico | 17.1 | Nevada | \$7.11 |
| South Dakota | 0.3% | South Dakota | 11.2 | Florida | \$6.98 |
| North Dakota | 0.3% | North Dakota | 10.7 | Arizona | \$6.72 |
| Montana | 0.2% | Montana | 7.1 | Idaho | \$6.69 |
| Wyoming | 0.2% | Wyoming | 6.0 | Tennessee | \$6.62 |
| Alaska | 0.0% | Alaska | 1.1 | Georgia | \$6.52 |

■ = Higher values
 ■ = Lower values
 ■ = Average of all states (not weighted)

Demographics: People of Color⁷, Poverty⁸, & Age⁹

FIGURE 2.1.2 - DEMOGRAPHICS: PEOPLE OF COLOR, POVERTY, & AGE **

| STATES | % OF POP. = PPL OF COLOR (NON-WHITE) | STATES | % OF POP. IN POVERTY | STATES | MEDIAN POP. AGE |
|------------------------------|--------------------------------------|------------------------------|----------------------|------------------------------|-----------------|
| Hawaii | 75.0% | Mississippi | 22.3% | Maine | 44 |
| Maryland | 42.8% | New Mexico | 20.9% | Vermont | 42.6 |
| Mississippi | 41.0% | Louisiana | 19.7% | New Hampshire | 42.4 |
| Georgia | 40.2% | Arkansas | 18.8% | West Virginia | 41.9 |
| California | 38.7% | Kentucky | 18.8% | Florida | 41.6 |
| Louisiana | 37.4% | Alabama | 18.4% | Connecticut | 40.6 |
| New York | 35.7% | Georgia | 17.8% | Pennsylvania | 40.6 |
| Alaska | 34.4% | West Virginia | 17.7% | Rhode Island | 39.9 |
| South Carolina | 32.7% | Arizona | 17.7% | Montana | 39.8 |
| Nevada | 31.9% | Tennessee | 17.2% | Delaware | 39.6 |
| New Jersey | 31.9% | South Carolina | 17.2% | Michigan | 39.5 |
| Alabama | 31.3% | North Carolina | 16.8% | New Jersey | 39.5 |
| Virginia | 31.3% | Texas | 16.7% | Massachusetts | 39.4 |
| Delaware | 30.8% | Oklahoma | 16.5% | Ohio | 39.3 |
| North Carolina | 30.8% | Michigan | 16.3% | Oregon | 39.1 |
| Illinois | 27.9% | Florida | 16.1% | Wisconsin | 39.1 |
| Oklahoma | 27.1% | California | 15.8% | South Carolina | 38.8 |
| New Mexico | 26.5% | Oregon | 15.7% | Alabama | 38.6 |
| Texas | 25.2% | New York | 15.5% | Kentucky | 38.6 |
| Florida | 24.1% | Ohio | 15.4% | Hawaii | 38.5 |
| Connecticut | 22.9% | Missouri | 15.3% | Tennessee | 38.5 |
| Average of All States | 22.8% | Idaho | 15.2% | Maryland | 38.3 |
| Washington | 22.7% | Indiana | 15.0% | Missouri | 38.3 |
| Arkansas | 22.3% | Nevada | 14.9% | North Carolina | 38.3 |
| Arizona | 22.2% | Montana | 14.9% | New York | 38.2 |
| Tennessee | 22.2% | Average of All States | 14.5% | Average of All States | 38.1 |
| Michigan | 21.1% | South Dakota | 14.0% | Iowa | 38 |
| Massachusetts | 20.7% | Illinois | 14.0% | Minnesota | 37.8 |
| Rhode Island | 19.0% | Rhode Island | 13.8% | Virginia | 37.8 |
| Pennsylvania | 18.6% | Maine | 13.5% | Arkansas | 37.7 |
| Ohio | 17.8% | Pennsylvania | 13.3% | Washington | 37.6 |
| Missouri | 17.5% | Kansas | 13.3% | Nevada | 37.5 |
| Indiana | 16.0% | Wisconsin | 12.7% | Illinois | 37.4 |
| Colorado | 15.7% | Washington | 12.7% | Indiana | 37.4 |
| Minnesota | 15.7% | Nebraska | 12.4% | New Mexico | 37.2 |
| South Dakota | 15.2% | Iowa | 12.3% | Arizona | 37.1 |
| Oregon | 14.9% | Colorado | 12.2% | South Dakota | 36.8 |
| Kansas | 14.8% | Delaware | 12.0% | Wyoming | 36.8 |
| Wisconsin | 13.8% | Utah | 11.7% | Mississippi | 36.7 |
| Utah | 12.7% | Vermont | 11.6% | Colorado | 36.4 |
| Kentucky | 12.5% | Wyoming | 11.6% | Georgia | 36.2 |
| Nebraska | 12.0% | Virginia | 11.4% | Kansas | 36.2 |
| North Dakota | 11.7% | Massachusetts | 11.4% | Louisiana | 36.2 |
| Montana | 10.9% | North Dakota | 11.2% | Nebraska | 36.2 |
| Iowa | 9.1% | New Jersey | 10.9% | Oklahoma | 36.2 |
| Wyoming | 8.8% | Minnesota | 10.8% | California | 36 |
| Idaho | 8.7% | Hawaii | 10.8% | Idaho | 35.7 |
| West Virginia | 6.5% | Connecticut | 10.4% | North Dakota | 35.2 |
| New Hampshire | 6.3% | Alaska | 10.1% | Texas | 34.2 |
| Vermont | 5.3% | Maryland | 9.9% | Alaska | 33.6 |
| Maine | 5.2% | New Hampshire | 8.5% | Utah | 30.3 |

■ = Higher values
 ■ = Lower values
 ■ = Average of all states (not weighted)

Population Change ¹⁰, Car Ownership ¹¹, & Miles of Road ¹²

FIGURE 2.1.3 - POPULATION CHANGE, CAR OWNERSHIP, & MILES OF ROAD **

| STATES | CHANGE IN POP. (IN % POINTS, 2010-16) | STATES | % OF HOUSEHOLDS THAT DO NOT OWN A CAR | STATES | MILES OF ROAD PER 10 SQUARE MILES OF TOTAL STATE AREA |
|------------------------------|---------------------------------------|------------------------------|---------------------------------------|------------------------------|-------------------------------------------------------|
| North Dakota | 11.6 | New York | 29.2% | New Jersey | 44.8 |
| Utah | 11.0 | Massachusetts | 12.5% | Rhode Island | 39.2 |
| Texas | 10.9 | New Jersey | 11.6% | Connecticut | 38.8 |
| Colorado | 9.7 | Pennsylvania | 11.2% | Massachusetts | 34.7 |
| Nevada | 7.8 | Illinois | 10.8% | Ohio | 27.4 |
| Washington | 7.8 | Rhode Island | 9.9% | Indiana | 26.5 |
| Arizona | 7.7 | Alaska | 9.5% | Pennsylvania | 26.2 |
| Florida | 7.7 | Maryland | 9.2% | Maryland | 25.9 |
| North Carolina | 7.2 | Connecticut | 9.1% | Delaware | 25.8 |
| South Carolina | 7.2 | West Virginia | 8.8% | Illinois | 25.2 |
| Idaho | 7.1 | Louisiana | 8.4% | South Carolina | 23.8 |
| Wyoming | 6.9 | Ohio | 8.4% | Tennessee | 22.7 |
| Georgia | 6.7 | Hawaii | 8.4% | Georgia | 21.6 |
| Alaska | 6.6 | Michigan | 8.0% | New York | 20.8 |
| South Dakota | 6.5 | Nevada | 7.9% | Iowa | 20.4 |
| Delaware | 6.1 | Oregon | 7.9% | North Carolina | 19.8 |
| Hawaii | 6.0 | Kentucky | 7.8% | Kentucky | 19.8 |
| Virginia | 6.0 | Average of All States | 7.6% | Alabama | 19.5 |
| Oregon | 5.9 | California | 7.6% | Arkansas | 19.3 |
| California | 5.5 | Maine | 7.5% | Missouri | 18.9 |
| Oklahoma | 5.4 | Missouri | 7.3% | Florida | 18.7 |
| Montana | 5.1 | Minnesota | 7.0% | Wisconsin | 17.6 |
| Tennessee | 5.0 | Wisconsin | 7.0% | Virginia | 17.6 |
| Louisiana | 4.9 | Washington | 7.0% | New Hampshire | 17.3 |
| Maryland | 4.6 | Florida | 6.9% | Kansas | 17.3 |
| Nebraska | 4.6 | Georgia | 6.9% | Average of All States | 16.9 |
| Average of All States | 4.5 | Mississippi | 6.8% | Oklahoma | 16.2 |
| Massachusetts | 4.1 | Indiana | 6.8% | West Virginia | 16.0 |
| Minnesota | 4.0 | Arizona | 6.7% | Minnesota | 16.0 |
| New Mexico | 3.5 | South Carolina | 6.7% | Mississippi | 15.9 |
| Arkansas | 3.3 | Vermont | 6.7% | Vermont | 14.8 |
| Kansas | 3.2 | Alabama | 6.4% | Michigan | 12.6 |
| Iowa | 3.0 | Arkansas | 6.4% | North Dakota | 12.4 |
| Kentucky | 2.9 | Delaware | 6.4% | Nebraska | 12.3 |
| Alabama | 2.7 | Virginia | 6.4% | Louisiana | 11.7 |
| Indiana | 2.7 | North Carolina | 6.3% | Texas | 11.7 |
| New York | 2.4 | Tennessee | 6.2% | Washington | 11.3 |
| Missouri | 2.3 | New Mexico | 5.8% | California | 11.0 |
| New Jersey | 2.2 | Iowa | 5.7% | South Dakota | 10.7 |
| Wisconsin | 2.1 | Oklahoma | 5.7% | Colorado | 8.5 |
| Mississippi | 1.6 | Nebraska | 5.7% | Oregon | 7.5 |
| Pennsylvania | 1.4 | Texas | 5.6% | Maine | 6.5 |
| Connecticut | 1.2 | Kansas | 5.5% | Idaho | 6.1 |
| New Hampshire | 1.0 | Colorado | 5.4% | Arizona | 5.8 |
| Illinois | 0.8 | New Hampshire | 5.3% | New Mexico | 5.7 |
| Ohio | 0.6 | North Dakota | 5.2% | Utah | 5.5 |
| Vermont | 0.3 | Montana | 5.2% | Montana | 5.0 |
| West Virginia | 0.3 | South Dakota | 5.1% | Hawaii | 4.1 |
| Maine | 0.2 | Utah | 4.3% | Nevada | 3.9 |
| Rhode Island | -0.2 | Idaho | 4.2% | Wyoming | 2.9 |
| Michigan | -0.4 | Wyoming | 3.7% | Alaska | 0.2 |

■ = Higher values ■ = Lower values ■ = Average of all states (not weighted)



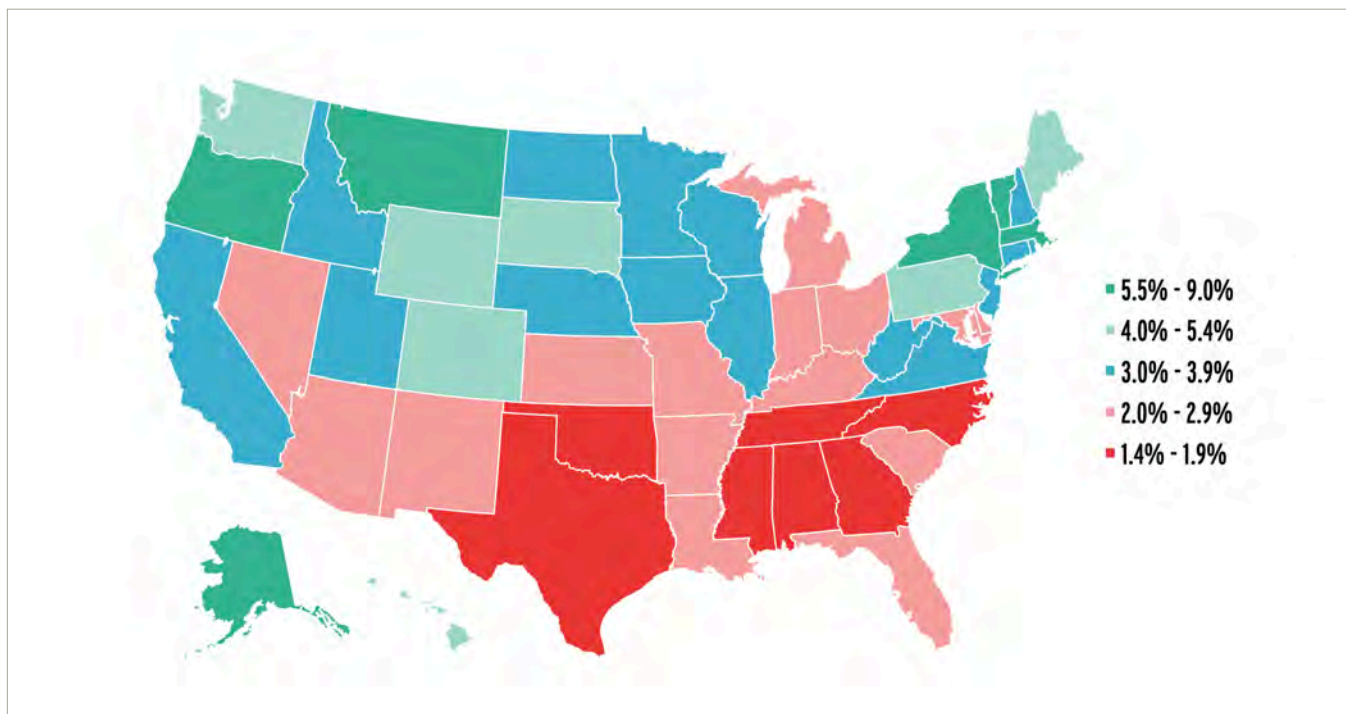
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2.2 - STATES: OVERVIEW OF KEY FEDERAL BENCHMARKS ON BIKING & WALKING

Rates of Bicycling & Walking to Work in the United States ¹³

FIGURE 2.2.1 - SHARE OF COMMUTERS WHO WALK OR BIKE TO WORK



There are clear regional differences in rates of bicycling and walking to work. States in the northeast and in the Pacific northwest tend to have higher rates of bicycling and walking to work. States in the south tend to have lower rates of bicycling and walking to work.

This section includes charts that are sorted by the data provided to help visualize differences between states.

Levels of Bicycling & Walking to Work in the United States ¹⁴

FIGURE 2.2.2 - LEVELS OF BICYCLING & WALKING TO WORK IN THE UNITED STATES ¹⁵

| STATES | % OF COMMUTERS BIKING & WALKING TO WORK (2016) | STATES | % OF COMMUTERS WALKING TO WORK (2016) | STATES | CHANGE IN RATE OF WALKING TO WORK (2007-2016) |
|------------------------------|------------------------------------------------|------------------------------|---------------------------------------|------------------------------|-----------------------------------------------|
| Alaska | 8.6% | Alaska | 7.6% | Wyoming | 17.1% |
| New York | 6.9% | New York | 6.2% | South Carolina | 15.7% |
| Montana | 6.9% | Vermont | 5.9% | Virginia | 15.1% |
| Vermont | 6.6% | Montana | 5.7% | Arkansas | 13.5% |
| Oregon | 5.9% | Massachusetts | 4.8% | Rhode Island | 13.5% |
| Massachusetts | 5.7% | Hawaii | 4.7% | West Virginia | 13.2% |
| Hawaii | 5.4% | Wyoming | 4.6% | Massachusetts | 12.2% |
| Wyoming | 5.2% | Maine | 4.0% | Montana | 11.2% |
| Washington | 4.6% | South Dakota | 3.8% | Washington | 9.3% |
| Maine | 4.4% | Washington | 3.7% | Utah | 6.1% |
| South Dakota | 4.2% | Pennsylvania | 3.6% | Hawaii | 3.7% |
| Pennsylvania | 4.2% | Oregon | 3.6% | Kentucky | 1.6% |
| Colorado | 4.1% | Rhode Island | 3.6% | Illinois | 1.3% |
| Rhode Island | 3.9% | Iowa | 3.4% | New York | 0.2% |
| Iowa | 3.9% | West Virginia | 3.2% | Ohio | -1.1% |
| Idaho | 3.8% | New Hampshire | 3.1% | Oregon | -1.6% |
| Wisconsin | 3.7% | Wisconsin | 3.0% | California | -2.5% |
| California | 3.7% | Illinois | 3.0% | Vermont | -2.5% |
| Illinois | 3.7% | Colorado | 3.0% | Indiana | -4.0% |
| North Dakota | 3.5% | North Dakota | 2.9% | Maine | -4.2% |
| Average of All States | 3.5% | Average of All States | 2.9% | Maryland | -4.3% |
| Utah | 3.4% | New Jersey | 2.9% | North Carolina | -5.0% |
| New Hampshire | 3.4% | Utah | 2.7% | Average of All States | -5.3% |
| Minnesota | 3.3% | Connecticut | 2.7% | New Mexico | -5.8% |
| West Virginia | 3.3% | California | 2.7% | Michigan | -6.1% |
| New Jersey | 3.1% | Minnesota | 2.6% | Colorado | -6.2% |
| Connecticut | 3.0% | Idaho | 2.6% | Connecticut | -6.5% |
| Virginia | 3.0% | Virginia | 2.6% | New Hampshire | -8.0% |
| Nebraska | 3.0% | Kansas | 2.5% | Alabama | -8.5% |
| New Mexico | 3.0% | Nebraska | 2.5% | Georgia | -8.5% |
| Kansas | 2.9% | Maryland | 2.5% | Iowa | -9.3% |
| Maryland | 2.7% | Ohio | 2.3% | Kansas | -10.0% |
| Arizona | 2.7% | New Mexico | 2.3% | Missouri | -10.8% |
| Ohio | 2.6% | Kentucky | 2.1% | Pennsylvania | -11.1% |
| Michigan | 2.6% | Indiana | 2.1% | Wisconsin | -11.3% |
| Indiana | 2.5% | South Carolina | 2.1% | Florida | -11.7% |
| Kentucky | 2.4% | Michigan | 2.1% | Alaska | -11.8% |
| South Carolina | 2.4% | Arkansas | 2.0% | Tennessee | -12.4% |
| Delaware | 2.2% | Delaware | 1.9% | South Dakota | -13.0% |
| Louisiana | 2.2% | Missouri | 1.8% | Texas | -13.1% |
| Arkansas | 2.1% | Arizona | 1.8% | New Jersey | -13.8% |
| Florida | 2.1% | North Carolina | 1.7% | Louisiana | -14.3% |
| Missouri | 2.1% | Oklahoma | 1.7% | Minnesota | -14.5% |
| Nevada | 2.0% | Nevada | 1.7% | Oklahoma | -17.0% |
| Oklahoma | 2.0% | Louisiana | 1.7% | Arizona | -20.6% |
| North Carolina | 1.9% | Texas | 1.6% | Mississippi | -21.5% |
| Texas | 1.8% | Georgia | 1.6% | Idaho | -22.0% |
| Georgia | 1.8% | Florida | 1.5% | Nebraska | -24.5% |
| Mississippi | 1.5% | Mississippi | 1.4% | Nevada | -25.6% |
| Tennessee | 1.4% | Tennessee | 1.3% | Delaware | -27.2% |
| Alabama | 1.3% | Alabama | 1.2% | North Dakota | -30.4% |

■ = Higher values
 ■ = Lower values
 ■ = Average of all states (not weighted)

FIGURE 2.2.2 (CONTINUED) - LEVELS OF BICYCLING & WALKING TO WORK IN THE UNITED STATES

| STATES | % OF COMMUTERS BICYCLING TO WORK (2016) | STATES | CHANGE IN RATE OF BICYCLING TO WORK (2007-2016) |
|-----------------------|-----------------------------------------|-----------------------|-------------------------------------------------|
| Oregon | 2.2% | New York | 70.6% |
| Montana | 1.2% | Massachusetts | 68.9% |
| Idaho | 1.2% | Pennsylvania | 67.2% |
| Colorado | 1.1% | Virginia | 63.9% |
| California | 1.0% | Louisiana | 50.2% |
| Alaska | 1.0% | Illinois | 47.1% |
| Washington | 0.9% | Georgia | 44.3% |
| Massachusetts | 0.9% | Kansas | 42.9% |
| Arizona | 0.8% | Kentucky | 42.4% |
| Hawaii | 0.7% | Michigan | 39.5% |
| New Mexico | 0.7% | New Mexico | 38.1% |
| New York | 0.7% | Oregon | 32.3% |
| Minnesota | 0.7% | Oklahoma | 31.4% |
| Wisconsin | 0.7% | Maryland | 30.4% |
| Illinois | 0.7% | Rhode Island | 27.2% |
| Utah | 0.7% | California | 27.1% |
| Vermont | 0.6% | Idaho | 26.0% |
| Florida | 0.6% | Washington | 25.0% |
| Wyoming | 0.6% | Vermont | 23.9% |
| North Dakota | 0.6% | Ohio | 23.3% |
| Nebraska | 0.6% | Florida | 21.4% |
| Average of All States | 0.5% | Maine | 17.1% |
| Pennsylvania | 0.5% | Indiana | 14.5% |
| Louisiana | 0.5% | Average of All States | 14.1% |
| Iowa | 0.5% | Alabama | 13.7% |
| Michigan | 0.5% | Minnesota | 13.5% |
| Kansas | 0.4% | Tennessee | 13.4% |
| Maine | 0.4% | New Hampshire | 13.0% |
| Indiana | 0.4% | Missouri | 12.5% |
| Virginia | 0.4% | Nebraska | 10.6% |
| South Dakota | 0.4% | Connecticut | 10.6% |
| Nevada | 0.4% | Alaska | 7.9% |
| Ohio | 0.3% | North Dakota | 7.5% |
| Rhode Island | 0.3% | Texas | 7.4% |
| Delaware | 0.3% | Arizona | 6.5% |
| Connecticut | 0.3% | Hawaii | 4.5% |
| Maryland | 0.3% | South Carolina | 4.0% |
| New Jersey | 0.3% | Wisconsin | 1.9% |
| New Hampshire | 0.3% | Colorado | 1.8% |
| Oklahoma | 0.3% | New Jersey | -1.0% |
| Georgia | 0.3% | Utah | -3.4% |
| Texas | 0.3% | Iowa | -5.1% |
| South Carolina | 0.2% | North Carolina | -9.8% |
| Missouri | 0.2% | Arkansas | -10.1% |
| Kentucky | 0.2% | Montana | -12.9% |
| North Carolina | 0.2% | Delaware | -16.0% |
| Arkansas | 0.1% | South Dakota | -20.1% |
| Tennessee | 0.1% | West Virginia | -21.1% |
| West Virginia | 0.1% | Nevada | -28.7% |
| Alabama | 0.1% | Wyoming | -38.6% |
| Mississippi | 0.1% | Mississippi | -40.2% |

■ = Higher values
 ■ = Lower values
 ■ = Average of all states (not weighted)

Rates of Bicycling & Walking Road Safety

FIGURE 2.2.3 - RATES OF BICYCLING & WALKING ROAD SAFETY

| STATES ¹⁶ | BICYCLIST & WALKING FATALITIES AS A % OF ALL TRAFFIC FATALITIES (2012-2016) | STATES ¹⁷ | PEDESTRIAN FATALITY RATE PER 10K WALKING COMMUTERS | | STATES ¹⁸ | BICYCLIST FATALITY RATE PER 10K BICYCLE COMMUTERS | |
|----------------------|-----------------------------------------------------------------------------|----------------------|----------------------------------------------------|-----------------------------------|----------------------|---------------------------------------------------|-----------------------------------|
| | | | AVG. 2012-2016 | CHANGE FROM 5-YR AVG. (2011-2016) | | AVG. 2012-2016 | CHANGE FROM 5-YR AVG. (2011-2016) |
| New York | 30.9% | Florida | 44.2 | 16.4% | Mississippi | 35.6 | -16.8% |
| New Jersey | 30.2% | Alabama | 38.7 | + 37.8% | Alabama | 31.8 | + 14.3% |
| California | 27.3% | New Mexico | 32.2 | + 62.3% | Arkansas | 27.6 | 5.0% |
| Florida | 26.3% | Mississippi | 31.0 | 22.2% | South Carolina | 26.4 | -7.3% |
| Delaware | 26.2% | Louisiana | 30.6 | 18.0% | Georgia | 23.2 | + 18.3% |
| Hawaii | 25.9% | Delaware | 30.2 | + 56.6% | Florida | 22.9 | -6.8% |
| Nevada | 25.2% | Texas | 27.3 | 32.2% | Tennessee | 22.2 | + 23.1% |
| Massachusetts | 24.3% | Georgia | 26.9 | 21.5% | Louisiana | 21.1 | -3.9% |
| Rhode Island | 22.6% | Arizona | 26.7 | 14.4% | North Carolina | 20.8 | -13.0% |
| Maryland | 22.5% | South Carolina | 26.0 | - 2.1% | Delaware | 19.4 | - 24.6% |
| Arizona | 20.8% | Nevada | 25.5 | + 45.5% | Texas | 16.2 | -6.5% |
| New Mexico | 19.2% | North Carolina | 23.1 | 7.1% | Oklahoma | 14.9 | 2.7% |
| Michigan | 18.5% | Tennessee | 22.6 | 16.5% | Michigan | 13.9 | 1.7% |
| Connecticut | 18.1% | Oklahoma | 21.6 | + 33.8% | Kentucky | 13.7 | 5.0% |
| Louisiana | 18.0% | Arkansas | 19.7 | 5.1% | New Hampshire | 13.3 | 2.9% |
| Oregon | 17.5% | Michigan | 15.8 | 18.8% | Nevada | 12.3 | 12.6% |
| Washington | 17.3% | California | 15.7 | 14.4% | Kansas | 12.0 | + 82.0% |
| Alaska | 17.2% | Missouri | 15.6 | 27.6% | Ohio | 11.3 | 3.9% |
| Illinois | 16.5% | Kentucky | 14.2 | 2.4% | North Dakota | 11.2 | + 210.7% |
| Texas | 16.5% | Maryland | 13.9 | - 13.2% | New Jersey | 10.6 | -9.2% |
| Georgia | 16.1% | Indiana | 12.3 | + 36.1% | Indiana | 10.2 | -7.4% |
| Utah | 15.7% | New Jersey | 12.2 | 10.4% | Arizona | 10.1 | 11.3% |
| North Carolina | 15.5% | West Virginia | 11.2 | 25.3% | West Virginia | 9.4 | -19.7% |
| South Carolina | 15.3% | Utah | 9.5 | 11.9% | Missouri | 9.3 | + 28.2% |
| Colorado | 15.1% | Virginia | 9.5 | 11.5% | New Mexico | 9.3 | -10.7% |
| Pennsylvania | 14.3% | Ohio | 8.7 | 6.9% | Maryland | 9.3 | -11.7% |
| Virginia | 13.8% | Connecticut | 8.6 | 21.4% | Maine | 7.7 | + 83.2% |
| Indiana | 11.8% | Oregon | 8.5 | 17.3% | California | 7.1 | 1.8% |
| New Hampshire | 11.7% | Kansas | 8.3 | + 66.4% | Illinois | 6.9 | -3.0% |
| Ohio | 11.6% | Colorado | 8.2 | 32.9% | Connecticut | 6.9 | - 41.2% |
| Vermont | 11.1% | Hawaii | 8.2 | 8.6% | New York | 6.9 | - 34.8% |
| Minnesota | 11.1% | Illinois | 7.3 | - 0.0% | Rhode Island | 6.7 | + 54.5% |
| Missouri | 10.8% | Pennsylvania | 7.0 | 11.7% | Virginia | 6.6 | -19.1% |
| Alabama | 10.8% | Idaho | 6.7 | 31.0% | Iowa | 5.8 | - 21.7% |
| Oklahoma | 10.7% | Washington | 6.1 | 6.0% | Pennsylvania | 5.3 | - 25.3% |
| Wisconsin | 10.1% | Rhode Island | 5.7 | - 28.2% | Utah | 5.2 | -15.0% |
| Maine | 10.0% | New Hampshire | 5.6 | + 42.4% | Wyoming | 4.7 | + 71.2% |
| Tennessee | 9.6% | Montana | 5.3 | - 2.7% | Wisconsin | 4.4 | -6.2% |
| Mississippi | 9.5% | New York | 5.2 | - 0.3% | Vermont | 4.3 | + 300.9% |
| Arkansas | 9.2% | Maine | 5.1 | 16.1% | Washington | 4.0 | -0.3% |
| Kentucky | 9.2% | Wisconsin | 5.1 | - 7.3% | Colorado | 3.8 | 10.8% |
| Kansas | 8.6% | Nebraska | 5.1 | + 90.9% | Massachusetts | 3.6 | -11.5% |
| West Virginia | 8.5% | Minnesota | 4.7 | 5.4% | Alaska | 3.5 | - 23.3% |
| Iowa | 7.5% | Massachusetts | 4.5 | - 0.3% | Idaho | 3.3 | -10.8% |
| Idaho | 7.4% | North Dakota | 4.5 | 1.1% | Minnesota | 3.1 | - 28.5% |
| Montana | 7.1% | Wyoming | 4.4 | 13.3% | Nebraska | 3.0 | - 21.3% |
| Nebraska | 6.6% | Iowa | 3.9 | 5.0% | South Dakota | 2.9 | 0.8% |
| North Dakota | 5.9% | South Dakota | 3.7 | - 9.8% | Hawaii | 2.6 | - 52.2% |
| South Dakota | 5.2% | Alaska | 3.7 | 23.9% | Montana | 2.5 | -11.2% |
| Wyoming | 5.0% | Vermont | 3.2 | + 79.3% | Oregon | 1.7 | - 46.5% |

■ = Lowest fatality rates & largest % decreases ■ = Highest fatality rates & largest % increases

Spending on Biking & Walking & Physical Activity

FIGURE 2.2.4 - SPENDING ON BIKING & WALKING & PHYSICAL ACTIVITY

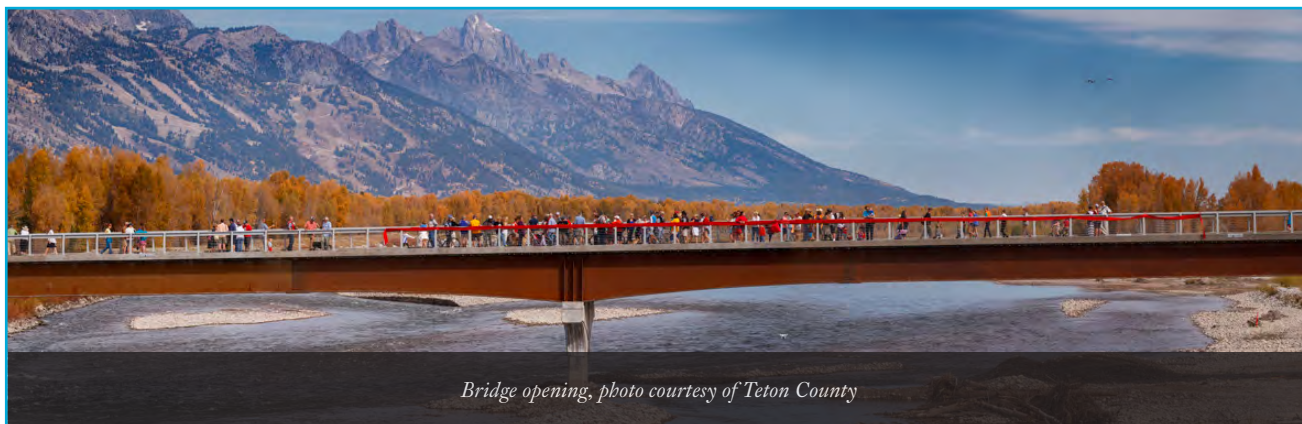
| STATES ¹⁹ | PER CAPITA SPENDING ON BICYCLING & WALKING PROJECTS (2014-2016) | CHANGE IN AVG. PER CAPITA SPENDING ON BICYCLING & WALKING PROJECTS (2007-2016 3-YR AVG.) | STATES ²⁰ | % OF POP. GETTING RECOMMENDED AMOUNT OF PHYSICAL ACTIVITY (2015) | CHANGE IN % OF POP. GETTING RECOMMENDED AMOUNT OF PHYSICAL ACTIVITY (2011-2015) |
|----------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Alaska | \$10.03 | 10% | Colorado | 61% | -2% |
| Montana | \$9.56 | + 121% | Oregon | 60% | -1% |
| Delaware | \$7.65 | 47% | Vermont | 59% | -1% |
| Vermont | \$7.56 | -20% | Washington | 58% | + 8% |
| New Hampshire | \$4.08 | + 190% | Alaska | 58% | 1% |
| Rhode Island | \$3.86 | - 68% | Montana | 58% | + 5% |
| Mississippi | \$3.80 | + 104% | New Hampshire | 58% | 2% |
| Tennessee | \$3.75 | 29% | California | 57% | -2% |
| Florida | \$3.72 | 22% | Wisconsin | 57% | -1% |
| Missouri | \$3.69 | -25% | Hawaii | 57% | -3% |
| Alabama | \$3.66 | + 149% | New Mexico | 56% | + 7% |
| Connecticut | \$3.65 | 45% | Utah | 55% | -1% |
| Wyoming | \$3.51 | - 36% | Idaho | 55% | -3% |
| Indiana | \$3.36 | -20% | Minnesota | 55% | 2% |
| New York | \$3.36 | + 79% | Connecticut | 55% | 4% |
| Kentucky | \$3.29 | -33% | Nevada | 55% | 4% |
| Kansas | \$3.15 | + 205% | Wyoming | 54% | 2% |
| Minnesota | \$3.11 | -25% | Maine | 54% | - 5% |
| North Dakota | \$2.91 | -2% | Arizona | 54% | 2% |
| Oregon | \$2.83 | -14% | South Dakota | 54% | + 16% |
| Georgia | \$2.77 | -24% | Maryland | 53% | + 9% |
| Ohio | \$2.76 | 31% | Michigan | 52% | -3% |
| Illinois | \$2.76 | 57% | Massachusetts | 52% | - 8% |
| Arizona | \$2.75 | 67% | Florida | 52% | -2% |
| Iowa | \$2.73 | 4% | Nebraska | 51% | 5% |
| South Dakota | \$2.72 | -5% | Virginia | 51% | -3% |
| Nebraska | \$2.64 | -2% | Missouri | 51% | 2% |
| Washington | \$2.62 | -8% | South Carolina | 51% | 1% |
| New Mexico | \$2.60 | - 33% | Rhode Island | 50% | 3% |
| Pennsylvania | \$2.50 | -25% | Ohio | 50% | -3% |
| Colorado | \$2.43 | + 68% | Kansas | 50% | + 7% |
| Michigan | \$2.41 | -4% | Pennsylvania | 50% | 1% |
| West Virginia | \$2.34 | + 4286% | Illinois | 50% | - 4% |
| Massachusetts | \$2.34 | 20% | New Jersey | 49% | - 8% |
| Virginia | \$2.30 | 31% | Iowa | 49% | 3% |
| California | \$2.26 | 4% | Delaware | 49% | 0% |
| Texas | \$2.15 | 20% | North Carolina | 48% | 3% |
| South Carolina | \$1.80 | + 69% | West Virginia | 48% | + 12% |
| North Carolina | \$1.79 | -15% | Georgia | 48% | - 5% |
| Maryland | \$1.75 | 55% | New York | 47% | - 9% |
| Wisconsin | \$1.74 | -7% | North Dakota | 47% | -1% |
| Idaho | \$1.69 | + 264% | Oklahoma | 47% | 4% |
| Arkansas | \$1.37 | - 50% | Louisiana | 46% | + 10% |
| Utah | \$1.19 | - 57% | Tennessee | 45% | + 16% |
| Nevada | \$1.09 | - 59% | Kentucky | 45% | - 3% |
| Hawaii | \$0.98 | 43% | Arkansas | 45% | -1% |
| Maine | \$0.97 | - 73% | Alabama | 45% | + 5% |
| Louisiana | \$0.64 | - 65% | Texas | 44% | - 8% |
| New Jersey | \$0.41 | - 56% | Indiana | 44% | - 4% |
| Oklahoma | \$0.08 | - 87% | Mississippi | 38% | - 5% |

■ = Lowest fatality rates & largest % decreases ■ = Highest fatality rates & largest % increases

Many of the key federal benchmarks show differences over time that point toward uneven progress and the potential for states to grow further apart in these key benchmarks.

According to the rates of fatalities per bicycle or pedestrian commuters, the safest states have some of the highest rates of getting safer and the most dangerous states have some of the highest rates of getting more dangerous. This divergence suggests that there will continue to be large differences between states and regions for people bicycling and walking.

According to data from the Federal Highway Administration, states that spent the most on bicycling and walking projects having some of the largest decreases in the amount spent per capita. This is one benchmark that shows signs of convergence with some of the states that spent the least per capita having some of the largest increases.



Topic References

¹³ U.S. Census Bureau. *American Community Survey Table B08006 1-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

¹⁴ See footnote 13.

¹⁵ U.S. Census Bureau. *American Community Survey Table B08006 1-year estimates* (2007-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

¹⁶ National Highway Traffic Administration (NHTSA). *Persons Killed, by STATE and Person Type - State: USA, Year* (2007-2016). Available at <https://www-fars.nhtsa.dot.gov/States/StatesCrashesAndAllVictims.aspx>.

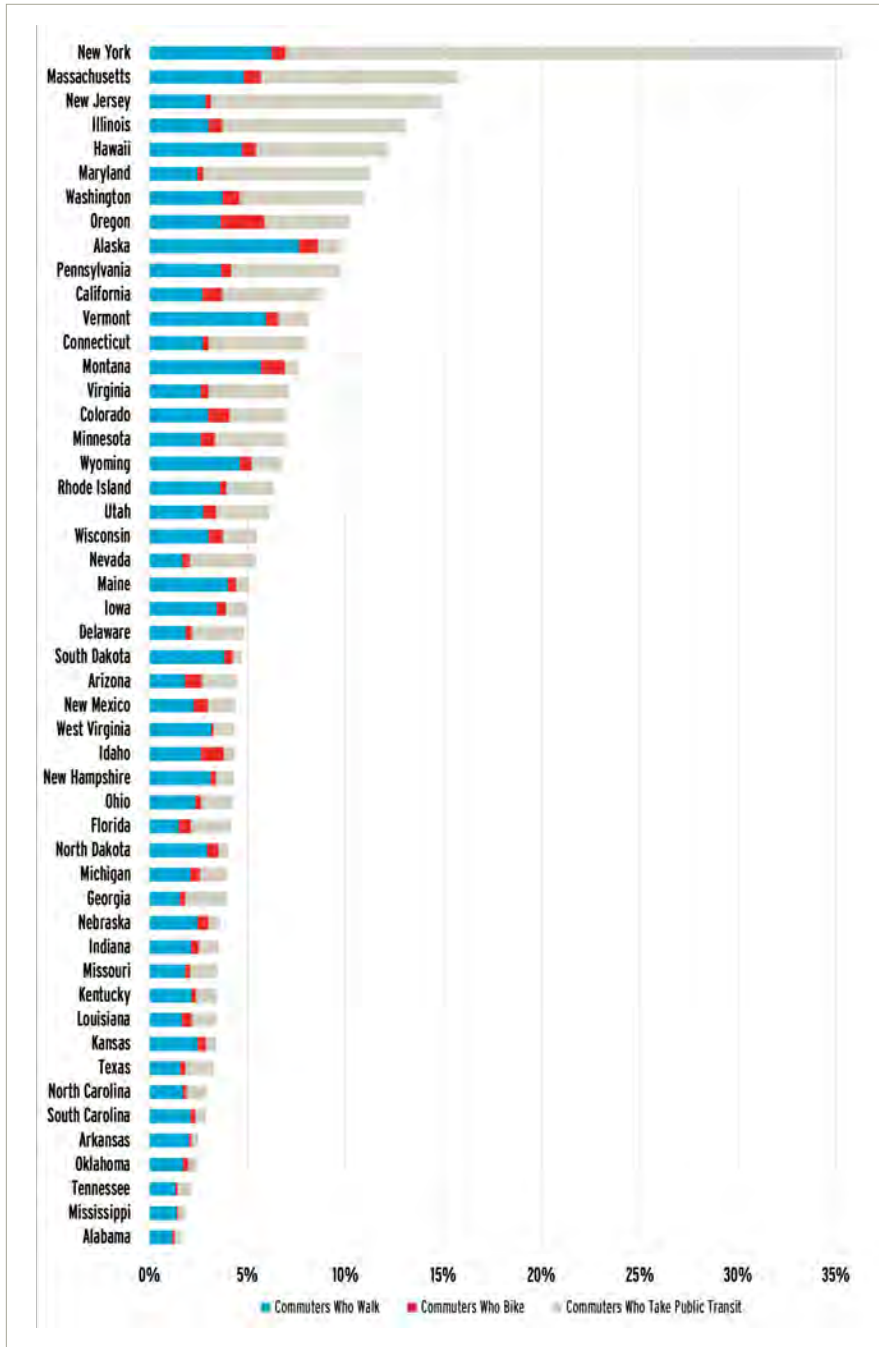
¹⁷ See footnotes 15 and 16.

¹⁸ See footnotes 15 and 16.

¹⁹ Federal Highway Administration. *Fiscal Management Information System Data* (2007, 2013-2016). U.S. Census Bureau. *American Community Survey Table B01003 3-year estimate and 3-year average* (2007, 2013-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

²⁰ Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2011 and 2015). Available at <https://www.cdc.gov/cdi/>.

2.3 - STATES: RATES OF ACTIVE COMMUTING



**Current Commuters
Walking, Bicycling
& Taking Transit
to Work ²¹**

**FIGURE 2.3.1 - PERCENT OF
COMMUTERS WALKING, BIKING, OR
TAKING TRANSIT AS PRIMARY MODE
OF TRANSPORTATION TO WORK**

Changes in Active Commuter Modeshare ²²

FIGURE 2.3.2 - CHANGES IN ACTIVE COMMUTER MODESHARE

| STATES | 2016 % OF COMMUTERS WALKING TO WORK | % POINT CHANGE IN RATE OF WALKING TO WORK (2007-2016) | 2016 % OF COMMUTERS BICYCLING TO WORK | % POINT CHANGE IN RATE OF BICYCLING TO WORK (2007-2016) | 2016 % OF COMMUTERS TAKING TRANSIT TO WORK | % POINT CHANGE IN RATE OF TAKING TRANSIT TO WORK (2007-2016) |
|----------------|-------------------------------------|-------------------------------------------------------|---------------------------------------|---------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------|
| Alabama | - 1.2% | -0.1 | - 0.1% | 0.0 | - 0.3% | - -0.1 |
| Alaska | + 7.6% | - -1.0 | + 1.0% | 0.1 | 1.2% | 0.0 |
| Arizona | 1.8% | - -0.5 | + 0.8% | 0.1 | 1.9% | - -0.2 |
| Arkansas | 2.0% | + 0.2 | - 0.1% | 0.0 | - 0.3% | -0.1 |
| California | 2.7% | -0.1 | + 1.0% | + 0.2 | + 5.1% | 0.1 |
| Colorado | 3.0% | -0.2 | + 1.1% | 0.0 | 2.9% | - -0.2 |
| Connecticut | 2.7% | -0.2 | 0.3% | 0.0 | + 4.9% | + 0.7 |
| Delaware | 1.9% | - -0.7 | 0.3% | - -0.1 | 2.7% | 0.0 |
| Florida | - 1.5% | -0.2 | 0.6% | 0.1 | 2.1% | 0.1 |
| Georgia | - 1.6% | -0.1 | 0.3% | 0.1 | 2.1% | - -0.2 |
| Hawaii | + 4.7% | + 0.2 | + 0.7% | 0.0 | + 6.7% | + 1.2 |
| Idaho | 2.6% | - -0.7 | + 1.2% | + 0.2 | - 0.6% | - -0.3 |
| Illinois | 3.0% | 0.0 | 0.7% | + 0.2 | + 9.4% | + 0.8 |
| Indiana | 2.1% | -0.1 | 0.4% | 0.0 | 1.0% | 0.0 |
| Iowa | 3.4% | -0.4 | 0.5% | - 0.0 | 1.1% | 0.1 |
| Kansas | 2.5% | -0.3 | 0.4% | 0.1 | - 0.5% | 0.0 |
| Kentucky | 2.1% | 0.0 | - 0.2% | 0.1 | 1.1% | 0.1 |
| Louisiana | - 1.7% | -0.3 | 0.5% | + 0.2 | 1.3% | -0.1 |
| Maine | + 4.0% | -0.2 | 0.4% | 0.1 | 0.7% | 0.0 |
| Maryland | 2.5% | -0.1 | 0.3% | 0.1 | + 8.5% | - -0.1 |
| Massachusetts | + 4.8% | + 0.5 | + 0.9% | + 0.3 | + 10.1% | + 1.4 |
| Michigan | 2.1% | -0.1 | 0.5% | 0.1 | 1.4% | 0.2 |
| Minnesota | 2.6% | -0.4 | 0.7% | 0.1 | 3.6% | + 0.6 |
| Mississippi | - 1.4% | -0.4 | - 0.1% | - -0.1 | - 0.3% | -0.1 |
| Missouri | 1.8% | -0.2 | - 0.2% | 0.0 | 1.4% | 0.0 |
| Montana | + 5.7% | + 0.6 | + 1.2% | - -0.2 | 0.7% | - -0.3 |
| Nebraska | 2.5% | - -0.8 | 0.6% | 0.1 | - 0.6% | 0.0 |
| Nevada | - 1.7% | - -0.6 | 0.4% | - -0.1 | 3.4% | 0.0 |
| New Hampshire | 3.1% | -0.3 | 0.3% | 0.0 | 0.9% | 0.2 |
| New Jersey | 2.9% | - -0.5 | 0.3% | 0.0 | + 11.8% | + 1.4 |
| New Mexico | 2.3% | -0.1 | 0.7% | + 0.2 | 1.4% | + 0.4 |
| New York | + 6.2% | 0.0 | 0.7% | + 0.3 | + 28.4% | + 2.1 |
| North Carolina | - 1.7% | -0.1 | - 0.2% | - 0.0 | 1.0% | 0.1 |
| North Dakota | 2.9% | - -1.3 | 0.6% | 0.0 | - 0.5% | 0.1 |
| Ohio | 2.3% | 0.0 | 0.3% | 0.1 | 1.6% | - -0.3 |
| Oklahoma | - 1.7% | -0.3 | 0.3% | 0.1 | - 0.5% | 0.0 |
| Oregon | 3.6% | -0.1 | + 2.2% | + 0.6 | 4.4% | 0.2 |
| Pennsylvania | 3.6% | - -0.5 | 0.5% | + 0.2 | + 5.6% | 0.4 |
| Rhode Island | 3.6% | + 0.4 | 0.3% | 0.1 | 2.4% | - -0.2 |
| South Carolina | 2.1% | + 0.3 | - 0.2% | 0.0 | - 0.6% | -0.1 |
| South Dakota | + 3.8% | - -0.6 | 0.4% | - -0.1 | - 0.5% | 0.1 |
| Tennessee | - 1.3% | -0.2 | - 0.1% | 0.0 | 0.7% | -0.1 |
| Texas | - 1.6% | -0.2 | - 0.3% | 0.0 | 1.4% | - -0.3 |
| Utah | 2.7% | 0.2 | 0.7% | - 0.0 | 2.7% | 0.3 |
| Vermont | + 5.9% | -0.2 | 0.6% | 0.1 | 1.5% | + 0.7 |
| Virginia | 2.6% | + 0.3 | 0.4% | 0.2 | 4.1% | 0.2 |
| Washington | + 3.7% | + 0.3 | + 0.9% | + 0.2 | + 6.4% | + 1.2 |
| West Virginia | 3.2% | + 0.4 | - 0.1% | - 0.0 | 1.1% | 0.1 |
| Wisconsin | 3.0% | -0.4 | 0.7% | 0.0 | 1.7% | 0.0 |
| Wyoming | + 4.6% | + 0.7 | 0.6% | - -0.4 | 1.5% | 0.1 |

+ = Highest values

- = Lowest values

Between 2007 and 2016, there were widespread increases in rates of bicycling and taking transit to work, with increases in 38 and 31 states, respectively. Overall, there was an average 20% increase in the rate of bicycling to work and an average 6% increase in the rate of taking transit to work.

The rate of walking to work decreased in more states than it increased, with only 14 states showing an increase between 2007 and 2016. Overall, there was an average 7% decrease in the rate of walking to work.

Massachusetts and Washington are notable for having among the 10 highest rates of each active commuting indicator and among the 10 largest increases for each of the active commute modes. Hawaii narrowly misses this distinction due to having a very modest .03% increase in the rate of bicycling to work between 2007 and 2016, less than half the average increase for all states.

Mississippi and Alabama are notable for having among the 10 lowest rates of each active commuting indicator.



Topic References

²¹ See footnote 13.

²² See footnote 13 and U.S. Census Bureau. *American Community Survey Table B08006 1-year estimate (2007)*. Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

2.4 - STATES: DEMOGRAPHICS OF ACTIVE TRANSPORTATION COMMUTERS

The Benchmarking Report began looking at over- or under-representation of people of color and low-income commuters among those who walk to work or take transit to work in 2016.

The Benchmarking Report has not included bicycling to work in this analysis because demographic data on who rides a bicycle to work is not available in tabular data at the state level. The Census Bureau produced some national demographics data about who bikes to work in 2014.²³ Data regarding women bicycling to work is available and reported in Figure 2.4.5. For national demographic data, please see Section 1.2 Nation: Demographics of Active Transportation.

Takeaways for each figure in this section have been compiled here:

- **2.4.1 - LOW INCOME COMMUTERS & WALKING TO WORK** - In every state, people who walk are more likely to have incomes of 150% of the federal poverty level or less than the general population. This highlights the important role that active transportation modes, and transportation options that do not require a personal motor vehicle, play in allowing lower income people access to jobs. The Census Bureau does not provide a tabular estimate for the income levels of people who bike to work.
- **2.4.2 - LOW INCOME COMMUTERS & TAKING TRANSIT TO WORK** - As with walking to work, in every state, people who take transit to work are more likely to have incomes of 150% of the federal poverty level or less than the general population of workers. However, unlike walking to work there appears to be a correlation between low rates of taking transit to work and over-representation – with states where few people take transit to work being more likely to have an over-representation of lower income workers taking transit. Idaho is a notable exception.
- **2.4.3 - COMMUTERS OF COLOR & WALKING TO WORK** - In all but a handful of states people of color are over-represented among people who commute to work by walking. The only states where people of color are under-represented among people who walk to work are the three states with the largest percentage of workers of color – Hawaii, California, and New Mexico.
- **2.4.4 - COMMUTERS OF COLOR & TAKING TRANSIT TO WORK** - In all but a handful of states people of color are over-represented among people who take transit to work by walking. Unlike walking to work, having a large percentage of commuters of color does not appear as associated with less over-representation of people of color among people who take transit to work.
- **2.4.5 - ACTIVE COMMUTING BY WOMEN** - In every state, women are under-represented among people who bike to work by at least 10 percentage points. This widespread under-representation is not seen in walking to work, which only has one state where women are under-represented by more than 10 percentage points.

Low Income Commuters & Walking to Work ²⁴

FIGURE 2.4.1 - LOW INCOME COMMUTERS & WALKING TO WORK

Legend: Green | Blue = 10 lowest rates & largest percentage increases; Red | Yellow = 10 highest rates and lowest percentage decreases

| STATES | 2016 % OF COMMUTERS WALKING TO WORK | 2016 % OF ALL COMMUTERS WHO HAVE LOW INCOME | 2016 % OF WALKING COMMUTERS WHO HAVE LOW INCOME | OVER-REPRESENTATION OF LOW-INCOME WORKERS AMONG PEOPLE WHO WALK TO WORK (IN % POINTS) |
|----------------|-------------------------------------|---------------------------------------------|-------------------------------------------------|---------------------------------------------------------------------------------------|
| Kentucky | 2.1% | 15.5% | 43.2% | 27.7 |
| West Virginia | 3.2% | 15.3% | 41.2% | 25.9 |
| Utah | 2.7% | 14.0% | 39.0% | 25.0 |
| Michigan | 2.1% | 14.6% | 39.1% | 24.5 |
| Ohio | 2.3% | 13.2% | 37.5% | 24.3 |
| South Carolina | 2.1% | 15.9% | 39.7% | 23.8 |
| Indiana | 2.1% | 14.1% | 37.8% | 23.7 |
| Kansas | 2.5% | 13.6% | 36.9% | 23.2 |
| Delaware | 1.9% | 10.6% | 33.8% | 23.2 |
| Missouri | 1.8% | 14.1% | 37.0% | 22.9 |
| Arkansas | 2.0% | 17.6% | 39.7% | 22.1 |
| Louisiana | 1.7% | 17.0% | 38.9% | 22.0 |
| Texas | 1.6% | 16.2% | 37.2% | 21.0 |
| Georgia | 1.6% | 15.8% | 36.7% | 20.9 |
| Alabama | 1.2% | 16.1% | 36.9% | 20.9 |
| Arizona | 1.8% | 16.8% | 37.1% | 20.3 |
| Wisconsin | 3.0% | 12.3% | 32.4% | 20.1 |
| South Dakota | 3.8% | 13.2% | 33.0% | 19.8 |
| Oklahoma | 1.7% | 15.8% | 35.5% | 19.8 |
| Rhode Island | 3.6% | 10.9% | 30.4% | 19.5 |
| Tennessee | 1.3% | 15.4% | 34.8% | 19.4 |
| Mississippi | 1.4% | 18.5% | 37.9% | 19.3 |
| Iowa | 3.4% | 12.9% | 32.0% | 19.1 |
| Nevada | 1.7% | 14.4% | 33.3% | 18.9 |
| Oregon | 3.6% | 16.0% | 34.9% | 18.9 |
| Maine | 4.0% | 12.3% | 31.2% | 18.9 |
| Idaho | 2.6% | 17.5% | 36.3% | 18.8 |
| Florida | 1.5% | 15.7% | 33.6% | 17.8 |
| New Jersey | 2.9% | 9.1% | 26.4% | 17.4 |
| Minnesota | 2.6% | 10.8% | 27.9% | 17.1 |
| Vermont | 5.9% | 10.8% | 27.4% | 16.6 |
| Pennsylvania | 3.6% | 10.7% | 27.3% | 16.5 |
| Colorado | 3.0% | 12.5% | 28.1% | 15.6 |
| New Mexico | 2.3% | 19.8% | 35.2% | 15.3 |
| Wyoming | 4.6% | 12.8% | 28.1% | 15.2 |
| North Carolina | 1.7% | 15.9% | 31.1% | 15.1 |
| New Hampshire | 3.1% | 7.7% | 22.8% | 15.1 |
| Virginia | 2.6% | 10.3% | 25.3% | 15.1 |
| California | 2.7% | 15.0% | 29.3% | 14.3 |
| Illinois | 3.0% | 12.2% | 26.5% | 14.3 |
| North Dakota | 2.9% | 11.4% | 25.4% | 14.0 |
| Connecticut | 2.7% | 8.3% | 22.2% | 13.9 |
| Alaska | 7.6% | 9.1% | 21.9% | 12.8 |
| Maryland | 2.5% | 8.1% | 20.8% | 12.8 |
| Montana | 5.7% | 16.5% | 28.9% | 12.4 |
| Nebraska | 2.5% | 13.0% | 25.3% | 12.3 |
| Massachusetts | 4.8% | 8.5% | 20.4% | 11.9 |
| New York | 6.2% | 12.4% | 24.2% | 11.8 |
| Washington | 3.7% | 11.8% | 23.5% | 11.7 |
| Hawaii | 4.7% | 9.1% | 18.3% | 9.3 |

Low Income Commuters & Taking Transit to Work ²⁵

FIGURE 2.4.2 - LOW INCOME COMMUTERS & TAKING TRANSIT TO WORK

Legend: **Green** | **Blue** = 10 lowest rates & largest percentage increases; **Red** | **Yellow** = 10 highest rates and lowest percentage decreases

| STATES | 2016 % OF COMMUTERS TAKING TRANSIT TO WORK | 2016 % OF ALL COMMUTERS WHO HAVE LOW INCOME | 2016 % OF TRANSIT COMMUTERS WHO HAVE LOW INCOME | OVER-REPRESENTATION OF LOW-INCOME PPL AMONG PPL WHO TAKE TRANSIT TO WORK (IN % POINTS) |
|----------------|--------------------------------------------|---------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------|
| South Dakota | - 0.5% | 13.2% | 50.4% | 37.2 |
| Michigan | 1.4% | 14.6% | 43.0% | 28.4 |
| Iowa | 1.1% | 12.9% | 39.7% | 26.9 |
| Louisiana | 1.3% | + 17.0% | 43.5% | 26.6 |
| Oklahoma | - 0.5% | 15.8% | 42.1% | 26.3 |
| Arkansas | - 0.3% | + 17.6% | 43.8% | 26.2 |
| North Dakota | - 0.5% | 11.4% | 37.5% | 26.1 |
| Ohio | 1.6% | 13.2% | 39.1% | 25.9 |
| Florida | 2.1% | 15.7% | 41.1% | 25.4 |
| South Carolina | - 0.6% | 15.9% | 41.3% | 25.4 |
| Alabama | - 0.3% | + 16.1% | 41.0% | 24.9 |
| Kentucky | 1.1% | 15.5% | 40.1% | 24.6 |
| Missouri | 1.4% | 14.1% | 38.4% | 24.3 |
| Wisconsin | 1.7% | 12.3% | 36.2% | 23.9 |
| Arizona | 1.9% | + 16.8% | 40.5% | 23.8 |
| Montana | 0.7% | + 16.5% | 40.2% | 23.7 |
| Nebraska | - 0.6% | 13.0% | 36.1% | 23.1 |
| Indiana | 1.0% | 14.1% | 37.0% | 22.9 |
| Kansas | - 0.5% | 13.6% | 36.2% | 22.5 |
| North Carolina | 1.0% | 15.9% | 38.3% | 22.4 |
| Nevada | 3.4% | 14.4% | 35.9% | 21.5 |
| Tennessee | 0.7% | 15.4% | 36.5% | 21.2 |
| West Virginia | 1.1% | 15.3% | 36.3% | 21.0 |
| Vermont | 1.5% | 10.8% | 29.1% | 18.3 |
| Georgia | 2.1% | 15.8% | 32.7% | 17.0 |
| Texas | 1.4% | + 16.2% | 33.1% | 16.9 |
| Maine | 0.7% | 12.3% | 27.5% | 15.2 |
| Rhode Island | 2.4% | 10.9% | 25.5% | 14.6 |
| Mississippi | - 0.3% | + 18.5% | 32.1% | 13.6 |
| Minnesota | 3.6% | 10.8% | 23.6% | 12.8 |
| Colorado | 2.9% | 12.5% | 24.3% | 11.7 |
| Oregon | 4.4% | + 16.0% | 27.6% | 11.6 |
| New Mexico | 1.4% | + 19.8% | 30.4% | 10.5 |
| Pennsylvania | + 5.6% | - 10.7% | 21.1% | 10.3 |
| Connecticut | + 4.9% | - 8.3% | 18.4% | 10.2 |
| Utah | 2.7% | 14.0% | 24.1% | 10.1 |
| Hawaii | + 6.7% | - 9.1% | 18.7% | 9.6 |
| California | + 5.1% | 15.0% | 24.2% | 9.2 |
| New Hampshire | 0.9% | - 7.7% | 16.7% | 9.0 |
| Delaware | 2.7% | - 10.6% | 19.6% | 9.0 |
| Alaska | 1.2% | - 9.1% | 17.3% | 8.2 |
| Wyoming | 1.5% | 12.8% | 19.6% | 6.8 |
| Maryland | + 8.5% | - 8.1% | 13.7% | 5.6 |
| Massachusetts | + 10.1% | - 8.5% | 13.8% | 5.2 |
| Illinois | + 9.4% | 12.2% | 17.1% | 4.9 |
| Washington | + 6.4% | 11.8% | 16.2% | 4.4 |
| New York | + 28.4% | 12.4% | 16.5% | 4.1 |
| Virginia | 4.1% | - 10.3% | 14.1% | 3.8 |
| New Jersey | + 11.8% | - 9.1% | 12.8% | 3.7 |
| Idaho | - 0.6% | + 17.5% | 20.4% | 2.9 |

Commuters of Color & Walking to Work ²⁶

FIGURE 2.4.3 - COMMUTERS OF COLOR & WALKING TO WORK

Legend: Green | Blue = 10 lowest rates & largest percentage increases; Red | Yellow = 10 highest rates and lowest percentage decreases

| STATES | 2016 % OF COMMUTERS WALKING TO WORK | 2016 % OF ALL COMMUTERS WHO ARE PPL OF COLOR | 2016 % OF PPL WHO WALK TO WORK WHO ARE PPL OF COLOR | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG PPL WHO WALK TO WORK (IN % POINTS) |
|----------------|-------------------------------------|----------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------|
| Hawaii | + 4.7% | 75.4% | 65.9% | -9.4 |
| California | 2.7% | 58.9% | 58.7% | -0.3 |
| New Mexico | 2.3% | 57.6% | 55.4% | -2.2 |
| Texas | - 1.6% | 53.3% | 57.0% | 3.7 |
| Nevada | - 1.7% | 46.9% | 48.2% | 1.2 |
| Maryland | 2.5% | 45.4% | 46.8% | 1.4 |
| Florida | - 1.5% | 44.6% | 51.4% | 6.8 |
| Georgia | - 1.6% | 43.2% | 54.2% | 11.0 |
| New Jersey | 2.9% | 41.4% | 64.0% | 22.6 |
| Arizona | 1.8% | 41.1% | 46.6% | 5.5 |
| New York | + 6.2% | 40.4% | 48.5% | 8.1 |
| Mississippi | - 1.4% | 38.5% | 42.0% | 3.5 |
| Louisiana | - 1.7% | 36.5% | 50.9% | 14.4 |
| Virginia | 2.6% | 35.3% | 42.4% | 7.1 |
| Delaware | 1.9% | 34.4% | 43.6% | 9.2 |
| Illinois | 3.0% | 33.3% | 39.1% | 5.8 |
| South Carolina | 2.1% | 33.3% | 43.9% | 10.6 |
| North Carolina | - 1.7% | 33.0% | 40.1% | 7.1 |
| Alaska | + 7.6% | 31.5% | 53.7% | 22.1 |
| Alabama | - 1.2% | 31.0% | 40.1% | 9.1 |
| Oklahoma | - 1.7% | 29.8% | 36.4% | 6.5 |
| Connecticut | 2.7% | 28.2% | 43.3% | 15.1 |
| Washington | 3.7% | 27.3% | 30.6% | 3.3 |
| Colorado | 3.0% | 27.2% | 27.7% | 0.6 |
| Arkansas | 2.0% | 24.1% | 35.6% | 11.5 |
| Tennessee | - 1.3% | 23.7% | 34.6% | 10.9 |
| Massachusetts | + 4.8% | 23.3% | 34.0% | 10.7 |
| Rhode Island | 3.6% | 22.4% | 35.0% | 12.6 |
| Oregon | 3.6% | 21.4% | 27.0% | 5.6 |
| Michigan | 2.1% | 20.4% | 27.2% | 6.8 |
| Kansas | 2.5% | 20.1% | 23.9% | 3.8 |
| Utah | 2.7% | 19.3% | 22.4% | 3.2 |
| Pennsylvania | 3.6% | 18.3% | 28.1% | 9.8 |
| Missouri | 1.8% | 17.5% | 26.5% | 9.0 |
| Ohio | 2.3% | 16.8% | 24.5% | 7.7 |
| Indiana | 2.1% | 16.7% | 23.6% | 6.9 |
| Nebraska | 2.5% | 16.1% | 19.7% | 3.5 |
| Idaho | 2.6% | 15.6% | 17.7% | 2.1 |
| Minnesota | 2.6% | 15.1% | 21.7% | 6.6 |
| Wisconsin | 3.0% | 14.0% | 18.5% | 4.5 |
| Wyoming | + 4.6% | 13.6% | 17.9% | 4.2 |
| Kentucky | 2.1% | 13.6% | 25.7% | 12.1 |
| South Dakota | + 3.8% | 11.6% | 22.8% | 11.2 |
| North Dakota | 2.9% | 10.9% | 18.1% | 7.3 |
| Iowa | 3.4% | 10.7% | 13.9% | 3.2 |
| Montana | + 5.7% | 10.1% | 11.1% | 1.0 |
| New Hampshire | 3.1% | 7.5% | 15.7% | 8.2 |
| West Virginia | 3.2% | 6.7% | 17.3% | 10.6 |
| Vermont | + 5.9% | 5.5% | 11.1% | 5.7 |
| Maine | + 4.0% | 5.1% | 11.4% | 6.3 |

Commuters of Color & Taking Transit to Work ²⁷

FIGURE 2.4.4 - COMMUTERS OF COLOR & TAKING TRANSIT TO WORK

Legend: **Green** | **Blue** = 10 lowest rates & largest percentage increases; **Red** | **Yellow** = 10 highest rates and lowest percentage decreases

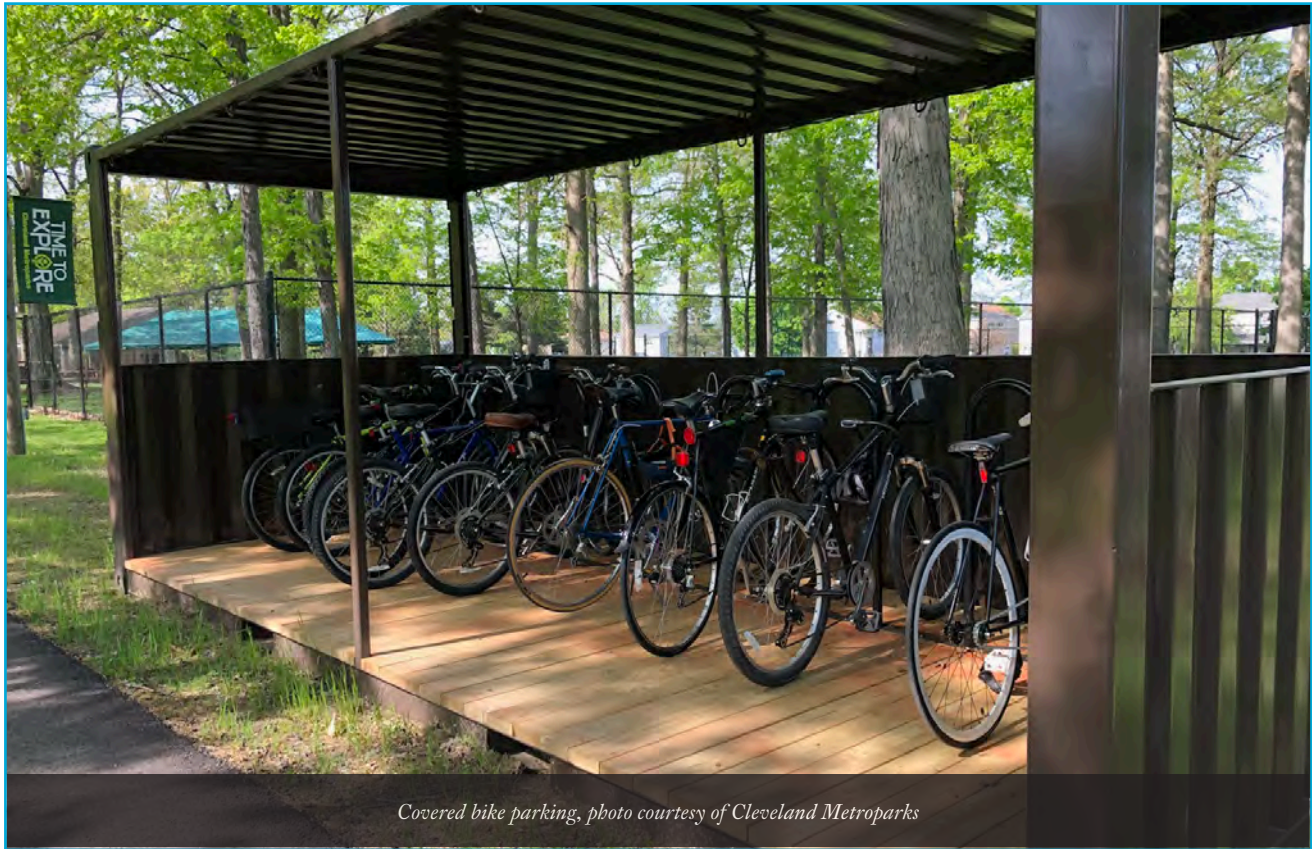
| STATES | 2016 % OF COMMUTERS TAKING TRANSIT TO WORK | 2016 % OF ALL COMMUTERS WHO ARE PPL OF COLOR | 2016 % OF PPL WHO TAKE TRANSIT TO WORK WHO ARE PPL OF COLOR | OVER- OR UNDER- REPRESENTATION OF PPL OF COLOR AMONG PPL WHO TAKE TRANSIT TO WORK (IN % POINTS) |
|----------------|--------------------------------------------|----------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Idaho | - 0.6% | 15.6% | 15.2% | -0.4 |
| Wyoming | 1.5% | 13.6% | 16.0% | 2.4 |
| New Mexico | 1.4% | 57.6% | 64.3% | 6.7 |
| New Hampshire | 0.9% | 7.5% | 14.2% | 6.7 |
| Maine | 0.7% | 5.1% | 14.4% | 9.2 |
| Utah | 2.7% | 19.3% | 29.0% | 9.7 |
| Washington | + 6.4% | 27.3% | 37.7% | 10.4 |
| Montana | 0.7% | 10.1% | 20.8% | 10.8 |
| California | + 5.1% | 58.9% | 70.7% | 11.7 |
| Alaska | 1.2% | 31.5% | 43.7% | 12.2 |
| Vermont | 1.5% | 5.5% | 18.2% | 12.7 |
| Hawaii | + 6.7% | 75.4% | 88.4% | 13.1 |
| Oregon | 4.4% | 21.4% | 34.8% | 13.3 |
| Colorado | 2.9% | 27.2% | 41.4% | 14.2 |
| Virginia | 4.1% | 35.3% | 51.8% | 16.5 |
| Illinois | + 9.4% | 33.3% | 50.2% | 16.9 |
| Minnesota | 3.6% | 15.1% | 33.7% | 18.6 |
| Massachusetts | + 10.1% | 23.3% | 42.4% | 19.1 |
| Iowa | 1.1% | 10.7% | 29.9% | 19.2 |
| Texas | 1.4% | 53.3% | 73.0% | 19.7 |
| Arizona | 1.9% | 41.1% | 60.8% | 19.7 |
| North Dakota | - 0.5% | 10.9% | 30.8% | 20.0 |
| New Jersey | + 11.8% | 41.4% | 61.8% | 20.4 |
| Nevada | 3.4% | 46.9% | 68.0% | 21.0 |
| Kansas | - 0.5% | 20.1% | 43.9% | 23.8 |
| Connecticut | + 4.9% | 28.2% | 52.2% | 24.0 |
| New York | + 28.4% | 40.4% | 64.6% | 24.2 |
| West Virginia | 1.1% | 6.7% | 32.5% | 25.8 |
| Rhode Island | 2.4% | 22.4% | 48.7% | 26.3 |
| Nebraska | - 0.6% | 16.1% | 42.8% | 26.7 |
| Maryland | + 8.5% | 45.4% | 73.3% | 27.9 |
| South Dakota | - 0.5% | 11.6% | 39.7% | 28.1 |
| Oklahoma | - 0.5% | 29.8% | 58.4% | 28.6 |
| Mississippi | - 0.3% | 38.5% | 68.0% | 29.5 |
| Indiana | 1.0% | 16.7% | 48.1% | 31.4 |
| Arkansas | - 0.3% | 24.1% | 56.2% | 32.1 |
| Delaware | 2.7% | 34.4% | 68.5% | 34.1 |
| North Carolina | 1.0% | 33.0% | 67.4% | 34.4 |
| Wisconsin | 1.7% | 14.0% | 48.9% | 34.9 |
| Florida | 2.1% | 44.6% | 80.6% | 36.0 |
| Kentucky | 1.1% | 13.6% | 49.9% | 36.2 |
| Georgia | 2.1% | 43.2% | 79.4% | 36.3 |
| Alabama | - 0.3% | 31.0% | 67.8% | 36.8 |
| Pennsylvania | + 5.6% | 18.3% | 55.3% | 37.0 |
| Tennessee | 0.7% | 23.7% | 63.2% | 39.4 |
| Michigan | 1.4% | 20.4% | 61.3% | 41.0 |
| South Carolina | - 0.6% | 33.3% | 74.5% | 41.1 |
| Louisiana | 1.3% | 36.5% | 78.3% | 41.8 |
| Ohio | 1.6% | 16.8% | 60.2% | 43.5 |
| Missouri | 1.4% | 17.5% | 69.5% | 52.0 |

Active Commuting by Women ²⁸

FIGURE 2.4.5 - ACTIVE COMMUTING BY WOMEN

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| STATES | 2016 % OF PPL WHO WALK TO WORK WHO ARE FEMALE | OVER- OR UNDER-REPRESENTATION OF WOMEN AMONG PPL WHO WALK TO WORK (IN % POINTS) | 2016 % OF PPL WHO BIKE TO WORK WHO ARE FEMALE | UNDER-REPRESENTATION OF WOMEN AMONG PPL WHO BIKE TO WORK (IN % POINTS) |
|----------------|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|
| Nevada | 42.1% | -3.9 | - 16.1% | -29.9 |
| West Virginia | 45.6% | -1.4 | - 17.3% | -29.7 |
| Delaware | 46.6% | -2.5 | - 20.4% | -28.6 |
| Mississippi | - 35.2% | - -13.0 | - 21.4% | -26.8 |
| New Jersey | 47.0% | + -0.1 | - 20.7% | -26.4 |
| Arkansas | 43.6% | -3.4 | - 21.7% | -25.3 |
| Georgia | - 41.2% | - -6.3 | - 22.3% | -25.3 |
| Maryland | 46.7% | -2.3 | - 24.0% | -25.0 |
| New Hampshire | 46.6% | -1.1 | - 23.9% | -23.8 |
| Tennessee | 42.6% | - -4.7 | 24.5% | -22.9 |
| Connecticut | + 47.2% | -1.1 | 25.7% | -22.6 |
| Texas | - 41.8% | -3.3 | - 22.6% | -22.5 |
| Florida | 43.2% | -4.4 | 25.3% | -22.3 |
| Virginia | 42.6% | -4.7 | 25.3% | -22.0 |
| New York | + 49.8% | + 1.7 | 26.4% | -21.8 |
| Kansas | 42.5% | -4.0 | 24.8% | -21.7 |
| Nebraska | 45.3% | -1.8 | 25.4% | -21.6 |
| Kentucky | 42.6% | -4.7 | 26.7% | -20.6 |
| New Mexico | 42.7% | -4.5 | 26.9% | -20.3 |
| Indiana | 45.0% | -2.3 | 27.0% | -20.2 |
| South Carolina | - 38.7% | - -9.4 | 27.8% | -20.2 |
| North Carolina | - 39.0% | - -8.6 | 27.4% | -20.2 |
| Iowa | 47.1% | -0.3 | 27.4% | -20.1 |
| Illinois | + 47.7% | + 0.2 | 27.4% | -20.1 |
| Wyoming | 44.4% | -2.7 | 27.3% | -19.9 |
| Missouri | 42.3% | - -5.9 | 28.5% | -19.6 |
| Maine | + 48.5% | -0.5 | 29.6% | -19.3 |
| Washington | 43.2% | -2.6 | 26.7% | -19.2 |
| Massachusetts | + 52.4% | + 3.2 | 30.4% | -18.7 |
| Louisiana | 42.5% | - -5.3 | 29.2% | -18.5 |
| Michigan | 46.5% | -1.4 | 29.5% | -18.4 |
| South Dakota | - 42.0% | - -4.7 | 28.6% | -18.2 |
| Ohio | 45.7% | -2.4 | 29.9% | -18.1 |
| California | 47.0% | + 1.7 | 27.2% | -18.1 |
| Alabama | 43.2% | -4.0 | 29.4% | -17.8 |
| Arizona | 43.4% | -2.8 | 28.8% | -17.4 |
| Oklahoma | 42.1% | -3.8 | + 28.6% | -17.3 |
| Wisconsin | 47.1% | -0.9 | 31.1% | -16.9 |
| Hawaii | - 40.7% | - -5.2 | + 29.8% | -16.1 |
| Pennsylvania | + 49.3% | + 1.4 | 32.0% | -16.0 |
| Idaho | - 41.5% | -3.7 | 29.2% | -16.0 |
| Utah | 46.3% | + 2.6 | 27.9% | -15.9 |
| Minnesota | + 48.2% | + 0.3 | + 32.5% | -15.4 |
| Vermont | + 50.1% | + 1.3 | + 34.0% | -14.7 |
| Montana | 43.0% | -3.9 | + 32.5% | -14.4 |
| Oregon | 45.8% | -1.3 | + 32.8% | -14.3 |
| Colorado | 43.4% | -2.4 | + 31.7% | -14.1 |
| Alaska | - 38.2% | - -6.2 | + 30.7% | -13.7 |
| North Dakota | - 42.0% | -3.1 | + 32.0% | -13.2 |
| Rhode Island | + 50.0% | + 1.5 | + 35.9% | -12.6 |



Topic References

23 Brian McKenzie. U.S. Census Bureau. *Modes Less Traveled – Bicycling and Walking to Work in the United States: 2008-2012* (2014). Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf>

24 U.S. Census Bureau. *American Community Survey Tables B17001 and B08122 1-year estimates* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. (For the purpose of this chart, low-income refers to workers making 150% of the federal poverty level or less).

25 See footnote 24.

26 U.S. Census Bureau. *American Community Survey Tables B08006 1-year estimate, B08006 and B08105H 5-year estimates* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. (For the purpose of this chart, People of Color means persons who are not categorized as “White alone, not Hispanic or Latino”).

27 See footnote 26.

28 U.S. Census Bureau. *American Community Survey Tables B08006 5-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

2.5 - STATES: PUBLIC HEALTH INDICATORS & BIKING & WALKING

Relationship Between Active Commuting²⁹ & Aerobic Physical Activity³⁰

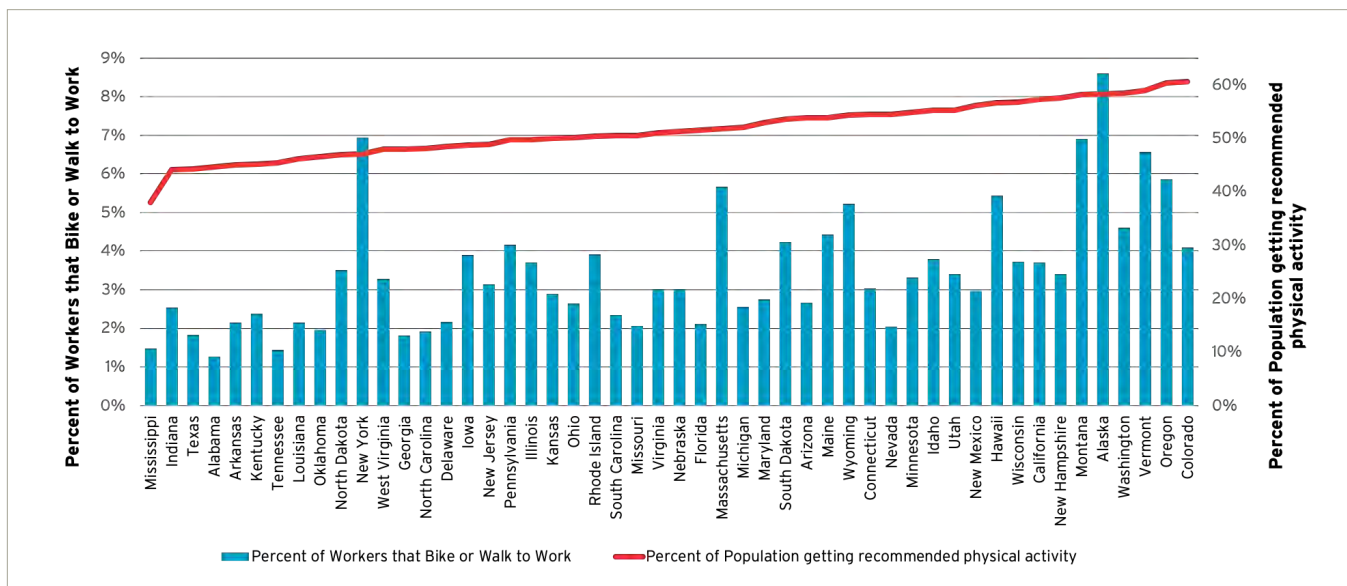
States with higher levels of bicycling and walking to work also see higher levels of their populations getting 150 minutes or more of aerobic physical activity per week. In fact, many of the states that show higher than average rates of physical activity are also states with higher than average rates of active commuting.

Of all states, Colorado (60.6%), Oregon (60.4%), and Vermont (58.9%) have the highest percentage of people meeting recommended aerobic physical activity levels — and are also at the top for both biking and walking to work.

Mississippi (38%), Tennessee (45.4%), and Alabama (44.6%) have the lowest shares of people meeting the aerobic physical activity minimum. These states also have fewer than 2% of people biking or walking to work, well below the national average of 3.5% of people biking or walking to work..

However, it is important to note that state-level associations between levels of bicycling and walking to work and health variables do not for account individual-level data and may not represent a causal relation.

FIGURE 2.5.1A - RELATIONSHIP BETWEEN ACTIVE COMMUTING & AEROBIC PHYSICAL ACTIVITY



Physical Activity ³¹ & Active Commuting ³²

FIGURE 2.5.1B - PHYSICAL ACTIVITY & ACTIVE COMMUTING

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| STATES | % OF POP. MEETING AEROBIC PHYSICAL ACTIVITY GUIDELINES (2015) | % CHANGE (2011-2015) | % OF COMMUTERS WHO WALK TO WORK (2016) | % OF COMMUTERS WHO BICYCLE TO WORK (2016) |
|----------------|---------------------------------------------------------------|----------------------|----------------------------------------|-------------------------------------------|
| Alabama | - 44.6% | + 5.2% | - 1.2% | - 0.1% |
| Alaska | + 58.3% | 0.7% | + 7.6% | + 1.0% |
| Arizona | 53.8% | 1.9% | 1.8% | + 1.0% |
| Arkansas | - 45.1% | -1.3% | 2.0% | - 0.2% |
| California | + 57.3% | -1.5% | 2.7% | + 1.1% |
| Colorado | + 60.6% | -1.9% | 3.0% | + 1.2% |
| Connecticut | 54.5% | 3.6% | 2.7% | 0.3% |
| Delaware | 48.5% | 0.0% | 1.9% | 0.3% |
| Florida | 51.6% | -2.3% | - 1.5% | 0.7% |
| Georgia | 48.0% | - 5.3% | - 1.6% | - 0.2% |
| Hawaii | + 56.6% | -3.2% | + 4.7% | + 0.9% |
| Idaho | 55.3% | -3.3% | 2.6% | + 1.0% |
| Illinois | 49.8% | - 3.7% | 3.0% | 0.7% |
| Indiana | - 44.1% | - 4.1% | 2.1% | 0.4% |
| Iowa | 48.8% | 2.5% | 3.4% | 0.5% |
| Kansas | 50.0% | + 6.8% | 2.5% | 0.4% |
| Kentucky | - 45.2% | - 3.4% | 2.1% | - 0.2% |
| Louisiana | - 46.2% | + 10.0% | - 1.7% | 0.5% |
| Maine | 53.9% | - 4.9% | + 4.0% | 0.4% |
| Maryland | 52.9% | + 8.6% | 2.5% | 0.3% |
| Massachusetts | 51.8% | - 8.0% | + 4.8% | + 0.8% |
| Michigan | 52.1% | -2.6% | 2.1% | 0.4% |
| Minnesota | 54.9% | 1.7% | 2.6% | 0.8% |
| Mississippi | - 38.0% | - 5.0% | - 1.4% | - 0.1% |
| Missouri | 50.5% | 2.0% | 1.8% | - 0.2% |
| Montana | + 58.2% | + 5.2% | + 5.7% | + 1.3% |
| Nebraska | 51.3% | 4.7% | 2.5% | 0.5% |
| Nevada | 54.5% | 3.6% | - 1.7% | 0.4% |
| New Hampshire | + 57.6% | 1.9% | 3.1% | 0.3% |
| New Jersey | 48.9% | - 8.3% | 2.9% | 0.3% |
| New Mexico | 56.1% | + 7.5% | 2.3% | 0.7% |
| New York | 47.1% | - 8.5% | + 6.2% | 0.7% |
| North Carolina | 48.1% | 2.8% | - 1.7% | - 0.2% |
| North Dakota | - 47.0% | -0.6% | 2.9% | 0.4% |
| Ohio | 50.2% | -2.7% | 2.3% | 0.3% |
| Oklahoma | - 46.6% | 4.0% | - 1.7% | 0.3% |
| Oregon | + 60.4% | -1.1% | 3.6% | + 2.5% |
| Pennsylvania | 49.8% | 0.8% | 3.6% | 0.5% |
| Rhode Island | 50.4% | 3.5% | 3.6% | 0.4% |
| South Carolina | 50.5% | 1.0% | 2.1% | 0.3% |
| South Dakota | 53.6% | + 16.3% | + 3.8% | 0.5% |
| Tennessee | - 45.4% | + 16.4% | - 1.3% | - 0.1% |
| Texas | - 44.3% | - 8.1% | - 1.6% | - 0.3% |
| Utah | 55.3% | -0.9% | 2.7% | 0.8% |
| Vermont | + 58.9% | -0.5% | + 5.9% | 0.7% |
| Virginia | 51.0% | -2.7% | 2.6% | 0.4% |
| Washington | + 58.4% | + 7.7% | + 3.7% | + 0.9% |
| West Virginia | 48.0% | + 11.6% | 3.2% | - 0.2% |
| Wisconsin | + 56.8% | -1.0% | 3.0% | 0.8% |
| Wyoming | 54.4% | 2.4% | + 4.6% | 0.7% |

There is a positive association between the proportion of individuals in a state who meet physical activity guidelines for aerobic activity (≥150 minutes per week of at least moderate-intensity activity) and both biking to work and walking to work.

The association with the percentage of that State's commuters who bike to work is moderate (R=0.58). Walking to work has a weaker relationship (R=0.32).

Disclaimer: State-level associations between commute mode share and health variables do not consider individual-level data and may not represent a causal relation.

Obesity ³³ & Active Commuting ³⁴

| STATES | % OF ADULTS WHO HAVE OBESITY | CHANGE IN % OF ADULTS WHO HAVE OBESITY (2010-2016) | % OF COMMUTERS WHO WALK TO WORK (2016) | % OF COMMUTERS WHO BIKE TO WORK (2016) |
|----------------|------------------------------|----------------------------------------------------|----------------------------------------|----------------------------------------|
| Alabama | + 35.7% | 11.6% | - 1.2% | - 0.1% |
| Alaska | 31.4% | + 14.6% | + 7.6% | + 1.0% |
| Arizona | 29.0% | + 15.6% | 1.8% | + 0.8% |
| Arkansas | + 35.7% | + 15.5% | 2.0% | - 0.1% |
| California | - 25.0% | 5.0% | 2.7% | + 1.0% |
| Colorado | - 22.3% | 7.6% | 3.0% | + 1.1% |
| Connecticut | - 26.0% | 6.0% | 2.7% | 0.3% |
| Delaware | 30.7% | 6.6% | 1.9% | 0.3% |
| Florida | 27.4% | - 3.2% | - 1.5% | 0.6% |
| Georgia | 31.4% | 12.2% | - 1.6% | 0.3% |
| Hawaii | - 23.8% | 8.8% | + 4.7% | + 0.7% |
| Idaho | 27.4% | - 1.0% | 2.6% | + 1.2% |
| Illinois | 31.6% | + 16.7% | 3.0% | 0.7% |
| Indiana | 32.5% | 5.4% | 2.1% | 0.4% |
| Iowa | 32.0% | 10.2% | 3.4% | 0.5% |
| Kansas | 31.2% | 5.3% | 2.5% | 0.4% |
| Kentucky | + 34.2% | + 12.4% | 2.1% | - 0.2% |
| Louisiana | + 35.5% | 6.4% | - 1.7% | 0.5% |
| Maine | 29.9% | 7.6% | + 4.0% | 0.4% |
| Maryland | 29.9% | 5.7% | 2.5% | 0.3% |
| Massachusetts | - 23.6% | - 3.9% | + 4.8% | + 0.9% |
| Michigan | + 32.5% | - 3.7% | 2.1% | 0.5% |
| Minnesota | 27.8% | 8.1% | 2.6% | 0.7% |
| Mississippi | + 37.3% | 6.8% | - 1.4% | - 0.1% |
| Missouri | 31.7% | - 4.5% | 1.8% | - 0.2% |
| Montana | - 25.5% | - 3.6% | + 5.7% | + 1.2% |
| Nebraska | 32.0% | + 12.6% | 2.5% | 0.6% |
| Nevada | - 25.8% | 5.3% | - 1.7% | 0.4% |
| New Hampshire | - 26.6% | - 0.3% | 3.1% | 0.3% |
| New Jersey | 27.4% | + 15.4% | 2.9% | 0.3% |
| New Mexico | 28.3% | 7.8% | 2.3% | 0.7% |
| New York | - 25.5% | - 4.2% | + 6.2% | 0.7% |
| North Carolina | 31.8% | 9.3% | - 1.7% | - 0.2% |
| North Dakota | 31.9% | + 14.9% | 2.9% | 0.6% |
| Ohio | 31.5% | 6.0% | 2.3% | 0.3% |
| Oklahoma | + 32.8% | 5.3% | - 1.7% | 0.3% |
| Oregon | 28.7% | 7.6% | 3.6% | + 2.2% |
| Pennsylvania | 30.3% | 5.9% | 3.6% | 0.5% |
| Rhode Island | 26.6% | 4.8% | 3.6% | 0.3% |
| South Carolina | 32.3% | 4.8% | 2.1% | - 0.2% |
| South Dakota | 29.6% | 5.3% | + 3.8% | 0.4% |
| Tennessee | + 34.8% | + 19.3% | - 1.3% | - 0.1% |
| Texas | + 33.7% | 10.7% | - 1.6% | - 0.3% |
| Utah | - 25.4% | - 3.9% | 2.7% | 0.7% |
| Vermont | 27.1% | 6.6% | + 5.9% | 0.6% |
| Virginia | 29.0% | - 0.8% | 2.6% | 0.4% |
| Washington | 28.6% | 8.0% | + 3.7% | + 0.9% |
| West Virginia | + 37.7% | + 16.2% | 3.2% | - 0.1% |
| Wisconsin | 30.7% | 10.9% | 3.0% | 0.7% |
| Wyoming | 27.7% | 10.8% | + 4.6% | 0.6% |

FIGURE 2.5.2 - OBESITY & ACTIVE COMMUTING

Legend:

Green = Low values for obesity-related data & high values for commute-related data;
Red = High values for obesity-related data & low values for commute-related data

States with higher levels of walking or biking to work see lower rates of obesity in their populations. Both relationships are of moderate strength ($R = -0.51$ and $R = -0.50$ respectively).

Virginia was the only state to see a decrease in the obesity rate from 2010 to 2016, with that rate falling 0.2%. All other states continue to see increases in obesity prevalence, though increases tend to be smaller in states with higher levels of active commuting.

Diabetes³⁵ & Active Commuting³⁶

FIGURE 2.5.3 - DIABETES & ACTIVE COMMUTING

| STATES | % OF ADULTS WHO HAVE DIABETES (2016) | CHANGE IN % OF ADULTS WHO HAVE DIABETES (2007-2016) | % OF COMMUTERS WHO WALK TO WORK (2016) | % OF COMMUTERS WHO BIKE TO WORK (2016) |
|----------------|--------------------------------------|-----------------------------------------------------|----------------------------------------|----------------------------------------|
| Alabama | + 13.8% | + 38% | - 1.2% | - 0.1% |
| Alaska | - 7.5% | 24% | + 7.6% | + 1.0% |
| Arizona | 10.1% | 26% | 1.8% | + 0.8% |
| Arkansas | + 12.6% | + 40% | 2.0% | - 0.1% |
| California | 8.7% | - 9% | 2.7% | + 1.0% |
| Colorado | - 6.1% | 22% | 3.0% | + 1.1% |
| Connecticut | 9.0% | + 28% | 2.7% | 0.3% |
| Delaware | 9.3% | 3% | 1.9% | 0.3% |
| Florida | 10.6% | 18% | - 1.5% | 0.6% |
| Georgia | 10.9% | - 8% | - 1.6% | 0.3% |
| Hawaii | 9.5% | 19% | + 4.7% | + 0.7% |
| Idaho | 8.3% | - 4% | 2.6% | + 1.2% |
| Illinois | 9.6% | - 6% | 3.0% | 0.7% |
| Indiana | 10.9% | 21% | 2.1% | 0.4% |
| Iowa | 8.9% | 26% | 3.4% | 0.5% |
| Kansas | 8.4% | 20% | 2.5% | 0.4% |
| Kentucky | + 11.8% | 18% | 2.1% | - 0.2% |
| Louisiana | + 11.3% | 13% | - 1.7% | 0.5% |
| Maine | 9.9% | 24% | + 4.0% | 0.4% |
| Maryland | 10.0% | 25% | 2.5% | 0.3% |
| Massachusetts | - 8.0% | 14% | + 4.8% | + 0.9% |
| Michigan | 10.6% | 18% | 2.1% | 0.5% |
| Minnesota | - 7.3% | 21% | 2.6% | 0.7% |
| Mississippi | + 12.6% | 14% | - 1.4% | - 0.1% |
| Missouri | + 10.9% | + 37% | 1.8% | - 0.2% |
| Montana | - 7.8% | 11% | + 5.7% | + 1.2% |
| Nebraska | - 7.8% | 12% | 2.5% | 0.6% |
| Nevada | 10.2% | + 27% | - 1.7% | 0.4% |
| New Hampshire | 8.1% | 16% | 3.1% | 0.3% |
| New Jersey | 8.1% | - 10% | 2.9% | 0.3% |
| New Mexico | 10.7% | + 34% | 2.3% | 0.7% |
| New York | 9.8% | 23% | + 6.2% | 0.7% |
| North Carolina | 10.7% | 18% | - 1.7% | - 0.2% |
| North Dakota | 8.2% | + 36% | 2.9% | 0.6% |
| Ohio | 10.2% | - 2% | 2.3% | 0.3% |
| Oklahoma | + 11.5% | 15% | - 1.7% | 0.3% |
| Oregon | 8.2% | 17% | 3.6% | + 2.2% |
| Pennsylvania | 10.4% | 15% | 3.6% | 0.5% |
| Rhode Island | 9.2% | + 32% | 3.6% | 0.3% |
| South Carolina | + 12.3% | 23% | 2.1% | - 0.2% |
| South Dakota | - 7.9% | 13% | + 3.8% | 0.4% |
| Tennessee | + 11.5% | - 4% | - 1.3% | - 0.1% |
| Texas | 10.4% | - 4% | - 1.6% | - 0.3% |
| Utah | - 5.8% | - 3% | 2.7% | 0.7% |
| Vermont | - 7.9% | 12% | + 5.9% | 0.6% |
| Virginia | 9.6% | 20% | 2.6% | 0.4% |
| Washington | 8.7% | 24% | + 3.7% | + 0.9% |
| West Virginia | + 14.5% | + 32% | 3.2% | - 0.1% |
| Wisconsin | 9.8% | + 40% | 3.0% | 0.7% |
| Wyoming | - 7.8% | 11% | + 4.6% | 0.6% |

Legend:

Green = Low values for diabetes-related data & high values for commute-related data; **Red** = High values for diabetes-related data & low values for commute-related data

Like with obesity prevalence, there is a moderate, inverse association between the rates of diabetes in a state's population and the rates of active commuting (R=-0.55 and -0.52 for walking and biking, respectively).

There are only three states that had a decrease in the rate of adults with diabetes between 2007 and 2016: New Jersey, Tennessee, and Utah.

High Blood Pressure ³⁷ & Active Commuting ³⁸

FIGURE 2.5.4 - HIGH BLOOD PRESSURE & ACTIVE COMMUTING

| STATES | % OF ADULTS W/ HIGH BLOOD PRESSURE (2015) | CHANGE IN % OF ADULTS W/ HIGH BLOOD PRESSURE (2013-2015) | % OF COMMUTERS WHO WALK TO WORK (2016) | % OF COMMUTERS WHO BICYCLE TO WORK (2016) |
|----------------|-------------------------------------------|----------------------------------------------------------|----------------------------------------|-------------------------------------------|
| Alabama | + 40.4% | 0.0% | - 1.2% | - 0.1% |
| Alaska | - 27.5% | - 7.7% | + 7.6% | + 1.0% |
| Arizona | 30.8% | 0.2% | 1.8% | + 0.8% |
| Arkansas | + 39.3% | 1.6% | 2.0% | - 0.1% |
| California | - 28.5% | - 0.7% | 2.7% | + 1.0% |
| Colorado | - 25.7% | - 2.2% | 3.0% | + 1.1% |
| Connecticut | 30.4% | - 2.9% | 2.7% | 0.3% |
| Delaware | 34.5% | - 3.1% | 1.9% | 0.3% |
| Florida | 33.5% | - 3.2% | - 1.5% | 0.6% |
| Georgia | + 36.2% | + 3.1% | - 1.6% | 0.3% |
| Hawaii | 32.0% | + 12.2% | + 4.7% | + 0.7% |
| Idaho | 31.3% | + 6.3% | 2.6% | + 1.2% |
| Illinois | 30.8% | 2.2% | 3.0% | 0.7% |
| Indiana | 32.4% | - 3.4% | 2.1% | 0.4% |
| Iowa | 30.6% | - 2.7% | 3.4% | 0.5% |
| Kansas | 31.6% | 0.9% | 2.5% | 0.4% |
| Kentucky | + 39.0% | - 0.4% | 2.1% | - 0.2% |
| Louisiana | + 39.3% | - 1.5% | - 1.7% | 0.5% |
| Maine | 34.1% | + 2.5% | + 4.0% | 0.4% |
| Maryland | 32.5% | - 0.8% | 2.5% | 0.3% |
| Massachusetts | 29.6% | 0.7% | + 4.8% | + 0.9% |
| Michigan | 33.1% | - 4.3% | 2.1% | 0.5% |
| Minnesota | - 26.3% | - 2.4% | 2.6% | 0.7% |
| Mississippi | + 42.4% | + 5.4% | - 1.4% | - 0.1% |
| Missouri | 34.1% | + 6.2% | 1.8% | - 0.2% |
| Montana | - 29.1% | - 0.7% | + 5.7% | + 1.2% |
| Nebraska | 29.9% | - 1.4% | 2.5% | 0.6% |
| Nevada | - 28.3% | - 7.4% | - 1.7% | 0.4% |
| New Hampshire | - 29.2% | - 3.0% | 3.1% | 0.3% |
| New Jersey | 30.9% | - 0.7% | 2.9% | 0.3% |
| New Mexico | 30.0% | 1.7% | 2.3% | 0.7% |
| New York | - 29.3% | - 7.4% | + 6.2% | 0.7% |
| North Carolina | 35.2% | - 0.9% | - 1.7% | - 0.2% |
| North Dakota | 30.4% | + 2.3% | 2.9% | 0.6% |
| Ohio | 34.3% | + 2.4% | 2.3% | 0.3% |
| Oklahoma | + 36.2% | - 3.5% | - 1.7% | 0.3% |
| Oregon | 30.0% | - 5.8% | 3.6% | + 2.2% |
| Pennsylvania | 32.5% | - 3.5% | 3.6% | 0.5% |
| Rhode Island | 32.4% | - 4.1% | 3.6% | 0.3% |
| South Carolina | + 37.8% | - 1.5% | 2.1% | - 0.2% |
| South Dakota | 30.0% | - 2.4% | + 3.8% | 0.4% |
| Tennessee | + 38.5% | - 0.9% | - 1.3% | - 0.1% |
| Texas | 29.5% | - 5.5% | - 1.6% | - 0.3% |
| Utah | - 23.6% | - 2.6% | 2.7% | 0.7% |
| Vermont | - 29.4% | - 5.6% | + 5.9% | 0.6% |
| Virginia | 33.2% | 2.2% | 2.6% | 0.4% |
| Washington | 29.7% | - 2.2% | + 3.7% | + 0.9% |
| West Virginia | + 42.7% | + 4.1% | 3.2% | - 0.1% |
| Wisconsin | 29.6% | - 8.5% | 3.0% | 0.7% |
| Wyoming | 29.9% | + 4.0% | + 4.6% | 0.6% |

Legend:

Green = Low values for high blood pressure-related data & high values for commute-related data; **Red** = High values for high blood pressure-related data & low values for commute-related data

There is an inverse association between the rate of high blood pressure in a state and the proportion of workers who either bike to work (R=-0.56) or walk to work (R=-0.49).

Asthma ³⁹ & Active Commuting ⁴⁰

FIGURE 2.5.5 - ASTHMA & ACTIVE COMMUTING

| STATES | % OF ADULTS WHO HAVE ASTHMA (2015) | CHANGE OF % OF ADULTS WHO HAVE ASTHMA (2007-2015) | % OF COMMUTERS WHO WALK TO WORK (2016) | % OF COMMUTERS WHO BICYCLE TO WORK (2016) |
|----------------|------------------------------------|---------------------------------------------------|----------------------------------------|-------------------------------------------|
| Alabama | 9.9% | 0.9% | - 1.2% | - 0.1% |
| Alaska | 9.3% | + 1.3% | + 7.6% | + 1.0% |
| Arizona | 9.3% | 0.3% | 1.8% | + 0.8% |
| Arkansas | 10.1% | 3.1% | 2.0% | - 0.1% |
| California | - 7.7% | - 0.3% | 2.7% | + 1.0% |
| Colorado | 9.0% | 1.0% | 3.0% | + 1.1% |
| Connecticut | + 10.5% | + 1.5% | 2.7% | 0.3% |
| Delaware | 9.2% | 1.2% | 1.9% | 0.3% |
| Florida | - 7.5% | + 1.5% | - 1.5% | 0.6% |
| Georgia | 9.2% | 1.2% | - 1.6% | 0.3% |
| Hawaii | 10.0% | + 2.0% | + 4.7% | + 0.7% |
| Idaho | 9.1% | 0.1% | 2.6% | + 1.2% |
| Illinois | 8.4% | 0.4% | 3.0% | 0.7% |
| Indiana | + 10.2% | 1.2% | 2.1% | 0.4% |
| Iowa | - 7.6% | 0.6% | 3.4% | 0.5% |
| Kansas | 8.7% | 0.7% | 2.5% | 0.4% |
| Kentucky | + 11.9% | + 2.9% | 2.1% | - 0.2% |
| Louisiana | 8.2% | + 2.2% | - 1.7% | 0.5% |
| Maine | + 11.2% | 1.2% | + 4.0% | 0.4% |
| Maryland | 8.8% | 0.8% | 2.5% | 0.3% |
| Massachusetts | + 10.2% | 0.2% | + 4.8% | + 0.9% |
| Michigan | + 10.2% | 0.2% | 2.1% | 0.5% |
| Minnesota | - 7.4% | - 0.6% | 2.6% | 0.7% |
| Mississippi | - 7.8% | 0.8% | - 1.4% | - 0.1% |
| Missouri | 9.6% | 0.6% | 1.8% | - 0.2% |
| Montana | 8.9% | - 0.1% | + 5.7% | + 1.2% |
| Nebraska | - 7.2% | - 0.8% | 2.5% | 0.6% |
| Nevada | 8.1% | + 2.1% | - 1.7% | 0.4% |
| New Hampshire | 10.1% | - 0.1% | 3.1% | 0.3% |
| New Jersey | - 7.2% | - 0.8% | 2.9% | 0.3% |
| New Mexico | 9.9% | 0.9% | 2.3% | 0.7% |
| New York | 9.9% | 0.9% | + 6.2% | 0.7% |
| North Carolina | 8.2% | 0.2% | - 1.7% | - 0.2% |
| North Dakota | 9.0% | 1.0% | 2.9% | 0.6% |
| Ohio | 10.0% | 1.0% | 2.3% | 0.3% |
| Oklahoma | 9.5% | 0.5% | - 1.7% | 0.3% |
| Oregon | + 11.2% | 1.2% | 3.6% | + 2.2% |
| Pennsylvania | 10.2% | 1.2% | 3.6% | 0.5% |
| Rhode Island | + 11.0% | 1.0% | 3.6% | 0.3% |
| South Carolina | 8.2% | 0.2% | 2.1% | - 0.2% |
| South Dakota | 8.4% | + 1.4% | + 3.8% | 0.4% |
| Tennessee | 9.0% | - 0.0% | - 1.3% | - 0.1% |
| Texas | - 7.6% | - 0.4% | - 1.6% | - 0.3% |
| Utah | 9.0% | 1.0% | 2.7% | 0.7% |
| Vermont | + 11.0% | 1.0% | + 5.9% | 0.6% |
| Virginia | - 7.9% | - 0.1% | 2.6% | 0.4% |
| Washington | 9.4% | 0.4% | + 3.7% | + 0.9% |
| West Virginia | + 10.9% | + 1.9% | 3.2% | - 0.1% |
| Wisconsin | 9.6% | 0.6% | 3.0% | 0.7% |
| Wyoming | - 8.0% | - 0.0% | + 4.6% | 0.6% |

Legend: Green = Low values for asthma-related data and high values for commute-related data; Red = High values for asthma-related data and low values for commute-related data

There is no significant relationship between whether or not a state has a high level of asthma and the rate at which commuters in a state bicycle or walk to work.



Kirkland, WA, photo courtesy by Jan Moser (pedbikeimages.org)

Topic References

29 See footnote 13.

30 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2015). Available at <https://www.cdc.gov/cdi/>.

31 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2011 and 2015). Available at <https://www.cdc.gov/cdi/>.

32 See footnote 13.

33 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2011 and 2016). Available at <https://www.cdc.gov/cdi/>.

34 See footnote 13.

35 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2011 and 2016). Available at <https://www.cdc.gov/cdi/>.

36 See footnote 13.

37 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2013 and 2015). Available at <https://www.cdc.gov/cdi/>.

38 See footnote 13.

39 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey* (2007 and 2015). Available at <https://www.cdc.gov/cdi/>.

40 See footnote 13.

2.6 - STATES:

BIKING & WALKING ROAD SAFETY

The United States ranks worse than many comparable nations in traffic safety. According to a 2010 special report by the Transportation Research Board (TRB), “In recent decades nearly every high-income country has made more rapid progress than has the United States in reducing the frequency of road traffic deaths and the rate of deaths per [mile] of vehicle travel.”⁴¹ According to a 2017 report by Ralph Buehler and John Pucher, between 1990-1994 and 2010-2014, the United States made the least progress of 11 Organization for Economic Co-operation and Development (OECD) countries in reducing pedestrian and bicyclist fatality rates per capita.⁴²

According to the National Highway Traffic Safety Administration, in 2016, more bicyclists died than in any year since 1991 and more pedestrians died than in any year since 1990. You can find more information about traffic safety in Chapter III: Make Your Case: Section II: Safe Transportation.

Nationally, the percentage of fatalities composed of bicyclists and pedestrians increased 2.7 percentage points to 15.1% based on 5-year averages from 2007-2011 and 2012-2016. States have very different experiences with bicyclist and pedestrian safety. In some states, like New Jersey, bicyclist and pedestrian fatalities make up more than a quarter of all traffic fatalities. In others, like Wyoming, bicyclist and pedestrian fatalities make up less than 10% of all traffic fatalities.

The demographics of who is killed while bicycling and walking can be difficult to interpret because data on demographics about who is bicycling and walking is limited at the state level. For this reason, it is difficult to interpret whether the under-representation of people who are under age 18, age 65 or older, or people of color among bicyclist fatalities is due to circumstances that affect the safety of those groups or the prevalence for bicycling among those groups. Differences in the over- or -under-representation of these demographic groups are more common for bicycling fatalities than pedestrian fatalities.



CycLouvia event, photo courtesy of Louisville, KY

Pedestrian Fatalities: Total & Per Commuter ⁴³

FIGURE 2.6.1 - PEDESTRIAN FATALITIES: TOTAL & PER COMMUTER

Legend: Green = 10 lowest values;

Red = States where 2016 was highest value from 2007-2016; 10 highest values for other data

| STATES | 2016 TOTAL PEDESTRIAN FATALITIES | TOTAL PEDESTRIAN FATALITIES | | % CHANGE IN TOTAL PEDESTRIAN FATALITIES | PEDESTRIAN FATALITY RATE PER 10K PPL WHO WALK TO WORK | | % CHANGE IN PEDESTRIAN FATALITY RATE PER 10K PPL WHO WALK TO WORK |
|----------------|----------------------------------|-----------------------------|--------------|-----------------------------------------|-------------------------------------------------------|--------------|-------------------------------------------------------------------|
| | | Avg. 2007-11 | Avg. 2012-16 | | Avg. 2007-11 | Avg. 2012-16 | |
| | | | | | | | |
| Alabama | 111 | 68.2 | 88.2 | 29% | + 28.3 | + 38.7 | + 37% |
| Alaska | 12 | - 8 | - 10.4 | 30% | - 3.1 | - 3.7 | - 17% |
| Arizona | 190 | + 137 | + 151.4 | 11% | + 24.5 | + 26.7 | 9% |
| Arkansas | 44 | 41.4 | 43 | - 4% | 17.4 | 19.7 | 13% |
| California | 867 | + 614.2 | + 732 | 19% | 14.6 | 15.7 | 8% |
| Colorado | 79 | 45.8 | 65.4 | + 43% | 7.0 | 8.2 | 18% |
| Connecticut | 54 | 35.4 | 45 | 27% | 7.0 | 8.6 | 22% |
| Delaware | 27 | 18.4 | 27.8 | + 51% | 18.9 | + 30.2 | + 60% |
| Florida | 652 | + 492.6 | + 569.2 | 16% | + 41.3 | + 44.2 | 7% |
| Georgia | 232 | + 150.2 | + 186.2 | 24% | + 22.3 | + 26.9 | 20% |
| Hawaii | 29 | 22.4 | 25.4 | 13% | 9.0 | 8.2 | - 8% |
| Idaho | 17 | - 11.4 | - 13 | 14% | 5.4 | 6.7 | 25% |
| Illinois | 148 | + 133.4 | 136.8 | - 3% | 7.8 | 7.3 | - 6% |
| Indiana | 85 | 57.4 | 79 | + 38% | 9.4 | 12.3 | + 31% |
| Iowa | 22 | 20.8 | 21.2 | - 2% | - 3.8 | - 3.9 | 3% |
| Kansas | 41 | 18 | 27.8 | + 54% | 6.0 | 8.3 | + 38% |
| Kentucky | 81 | 52.4 | 61.8 | 18% | 13.3 | 14.2 | 7% |
| Louisiana | 127 | 98.6 | 110 | 12% | + 27.5 | + 30.6 | 11% |
| Maine | 17 | - 11 | - 13 | 18% | - 4.2 | 5.1 | 21% |
| Maryland | 104 | 110 | 100.4 | - 9% | 15.8 | 13.9 | - 12% |
| Massachusetts | 80 | 65 | 74.4 | 14% | - 4.4 | - 4.5 | 1% |
| Michigan | 162 | 125.8 | + 150.8 | 20% | 13.4 | 15.8 | 18% |
| Minnesota | 58 | 34.8 | 36.4 | 5% | 4.7 | - 4.7 | 0% |
| Mississippi | 58 | 52.6 | 55 | - 5% | + 28.9 | + 31.0 | 7% |
| Missouri | 96 | 68 | 84.4 | 24% | 13.5 | 15.6 | 16% |
| Montana | 11 | 12.8 | - 13.4 | 5% | 5.6 | 5.3 | - 5% |
| Nebraska | 12 | - 7.4 | 13.4 | + 81% | - 2.8 | - 5.1 | + 80% |
| Nevada | 80 | 45 | 67.2 | + 49% | 20.1 | 25.5 | 27% |
| New Hampshire | 17 | - 8.4 | - 11.4 | + 36% | - 3.9 | 5.6 | + 44% |
| New Jersey | 162 | + 144.6 | + 157 | 9% | 11.6 | 12.2 | 6% |
| New Mexico | 73 | 40.4 | 62.2 | + 54% | + 25.0 | + 32.2 | + 29% |
| New York | 304 | + 294.2 | + 302.4 | - 3% | 5.4 | 5.2 | - 2% |
| North Carolina | 200 | + 161.6 | + 185.4 | 15% | + 21.3 | 23.1 | 8% |
| North Dakota | 7 | - 6.2 | - 6.2 | 0% | - 4.1 | - 4.5 | 11% |
| Ohio | 134 | 97.8 | 106.8 | 9% | 8.2 | 8.7 | 6% |
| Oklahoma | 87 | 50.8 | 65.8 | 30% | 15.8 | 21.6 | + 36% |
| Oregon | 72 | 47.2 | 60.2 | 28% | 7.0 | 8.5 | 22% |
| Pennsylvania | 169 | + 142.8 | + 158.2 | 11% | 6.6 | 7.0 | 6% |
| Rhode Island | 14 | - 12.8 | - 11 | - 14% | 8.5 | 5.7 | - 33% |
| South Carolina | 144 | 100.2 | 119.4 | 19% | + 27.7 | + 26.0 | - 6% |
| South Dakota | 6 | - 7.4 | - 6.2 | - 16% | - 4.6 | - 3.7 | - 19% |
| Tennessee | 97 | 73.4 | 86.8 | 18% | 19.0 | 22.6 | 19% |
| Texas | 672 | + 393.8 | + 529.4 | + 34% | + 21.0 | + 27.3 | + 30% |
| Utah | 35 | 28.2 | 33.8 | 20% | 7.5 | 9.5 | 26% |
| Vermont | 4 | - 3.4 | - 5.8 | + 71% | - 1.4 | - 3.2 | + 131% |
| Virginia | 122 | 76.6 | 91.8 | 20% | 9.1 | 9.5 | 4% |
| Washington | 84 | 61.4 | 72.8 | 19% | 6.0 | 6.1 | 2% |
| West Virginia | 24 | 18.8 | 24.2 | 29% | 10.1 | 11.2 | 11% |
| Wisconsin | 51 | 51.6 | 47 | - 9% | 5.3 | - 5.1 | - 4% |
| Wyoming | 5 | - 4 | - 5 | 25% | - 4.4 | - 4.4 | - 1% |

Pedestrian Fatalities: As a Percent of All Traffic Fatalities & Per Capita ⁴⁴

| STATES | PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES | | CHANGE IN PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES | PEDESTRIAN FATALITIES PER 100K PERSONS 2012-2016 |
|----------------|--------------------------------------------------------|--------------|------------------------------------------------------------------|-----------------------------------------------------|
| | Avg. 2007-11 | Avg. 2012-16 | | |
| Alabama | 7.3% | 10.0% | | 1.8 |
| Alaska | 11.6% | 15.4% | | 1.4 |
| Arizona | + 15.8% | 17.6% | - 11% | + 2.3 |
| Arkansas | 7.0% | 8.3% | | 1.4 |
| California | + 19.4% | + 23.1% | | + 1.9 |
| Colorado | 9.3% | 12.6% | | 1.2 |
| Connecticut | 12.8% | 16.7% | | 1.3 |
| Delaware | + 16.8% | + 24.0% | + 43% | + 3.0 |
| Florida | + 18.3% | + 21.2% | | + 2.9 |
| Georgia | 11.0% | 14.3% | | 1.8 |
| Hawaii | + 19.8% | + 23.9% | | 1.8 |
| Idaho | - 5.2% | - 6.2% | | - 0.8 |
| Illinois | 13.2% | 13.8% | - 5% | 1.1 |
| Indiana | 7.4% | 10.0% | | 1.2 |
| Iowa | - 5.3% | - 6.2% | | - 0.7 |
| Kansas | - 4.5% | - 7.2% | + 59% | 1.0 |
| Kentucky | 6.6% | 8.4% | | 1.4 |
| Louisiana | 12.0% | 15.1% | | + 2.4 |
| Maine | 7.0% | 8.5% | | 1.0 |
| Maryland | + 20.2% | + 20.7% | - 3% | 1.7 |
| Massachusetts | + 17.5% | + 21.5% | | 1.1 |
| Michigan | 13.3% | 15.7% | | 1.5 |
| Minnesota | 8.2% | 9.3% | | - 0.7 |
| Mississippi | 7.3% | 8.7% | | 1.8 |
| Missouri | 7.7% | 10.1% | | 1.4 |
| Montana | - 5.7% | - 6.3% | - 11% | 1.3 |
| Nebraska | - 3.5% | - 6.0% | + 70% | - 0.7 |
| Nevada | 15.7% | + 22.9% | + 46% | + 2.4 |
| New Hampshire | 7.0% | 9.7% | + 38% | - 0.9 |
| New Jersey | + 23.6% | + 27.5% | | 1.8 |
| New Mexico | 10.9% | 17.6% | + 61% | + 3.0 |
| New York | + 24.2% | + 27.2% | - 12% | 1.5 |
| North Carolina | 11.7% | 13.8% | | + 1.9 |
| North Dakota | - 5.2% | - 4.6% | - 11% | - 0.8 |
| Ohio | 8.8% | 9.9% | - 12% | - 0.9 |
| Oklahoma | 7.0% | 9.7% | + 38% | 1.7 |
| Oregon | 12.7% | 15.5% | | 1.5 |
| Pennsylvania | 10.5% | 13.0% | | 1.2 |
| Rhode Island | + 18.2% | + 20.3% | - 11% | 1.0 |
| South Carolina | 11.1% | 13.4% | | + 2.5 |
| South Dakota | - 5.8% | - 4.7% | - 18% | - 0.7 |
| Tennessee | 7.1% | 8.8% | | 1.3 |
| Texas | 12.2% | 15.0% | | + 2.0 |
| Utah | 10.7% | 13.5% | | 1.1 |
| Vermont | - 5.1% | 9.4% | + 85% | 0.9 |
| Virginia | 9.4% | 12.3% | | 1.1 |
| Washington | 12.4% | 14.9% | | 1.0 |
| West Virginia | - 5.1% | - 8.1% | + 58% | 1.3 |
| Wisconsin | 8.4% | - 8.3% | - 1% | - 0.8 |
| Wyoming | - 2.7% | - 4.1% | + 52% | - 0.9 |

**FIGURE 2.6.2 -
PEDESTRIAN FATALITIES: AS
A PERCENT OF ALL TRAFFIC
FATALITIES & PER CAPITA**

Legend:

Green = 10 lowest values;
Red = 10 highest values

Note regarding Figure 2.6.3 on following page: Some states with high percentage changes have infrequent bicyclist fatalities. For example, between 2005 and 2016, Vermont had one or more bicyclist fatalities in only three years.

Bicyclist Fatalities: Total & Per Commuter ⁴⁵

FIGURE 2.6.3 - BICYCLIST FATALITIES: TOTAL & PER COMMUTER

Legend: Green = 10 lowest values; Red = States where 2016 was highest value from 2007-2016; 10 highest values for other data

| STATES | 2016 TOTAL BICYCLIST FATALITIES | TOTAL BICYCLIST FATALITIES | | % CHANGE IN TOTAL BICYCLIST FATALITIES | BICYCLIST FATALITY RATE PER 10K PPL WHO BIKE TO WORK | | % CHANGE IN BICYCLIST FATALITY RATE PER 10K PPL WHO BIKE TO WORK |
|----------------|---------------------------------|----------------------------|--------------|----------------------------------------|------------------------------------------------------|--------------|------------------------------------------------------------------|
| | | Avg. 2007-11 | Avg. 2012-16 | | Avg. 2007-11 | Avg. 2012-16 | |
| Alabama | 2 | 6 | 7 | 17% | + 27.8 | + 31.8 | + 14% |
| Alaska | 1 | - 1.4 | - 1.2 | - 14% | 4.5 | - 3.5 | - 23% |
| Arizona | 31 | + 21.4 | + 27.6 | 29% | 9.1 | 10.1 | 11% |
| Arkansas | 3 | 4.2 | 4.6 | 10% | + 26.3 | + 27.6 | 5% |
| California | 147 | + 106.6 | + 134.8 | 26% | 7.0 | 7.1 | 2% |
| Colorado | 16 | 9.8 | 12.8 | + 31% | - 3.4 | - 3.8 | 11% |
| Connecticut | 5 | 5.4 | 3.6 | - 33% | 11.7 | 6.9 | - 41% |
| Delaware | 2 | 3 | 2.6 | - 13% | + 25.7 | + 19.4 | - 25% |
| Florida | 138 | + 112.2 | + 136.8 | 22% | + 24.6 | + 22.9 | - 7% |
| Georgia | 29 | + 17.6 | + 23.2 | + 32% | + 19.6 | + 23.2 | + 18% |
| Hawaii | 0 | 2.8 | - 2 | - 29% | 5.5 | - 2.6 | - 52% |
| Idaho | 6 | 3 | 2.6 | - 13% | - 3.7 | - 3.3 | - 11% |
| Illinois | 20 | + 23 | + 26.4 | 15% | 7.1 | 6.9 | - 3% |
| Indiana | 19 | 12.8 | 14.4 | 13% | 11.0 | 10.2 | - 7% |
| Iowa | 8 | 5.4 | 4.6 | - 15% | 7.4 | 5.8 | - 22% |
| Kansas | 5 | 3.2 | 5.6 | + 75% | 6.6 | 12.0 | + 82% |
| Kentucky | 9 | 4.6 | 5.8 | 26% | 13.0 | 13.7 | 5% |
| Louisiana | 22 | 15.2 | + 21.2 | + 39% | + 21.9 | + 21.1 | - 4% |
| Maine | 4 | - 1.2 | 2.2 | + 83% | 4.2 | 7.7 | + 83% |
| Maryland | 16 | 7.2 | 8.6 | 19% | 10.5 | 9.3 | - 12% |
| Massachusetts | 10 | 7.8 | 9.8 | 26% | - 4.0 | - 3.6 | - 12% |
| Michigan | 38 | + 22.8 | + 27.8 | 22% | 13.7 | 13.9 | 2% |
| Minnesota | 7 | 8.2 | 7 | - 15% | 4.3 | - 3.1 | - 28% |
| Mississippi | 5 | 6.6 | 5.2 | - 21% | + 42.8 | + 35.6 | - 17% |
| Missouri | 8 | 4.4 | 6.4 | + 45% | 7.3 | 9.3 | + 28% |
| Montana | 3 | - 1.8 | - 1.6 | - 11% | - 2.8 | - 2.5 | - 11% |
| Nebraska | 1 | - 1.6 | - 1.4 | - 13% | 3.8 | - 3.0 | - 21% |
| Nevada | 6 | 6.6 | 6.8 | 3% | 10.9 | 12.3 | 13% |
| New Hampshire | 2 | 2 | 2.4 | 20% | 12.9 | 13.3 | 3% |
| New Jersey | 18 | 15 | 15 | 0% | 11.6 | 10.6 | - 9% |
| New Mexico | 4 | 5.8 | 5.4 | - 7% | 10.4 | 9.3 | - 11% |
| New York | 38 | + 43 | + 41 | - 5% | 10.5 | 6.9 | - 35% |
| North Carolina | 17 | + 22.8 | + 21.6 | - 5% | + 23.9 | + 20.8 | - 13% |
| North Dakota | 3 | - 0.8 | - 1.6 | + 100% | - 3.6 | 11.2 | + 211% |
| Ohio | 18 | + 16.2 | 18.2 | 12% | 10.9 | 11.3 | 4% |
| Oklahoma | 5 | 5.6 | 6.6 | 18% | 14.5 | 14.9 | 3% |
| Oregon | 10 | 11 | 7.6 | - 31% | - 3.2 | - 1.7 | - 46% |
| Pennsylvania | 16 | 15 | 15.6 | 4% | 7.1 | 5.3 | - 25% |
| Rhode Island | 2 | - 0.8 | - 1.4 | + 75% | 4.3 | 6.7 | + 55% |
| South Carolina | 25 | 15 | 16.6 | 11% | + 28.5 | + 26.4 | - 7% |
| South Dakota | 0 | - 0.6 | - 0.6 | 0% | - 2.9 | - 2.9 | 1% |
| Tennessee | 9 | 6.2 | 8 | 29% | + 18.1 | + 22.2 | + 23% |
| Texas | 65 | + 47.2 | + 53.8 | 14% | 17.4 | 16.2 | - 7% |
| Utah | 5 | 5.4 | 5.6 | 4% | 6.1 | 5.2 | - 15% |
| Vermont | 1 | - 0.2 | - 1 | + 400% | - 1.1 | 4.3 | + 301% |
| Virginia | 10 | 9.8 | 11.2 | 14% | 8.2 | 6.6 | - 19% |
| Washington | 17 | 9.8 | 12.2 | 24% | 4.1 | 4.0 | 0% |
| West Virginia | 1 | - 1.2 | - 1 | - 17% | 11.7 | 9.4 | - 20% |
| Wisconsin | 11 | 9.4 | 10.2 | 9% | 4.7 | 4.4 | - 6% |
| Wyoming | 1 | - 0.8 | - 1.2 | + 50% | - 2.8 | 4.7 | + 71% |

Bicyclist Fatalities: As a Percent of All Traffic Fatalities & Per Capita ⁴⁶

| STATES | BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES | | % CHANGE IN BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES | BICYCLIST FATALITIES PER 100K PERSONS 2012-2016 |
|----------------|-------------------------------------------------------|--------------|-------------------------------------------------------------------|----------------------------------------------------|
| | Avg. 2007-11 | Avg. 2012-16 | | |
| Alabama | - 0.6% | - 0.8% | 29% | 0.14 |
| Alaska | 2.0% | 1.8% | -10% | 0.16 |
| Arizona | + 2.5% | + 3.2% | 30% | + 0.41 |
| Arkansas | - 0.7% | 0.9% | 26% | 0.15 |
| California | + 3.4% | + 4.3% | 26% | + 0.35 |
| Colorado | 2.0% | 2.5% | 24% | + 0.24 |
| Connecticut | 2.0% | 1.3% | -33% | - 0.10 |
| Delaware | + 2.6% | 2.2% | -16% | + 0.28 |
| Florida | + 4.2% | + 5.1% | 24% | + 0.69 |
| Georgia | 1.3% | 1.8% | + 38% | 0.23 |
| Hawaii | + 2.4% | 2.0% | -19% | 0.14 |
| Idaho | 1.3% | 1.2% | -11% | 0.16 |
| Illinois | + 2.3% | + 2.7% | 15% | 0.21 |
| Indiana | 1.6% | 1.8% | 13% | 0.22 |
| Iowa | 1.4% | 1.3% | -3% | 0.15 |
| Kansas | 0.8% | 1.5% | + 78% | 0.19 |
| Kentucky | - 0.6% | - 0.8% | 33% | - 0.13 |
| Louisiana | 1.9% | + 2.9% | + 57% | + 0.46 |
| Maine | 0.7% | 1.5% | + 97% | 0.17 |
| Maryland | 1.3% | 1.7% | 32% | 0.14 |
| Massachusetts | 2.1% | + 2.8% | + 34% | 0.15 |
| Michigan | + 2.4% | + 2.9% | 19% | + 0.28 |
| Minnesota | 1.9% | 1.8% | -7% | - 0.13 |
| Mississippi | 0.9% | - 0.8% | -10% | 0.17 |
| Missouri | - 0.5% | - 0.8% | + 56% | - 0.11 |
| Montana | 0.7% | - 0.8% | 8% | 0.16 |
| Nebraska | 0.8% | - 0.6% | -24% | - 0.07 |
| Nevada | 2.3% | 2.3% | 2% | + 0.24 |
| New Hampshire | 1.8% | 2.0% | 12% | 0.18 |
| New Jersey | + 2.5% | + 2.6% | 7% | 0.17 |
| New Mexico | 1.6% | 1.6% | 0% | + 0.26 |
| New York | + 3.5% | + 3.7% | 5% | 0.21 |
| North Carolina | 1.7% | 1.6% | -2% | 0.22 |
| North Dakota | - 0.7% | 1.3% | + 91% | 0.22 |
| Ohio | 1.5% | 1.7% | 16% | 0.16 |
| Oklahoma | 0.8% | 1.0% | 25% | 0.17 |
| Oregon | + 2.9% | 1.9% | -33% | 0.19 |
| Pennsylvania | 1.1% | 1.3% | 16% | - 0.12 |
| Rhode Island | 1.2% | 2.3% | + 95% | - 0.13 |
| South Carolina | 1.6% | 1.9% | 12% | + 0.34 |
| South Dakota | - 0.5% | - 0.4% | -5% | - 0.07 |
| Tennessee | - 0.6% | - 0.8% | 34% | - 0.12 |
| Texas | 1.5% | 1.5% | 4% | 0.20 |
| Utah | 2.1% | 2.2% | 9% | 0.19 |
| Vermont | - 0.3% | 1.7% | + 513% | 0.16 |
| Virginia | 1.2% | 1.5% | 23% | 0.13 |
| Washington | 1.9% | + 2.5% | 27% | 0.17 |
| West Virginia | - 0.3% | - 0.4% | 4% | - 0.05 |
| Wisconsin | 1.5% | 1.8% | 15% | 0.18 |
| Wyoming | - 0.6% | - 0.8% | + 48% | 0.21 |

**FIGURE 2.6.4 -
BICYCLIST FATALITIES: AS
A PERCENT OF ALL TRAFFIC
FATALITIES & PER CAPITA**

Legend: Green = 10 lowest values;
Red = 10 highest values

Pedestrian Fatalities: Youth ⁴⁷, Seniors ⁴⁸, & People of Color ⁴⁹

FIGURE 2.6.5 - PEDESTRIAN FATALITIES: YOUTH, SENIORS, & PEOPLE OF COLOR (NOT WHITE ALONE, NON-HISPANIC)

Legend: **Green** = 10 lowest values; **Red** = 10 highest values

| STATES | % OF PEDESTRIAN FATALITIES WHO ARE YOUTH (UNDER AGE 18) | UNDER-REPRESENTATION OF YOUTH AMONG PEDESTRIAN FATALITIES (IN % POINTS) | % OF PEDESTRIAN FATALITIES WHO ARE SENIORS (AGE 65+) | OVER- OR UNDER-REPRESENTATION OF SENIORS AMONG PEDESTRIAN FATALITIES (IN % POINTS) | % OF PEDESTRIAN FATALITIES WHO ARE PPL OF COLOR | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG PEDESTRIAN FATALITIES (IN % POINTS) |
|----------------|---------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Alabama | 7% | -15.5 | 13% | -2.4 | 40% | 6.6 |
| Alaska | + 12% | -13.8 | 15% | 6.0 | + 63% | + 25.4 |
| Arizona | - 5% | -19.0 | 16% | 0.3 | 38% | -5.7 |
| Arkansas | 7% | -16.3 | 9% | -6.4 | 33% | 6.4 |
| California | 5% | -18.1 | 25% | + 12.0 | 39% | -22.2 |
| Colorado | 8% | -15.5 | 16% | 3.3 | 23% | -8.1 |
| Connecticut | 6% | -15.3 | 25% | 9.8 | 38% | 7.0 |
| Delaware | - 4% | -17.5 | 13% | -3.0 | 30% | -6.7 |
| Florida | 6% | -14.5 | 20% | 0.5 | 27% | -17.9 |
| Georgia | 8% | -16.8 | 11% | -1.1 | + 77% | + 30.8 |
| Hawaii | - 4% | -17.8 | 35% | + 18.5 | + 73% | -4.4 |
| Idaho | + 11% | -15.5 | 25% | 10.3 | - 9% | -7.9 |
| Illinois | 8% | -14.9 | 23% | 8.8 | 34% | -3.5 |
| Indiana | 9% | -15.1 | 15% | 1.2 | 39% | + 19.3 |
| Iowa | + 11% | + -12.0 | 24% | 7.8 | - 21% | 7.7 |
| Kansas | + 9% | -15.5 | 22% | 7.2 | 24% | 0.6 |
| Kentucky | 8% | -14.5 | 16% | 0.7 | - 18% | 3.2 |
| Louisiana | 6% | -17.8 | 9% | -4.3 | + 60% | + 18.9 |
| Maine | 6% | -13.3 | 34% | + 15.6 | - 15% | 9.1 |
| Maryland | - 5% | -17.4 | 16% | 2.6 | + 56% | 8.1 |
| Massachusetts | 5% | -15.1 | 35% | + 19.6 | 28% | 2.1 |
| Michigan | 8% | -14.1 | 14% | -1.0 | + 48% | + 24.1 |
| Minnesota | 9% | -14.1 | 29% | + 14.3 | 27% | 8.8 |
| Mississippi | 7% | -17.8 | 9% | -5.5 | + 51% | 8.1 |
| Missouri | 8% | -15.1 | 15% | -0.2 | 32% | + 12.3 |
| Montana | - 4% | -17.4 | 19% | 2.7 | 45% | + 31.6 |
| Nebraska | + 13% | + -11.3 | 22% | 8.0 | - 21% | 1.2 |
| Nevada | 6% | -17.4 | 24% | 9.9 | 32% | -16.7 |
| New Hampshire | 9% | + -11.3 | 35% | + 19.2 | - 4% | -5.2 |
| New Jersey | 6% | -16.9 | 26% | 11.1 | 36% | -7.0 |
| New Mexico | - 3% | -20.8 | 11% | -4.1 | + 50% | -11.6 |
| New York | 6% | -15.6 | 31% | + 15.8 | + 54% | 10.1 |
| North Carolina | + 9% | -13.6 | 12% | -2.3 | 41% | 4.6 |
| North Dakota | + 16% | + -6.6 | 10% | -4.6 | 35% | + 21.9 |
| Ohio | + 10% | + -13.0 | 16% | 0.2 | 27% | 6.7 |
| Oklahoma | - 5% | -19.0 | 12% | -2.1 | 38% | 5.1 |
| Oregon | - 5% | -16.6 | 22% | 5.7 | - 11% | -12.0 |
| Pennsylvania | 8% | + -13.2 | 27% | 9.9 | *PA did not code any race for any pedestrian fatalities | |
| Rhode Island | 5% | -14.6 | 36% | + 20.6 | 25% | -0.5 |
| South Carolina | 7% | -15.5 | 13% | -2.7 | 45% | 8.4 |
| South Dakota | + 13% | + -11.9 | 9% | -5.8 | 41% | + 23.5 |
| Tennessee | 6% | -16.8 | 17% | 1.6 | 36% | 10.2 |
| Texas | 7% | -19.5 | 13% | 1.9 | 38% | -18.8 |
| Utah | + 19% | + -11.2 | 15% | 5.3 | 21% | 0.5 |
| Vermont | 7% | + -12.4 | 31% | + 14.1 | - 0% | -6.6 |
| Virginia | - 5% | -17.6 | 20% | 6.0 | + 47% | + 10.6 |
| Washington | 7% | -15.5 | 26% | 11.6 | 26% | -3.7 |
| West Virginia | 7% | + -13.0 | 10% | -7.9 | - 5% | -2.6 |
| Wisconsin | 9% | -13.6 | 24% | 8.6 | 24% | 6.4 |
| Wyoming | - 4% | -19.7 | 32% | + 18.2 | - 12% | -3.6 |

Bicyclist Fatalities: Youth⁵⁰, Seniors⁵¹, & People of Color⁵²

FIGURE 2.6.6 - BICYCLIST FATALITIES: YOUTH, SENIORS, & PEOPLE OF COLOR (NOT WHITE ALONE, NON-HISPANIC)

Legend: **Green** = 10 lowest values; **Red** = 10 highest values

| STATE | % OF BICYCLIST FATALITIES WHO ARE YOUTH (UNDER AGE 18) | OVER- OR UNDER-REPRESENTATION OF YOUTH AMONG BICYCLIST FATALITIES (IN % POINTS) | % OF BICYCLIST FATALITIES WHO ARE SENIORS (AGE 65+) | OVER- OR UNDER-REPRESENTATION OF SENIORS AMONG BICYCLIST FATALITIES (IN % POINTS) | % OF BICYCLIST FATALITIES WHO ARE PPL OF COLOR | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG BICYCLIST FATALITIES (IN % POINTS) |
|----------------|--------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|
| Alabama | 14% | -8.5 | 9% | -6.8 | 31% | -2.4 |
| Alaska | + 50% | + 24.6 | - 0% | - 9.4 | 33% | -4.7 |
| Arizona | - 6% | - 18.2 | + 27% | + 11.1 | 15% | - 29.3 |
| Arkansas | + 57% | + 32.8 | 9% | -7.0 | 22% | -4.9 |
| California | - 5% | - 18.4 | + 16% | + 3.3 | 30% | - 31.4 |
| Colorado | 8% | -15.4 | 11% | -1.7 | - 8% | - 23.2 |
| Connecticut | + 28% | + 6.3 | + 22% | + 6.8 | + 37% | + 5.5 |
| Delaware | - 0% | - 21.8 | 15% | -1.1 | 23% | -13.4 |
| Florida | 7% | -13.5 | + 17% | -2.2 | 23% | - 21.8 |
| Georgia | 12% | -12.6 | - 7% | -5.4 | + 65% | + 18.8 |
| Hawaii | - 0% | - 21.7 | 10% | -6.1 | + 50% | - 27.6 |
| Idaho | + 31% | + 4.5 | - 0% | - 14.3 | - 8% | -9.4 |
| Illinois | 13% | -10.3 | 11% | -3.3 | 24% | -13.5 |
| Indiana | 8% | -15.6 | 7% | -7.3 | + 47% | + 27.4 |
| Iowa | 13% | -10.3 | + 17% | + 1.6 | 22% | + 8.7 |
| Kansas | 7% | -17.7 | 14% | -0.1 | 14% | -8.9 |
| Kentucky | + 31% | + 8.1 | - 7% | - 7.9 | - 10% | -4.3 |
| Louisiana | 19% | -5.0 | 8% | -6.1 | + 65% | + 24.7 |
| Maine | 18% | -1.3 | 9% | - 9.1 | 18% | + 11.9 |
| Maryland | 16% | -6.3 | 7% | -6.8 | + 47% | -1.0 |
| Massachusetts | 10% | -10.9 | 13% | -1.6 | 29% | 2.6 |
| Michigan | 6% | -15.9 | + 17% | + 1.1 | 37% | + 12.4 |
| Minnesota | + 23% | + -0.6 | 9% | -5.7 | 14% | -4.4 |
| Mississippi | 12% | -12.9 | 8% | -6.6 | 35% | -8.2 |
| Missouri | 13% | -10.4 | 9% | -6.0 | 31% | + 11.3 |
| Montana | + 38% | + 15.6 | - 0% | - 16.7 | 13% | -0.7 |
| Nebraska | - 0% | - 24.7 | 14% | -0.1 | - 0% | - 19.7 |
| Nevada | 12% | -11.6 | - 6% | - 8.2 | 24% | - 25.2 |
| New Hampshire | - 0% | - 20.0 | 8% | -7.5 | - 0% | -8.8 |
| New Jersey | 8% | -14.5 | - 7% | - 8.1 | 36% | -7.3 |
| New Mexico | - 4% | - 20.3 | 11% | -4.2 | 30% | - 31.7 |
| New York | 15% | -6.2 | 13% | -2.0 | + 45% | 1.3 |
| North Carolina | 12% | -10.9 | 11% | -3.6 | + 39% | 2.9 |
| North Dakota | + 25% | + 2.3 | + 17% | + 2.4 | 25% | + 11.4 |
| Ohio | 16% | -6.2 | + 16% | + 1.0 | 18% | -2.5 |
| Oklahoma | 6% | - 18.4 | 15% | 0.7 | 36% | 3.3 |
| Oregon | - 5% | -16.3 | 13% | -2.8 | - 5% | - 17.7 |
| Pennsylvania | 18% | -3.1 | 9% | -7.7 | *PA did not code any race for any bicyclist fatalities | |
| Rhode Island | 14% | -5.8 | + 43% | + 27.1 | 29% | 2.6 |
| South Carolina | 7% | -15.1 | 12% | -3.7 | + 37% | 1.2 |
| South Dakota | - 0% | - 24.4 | - 0% | - 15.2 | 33% | + 16.2 |
| Tennessee | 18% | -5.3 | 8% | -7.5 | 25% | -0.5 |
| Texas | 15% | -10.9 | 11% | 0.0 | + 37% | - 19.3 |
| Utah | 14% | -16.3 | 7% | -2.9 | 18% | -2.8 |
| Vermont | + 20% | + 0.7 | - 0% | - 17.0 | - 0% | -6.6 |
| Virginia | 11% | -11.7 | 16% | + 2.3 | 32% | -4.7 |
| Washington | 10% | -12.8 | 13% | -0.9 | 16% | -13.2 |
| West Virginia | + 40% | + 19.5 | - 0% | - 17.8 | - 0% | -7.6 |
| Wisconsin | 8% | -14.7 | 12% | -3.4 | - 10% | -8.0 |
| Wyoming | - 0% | - 23.7 | + 33% | + 19.5 | - 0% | -15.6 |



Family on bikes on trail, photo courtesy of Minnesota DOT (@Flickr)

Topic References

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42 Ralph Buehler and John Pucher. *American Journal of Public Health* (February 2017, Vol 107, No. 2). *Trends in Walking and Cycling Safety: Recent Evidence From High-Income Countries, With a Focus on the United States and Germany* see Figures 1 and 2 at p. 283. Available at <https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2016.303546>.

43 See footnotes 15 and 16.

44 See footnote 16 and U.S. Census Bureau. *American Community Survey Table B01003 5-year estimate* (2012-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

45 See footnotes 15 and 16.

46 See footnote 16 and U.S. Census Bureau. *American Community Survey Table B01003 5-year estimate* (2012-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

47 National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for Person Type and Race* (2012-2016). Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>. U.S. Census Bureau. *American Community Survey Table S0901 5-year estimate* (2012-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

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49 National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for Person Type and Race* (2012-2016). Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>. U.S. Census Bureau. *American Community Survey Table B0302 5-year estimate* (2012-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

50 See footnote 47.

51 See footnote 48.

52 See footnote 49.

2.7 - STATES: PLANS & POLICIES

This section – States: Plans and Policies – looks at public policies created by states and published through a formal process. These plans and policies provide a basis for coordination between state agencies, local agencies, and other entities so that all stakeholders involved in transportation decision making have a common understanding of the goals of the state and the policies and tools the state has adopted to accomplish its goals for bicycling and walking.

This section looks at three principle sources of public policy for bicycling and walking at the state level:

- **BICYCLE AND/OR PEDESTRIAN PLANS:** These plans can serve a variety of purposes and be developed in a variety of ways. In some states, such as Maryland, they are developed and coordinated with capital improvement plans. In others, such as Wyoming, they have been developed at the direction of the legislature. Common purposes for bicycle and/or pedestrian plans include reviewing relevant state policies, developing project prioritization processes, and coordinating policies and funding decisions with state and local stakeholders.
- **COMPLETE STREETS ACTIONS:** Complete Streets policies ensure that streets are planned, designed, and operated with the needs of all users in mind including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets actions can take a variety of forms, such as legislation, policies adopted by the state Department of Transportation, and design guidance that gives planners and engineers the tools to put a policy into practice.
- **STRATEGIC HIGHWAY SAFETY PLANS (SHSP):** The SHSP is required as part of receiving federal Highway Safety Improvement Program (SHSP) funding. It is a statewide-coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads.⁵³ Data from each state's SHSP is collected by the Federal Highway Administration's Roadway Safety Professional Capacity Building program and is interpreted into the categories identified in this report.



Tour de Fat in Fort Collins, photo courtesy of Fat Tire

Statewide Plans Supporting Improvements for Pedestrians & Bicyclists ^{5.4}

| | BIKE PLAN | PEDESTRIAN PLAN | COMBINED BIKE & PEDESTRIAN PLAN | FIRST YEAR ADOPTED | YR OF MOST RECENT PLAN ADOPTION |
|----------------|-----------|-----------------|---------------------------------|--------------------|---------------------------------|
| Alabama | | | • | 2010 | 2010 |
| Alaska | | | • | 1995 | 1995 |
| Arizona | | | • | 2003 | 2013 |
| Arkansas | | | • | 1998 | 2017 |
| California | | | • | 2016 | 2017 |
| Colorado | | | • | 2012 | 2015 |
| Connecticut | | | • | 2009 | 2009 |
| Delaware | • | • | | 2006 | 2018 |
| Florida | | | • | 2013 | 2013 |
| Georgia | • | | | 2006 | 2010 |
| Hawaii | • | • | | 1977 | 2003 |
| Idaho | | | • | Unknown | 2014 |
| Illinois | • | | | 2014 | 2014 |
| Indiana | | | • | Unknown | 2006 |
| Iowa | | | | None | None |
| Kansas | | | • | 1995 | 1995 |
| Kentucky | | | • | 2002 | 2002 |
| Louisiana | | | • | 1998 | 2009 |
| Maine | | | | None | None |
| Maryland | | | • | 2002 | 2014 |
| Massachusetts | • | • | | 1998 | 2008 |
| Michigan | | | • | 2016 | 2016 |
| Minnesota | • | | | 2005 | 2016 |
| Mississippi | | | | Unknown | None |
| Missouri | | | | Unknown | None |
| Montana | | | | Unknown | None |
| Nebraska | | | | Unknown | None |
| Nevada | • | | | 1990 | 2013 |
| New Hampshire | | | • | 1995 | 2000 |
| New Jersey | | | • | 1995 | 2016 |
| New Mexico | | | | None | None |
| New York | | | • | 1997 | 1997 |
| North Carolina | | | • | 2013 | 2013 |
| North Dakota | • | | | Unknown | 1994 |
| Ohio | | | • | 1989 | 1989 |
| Oklahoma | | | | None | None |
| Oregon | | | • | 1995 | 2016 |
| Pennsylvania | | | • | 1997 | 2007 |
| Rhode Island | | | | None | None |
| South Carolina | | | | None | None |
| South Dakota | | | | None | None |
| Tennessee | • | • | • | 2005 | 2011 |
| Texas | | | | None | None |
| Utah | • | | | 2014 | 2014 |
| Vermont | | | • | 1998 | 2008 |
| Virginia | • | • | | 2011 | 2011 |
| Washington | | | • | 2008 | 2008 |
| West Virginia | • | | | Unknown | 2012 |
| Wisconsin | • | • | | 1998 | 2002 |
| Wyoming | | | • | 2002 | 2002 |

FIGURE 2.7.1 - STATEWIDE PLANS SUPPORTING IMPROVEMENTS FOR PEDESTRIANS & BICYCLISTS

Legend:
Green = 10 first states to adopt a bike or pedestrian plan;
Red = State has never adopted a bike or pedestrian plan

Nearly One-Quarter of all states have never completed a bicycle or pedestrian statewide plan.

Since 2006, states have adopted 26 statewide bicycle and/or pedestrian plans, including 11 states that adopted such a plan for the first time.

Note regarding Figure 2.7.2 on the following page: More than One-Third of states have not taken an action to create a Complete Streets policy according to data from the National Complete Streets Coalition.

Nearly 70% of the states that have taken an action to create a Complete Streets policy took action for the first time after 2007.

Complete Streets Actions

FIGURE 2.7.2 - COMPLETE STREETS ACTIONS FOR INTEGRATING PEDESTRIANS & BICYCLISTS IN TRANSPORTATION PROJECTS Legend: **Green** = 10 first states to adopt a Complete Streets policy; **Red** = States has never adopted a Complete Streets policy

| STATE | FIRST YEAR OF ACTION ⁵⁵ | FIRST TYPE OF ACTION ⁵⁵ | YEAR OF MOST RECENT STATE ACTION (IF DIFFERENT) ⁵⁵ | # OF SUB-STATE ACTIONS IN EACH STATE ⁵⁵ | | REPORTED COMPLETE STREETS TRAINING ⁵⁶ |
|----------------|------------------------------------|------------------------------------|---------------------------------------------------------------|----------------------------------------------------|------------|--------------------------------------------------|
| | | | | Prior to & including 2007 | Since 2007 | |
| Alabama | None Taken | | | 0 | 17 | Yes |
| Alaska | None Taken | | | 0 | 3 | No |
| Arizona | None Taken | | | 0 | 7 | No |
| Arkansas | None Taken | | | 0 | 5 | Yes |
| California | 2001 | DOT Policy | 2008 | 7 | 103 | Yes |
| Colorado | 2009 | DOT Policy | 2010 | 3 | 4 | Yes |
| Connecticut | 2009 | DOT Policy | 2014 | 0 | 12 | No |
| Delaware | 2009 | DOT Policy | | 0 | 1 | Yes |
| Florida | 1984 | Legislation | 2014 | 2 | 73 | Yes |
| Georgia | 2012 | DOT Policy | | 0 | 24 | Yes |
| Hawaii | 2009 | Legislation | | 0 | 5 | No |
| Idaho | None Taken | | | 0 | 7 | No |
| Illinois | 2007 | Legislation | | 1 | 52 | No |
| Indiana | 2014 | DOT Policy | | 0 | 23 | Yes |
| Iowa | None Taken | | | 2 | 32 | Yes |
| Kansas | None Taken | | | 0 | 12 | No |
| Kentucky | 2002 | DOT Policy | | 0 | 12 | Yes |
| Louisiana | 2010 | DOT Policy | 2010 | 0 | 8 | Yes |
| Maine | 2014 | DOT Policy | | 0 | 11 | Yes |
| Maryland | 2000 | Legislation | 2012 | 0 | 14 | Yes |
| Massachusetts | 1996 | Design Guide | 2013 | 1 | 182 | Yes |
| Michigan | 2010 | Legislation | 2012 | 4 | 101 | No |
| Minnesota | 2010 | Legislation | 2016 | 0 | 47 | Yes |
| Mississippi | 2010 | DOT Policy | | 0 | 10 | No |
| Missouri | 2011 | Resolution | | 2 | 44 | Yes |
| Montana | None Taken | | | 0 | 12 | No |
| Nebraska | None Taken | | | 0 | 5 | No |
| Nevada | 2017 | DOT Policy | | 0 | 5 | Yes |
| New Hampshire | None Taken | | | 0 | 18 | No |
| New Jersey | 2009 | DOT Policy | 2017 | 0 | 156 | Yes |
| New Mexico | 2017 | Resolution | | 0 | 12 | No |
| New York | 2011 | Legislation | | 0 | 125 | Yes |
| North Carolina | 2000 | DOT Policy | 2012 | 0 | 15 | Yes |
| North Dakota | None Taken | | | 0 | 1 | No |
| Ohio | None Taken | | | 2 | 22 | No |
| Oklahoma | None Taken | | | 0 | 10 | No |
| Oregon | 1971 | Legislation | | 0 | 2 | No |
| Pennsylvania | 2007 | DOT Policy | | 0 | 13 | Yes |
| Rhode Island | 1997 | Legislation | 2012 | 0 | 9 | No |
| South Carolina | 2003 | Resolution | 2003 | 1 | 14 | Yes |
| South Dakota | None Taken | | | 0 | 1 | Not Reported |
| Tennessee | 2003 | DOT Policy | 2015 | 0 | 12 | No |
| Texas | 2011 | DOT Policy | | 2 | 12 | No |
| Utah | 2013 | DOT Policy | | 0 | 5 | Yes |
| Vermont | 2008 | Legislation | 2011 | 0 | 0 | Yes |
| Virginia | 2004 | DOT Policy | 2004 | 0 | 9 | Yes |
| Washington | 2011 | Legislation | | 3 | 96 | Yes |
| West Virginia | 2013 | Legislation | | 0 | 8 | No |
| Wisconsin | None Taken | | | 1 | 15 | No |
| Wyoming | None Taken | | 50% | 1 | 0 | No |

State Goals & Support for Efforts to Reach Zero Traffic Deaths

FIGURE 2.7.3 - STATE GOALS & SUPPORT FOR EFFORTS TO REACH ZERO TRAFFIC DEATHS

Legend: **Green** = Agency participating in Road to Zero Coalition
Red = Strategic Highway Safety Plan does not support Toward Zero Deaths National Strategy

| STATE | ROAD TO ZERO COALITION MEMBER ⁵⁷ | HIGHLIGHTED STRATEGIC HIGHWAY SAFETY PLAN (SHSP) GOAL ⁵⁸ | SHSP SUPPORTS TOWARD ZERO DEATHS NAT'L STRATEGY ⁵⁸ | PUBLISHED YEAR OF SHSP ⁵⁸ |
|---------------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------|
| Alabama | | Reduce fatalities and serious injuries by 50 percent by 2035. | Yes | 2017 |
| Alaska | | Reduce the rate of fatalities and major injuries by one third over the next 10 years. | Yes | 2013 |
| Arizona | Arizona DOT | Reduce fatalities and the occurrence and severity of serious injuries on all public roadways in Arizona. | Yes | 2014 |
| Arkansas | Arkansas Highway & Transportation Department | Reduce the number of non-motorized fatalities and serious injuries to 131 by 2022. | Yes | 2017 |
| California | | Toward Zero Deaths | Yes | 2015 |
| Colorado | | Towards Zero Deaths (TZD)... For Colorado,... means saving an average of one life per month or reducing fatalities from 548 in 2008 to 416 by 2019. | Yes | 2014 |
| Connecticut | Connecticut DOT | Reduce the number of fatalities and serious injuries on all public roads in Connecticut 15 percent by 2021 (based on a 5-year moving average). | No | 2017 |
| Delaware | | Achieve a reduction of at least 3 fatalities and 15 serious injuries annually and continue to reduce the total number of fatalities and serious injuries to achieve at least a 50 percent reduction by 2035. | Yes | 2015 |
| Florida | Florida Department of Transportation | None Listed | Yes | 2016 |
| Georgia | | Reduce total traffic fatalities by 9% from 1,222 (2010-2012 average) to 1,111 (2013-2015 average) in 2015. | Yes | 2015 |
| Hawaii | | Reduce yearly fatalities from 100 to 80 or fewer by 2018, toward the ultimate goal of zero deaths. | Yes | 2014 |
| Idaho | | Reduce number of traffic deaths to 185 or fewer. | Yes | 2016 |
| Illinois | Illinois DOT | The ILSHSP "Zero Fatalities" goal, established at the 2008 Illinois Safety Summit, envisions reducing fatalities on Illinois roads to zero in the long term. | Yes | 2017 |
| Indiana | | Move toward zero deaths resulting from traffic crashes. | Yes | 2016 |
| Iowa | | A fatality rate of 1 per 100 million vehicle-miles traveled (VMT) and a rate for serious injuries at 4.3 per 100 million VMT by 2020. | Yes | 2016 |
| Kansas | | Reduce fatalities and disabling injuries by half in 20 years (base period 2005 to 2009). | Yes | 2014 |
| Kentucky | | Achieving a 50 percent reduction in average annual fatalities between 2014 and 2030 and moving Kentucky roadways Toward Zero Deaths. | Yes | 2015 |
| Louisiana | Louisiana Center for Transportation Safety | To halve fatalities by 2030. | Yes | 2017 |
| Maine | | Maine's overall safety goal is to drive safety performance toward zero deaths. | Yes | 2017 |
| Maryland | | Reduce the annual number of traffic-related fatalities on all roads in Maryland from 466 in 2013 to 387 or fewer by December 31, 2020. | Yes | 2016 |
| Massachusetts | MassDOT | Halve the number of fatalities and serious injuries by 2030 (Interim Goal); and Move Toward Zero Deaths and eliminate fatalities and serious injuries on the roadways (Long-Term Goal). | Yes | 2013 |
| Michigan | Michigan Department of State | Prevent traffic fatalities from reaching 967 in 2018. Prevent serious traffic injuries from reaching 4,600 in 2018. | Yes | 2016 |
| Minnesota | Minnesota Office of Traffic Safety | Zero roadway fatalities. | Yes | 2014 |
| Mississippi | | Reduce the number of traffic fatalities by 25% to 525 by 2017. | Yes | 2014 |
| Missouri | | NO lives are lost due to a traffic crash. | Yes | 2016 |

FIGURE 2.7.3 (CONTINUED) - STATE GOALS & SUPPORT FOR EFFORTS TO REACH ZERO TRAFFIC DEATHS

Legend: **Green** = Agency participating in Road to Zero Coalition

Red = Strategic Highway Safety Plan does not support Toward Zero Deaths National Strategy

| STATE | ROAD TO ZERO COALITION MEMBER ⁵⁷ | HIGHLIGHTED STRATEGIC HIGHWAY SAFETY PLAN (SHSP) GOAL ⁵⁸ | SHSP SUPPORTS TOWARD ZERO DEATHS NAT'L STRATEGY ⁵⁸ | PUBLISHED YEAR OF SHSP ⁵⁸ |
|----------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------|
| Montana | | Interim goal of halving fatalities and serious injuries from 1,705 in 2007 to 852 in 2030. | Yes | 2015 |
| Nebraska | Nebraska DOT Highway Safety Office | To reduce traffic fatalities per 100 million VMT from 1.10 (2011-2015 average fatality rate) to 0.90 fatalities by December 31, 2021. The State's ultimate goal is toward zero deaths. | Yes | 2017 |
| Nevada | Nevada Office of Traffic Safety | The overall goal for Nevada is Zero Fatalities. Specifically Nevada will need to: Reduce annual fatalities [by half] by 2030 and reduce serious injuries [by half] by 2030. | Yes | 2016 |
| New Hampshire | | Though our overall goal is to realize zero fatalities, we have set a plan goal of reducing the number of fatalities and serious injuries by 50 percent from 2010 by the year 2030. | Yes | 2017 |
| New Jersey | | To achieve its long-term vision, New Jersey has established a 2.5% per year reduction in the 5-year rolling average of fatalities and serious injuries. | Yes | 2015 |
| New Mexico | New Mexico DOT & NMDOT Traffic Safety Division | Reduce fatalities and serious injuries for all users on all New Mexico roadways. | No | 2017 |
| New York | | Reduce non-motorized fatalities and serious injuries from the 5-year moving average of 2,872 in 2015 to 2,493 in 2022. | No | 2017 |
| North Carolina | North Carolina DOT Rail Division | Cut the fatalities and serious injuries in North Carolina in half based on the 2013 figures,... before 2030. | Yes | 2015 |
| North Dakota | | Reduce the 3 year average of traffic fatalities to 100 or fewer by 2020. | Yes | 2013 |
| Ohio | | Reduce the number of fatalities from 1,046 to 965 between 2013 and 2017. | Yes | 2015 |
| Oklahoma | | Fatalities are to be held to or below: [Number given for each of next four years] | Yes | 2015 |
| Oregon | | Healthy, Livable Communities - Plan, design, and implement safe systems. Support enforcement and emergency medical services to improve the safety and livability of communities, including improved health outcomes. | Yes | 2016 |
| Pennsylvania | | Reduce average fatalities and serious injuries to support the national effort of ending fatalities on our nation's roads within the next 30 years. | Yes | 2017 |
| Rhode Island | Rhode Island DOT | Adopt the goal of "Toward Zero Deaths" with an interim goal to halve fatalities and serious injuries by 2030. | Yes | 2012 |
| South Carolina | | Zero traffic fatalities. | Yes | 2015 |
| South Dakota | | Reduce the fatal and serious-injury crash rates by 15 percent by 2020. | No | 2014 |
| Tennessee | Tennessee DOT | Fatalities: Reduce the number of fatalities by 10% within the next five years. | Yes | 2015 |
| Texas | | None Listed | Yes | 2017 |
| Utah | | In our quest to reach Zero Fatalities, the State of Utah has adopted the AASHTO goal of reducing fatalities by 2.5 percent per year. | Yes | 2015 |
| Vermont | | Reduce major crashes in Vermont another 10%. | Yes | 2017 |
| Virginia | Virginia Department of Motor Vehicles | Reduce deaths and serious injuries by 50% by 2030. | Yes | 2017 |
| Washington | Washington Traffic Safety Commission | Target Zero | Yes | 2016 |
| West Virginia | | To achieve a 50-percent reduction in fatalities by 2030 and a 66 percent reduction in serious injuries by 2030. | Yes | 2017 |
| Wisconsin | | By 2020: 10% reduction in number of non-motorized fatalities and non-motorized serious injuries (5% reduction each year) | No | 2017 |
| Wyoming | Wyoming DOT | Steer the state of Wyoming "Towards Zero Deaths." All travelers in Wyoming, whether they drive, ride, walk, or ride a bike should safely arrive at their destinations. | Yes | 2017 |

State Strategic Highway Safety Plan Emphasis Areas & Strategies for Biking & Walking Safety

FIGURE 2.7.4 - STATE STRATEGIC HIGHWAY SAFETY PLAN EMPHASIS AREAS & STRATEGIES FOR BIKING & WALKING SAFETY

Legend: **Green** = 10 lowest values; **Red** = 10 highest values

| STATE | AVERAGE (2012-2016) | | NAME OF BICYCLIST SAFETY EMPHASIS AREA ⁶⁰ | NAME OF PEDESTRIAN SAFETY EMPHASIS AREA ⁶⁰ | MOST COMMON BICYCLIST SAFETY STRATEGY ⁶⁰ | MOST COMMON PEDESTRIAN SAFETY STRATEGY ⁶⁰ |
|---------------|---------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------|
| | BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES ⁵⁹ | PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES ⁵⁹ | | | | |
| Alabama | 0.8% | 10.0% | | | | |
| Alaska | 1.8% | 15.4% | | | | |
| Arizona | 3.2% | 17.6% | Nonmotorized Users - Bicyclists | Nonmotorized Users - Pedestrians | Tie (Education & Legislative/Policy/Programmatic) | Engineering |
| Arkansas | 0.9% | 8.4% | Vulnerable Road User - Bicyclists/Pedestrians | | Tie (Enforcement/Adjudication & Engineering) | |
| California | 4.3% | 23.6% | Bicycling | Pedestrians | Tie (Education & Engineering) | Engineering |
| Colorado | 2.5% | 12.6% | Bicyclists & Pedestrians | | Engineering | Engineering |
| Connecticut | 1.3% | 16.8% | Non-Motorized Road Users - Pedestrians, Bicyclists | | Tie (Education, Engineering & Legislative/Policy/Programmatic) | |
| Delaware | 2.2% | 24.3% | | Pedestrians | | Engineering |
| Florida | 5.1% | 21.2% | Pedestrians & Bicyclists | | Legislative/Policy/Programmatic | |
| Georgia | 1.8% | 14.3% | | Non-Motorized Users - Pedestrians | Education | Tie (Education & Engineering) |
| Hawaii | 2.0% | 23.9% | Safeguarding Pedestrians & Bicyclists | | Legislative/Policy/Programmatic | |
| Idaho | 1.2% | 6.2% | Vulnerable Roadway Users - Bicycle & Pedestrian | | Education | Education |
| Illinois | 2.7% | 13.8% | Pedalcyclist | Pedestrians | Education | Engineering |
| Indiana | 1.8% | 10.0% | Bicycle Involved Crashes | Pedestrian Involved Crashes | Engineering | Engineering |
| Iowa | 1.3% | 6.2% | | | | |
| Kansas | 1.5% | 7.2% | | | | |
| Kentucky | 0.8% | 8.4% | Non-Motorized Users | Non-Motorized Users | Education | Education |
| Louisiana | 2.9% | 15.2% | | | | |
| Maine | 1.5% | 8.5% | Bicyclists | Pedestrians | Education | Education |
| Maryland | 1.7% | 20.9% | Pedestrians & Bicyclists | | Education | Education |
| Massachusetts | 3.0% | 22.3% | Bicycles | Pedestrians | Education | Engineering |
| Michigan | 2.9% | 15.7% | Pedestrian & Bicycle Safety | | Tie (Education & Legislative/Policy/Programmatic) | |
| Minnesota | 1.8% | 9.3% | Bicyclists | Pedestrians | Not Specified | Not Specified |
| Mississippi | 0.8% | 8.7% | | | | |
| Missouri | 0.8% | 10.1% | Vulnerable Roadway Users - Bicyclists | Vulnerable Roadway Users - Pedestrians | Education | Engineering |
| Montana | 0.8% | 6.3% | | | | |
| Nebraska | 0.6% | 6.0% | | | | |
| Nevada | 2.3% | 23.0% | | Pedestrians | | Engineering |
| New Hampshire | 2.0% | 9.7% | | | | |
| New Jersey | 2.6% | 27.5% | Pedestrians & Bicyclists | | Engineering | Engineering |
| New Mexico | 1.6% | 17.7% | Bicycles | Pedestrians | Legislative/Policy/Programmatic | Engineering |

FIGURE 2.7.4 (CONTINUED) - STATE STRATEGIC HIGHWAY SAFETY PLAN EMPHASIS AREAS & STRATEGIES FOR BIKING & WALKING SAFETY

Legend: **Green** = 10 lowest values; **Red** = 10 highest values

| STATE | AVERAGE (2012-2016) | | NAME OF BICYCLIST SAFETY EMPHASIS AREA ⁶⁰ | NAME OF PEDESTRIAN SAFETY EMPHASIS AREA ⁶⁰ | MOST COMMON BICYCLIST SAFETY STRATEGY ⁶⁰ | MOST COMMON PEDESTRIAN SAFETY STRATEGY ⁶⁰ |
|----------------|---------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------|
| | BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES ⁵⁹ | PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES ⁵⁹ | | | | |
| New York | 3.7% | 27.3% | | | | |
| North Carolina | 1.6% | 13.8% | Pedestrians & Bicyclists | | Education | Education |
| North Dakota | 1.9% | 4.6% | | | | |
| Ohio | 1.7% | 9.9% | Special Vehicles and Roadway Users - Bicycle Riders | Special Vehicles and Roadway Users - Pedestrians | Tie (Education & Engineering) | Education |
| Oklahoma | 1.0% | 9.8% | | | | |
| Oregon | 1.9% | 15.5% | Vulnerable Users - Bicyclists | Vulnerable Users - Pedestrians | Engineering | Engineering |
| Pennsylvania | 1.3% | 13.0% | Improving Bicycle Safety | Improving Pedestrian Safety | Tie (Education & Engineering) | Engineering |
| Rhode Island | 2.3% | 20.3% | | | | |
| South Carolina | 1.9% | 13.4% | Vulnerable Roadway Users - Bicyclists | Vulnerable Roadway Users - Pedestrians | Education | Tie (Education, Enforcement/Adjudication, Engineering) |
| South Dakota | 0.7% | 4.9% | | | | |
| Tennessee | 0.8% | 8.8% | Vulnerable Road Users - Bicyclists, Pedestrians, Senior Drivers, Motorcycles, Nonmotorized Road Users | | Legislative/Policy/Programmatic | |
| Texas | 1.5% | 15.1% | | Pedestrian Safety | | Engineering |
| Utah | 2.2% | 13.5% | Bicycle Safety | Pedestrian Safety | Education | Engineering |
| Vermont | 1.7% | 9.4% | Vulnerable Users & Motorcyclists Safety - Increase Bicyclist Safety | Vulnerable Users & Motorcyclists Safety - Increase Pedestrian Safety | Education | Education |
| Virginia | 1.5% | 12.3% | Bicycles | Pedestrians | Education | Education |
| Washington | 2.5% | 14.8% | Bicyclists | Pedestrians | Tie (Education & Engineering) | Engineering |
| West Virginia | 0.4% | 8.1% | | | | |
| Wisconsin | 1.8% | 8.3% | Improve Non-Motorist Safety | | Tie (Education & Engineering) | |
| Wyoming | 0.8% | 4.1% | Bicycle & Pedestrian | | Not Specified | Not Specified |

“Most Common Strategies” were calculated by a simple count of all of strategies listed in the document and does not judge the relative resources devoted to each strategy or strategy type. The intent is to give readers an idea of the types of strategies that states are most often using to address bicyclist and pedestrian safety.

State Biking & Walking Design Guidance

FIGURE 2.7.5 - STATE BIKING & WALKING DESIGN GUIDANCE

Legend: **Green** = State has design guidance indicated

| STATE | STATE HAS ENDORSED NACTO URBAN BIKEWAY DESIGN GUIDE ⁶¹ | STATE HAS ENDORSED NACTO URBAN STREET DESIGN GUIDE ⁶² | STATE HAS BIKE DESIGN GUIDE W/ GUIDANCE ON SEPARATED &/OR PROTECTED BIKE LANES ⁶³ |
|----------------|-------------------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Alabama | No | No | Yes |
| Alaska | No | No | Not Available |
| Arizona | No | No | No |
| Arkansas | No | No | Yes |
| California | Yes | Yes | Yes |
| Colorado | Yes | Yes | Yes |
| Connecticut | No | No | Yes |
| Delaware | Yes | Yes | Yes |
| Florida | No | Yes | Yes |
| Georgia | Yes | No | Yes |
| Hawaii | No | No | Not Available |
| Idaho | No | No | Not Available |
| Illinois | No | No | No |
| Indiana | No | No | Yes |
| Iowa | No | No | No |
| Kansas | No | No | Yes |
| Kentucky | No | No | Not Available |
| Louisiana | No | No | Yes |
| Maine | No | No | Yes |
| Maryland | No | No | Yes |
| Massachusetts | Yes | Yes | Yes |
| Michigan | No | No | Yes |
| Minnesota | No | Yes | Yes |
| Mississippi | No | No | Yes |
| Missouri | No | No | Yes |
| Montana | No | No | Yes |
| Nebraska | No | No | No |
| Nevada | No | No | No |
| New Hampshire | No | No | No |
| New Jersey | No | No | Yes |
| New Mexico | No | No | No |
| New York | No | No | Yes |
| North Carolina | No | No | Yes |
| North Dakota | No | No | Yes |
| Ohio | No | No | Yes |
| Oklahoma | No | No | No |
| Oregon | Yes | Yes | Yes |
| Pennsylvania | No | No | Yes |
| Rhode Island | No | No | No |
| South Carolina | No | No | Yes |
| South Dakota | No | No | Not Available |
| Tennessee | No | Yes | Yes |
| Texas | No | No | No |
| Utah | No | Yes | Yes |
| Vermont | No | No | No |
| Virginia | Yes | No | Yes |
| Washington | Yes | Yes | Yes |
| West Virginia | No | No | Yes |
| Wisconsin | No | No | No |
| Wyoming | No | No | No |



Baltimore Bike Share, photo by Paul Wasneski (@Flickr)

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2.8 - STATES: TRAFFIC LAWS & TRAINING FOR PEDESTRIAN & BICYCLIST SAFETY

This section – States: Traffic Laws & Training for Pedestrian and Bicyclist Safety – looks at state laws and driving training that is related to bicycle and pedestrian safety.

Over the course of the Benchmarking project there have been several notable developments in bicycle-related laws, including the proliferation of safe passing laws and the development of laws that regulate the use of electrically-assisted bicycles.

Distracted driving and automated enforcement laws – which can be found in Figure 2.8.2 – have been the subject of much interest in recent years. According to the National Conference of State Legislatures, 44 states considered over 230 distracted driving-related bills and 24 states considered 85 automated enforcement bills in 2017.⁶⁴ These laws often have limitations on their application to drivers or other complexities that are difficult to report in a table.

For Figure 2.8.2, the following notes will help you interpret the data reported:

- **LIMITED** – Law is limited to a specific type of person or specific locations and/or circumstances
- **PRIMARY** – Law can be enforced due to its own violation
- **SECONDARY** – Law can only be enforced if there is another violation as well



Laws That Promote Pedestrian & Bicyclist Safety

FIGURE 2.8.1 - LAWS THAT PROMOTE PEDESTRIAN & BICYCLIST SAFETY Legend: Green = Law protects a bicyclist or pedestrian

| STATE | MOTORIST MUST GIVE 3+ FT WHEN PASSING A BICYCLIST ⁶⁵ | VULNERABLE ROAD USER DEFINED BY STATE LAW ⁶⁵ | STATE LAW REGULATE WHETHER & HOW A BICYCLE MAY BE RIDDEN ON A SIDEWALK ⁶⁵ | STATE LAW REQUIRES DRIVERS TO STOP FOR PEDESTRIANS IN CROSSWALKS ⁶⁶ | STATE LAW REQUIRES DRIVERS TO STOP FOR PEDESTRIANS IN UNMARKED CROSSWALKS ⁶⁶ |
|----------------|-----------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Alabama | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| Alaska | No | No | Yes | Only yield required | Not addressed |
| Arizona | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| Arkansas | Yes | No | No | Stop Required only if needed to Yield | Yes, at intersections |
| California | Yes | No | No | Only yield required | Yes, at intersections |
| Colorado | Yes | No | Yes | Stop Required only if needed to Yield | Not addressed |
| Connecticut | Yes | Yes | Yes | Stop Required only if needed to Yield | Yes |
| Delaware | Yes | Yes | Yes | Stop Required only if needed to Yield | Not addressed |
| Florida | Yes | Yes | Yes | Stop Required only if needed to Yield | Not addressed |
| Georgia | Yes | No | Yes | Yes | Not addressed |
| Hawaii | Yes | Yes | Yes | Yes | Not addressed |
| Idaho | No | No | Yes | Stop Required only if needed to Yield | Not addressed |
| Illinois | Yes | No | Yes | Yes | Not addressed |
| Indiana | No | No | No | Stop Required only if needed to Yield | Not addressed |
| Iowa | No | No | No | Stop Required only if needed to Yield | Yes, at intersections |
| Kansas | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| Kentucky | No | No | Yes | Stop Required only if needed to Yield | Not addressed |
| Louisiana | Yes | No | No | Yes | Not addressed |
| Maine | Yes | Yes | No | Only yield required | No, Marked only |
| Maryland | Yes | No | No | Yes | Not addressed |
| Massachusetts | No | No | Yes | Stop Required only if needed to Yield | No, Marked only |
| Michigan | Yes | No | Yes | No law found | No law found |
| Minnesota | Yes | No | Yes | Yes | Yes, at intersections |
| Mississippi | Yes | No | No | Stop Required only if needed to Yield | Yes, at intersections |
| Missouri | No | No | Yes | Stop Required only if needed to Yield | Not addressed |
| Montana | No | No | Yes | Stop Required only if needed to Yield | Yes, at intersections |
| Nebraska | Yes | No | Yes | Yes | Not addressed |
| Nevada | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| New Hampshire | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| New Jersey | No | No | Yes | Yes | Yes, at intersections |
| New Mexico | No | No | No | Stop Required only if needed to Yield | Not addressed |
| New York | No | No | No | Stop Required only if needed to Yield | Not addressed |
| North Carolina | No | No | No | Stop Required only if needed to Yield | Yes, at or near intersections |
| North Dakota | No | No | No | Stop Required only if needed to Yield | Not addressed |
| Ohio | Yes | No | Yes | Stop Required only if needed to Yield | Not addressed |
| Oklahoma | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| Oregon | Yes, "fall over distance" | Yes | Yes | Yes | Not addressed |
| Pennsylvania | Yes | No | Yes | Only yield required | Yes, at intersections |
| Rhode Island | Yes, "fall over distance" | No | Yes | Stop Required only if needed to Yield | Not addressed |
| South Carolina | No | No | No | Stop Required only if needed to Yield | Not addressed |
| South Dakota | Yes | No | Yes | Only yield required | Yes, at intersections |
| Tennessee | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| Texas | No | No | No | Only yield required | Not addressed |
| Utah | Yes | Yes | Yes | Stop Required only if needed to Yield | Not addressed |
| Vermont | No | Yes | No | Stop Required only if needed to Yield | Not addressed |
| Virginia | Yes | No | Yes | Only yield required | Yes, at some types of intersections |
| Washington | No | Yes | Yes | Yes | Yes |
| West Virginia | Yes | No | No | Stop Required only if needed to Yield | Not addressed |
| Wisconsin | Yes | No | Yes | Only yield required | Yes |
| Wyoming | Yes | No | No | Stop Required only if needed to Yield | Not addressed |

Laws That Combat Bad Driving Behaviors

FIGURE 2.8.2 - LAWS THAT COMBAT BAD DRIVING BEHAVIORS

Legend: **Green** = Law combats bad driving behavior; **Red** = Law does not combat bad driving behavior

| STATE | STATE LAW ALLOWS SPEED ENFORCEMENT CAMERAS ⁶⁷ | STATE LAW ALLOWS RED LIGHT ENFORCEMENT CAMERAS ⁶⁷ | STATE LAW PROHIBITS TEXTING WHILE DRIVING ⁶⁸ | STATE LAW PROHIBITS USING A HANDHELD DEVICE WHILE DRIVING ⁶⁸ |
|----------------|----------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------|
| Alabama | No state law or programs | Yes-Limited | Yes (primary) | No |
| Alaska | No state law or programs | No state law or programs | Yes (primary) | No |
| Arizona | Yes- Permitted | Yes- Permitted | Yes-limited (secondary) | No |
| Arkansas | Prohibited. w/ narrow exceptions | Prohibited, w/ narrow exceptions | Yes (primary) | Yes-limited (primary) |
| California | No state law or programs | Yes- Permitted | Yes (primary) | Yes (primary) |
| Colorado | Yes-Limited | Yes- Permitted | Yes (primary) | No |
| Connecticut | No state law or programs | No state law or programs | Yes (primary) | Yes (primary) |
| Delaware | No state law or programs | Yes- Permitted | Yes (primary) | Yes (primary) |
| Florida | No state law or programs | Yes- Permitted | Yes (secondary) | No |
| Georgia | No state law or programs | Yes- Permitted | Yes (primary) | Yes (primary) |
| Hawaii | No state law or programs | No state law or programs | Yes (primary) | Yes (primary) |
| Idaho | No state law or programs | No state law or programs | Yes (primary) | No |
| Illinois | Yes-Limited | Yes-Limited | Yes (primary) | Yes (primary) |
| Indiana | No state law or programs | No state law or programs | Yes (primary) | No |
| Iowa | No state law, but programs exist | No state law, but programs exist | Yes (primary) | No |
| Kansas | No state law or programs | No state law or programs | Yes (primary) | No |
| Kentucky | No state law or programs | No state law or programs | Yes (primary) | No |
| Louisiana | Yes-Limited | Yes-Limited | Yes (primary) | Yes-limited (primary) |
| Maine | Prohibited | Prohibited | Yes (primary) | No |
| Maryland | Yes-Limited | Yes- Permitted | Yes (primary) | Yes (primary) |
| Massachusetts | No state law or programs | No state law or programs | Yes (primary) | No |
| Michigan | No state law or programs | No state law or programs | Yes (primary) | No |
| Minnesota | No state law or programs | No state law or programs | Yes (primary) | No |
| Mississippi | Prohibited | Prohibited | Yes (primary) | No |
| Missouri | No state law, but programs exist | No state law, but programs exist | Yes-limited (primary) | No |
| Montana | Prohibited | Prohibited | No | No |
| Nebraska | No state law or programs | No state law or programs | Yes (secondary) | No |
| Nevada | Prohibited, w/ narrow exceptions | Prohibited, w/ narrow exceptions | Yes (primary) | Yes (primary) |
| New Hampshire | Prohibited | Prohibited | Yes (primary) | Yes (primary) |
| New Jersey | Prohibited | Prohibited | Yes (primary) | Yes (primary) |
| New Mexico | Yes-Limited | Yes-Limited | Yes (primary) | Yes-limited |
| New York | Yes-Limited | Yes-Limited | Yes (primary) | Yes (primary) |
| North Carolina | No state law or programs | Yes-Limited | Yes (primary) | No |
| North Dakota | No state law or programs | No state law or programs | Yes (primary) | No |
| Ohio | Prohibited, w/ narrow exceptions | Prohibited, w/ narrow exceptions | Yes (secondary) | No |
| Oklahoma | No state law or programs | No state law or programs | Yes (primary) | Yes-limited (primary) |
| Oregon | Yes-Limited | Yes- Permitted | Yes (primary) | Yes (primary) |
| Pennsylvania | No state law or programs | Yes-Limited | Yes (primary) | No |
| Rhode Island | No state law or programs | Yes- Permitted | Yes (primary) | Yes (primary) |
| South Carolina | Prohibited | Prohibited | Yes (primary) | No |
| South Dakota | No state law or programs | No state law or programs | Yes (secondary) | No |
| Tennessee | Yes- Permitted | Yes- Permitted | Yes-limited (primary) | Yes-limited |
| Texas | Prohibited | Yes-Limited | Yes (primary) | No |
| Utah | Prohibited, w/ narrow exceptions | No state law or programs | Yes (primary) | No |
| Vermont | No state law or programs | No state law or programs | Yes (primary) | Yes (primary) |
| Virginia | No state law or programs | Yes-Limited | Yes (primary) | No |
| Washington | Yes-Limited | Yes-Limited | Yes (primary) | Yes (primary) |
| West Virginia | Prohibited | Prohibited | Yes (primary) | Yes (primary) |
| Wisconsin | Prohibited | Prohibited | Yes (primary) | No |
| Wyoming | No state law or programs | No state law or programs | Yes (primary) | No |

Maps of State Laws ⁶⁹

FIGURE 2.8.3A - 3 FOOT+ PASSING LAWS

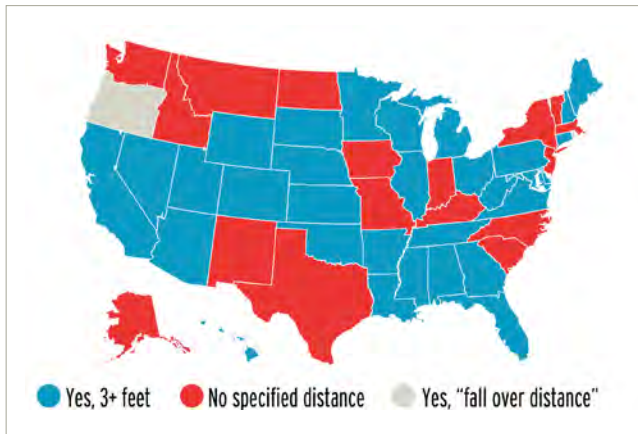


FIGURE 2.8.3B - STATE LAW REGULATES WHETHER & HOW BICYCLES CAN USE SIDEWALKS

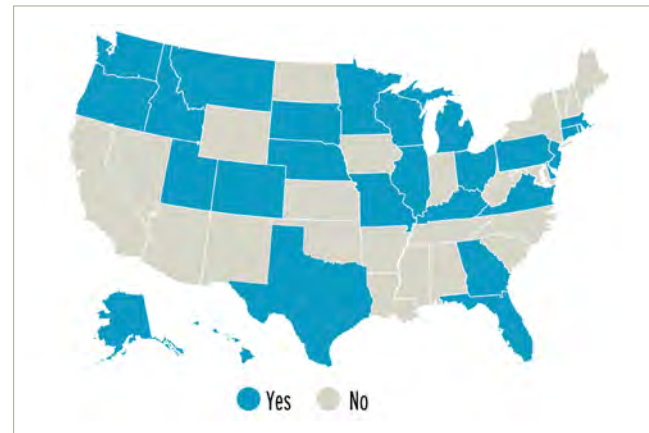


FIGURE 2.8.3C - STATE LAW REQUIRES DRIVERS TO STOP FOR PEDESTRIANS IN CROSSWALKS

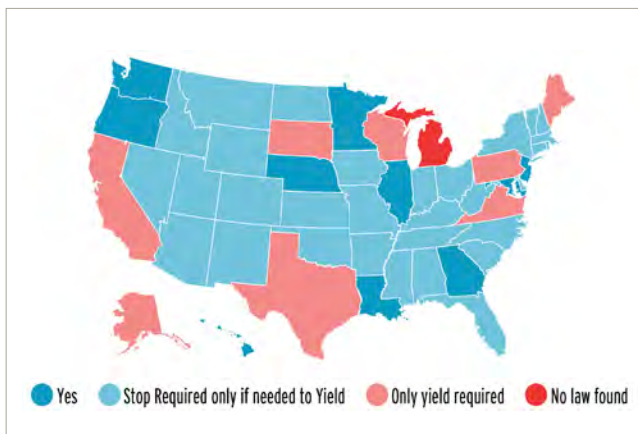


FIGURE 2.8.3D - STATE LAW REQUIRES DRIVERS TO STOP FOR PEDESTRIANS IN UNMARKED CROSSWALKS

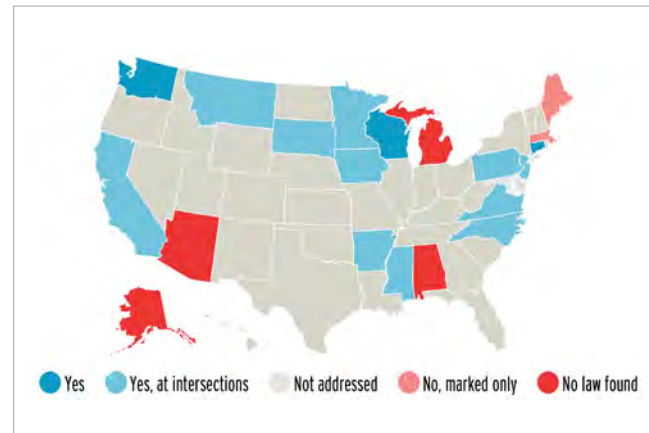


FIGURE 2.8.3E - STATE LAW ALLOWS SPEED ENFORCEMENT CAMERAS

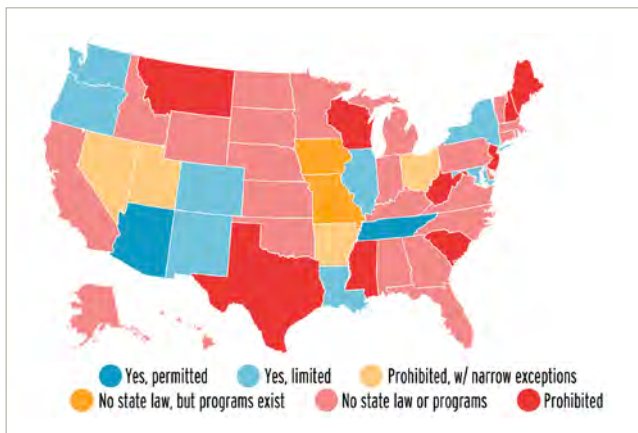
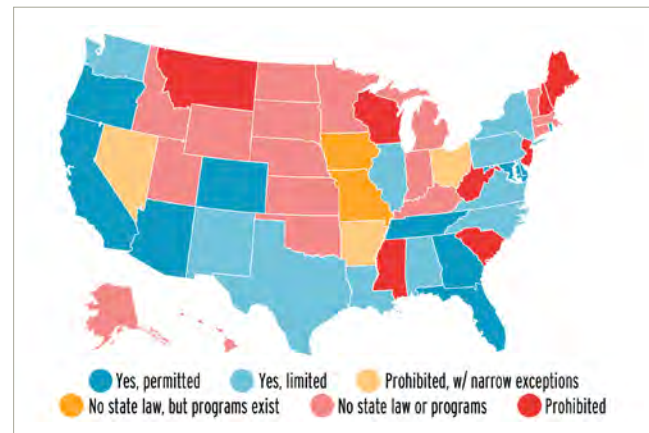


FIGURE 2.8.3F - STATE LAW ALLOWS RED LIGHT ENFORCEMENT CAMERAS



Laws Regulating Electrically-Assisted Bicycles ⁷⁰

FIGURE 2.8.4 - LAWS REGULATING ELECTRICALLY-ASSISTED BICYCLES

| STATE | STATE LAW CODIFIES 3-CLASS SYSTEM FOR E-BIKES | STATE LAW REGULATES E-BIKES AS BICYCLES | STATE LAW REQUIRES LICENSING OR REGISTRATION OF E-BIKES |
|----------------|-----------------------------------------------|-----------------------------------------|---------------------------------------------------------|
| Alabama | No | No | Yes |
| Alaska | No | No | Yes |
| Arizona | Yes | Yes | No |
| Arkansas | Yes | Yes | No |
| California | Yes | Yes | No |
| Colorado | Yes | Yes | No |
| Connecticut | Yes | No | No |
| Delaware | No | Yes | No |
| Florida | No | Yes | No |
| Georgia | No | Yes | No |
| Hawaii | No | No | Yes |
| Idaho | No | No | Yes |
| Illinois | Yes | Yes | No |
| Indiana | No | Yes | No |
| Iowa | No | Yes | No |
| Kansas | No | Yes | No |
| Kentucky | No | Yes | No |
| Louisiana | No | No | Yes |
| Maine | No | No | Yes |
| Maryland | No | Yes | No |
| Massachusetts | No | No | Yes |
| Michigan | Yes | Yes | No |
| Minnesota | No | Yes | No |
| Mississippi | No | Yes | No |
| Missouri | No | No | Yes |
| Montana | No | Yes | No |
| Nebraska | No | Yes | No |
| Nevada | No | Yes | No |
| New Hampshire | No | Yes | No |
| New Jersey | No | No | Yes |
| New Mexico | No | No | Yes |
| New York | No | No | Yes |
| North Carolina | No | Yes | No |
| North Dakota | No | No | Yes |
| Ohio | No | No | Yes |
| Oklahoma | No | No | Yes |
| Oregon | No | Yes | No |
| Pennsylvania | No | Yes | No |
| Rhode Island | No | No | Yes |
| South Carolina | No | No | Yes |
| South Dakota | No | No | Yes |
| Tennessee | Yes | Yes | No |
| Texas | No | Yes | No |
| Utah | Yes | Yes | No |
| Vermont | No | Yes | No |
| Virginia | No | Yes | No |
| Washington | Yes | Yes | No |
| West Virginia | No | No | Yes |
| Wisconsin | No | No | No, but user must have license |
| Wyoming | No | No | Yes |

Legend:

Green = Law clarifies e-bike use and regulation;

Red = Law restricts e-bike use

The bicycle industry, through People for Bikes and the Bicycle Product Suppliers Association, has created a 3-class model law for the regulation of electrically-assisted bicycles. The classes are:

- **CLASS 1** = top speed of 20 mph, no throttle
- **CLASS 2** = top speed of 20 mph, throttle-equipped
- **CLASS 3** = top speed of 28 mph, no throttle

Each class has different rules for who can use such an e-bike and where it can be ridden. Class 1 e-bikes are generally allowed to be ridden by the same people and in the same places as human-powered bicycles.

The 3-class system is similar to the regulation of e-bikes in the European Union under the type approvals Lie-A and Lie-B.⁷¹

Driver Training on Behavior Towards Bicyclists & Pedestrians ⁷²

FIGURE 2.8.5 - DRIVER TRAINING ON BEHAVIOR TOWARDS BICYCLISTS & PEDESTRIANS

Legend: **Red** = State reports not having training indicated

| | DOES THE STATE DRIVER'S LICENSE TEST REQUIRE THAT A TEST TAKER ANSWER AT LEAST ONE QUESTION ABOUT A MOTORIST'S RESPONSIBILITIES TOWARDS A BICYCLIST? | DOES THE STATE DRIVER'S LICENSE TEST REQUIRE THAT A TEST TAKER ANSWER AT LEAST ONE QUESTION ABOUT A MOTORIST'S RESPONSIBILITIES TOWARDS A PEDESTRIAN? | DOES THE STATE INVEST IN EDUCATIONAL MATERIALS THAT TEACH PEOPLE HOW TO RIDE BICYCLES SAFELY? | DID THE STATE DOT SPONSOR OR HOST AN EVENT OR SERIES OF EVENTS TO PROMOTE BICYCLING AND/OR WALKING AS A WAY TO INCREASE PHYSICAL ACTIVITY WITHIN THE LAST 18 MONTHS? |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alabama | Yes | Yes | Yes | No |
| Alaska* | Yes | Not available | Not available | Not available |
| Arizona | Yes | Yes | Yes | No |
| Arkansas | Yes | Yes | Yes | Yes |
| California | Yes | Yes | Yes | Yes |
| Colorado | Yes | Yes | Yes | Yes |
| Connecticut | No | No | Yes | No |
| Delaware | No | No | Yes | Yes |
| Florida | Yes | Yes | Yes | Yes |
| Georgia | No | No | Yes | Yes |
| Hawaii* | Yes | Not available | Not available | Not available |
| Idaho* | Yes | Not available | Yes | Not available |
| Illinois | No | No | Yes | Yes |
| Indiana | Yes | Yes | No | Yes |
| Iowa | No | No | Yes | Yes |
| Kansas | No | Yes | Yes | Yes |
| Kentucky* | Yes | Not available | Yes | Yes |
| Louisiana | Yes | Yes | Yes | No |
| Maine | Yes | Yes | Yes | Yes |
| Maryland | Yes | Yes | No | Yes |
| Massachusetts | Yes | Yes | Yes | Yes |
| Michigan | No | No | Yes | No |
| Minnesota | Yes | Yes | Yes | Yes |
| Mississippi | No | No | Yes | Yes |
| Missouri | Yes | Yes | Yes | No |
| Montana | Yes | Yes | Yes | Yes |
| Nebraska | Yes | Yes | Yes | No |
| Nevada | No | No | Yes | No |
| New Hampshire | Yes | Yes | Yes | No |
| New Jersey | No | No | Yes | Yes |
| New Mexico | No | No | Yes | No |
| New York | No | No | Yes | Yes |
| North Carolina | Yes | Yes | Yes | Yes |
| North Dakota | No | Yes | Yes | Yes |
| Ohio | No | No | Yes | Yes |
| Oklahoma | No | No | Yes | No |
| Oregon | Yes | Yes | Yes | Yes |
| Pennsylvania | Yes | No | Yes | Yes |
| Rhode Island | Yes | Yes | Yes | Yes |
| South Carolina | No | No | Yes | Yes |
| South Dakota* | Yes | Not available | Not available | Yes |
| Tennessee | No | Yes | Yes | No |
| Texas | Yes | No | Yes | Yes |
| Utah | No | No | Yes | Yes |
| Vermont | Yes | Yes | Yes | Yes |
| Virginia | Yes | Yes | Yes | No |
| Washington | Yes | No | Yes | Yes |
| West Virginia | Yes | Yes | No | No |
| Wisconsin | No | Yes | Yes | Yes |
| Wyoming | Yes | Yes | Yes | No |



Topic References

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- 65 The League of American Bicyclists. *Bike Law University* (2018). Available at <https://bikeleague.org/bike-law-university>.
- 66 Ray Thomas, Esq., Charley Gee, Esq., and Meredith Thomas. *Pedestrian Law Survey* (2013). Distributed by Compact Disc at Pro Walk/Pro Bike/Pro Place 2014.
- 67 Governors Highway Safety Association (GHSA). *Speed and Red Light Cameras* (last updated December 2018). Available at <https://www.ghsa.org/state-laws/issues/speed%20and%20red%20light%20cameras>.
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- 69 Underlying data is in Charts 2.8.1 and 2.8.2
- 70 People for Bikes. *Electric Bicycle Laws by State* (retrieved November 2018). Available at <https://peopleforbikes.org/our-work/e-bikes/>.
- 71 Bike Europe. *White Paper: Rules & Regulations on Electric Cycles in the European Union* (May 2017). Available at <http://bike-eu.com.s3-eu-central-1.amazonaws.com/app/uploads/2015/09/rules-regulation-on-electric-cycles-in-the-european-union-may-2017.pdf>.
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2.9 - STATES:

FUNDING FOR BIKING & WALKING

Amount of Federal Funds Obligated to Bicycling & Walking

Note Regarding Figures 2.9.1 and 2.9.2 on the following pages: West Virginia was excluded from this average because it is a simple average, not population-weighted, and West Virginia's percentage increase was more than 16 times the next largest percentage increase (despite this increase West Virginia's per capita spending on bicycling and walking projects and programs is still lower than the national average). This change is likely explained by West Virginia having a more difficult transition to the Transportation Alternatives Program than other states. It appears that West Virginia did not have a reserve of unobligated funds under the prior Transportation Enhancements Program, so it did not have bicycle and pedestrian-focused federal funding to obligate while the transition to TAP occurred. This difficult transition may reflect an issue with relying primarily on one federal funding program for bicycle and pedestrian projects.

Note regarding Figure 2.9.3: The Highway Safety Improvement Program provides roughly \$2 billion each year for projects that will lead to a "significant reduction in traffic fatalities and serious injuries" using a "data-driven, strategic approach." The funding for bicycle and pedestrian projects from HSIP between 2011 and 2016 represents less than 1% of the funding that was available through the HSIP program despite bicyclist and pedestrian fatalities representing roughly 15% of all traffic fatalities during that time. Between 2011 and 2016, bicyclist and pedestrian fatalities increased their share of all traffic fatalities by 2.5 percentage points.

Funding eligibility under 23 USC 405h is determined by the percentage of traffic fatalities that are bicyclists or pedestrians in the prior year. States that have bicyclists and pedestrians representing more than 15% of all traffic fatalities in the state are eligible for 405h grants.

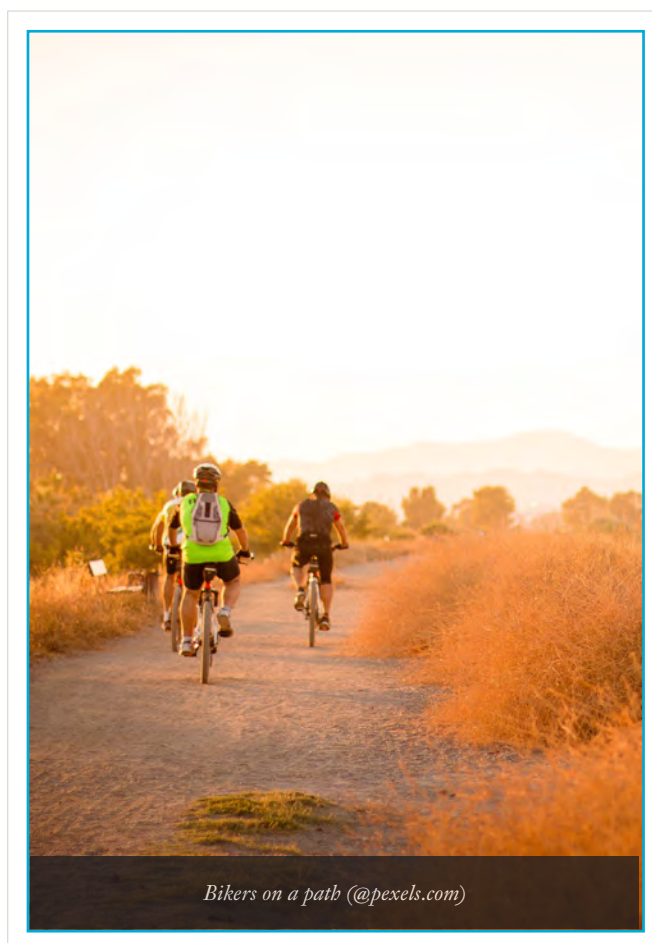


FIGURE 2.9.1 - AMOUNT OF FEDERAL FUNDS OBLIGATED TO BICYCLING & WALKING ⁷³

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| STATE | TOTAL OBLIGATED FUNDS TO BIKE/PED PROJECTS | | AVG ANNUAL SPENDING PER CAPITA ON BIKE/PED PROJECTS | | % CHANGE IN AVG. ANNUAL SPENDING PER CAPITA ON BIKE/PED PROJECTS |
|----------------|--------------------------------------------|-----------------|-----------------------------------------------------|-------------|------------------------------------------------------------------|
| | FY2011-2013 | FY2014-2016 | FY2011-2013 | FY2014-2016 | Between 3-year averages |
| Alabama | \$21,304,054 | \$53,108,196 | \$1.47 | \$3.66 | + 149% |
| Alaska | \$20,100,887 | \$22,072,396 | + \$9.14 | + \$10.03 | 10% |
| Arizona | \$32,711,713 | \$54,745,361 | \$1.64 | \$2.75 | 67% |
| Arkansas | \$24,503,866 | \$12,147,942 | \$2.76 | - \$1.37 | - 50% |
| California | + \$251,377,707 | + \$260,211,029 | \$2.18 | \$2.26 | 4% |
| Colorado | \$22,906,248 | \$38,483,249 | - \$1.45 | \$2.43 | + 68% |
| Connecticut | \$27,026,239 | \$39,306,258 | \$2.51 | \$3.65 | 45% |
| Delaware | \$14,470,893 | \$21,250,689 | + \$5.21 | + \$7.65 | 47% |
| Florida | + \$179,527,402 | + \$219,109,126 | \$3.05 | + \$3.72 | 22% |
| Georgia | + \$110,214,933 | + \$83,248,739 | + \$3.67 | \$2.77 | -24% |
| Hawaii | - \$2,880,543 | - \$4,125,752 | - \$0.68 | - \$0.98 | 43% |
| Idaho | - \$2,254,252 | - \$8,204,814 | - \$0.46 | - \$1.69 | + 264% |
| Illinois | \$67,926,225 | + \$106,452,164 | \$1.76 | \$2.76 | 57% |
| Indiana | + \$82,687,120 | \$66,218,388 | + \$4.20 | \$3.36 | -20% |
| Iowa | \$24,258,560 | \$25,347,038 | \$2.61 | \$2.73 | 4% |
| Kansas | - \$8,957,667 | \$27,351,347 | - \$1.03 | \$3.15 | + 205% |
| Kentucky | \$64,708,793 | \$43,456,528 | + \$4.91 | \$3.29 | -33% |
| Louisiana | \$25,466,192 | - \$8,889,189 | \$1.84 | - \$0.64 | - 65% |
| Maine | \$14,306,954 | - \$3,872,242 | \$3.59 | - \$0.97 | - 73% |
| Maryland | \$20,010,163 | \$31,080,481 | - \$1.12 | \$1.75 | 55% |
| Massachusetts | \$39,033,463 | \$47,008,578 | \$1.94 | \$2.34 | 20% |
| Michigan | + \$74,541,133 | + \$71,440,152 | \$2.51 | \$2.41 | -4% |
| Minnesota | \$67,230,950 | \$50,582,283 | + \$4.14 | \$3.11 | -25% |
| Mississippi | \$16,713,758 | \$34,084,226 | \$1.86 | + \$3.80 | + 104% |
| Missouri | + \$88,873,051 | \$66,974,939 | + \$4.90 | + \$3.69 | -25% |
| Montana | - \$13,171,752 | \$29,090,362 | + \$4.33 | + \$9.56 | + 121% |
| Nebraska | \$15,027,452 | \$14,787,861 | \$2.68 | \$2.64 | -2% |
| Nevada | \$22,117,822 | - \$9,176,018 | \$2.63 | - \$1.09 | - 59% |
| New Hampshire | - \$5,594,837 | \$16,199,821 | - \$1.41 | + \$4.08 | + 190% |
| New Jersey | \$24,355,644 | \$10,831,001 | - \$0.91 | - \$0.41 | - 56% |
| New Mexico | \$24,309,210 | \$16,278,091 | \$3.89 | \$2.60 | - 33% |
| New York | + \$110,719,412 | + \$198,093,322 | \$1.88 | \$3.36 | + 79% |
| North Carolina | \$61,722,321 | \$52,759,503 | \$2.09 | \$1.79 | -15% |
| North Dakota | - \$6,444,894 | - \$6,303,305 | \$2.98 | \$2.91 | -2% |
| Ohio | + \$73,395,565 | + \$95,861,656 | \$2.11 | \$2.76 | 31% |
| Oklahoma | - \$6,578,907 | - \$872,326 | - \$0.57 | - \$0.08 | - 87% |
| Oregon | \$38,845,266 | \$33,410,789 | \$3.29 | \$2.83 | -14% |
| Pennsylvania | + \$127,892,956 | + \$95,728,336 | \$3.34 | \$2.50 | -25% |
| Rhode Island | \$38,244,205 | \$12,212,616 | + \$12.10 | + \$3.86 | - 68% |
| South Carolina | \$15,296,770 | \$25,785,683 | - \$1.07 | \$1.80 | + 69% |
| South Dakota | - \$7,252,569 | - \$6,890,957 | \$2.87 | \$2.72 | -5% |
| Tennessee | \$56,540,082 | + \$73,165,198 | \$2.90 | + \$3.75 | 29% |
| Texas | + \$142,650,545 | + \$171,309,872 | \$1.79 | \$2.15 | 20% |
| Utah | \$24,192,922 | - \$10,340,611 | \$2.78 | - \$1.19 | - 57% |
| Vermont | \$17,731,585 | \$14,215,034 | + \$9.43 | + \$7.56 | -20% |
| Virginia | \$43,574,121 | \$57,040,364 | \$1.76 | \$2.30 | 31% |
| Washington | \$59,996,921 | \$54,986,566 | \$2.86 | \$2.62 | -8% |
| West Virginia | - \$296,174 | \$12,990,096 | - \$0.05 | \$2.34 | + 4286% |
| Wisconsin | \$32,288,972 | \$30,053,948 | \$1.87 | - \$1.74 | -7% |
| Wyoming | - \$9,497,043 | - \$6,108,584 | + \$5.46 | \$3.51 | - 36% |

Percentage of Federal Funds Obligated to Bicycling & Walking ⁷⁴

FIGURE 2.9.2 - PERCENTAGE OF FEDERAL FUNDS OBLIGATED TO BICYCLING & WALKING

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| STATE | % OF OBLIGATED FUNDS FOR BICYCLE & PEDESTRIAN PROJECTS | | CHANGE IN % OF OBLIGATED FUNDS FOR BICYCLE & PEDESTRIAN PROJECTS Between 3-year averages | OBLIGATED FUNDING FROM AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) DURING 2009-2014 | |
|----------------|--------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------|
| | FY2011-2013 | FY2014-2016 | | % of Bicycle & Pedestrian spending from ARRA | % of ARRA funds spent on Bicycling & Walking |
| Alabama | - 0.9% | 2.2% | + 150% | 17% | 2% |
| Alaska | 1.2% | 1.4% | 10% | - 7% | 2% |
| Arizona | 1.5% | 2.4% | 59% | 11% | 2% |
| Arkansas | 1.4% | - 0.7% | - 47% | - 2% | - 0% |
| California | 2.4% | + 2.4% | 3% | 12% | 2% |
| Colorado | 1.4% | 2.1% | 47% | 14% | 3% |
| Connecticut | 1.9% | + 2.7% | 42% | 23% | + 5% |
| Delaware | + 2.8% | + 3.7% | 33% | 19% | + 7% |
| Florida | + 3.2% | + 3.9% | 23% | 11% | 4% |
| Georgia | + 2.9% | 2.2% | -23% | 18% | + 5% |
| Hawaii | - 0.6% | 1.2% | + 92% | + 45% | 4% |
| Idaho | - 0.3% | - 0.9% | + 255% | + 38% | 3% |
| Illinois | 1.6% | 2.4% | 53% | 12% | 2% |
| Indiana | + 2.9% | 2.3% | -22% | + 27% | + 7% |
| Iowa | 1.6% | 1.7% | 4% | 16% | 3% |
| Kansas | - 0.8% | 2.4% | + 207% | 15% | - 1% |
| Kentucky | + 2.9% | 2.0% | -29% | 14% | + 5% |
| Louisiana | 1.2% | - 0.4% | - 66% | 21% | 3% |
| Maine | 2.5% | - 0.7% | - 73% | - 8% | - 1% |
| Maryland | 1.2% | 1.8% | 50% | - 1% | - 0% |
| Massachusetts | 2.1% | + 2.4% | 17% | + 34% | + 11% |
| Michigan | 2.3% | 2.3% | -1% | 11% | 2% |
| Minnesota | + 3.5% | + 2.5% | -27% | 9% | 3% |
| Mississippi | 1.1% | 2.2% | + 105% | - 3% | - 0% |
| Missouri | + 3.2% | 2.4% | -25% | 13% | 4% |
| Montana | 1.0% | 2.3% | + 133% | 21% | 4% |
| Nebraska | 1.6% | 1.7% | 1% | - 5% | - 1% |
| Nevada | 2.1% | - 0.9% | - 59% | 11% | 2% |
| New Hampshire | 1.0% | + 3.3% | + 211% | 26% | 3% |
| New Jersey | - 0.9% | - 0.5% | - 47% | + 33% | 3% |
| New Mexico | 2.3% | 1.5% | -35% | + 26% | + 6% |
| New York | 2.2% | + 3.7% | + 65% | 9% | 3% |
| North Carolina | 1.9% | 1.8% | -8% | 18% | 4% |
| North Dakota | - 0.6% | - 0.3% | - 45% | 17% | 2% |
| Ohio | 1.9% | 2.3% | 21% | - 7% | - 1% |
| Oklahoma | 0.3% | - 0.0% | - 86% | + 51% | 3% |
| Oregon | + 2.8% | 2.3% | -17% | 11% | 4% |
| Pennsylvania | 2.7% | 1.8% | -31% | 17% | + 5% |
| Rhode Island | + 5.1% | 1.9% | - 63% | 11% | + 4% |
| South Carolina | - 0.8% | 1.3% | + 65% | + 33% | 3% |
| South Dakota | - 0.8% | - 0.8% | -4% | + 40% | + 5% |
| Tennessee | 2.2% | + 3.0% | 37% | 12% | 3% |
| Texas | 1.6% | 1.6% | 1% | 14% | 2% |
| Utah | 2.3% | 1.0% | - 58% | - 3% | - 1% |
| Vermont | 2.2% | 2.2% | 1% | - 6% | - 2% |
| Virginia | 1.5% | 1.9% | 32% | - 2% | - 0% |
| Washington | + 2.8% | + 2.7% | -5% | 13% | 4% |
| West Virginia | - 0.0% | 1.0% | + 4453% | + 37% | 3% |
| Wisconsin | 1.4% | 1.3% | -10% | 16% | 2% |
| Wyoming | 1.2% | - 0.8% | - 36% | 15% | 2% |

Federal Safety Funding for Bicyclist & Pedestrian Safety

FIGURE 2.9.3 - FEDERAL SAFETY FUNDING FOR BICYCLIST & PEDESTRIAN SAFETY

Legend: **Green** = Funding used or awarded, **Red** = Funding rescinded, **Orange** = Bicyclist/pedestrian fatalities >15% of traffic fatalities

| STATE | BICYCLIST & PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES IN STATE ⁷⁵ | AMOUNT OF OBLIGATIONS FOR BICYCLING & WALKING FROM THE HIGHWAY SAFETY IMPROVEMENT PROGRAM ⁷⁶ | | 405H NON-MOTORIZED SAFETY PRIORITY PROGRAM FUNDING | |
|----------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------|------------------------------------|
| | Average (2012-2016) | FY2011-2013 | FY2014-2016 | FY2017 Award ⁷⁷ | FY2018 Determination ⁷⁸ |
| Alabama | 10.8% | \$360 | -\$136 | Not eligible | Not eligible |
| Alaska | 17.2% | \$0 | \$0 | Not eligible | Awarded |
| Arizona | 20.8% | \$0 | \$647,763 | \$471,950 | Awarded |
| Arkansas | 9.3% | \$0 | \$0 | Not eligible | Not eligible |
| California | 27.9% | \$2,662,542 | \$5,405,395 | \$1,387,500 | Awarded |
| Colorado | 15.1% | \$376,420 | \$0 | Not eligible | Not eligible |
| Connecticut | 18.1% | \$0 | \$0 | Not eligible | Awarded |
| Delaware | 26.5% | \$0 | \$0 | \$223,189 | Awarded |
| Florida | 26.3% | \$9,590,688 | \$11,448,557 | \$1,350,069 | Awarded |
| Georgia | 16.1% | \$0 | \$0 | \$792,511 | Awarded |
| Hawaii | 25.9% | \$0 | \$183,250 | \$223,189 | Awarded |
| Idaho | 7.4% | \$0 | \$0 | Not eligible | Not eligible |
| Illinois | 16.5% | \$25,954 | \$320,878 | \$1,128,996 | Awarded |
| Indiana | 11.8% | \$0 | \$376,678 | Not eligible | Not eligible |
| Iowa | 7.5% | \$0 | \$0 | Not eligible | Not eligible |
| Kansas | 8.6% | \$0 | \$0 | Not eligible | Not eligible |
| Kentucky | 9.2% | \$0 | \$0 | Not eligible | Not eligible |
| Louisiana | 18.1% | \$126,433 | -\$20,179 | \$425,799 | Awarded |
| Maine | 10.0% | \$919,331 | \$577 | Not eligible | Not eligible |
| Maryland | 22.7% | \$1,642,708 | \$6,402,272 | \$431,380 | Awarded |
| Massachusetts | 25.3% | \$0 | \$1,047,057 | \$514,406 | Awarded |
| Michigan | 18.5% | \$9,600 | \$0 | \$921,742 | Awarded |
| Minnesota | 11.1% | \$0 | \$0 | Not eligible | Not eligible |
| Mississippi | 9.5% | \$0 | \$0 | Not eligible | Not eligible |
| Missouri | 10.8% | \$0 | \$0 | Not eligible | Not eligible |
| Montana | 7.1% | \$0 | \$447,065 | Not eligible | Not eligible |
| Nebraska | 6.6% | \$0 | \$0 | Not eligible | Not eligible |
| Nevada | 25.3% | \$0 | \$0 | \$223,189 | Awarded |
| New Hampshire | 11.7% | \$0 | \$186,852 | Not eligible | Awarded |
| New Jersey | 30.2% | \$465,097 | \$0 | \$665,715 | Awarded |
| New Mexico | 19.2% | \$0 | \$0 | \$251,027 | Awarded |
| New York | 31.0% | \$0 | \$27,087,744 | \$1,387,500 | Awarded |
| North Carolina | 15.5% | \$963,267 | \$2,915,325 | \$757,075 | Not eligible |
| North Dakota | 6.5% | \$0 | \$0 | Not eligible | Not eligible |
| Ohio | 11.6% | \$290,720 | \$704 | Not eligible | Not eligible |
| Oklahoma | 10.7% | \$0 | \$0 | Not eligible | Not eligible |
| Oregon | 17.5% | \$0 | \$0 | \$349,287 | Awarded |
| Pennsylvania | 14.3% | \$0 | \$0 | Not eligible | Awarded |
| Rhode Island | 22.6% | \$0 | \$0 | \$223,189 | Awarded |
| South Carolina | 15.3% | \$0 | \$2,682 | Not eligible | Not eligible |
| South Dakota | 5.6% | \$0 | \$0 | Not eligible | Not eligible |
| Tennessee | 9.6% | \$0 | \$0 | Not eligible | Not eligible |
| Texas | 16.6% | \$0 | \$0 | \$1,387,500 | Not eligible |
| Utah | 15.8% | \$401,481 | \$0 | \$237,312 | Awarded |
| Vermont | 11.1% | \$0 | \$0 | Not eligible | Not eligible |
| Virginia | 13.8% | \$788,737 | \$3,376,875 | Not eligible | Not eligible |
| Washington | 17.3% | -\$247,626 | \$319,116 | Not eligible | Awarded |
| West Virginia | 8.5% | \$0 | \$0 | Not eligible | Not eligible |
| Wisconsin | 10.1% | \$0 | \$0 | Not eligible | Not eligible |
| Wyoming | 5.0% | \$0 | \$0 | Not eligible | Not eligible |

Reported State Funding for Bicycling & Walking

FIGURE 2.9.4 - REPORTED STATE FUNDING FOR BICYCLING & WALKING

Legend: **Green** = State reported funding or program

| STATE | REPORTED DEDICATED SOURCE OF FUNDING ⁸¹ | REPORTED GRANT PROGRAM(S) FOR BIKING & WALKING ⁸² | AVERAGE OF REPORTED STATE FUNDING (MAY INCLUDE FEDERAL FUNDING) ⁸³ | PER CAPITA AVERAGE REPORTED STATE FUNDING ⁸⁴ | # OF YEARS REPORTED ⁸³ |
|----------------|----------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------|
| Alabama | No | No | \$15,137,405 | \$3.13 | 1 |
| Alaska | No | Yes | Not Reported | Not Reported | 0 |
| Arizona | No | No | \$17,824,016 | \$2.65 | 1 |
| Arkansas | No | No | \$1,486,265 | \$0.50 | 4 |
| California | Yes | Yes | \$27,300,000 | \$0.71 | 4 |
| Colorado | No | No | \$2,667,000 | \$0.50 | 1 |
| Connecticut | No | Yes | \$11,628,478 | \$3.24 | 2 |
| Delaware | No | Yes | \$7,087,500 | \$7.58 | 4 |
| Florida | No | Yes | \$198,000,000 | \$9.93 | 1 |
| Georgia | No | Yes | \$463,500 | \$0.05 | 2 |
| Hawaii | No | No | Not Reported | Not Reported | 0 |
| Idaho | No | Yes | Not Reported | Not Reported | 0 |
| Illinois | Yes | No | Not Reported | Not Reported | 0 |
| Indiana | No | No | Not Reported | Not Reported | 0 |
| Iowa | Yes | Yes | \$3,750,000 | \$1.21 | 4 |
| Kansas | No | No | Not Reported | Not Reported | 0 |
| Kentucky | Not reported | Yes | \$62,000,000 | \$14.05 | 1 |
| Louisiana | Yes | No | \$165,000 | \$0.04 | 4 |
| Maine | No | No | \$478,000 | \$0.36 | 4 |
| Maryland | Yes | Yes | \$47,968,590 | \$8.05 | 4 |
| Massachusetts | Yes | Yes | \$25,932,109 | \$3.85 | 4 |
| Michigan | Yes | Yes | \$75,250,000 | \$7.59 | 4 |
| Minnesota | Yes | Yes | \$47,617,500 | \$8.74 | 4 |
| Mississippi | Yes | No | \$332,006 | \$0.11 | 1 |
| Missouri | No | No | \$7,700,000 | \$1.27 | 4 |
| Montana | No | No | \$12,000,000 | \$11.73 | 1 |
| Nebraska | No | No | Not Reported | Not Reported | 0 |
| Nevada | Yes | Yes | \$396,672 | \$0.14 | 4 |
| New Hampshire | No | No | Not Reported | Not Reported | 0 |
| New Jersey | Yes | Yes | \$7,875,000 | \$0.88 | 4 |
| New Mexico | No | Yes | Not Reported | Not Reported | 0 |
| New York | No | Yes | \$200,000,000 | \$10.15 | 1 |
| North Carolina | Yes | Yes | \$2,133,333 | \$0.21 | 3 |
| North Dakota | No | No | Not Reported | Not Reported | 0 |
| Ohio | Yes | Yes | \$7,768,120 | \$0.67 | 4 |
| Oklahoma | No | Yes | \$200,000 | \$0.05 | 1 |
| Oregon | Yes | Yes | \$8,955,750 | \$2.25 | 4 |
| Pennsylvania | Yes | Yes | \$2,000,000 | \$0.16 | 1 |
| Rhode Island | No | Yes | \$1,745,269 | \$1.66 | 2 |
| South Carolina | No | No | Not Reported | Not Reported | 0 |
| South Dakota | Yes | Yes | Not Reported | Not Reported | 0 |
| Tennessee | Yes | Yes | \$10,000,000 | \$1.53 | 3 |
| Texas | No | No | \$1,918,116 | \$0.07 | 1 |
| Utah | Yes | Yes | \$8,135,310 | \$2.76 | 2 |
| Vermont | Yes | Yes | \$588,168 | \$0.94 | 4 |
| Virginia | Yes | Yes | \$7,650,000 | \$0.92 | 2 |
| Washington | Yes | Yes | \$16,780,750 | \$2.37 | 4 |
| West Virginia | No | Yes | \$5,000,000 | \$2.71 | 1 |
| Wisconsin | Yes | Yes | \$460,039 | \$0.08 | 4 |
| Wyoming | No | No | Not Reported | Not Reported | 0 |

State Constitution Transportation Funding Limitations & State-Authorized Local Transportation Funding Options

| STATE | CONSTITUTIONAL LIMITATIONS ON USE OF FUNDING FROM GAS TAX ⁸⁵ | AUTHORIZED LOCAL OPTION FUEL TAX ⁸⁶ | | | AUTHORIZED LOCAL OPTION SALES TAX ⁸⁶ | | |
|----------------|-------------------------------------------------------------------------|------------------------------------------------|-------|---------|-------------------------------------------------|-------|---------|
| | | GENERAL REVENUE | ROADS | TRANSIT | GENERAL REVENUE | ROADS | TRANSIT |
| Alabama | • | • | | | • | | |
| Alaska | | • | | | | • | |
| Arizona | • | | | | • | | |
| Arkansas | | | | | | • | • |
| California | | | • | • | | • | |
| Colorado | • | | | | | • | • |
| Connecticut | | | | | | | |
| Delaware | | | | | | | |
| Florida | | | • | • | | • | • |
| Georgia | • | • | | | | • | • |
| Hawaii | | | • | • | | | |
| Idaho | • | | • | • | | | |
| Illinois | | | | | | • | • |
| Indiana | | | | | | | |
| Iowa | • | | | | | • | |
| Kansas | • | | | | | • | |
| Kentucky | • | | | | | | |
| Louisiana | | | | | | • | |
| Maine | • | | | | | | |
| Maryland | | | | | | | |
| Massachusetts | | | | | | | |
| Michigan | | | | | | | |
| Minnesota | • | | | | • | | |
| Mississippi | | | • | | • | | |
| Missouri | • | | • | | | • | • |
| Montana | | | • | | | • | |
| Nebraska | | | | | | • | • |
| Nevada | • | | | | | | |
| New Hampshire | • | | | | | | |
| New Jersey | | | | | | | |
| New Mexico | | • | | | | • | • |
| New York | | | | | • | | |
| North Carolina | | | | | | | |
| North Dakota | • | | | | | • | |
| Ohio | • | | | | | | |
| Oklahoma | | | | | • | | |
| Oregon | • | | • | | | | |
| Pennsylvania | • | | | | | | |
| Rhode Island | | | | | | | |
| South Carolina | | | | | | | |
| South Dakota | • | | • | | | • | • |
| Tennessee | | | | • | • | | |
| Texas | | | | | | • | |
| Utah | • | | | | | • | • |
| Vermont | | | | | | • | |
| Virginia | | | • | • | • | | |
| Washington | • | | • | | | • | |
| West Virginia | • | | | | • | | |
| Wisconsin | | | | | | | |
| Wyoming | • | | | | | | |

FIGURE 2.9.5 - STATE CONSTITUTION TRANSPORTATION FUNDING LIMITATIONS & STATE-AUTHORIZED LOCAL TRANSPORTATION FUNDING OPTIONS

Note: “Constitutional Limitations on Use of Funding from Gas Tax” may or may not mean those limitations do not allow bicycle or pedestrian infrastructure to be funded by a state gas tax. For example, Kansas allows counties, cities, and townships to direct up to 10% of their gas tax funds to footpaths and bicycle paths. ⁸⁷



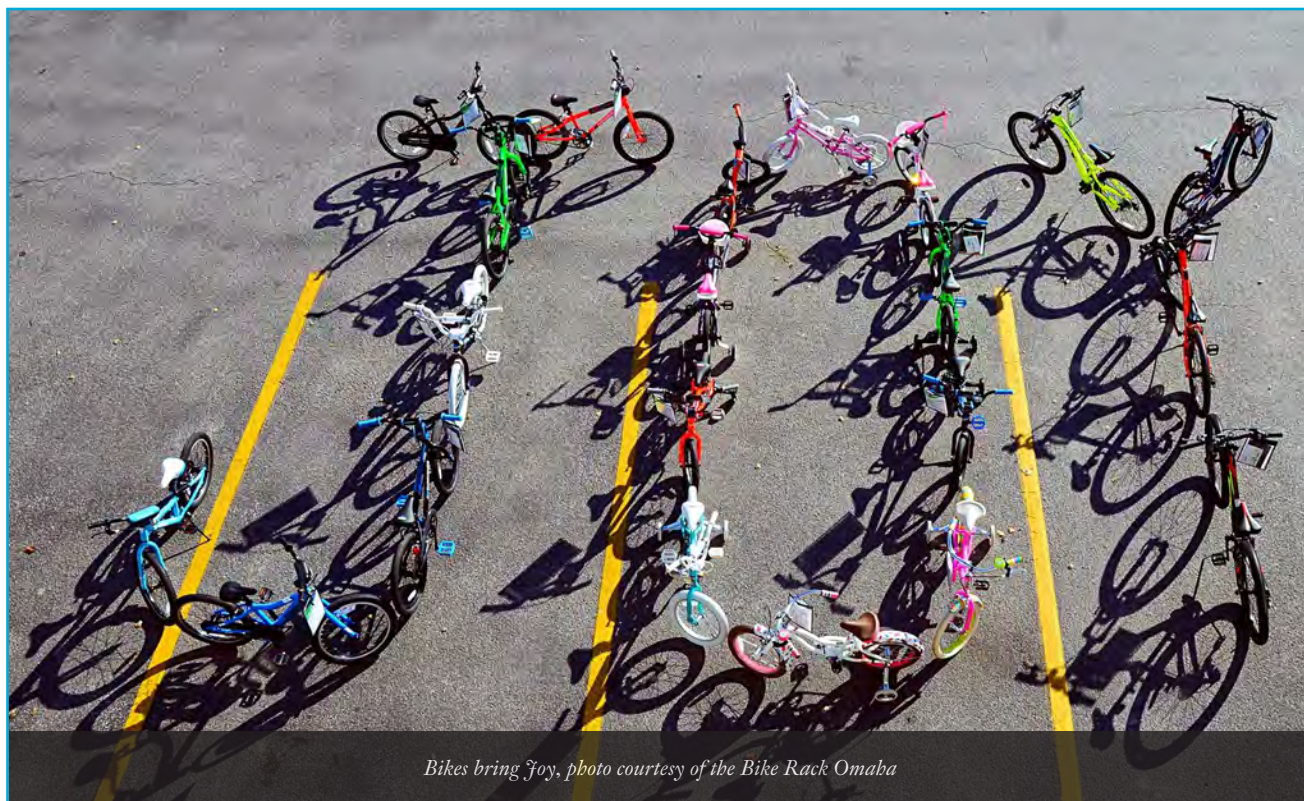
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- 73 Federal Highway Administration. *Fiscal Management Information System Data (2011-2016)*.
- 74 Federal Highway Administration. *Fiscal Management Information System Data (2009-2016)*.
- 75 See Figure 2.7.4 for fatality data.
- 76 See footnote 73.
- 77 Governors Highway Safety Association (GHSA). *FY2017 Highway Safety Funding*. Available at https://www.ghsa.org/sites/default/files/2017-07/StateFunding_FY2017_1.pdf.
- 78 National Highway Traffic Safety Administration. *FY 2018 State Grant Determinations*. Available at <https://www.nhtsa.gov/highway-safety-grants-program/fy-2018-grant-funding-table>.
- 79 Federal Highway Administration. *"FAST Act" Fact Sheet on Highway Safety Improvement Program*. Available at <https://www.fhwa.dot.gov/fastact/factsheets/hsipfs.cfm>.
- 80 See Chapter IV: Show Your Data. Section I: Nation. Figures 1.4.2 and 1.4.6.
- 81 The League of American Bicyclists. *2015 Bicycle Friendly State survey* data from question 44.
- 82 The League of American Bicyclists. *2017 Bicycle Friendly State survey* data from question IF14.
- 83 The League of American Bicyclists. *2013, 2014, 2015, and 2017 Bicycle Friendly State survey data* from questions 44a (2013-15) and IF13 (2017).
- 84 See footnotes 5 and 84.
- 85 National Conference of State Legislatures and AASHTO Center for Excellence in Project Finance. *Transportation Governance and Finance: A 50-State Review of State Legislatures and Departments of Transportation* (May 2011). Available at http://www.transportation-finance.org/pdf/50_State_Review_State_Legislatures_Departments_Transportation.pdf.
- 86 National League of Cities. *Paying for local infrastructure in a new era of federalism* (2016). Available at https://www.nlc.org/sites/default/files/2016-12/NLC_2016_Infrastructure_Report.pdf.
- 87 Robert Puentes and Ryan Prince. Brookings (2003). *Fueling Transportation Finance: A Primer on the Gas Tax*. Available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.617.8007&rep=rep1&type=pdf>.

2.10 - STATES: INFRASTRUCTURE FOR PEOPLE BIKING & WALKING

Note regarding Figure 2.10.1 on the following page: The methodology for determining miles of potential rail trails is not specifically described on the Rails to Trails Conservancy website, but rail trails are usually created within the right of way of un-used railroad corridors. “Percent of Miles of All Rail Trails that are not developed” was calculated by summing current and identified potential miles of rail trail to determine the percentage of all current and potential rail trails that have not been developed in each state.

U.S. Bicycle Routes are “established” by a state Departments of Transportation (DOTs) and the American Association of State Highway and Transportation Officials (AASHTO). The suitability of each route is determined by each state DOT based upon its own criteria and there is no required construction of bicycle facilities along each route at this time.



Bikes bring Joy, photo courtesy of the Bike Rack Omaha

Biking Infrastructure on State Roadways

FIGURE 2.10.1 - BIKING INFRASTRUCTURE ON STATE ROADWAYS

Legend: **Green** =Infrastructure or guidelines reported to exist

| STATE | PROTECTED BIKE LANE ALONG A STATE HIGHWAY ⁸⁸ | STATE DOT REPORTED RECOMMENDING A PROTECTED OR SEPARATED BIKE LANES DURING THE PLANNING & DESIGN PHASE OF A ROADWAY PROJECT ⁸⁹ | BIKE BOXES EXIST ON A STATE ROADWAY ⁹⁰ | BICYCLE TRAFFIC SIGNALS EXIST ON A STATE ROADWAY ⁹¹ | STATE HAS GUIDELINES FOR INCLUDING BICYCLE INFRASTRUCTURE BASED ON ROADWAY CHARACTERISTICS ⁹² |
|----------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Alabama | No | Yes | No | No | Yes |
| Alaska | No | No | No | No | No |
| Arizona | Yes | No | No | No | Yes |
| Arkansas | No | No | No | No | Yes |
| California | No | Yes | Yes | Yes | Yes |
| Colorado | Yes | Yes | Yes | Yes | Yes |
| Connecticut | No | Yes | Yes | No | Yes |
| Delaware | No | Yes | No | Yes | Yes |
| Florida | No | Yes | Yes | Yes | Yes |
| Georgia | No | Yes | No | Yes | Yes |
| Hawaii | No | No | No | No | No |
| Idaho | No | No | No | No | No |
| Illinois | No | Yes | Yes | Yes | Yes |
| Indiana | No | Yes | No | No | Yes |
| Iowa | No | No | No | No | Yes |
| Kansas | No | Yes | No | No | No |
| Kentucky | No | Yes | No | No | No |
| Louisiana | No | Yes | No | No | No |
| Maine | No | No | No | No | Yes |
| Maryland | No | Yes | Yes | No | Yes |
| Massachusetts | No | Yes | Yes | Yes | Yes |
| Michigan | No | Yes | No | No | No |
| Minnesota | No | Yes | Yes | Yes | Yes |
| Mississippi | No | No | No | No | Yes |
| Missouri | No | Yes | No | No | Yes |
| Montana | No | Yes | No | No | No |
| Nebraska | No | No | No | No | No |
| Nevada | No | Yes | No | Yes | No |
| New Hampshire | No | No | No | No | No |
| New Jersey | No | Yes | Yes | No | Yes |
| New Mexico | No | Yes | No | No | Yes |
| New York | No | Yes | No | No | Yes |
| North Carolina | No | Yes | Yes | No | Yes |
| North Dakota | No | Yes | No | No | Yes |
| Ohio | No | Yes | Yes | Yes | Yes |
| Oklahoma | No | No | No | No | No |
| Oregon | No | Yes | No | Yes | Yes |
| Pennsylvania | Yes | Yes | Yes | No | Yes |
| Rhode Island | No | No | No | No | Yes |
| South Carolina | No | No | No | No | Yes |
| South Dakota | No | No | No | No | No |
| Tennessee | No | Yes | No | No | No |
| Texas | No | Yes | No | No | No |
| Utah | No | Yes | No | Yes | Yes |
| Vermont | No | No | No | No | Yes |
| Virginia | No | Yes | Yes | Yes | Yes |
| Washington | No | Yes | Yes | No | Yes |
| West Virginia | No | Yes | No | No | No |
| Wisconsin | No | Yes | No | No | Yes |
| Wyoming | Yes | Yes | No | No | No |

Routes & Trails for Bicycling & Walking

FIGURE 2.10.2 - ROUTES & TRAILS FOR BICYCLING & WALKING

Legend: **Green** = Highest values for prevalence/lowest values for undeveloped trail; **Red** = Lowest values for prevalence/highest values for undeveloped trail

| STATE | # OF RAIL TRAILS ⁹³ | MILES OF RAIL TRAILS ⁹³ | MILES OF POTENTIAL RAIL TRAILS ⁹³ | % OF MILES OF ALL RAIL TRAILS THAT ARE NOT DEVELOPED ⁹³ | U.S. BICYCLE ROUTE HAS BEEN ESTABLISHED IN THE STATE ⁹⁴ |
|----------------|--------------------------------|------------------------------------|----------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
| Alabama | 20 | 85 | 86 | - 50% | No |
| Alaska | - 5 | - 47 | + 247 | - 84% | Yes |
| Arizona | 13 | - 73 | - 13 | 15% | Yes |
| Arkansas | 21 | - 73 | + 240 | - 77% | No |
| California | + 124 | + 1047 | + 673 | 39% | No |
| Colorado | 41 | 305 | 131 | 30% | No |
| Connecticut | 22 | 208 | 94 | 31% | Yes |
| Delaware | - 6 | - 28 | - 20 | 42% | No |
| Florida | 54 | 775 | + 431 | 36% | Yes |
| Georgia | 29 | 205 | 144 | 41% | Yes |
| Hawaii | - 3 | - 17 | 60 | - 78% | No |
| Idaho | 23 | 449 | 68 | + 13% | Yes |
| Illinois | + 82 | + 1031 | 180 | 15% | Yes |
| Indiana | 68 | 457 | + 249 | 35% | Yes |
| Iowa | + 82 | + 859 | 200 | 19% | No |
| Kansas | 23 | 278 | 162 | 37% | Yes |
| Kentucky | 17 | 101 | 190 | - 65% | Yes |
| Louisiana | - 7 | 134 | - 23 | 15% | No |
| Maine | 32 | 399 | 82 | 17% | Yes |
| Maryland | 36 | 185 | 187 | - 50% | Yes |
| Massachusetts | 69 | 342 | + 353 | - 51% | Yes |
| Michigan | + 127 | + 2439 | 227 | + 9% | Yes |
| Minnesota | 73 | + 2104 | 228 | + 10% | Yes |
| Mississippi | 13 | 108 | - 47 | 30% | No |
| Missouri | 19 | 434 | 235 | 35% | Yes |
| Montana | 19 | 228 | 75 | 25% | No |
| Nebraska | 26 | 451 | 127 | 22% | No |
| Nevada | - 5 | 97 | - 2 | + 2% | Yes |
| New Hampshire | + 74 | 544 | + 273 | 33% | Yes |
| New Jersey | 52 | 324 | 186 | 36% | No |
| New Mexico | - 9 | - 31 | 82 | - 73% | No |
| New York | + 107 | + 1087 | + 707 | 39% | No |
| North Carolina | 31 | 115 | 147 | - 56% | Yes |
| North Dakota | - 5 | - 36 | - 0 | + 0% | No |
| Ohio | + 95 | + 971 | + 307 | 24% | Yes |
| Oklahoma | - 8 | - 52 | - 6 | + 10% | No |
| Oregon | 21 | 311 | 198 | 39% | No |
| Pennsylvania | + 181 | + 1889 | + 661 | 26% | Yes |
| Rhode Island | 10 | - 64 | - 49 | 43% | No |
| South Carolina | 26 | 165 | 56 | 25% | No |
| South Dakota | - 5 | 147 | 100 | 40% | No |
| Tennessee | 33 | 135 | 80 | 37% | Yes |
| Texas | 34 | 297 | 142 | 32% | No |
| Utah | 15 | 153 | - 2 | + 1% | Yes |
| Vermont | 17 | 123 | 81 | 40% | Yes |
| Virginia | 45 | 407 | - 37 | + 8% | Yes |
| Washington | + 82 | + 1063 | 168 | 14% | Yes |
| West Virginia | 66 | 564 | 80 | + 12% | No |
| Wisconsin | + 95 | + 1877 | 189 | + 9% | No |
| Wyoming | - 4 | - 51 | 68 | - 57% | No |

State DOT Support For Employee Development on Bicycling & Walking Infrastructure & Traffic Monitoring

| STATE | STATE DOT PARTICIPATED IN TRAINING ON THE FHWA TRAFFIC MONITORING GUIDE SINCE 2013 ⁹⁵ | STATE DOT SPONSORED TRAINING ON SELECTED BIKE/PED INFRASTRUCTURE IN 2016 (OR LAST REPORTED YEAR) ⁹⁶ | | |
|----------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------|---------------------|
| | | PROTECTED BIKE LANES | RURAL BICYCLING ROUTES | BUFFERED BIKE LANES |
| Alabama | | Yes | Yes | Yes |
| Alaska | 2014 | NR | NR | NR |
| Arizona | | No | No | No |
| Arkansas | 2016 | No | No | No |
| California | 2013 | Yes | Yes | Yes |
| Colorado | 2013 | Yes | Yes | Yes |
| Connecticut | | No | No | No |
| Delaware | 2015 | No | No | No |
| Florida | 2014 | No | Yes | Yes |
| Georgia | 2014 | No | No | No |
| Hawaii | 2015 | No | No | No |
| Idaho | | Yes* | Yes* | Yes* |
| Illinois | | No | No | No |
| Indiana | | Yes | Yes | Yes |
| Iowa | 2013 | Yes | Yes | Yes |
| Kansas | | No | No | No |
| Kentucky | | Yes* | Yes* | Yes* |
| Louisiana | | Yes | Yes | Yes |
| Maine | 2015 | Yes | Yes | Yes |
| Maryland | | No | No | No |
| Massachusetts | | Yes | Yes | Yes |
| Michigan | 2014 | Yes | Yes | Yes |
| Minnesota | | No | Yes | No |
| Mississippi | | No | No | No |
| Missouri | | No | No | No |
| Montana | 2014 | Yes | Yes | Yes |
| Nebraska | | No | No | No |
| Nevada | | No | No | No |
| New Hampshire | | No | No | No |
| New Jersey | | Yes | Yes | Yes |
| New Mexico | 2013, 2016 | No | No | Yes |
| New York | | No | Yes | No |
| North Carolina | | Yes | Yes | Yes |
| North Dakota | | Yes | No | Yes |
| Ohio | | Yes | Yes | Yes |
| Oklahoma | | No | No | No |
| Oregon | 2013 | Yes | Yes | Yes |
| Pennsylvania | 2013 | Yes | Yes | Yes |
| Rhode Island | 2014 | Yes | No | Yes |
| South Carolina | 2014 | No | No | No |
| South Dakota | | Yes* | Yes* | Yes* |
| Tennessee | | Yes | Yes | Yes |
| Texas | 2013 | Yes | Yes | Yes |
| Utah | 2016 | Yes | No | No |
| Vermont | | Yes | Yes | Yes |
| Virginia | | Yes | Yes | Yes |
| Washington | | Yes | Yes | Yes |
| West Virginia | 2016 | No | Yes | No |
| Wisconsin | 2013 | No | No | No |
| Wyoming | | No | No | No |

FIGURE 2.10.3 - STATE DOT SUPPORT FOR EMPLOYEE DEVELOPMENT ON BICYCLING & WALKING INFRASTRUCTURE & TRAFFIC MONITORING

Legend: **Green** = Reported action taken

NR = No 2017 or 2015 BFS Survey Response.

FIGURE 2.10.3 (CONTINUED) - STATE DOT SUPPORT FOR EMPLOYEE DEVELOPMENT ON BICYCLING & WALKING INFRASTRUCTURE & TRAFFIC MONITORING

Legend: **Green** = Reported action taken

| STATE DOT SPONSORED TRAINING ON SELECTED BIKE/PED INFRASTRUCTURE IN 2016 (OR LAST REPORTED YEAR) ⁸⁶ | | | | | |
|----------------------------------------------------------------------------------------------------------------|-----------------|--------------|-------------------------------------|------------------------------|-----------------------------------------------|
| STATE | BICYCLE SIGNALS | HAWK SIGNALS | PEDESTRIAN PRIORITY ZONES/ WOONERFS | LEADING PEDESTRIAN INTERVALS | LOW-COST PLAZAS/ PARKLETS/ SIDEWALK EXPANSION |
| Alabama | No | Yes | No | No | Yes |
| Alaska | NR | NR | NR | NR | NR |
| Arizona | No | No | No | No | No |
| Arkansas | No | No | No | No | No |
| California | Yes | Yes | Yes | Yes | Yes |
| Colorado | Yes | Yes | No | Yes | Yes |
| Connecticut | No | No | No | No | No |
| Delaware | No | No | No | No | No |
| Florida | No | Yes | No | Yes | No |
| Georgia | No | No | No | No | No |
| Hawaii | No | No | No | No | No |
| Idaho | Yes* | Yes* | Yes* | Yes* | Yes* |
| Illinois | No | No | No | No | No |
| Indiana | Yes | Yes | No | Yes | No |
| Iowa | Yes | Yes | No | No | No |
| Kansas | No | No | No | No | No |
| Kentucky | Yes* | Yes* | Yes* | Yes* | Yes* |
| Louisiana | Yes | Yes | No | No | Yes |
| Maine | Yes | Yes | No | No | No |
| Maryland | No | No | No | Yes | No |
| Massachusetts | Yes | Yes | Yes | Yes | Yes |
| Michigan | Yes | No | Yes | No | Yes |
| Minnesota | Yes | Yes | No | No | Yes |
| Mississippi | No | No | Yes | Yes | No |
| Missouri | No | No | No | No | No |
| Montana | Yes | Yes | Yes | Yes | Yes |
| Nebraska | No | No | No | No | No |
| Nevada | No | No | No | No | No |
| New Hampshire | No | No | No | No | No |
| New Jersey | Yes | Yes | Yes | Yes | Yes |
| New Mexico | No | No | No | No | No |
| New York | No | Yes | No | Yes | Yes |
| North Carolina | Yes | No | No | No | No |
| North Dakota | No | Yes | No | No | No |
| Ohio | Yes | Yes | Yes | Yes | Yes |
| Oklahoma | No | No | No | No | No |
| Oregon | Yes | Yes | Yes | Yes | Yes |
| Pennsylvania | Yes | Yes | Yes | Yes | Yes |
| Rhode Island | No | No | No | No | No |
| South Carolina | No | No | No | No | No |
| South Dakota | Yes* | Yes* | Yes* | Yes* | Yes* |
| Tennessee | Yes | Yes | Yes | Yes | No |
| Texas | Yes | Yes | Yes | Yes | No |
| Utah | No | Yes | No | Yes | No |
| Vermont | No | No | No | No | No |
| Virginia | Yes | Yes | No | No | No |
| Washington | Yes | Yes | Yes | Yes | Yes |
| West Virginia | No | No | No | No | No |
| Wisconsin | No | No | No | No | No |
| Wyoming | No | No | No | No | No |



Bicyclists at farmer's market, photo courtesy of Heartland Bicycle

Topic References

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SECTION III: CITIES

This Section provides more than 35 tables and graphs showing data on bicycling and walking in the 50 largest cities in the United States and 19 additional cities that have been included in the Benchmarking Report since 2014.

Approximately 28% of all people who primarily walk to work and 33% of all people who primarily bike to work in the United States live in the 50 largest cities in the United States, according to the American Community Survey. This is approximately twice the percentage of the US population that lives in the 50 largest cities (~15%).

Approximately 21% of all pedestrian fatalities and 17% of bicyclist fatalities in the United States occur in the 50 largest cities in the United States, according to the National Highway Traffic Safety Administration's Fatality Analysis Reporting System.

Use this Section to find out about current conditions for bicycling and walking in cities and how cities are improving conditions for people who bike and walk in order to enable healthy, active transportation.

3.1 - CITIES IN CONTEXT: INFLUENCES ON BIKING & WALKING

This section – Cities in Context: Influences on Biking and Walking – compiled contextual information that may be helpful as you look for potential explanations of differences between states in data related to bicycling or walking found elsewhere in this chapter.

Many of the contextual data were chosen because of studies showing a correlation between that data and rates of bicycling and walking. An example of this is population density which the 2014 Benchmarking Report explored. ¹

Other contextual data were chosen because of the importance of better understanding demographic or other structural differences between states. An example of this is state general revenue per capita which may provide insight to the relative resources of a state government but is not directly tied to biking or walking-related issues.

This type of contextual data was first compiled in the 2016 Benchmarking Report.

The following definitions may be useful:

- People of Color means all people who are not reported as “White alone, not Hispanic or Latino” by the Census Bureau. White alone, not Hispanic or Latino are individuals who responded “No, not Spanish/Hispanic/Latino” and who reported “White” as their only entry in the race question. ²
- Poverty means persons who individually or in a household have an income that is equivalent to the federal poverty level or less. The federal poverty level is set by the Department of Health and Human Services each year to determine eligibility for a variety of federal programs, such as Medicaid. When the report refers to low-income persons, low-income means workers making 150% of the federal poverty level or less. In 2018, the federal poverty level for an individual was \$12,410 and for a family of 4 was \$25,100. ³



Photo by Daria Rem (@pexels.com)

| COMMUNITY | WALK SCORE | BIKE SCORE | POP. DENSITY | POP. CHANGE (2010-2016) |
|-----------------------|-------------|-------------|----------------|-------------------------|
| Albany | 65 | 50 | 4601.4 | 0% |
| Albuquerque | 42.7 | 59.6 | 2962.0 | 5% |
| Anchorage | 32 | -- | 2176.9 | 5% |
| Arlington, TX | 37 | 37 | 3998.9 | 7% |
| Atlanta | 49.2 | 49.9 | 3431.4 | 10% |
| Austin | 40.3 | 51.7 | 3046.2 | 19% |
| Baltimore | 69.4 | 56.1 | 7666.7 | 0% |
| Baton Rouge | 40.6 | 47 | 2972.0 | 0% |
| Bellingham | 49 | 54 | 3119.0 | 7% |
| Boston | 80.9 | 70.3 | 13714.1 | 9% |
| Boulder | 58 | 86 | 4274.9 | 9% |
| Burlington | 56 | 78 | 4127.6 | 1% |
| Charleston | 40 | 48 | 1191.9 | 12% |
| Charlotte | 25.9 | 36.1 | 2714.2 | 15% |
| Chattanooga | 29 | 30 | 1279.3 | 7% |
| Chicago | 77.8 | 70.2 | 11903.6 | 0% |
| Cleveland | 59.5 | 50.8 | 4989.3 | -5% |
| Colorado Springs | 35.5 | 46.4 | 2301.3 | 11% |
| Columbus, OH | 40.7 | 46.5 | 3857.3 | 9% |
| Dallas | 46.2 | 43.7 | 3749.1 | 8% |
| Davis | 45 | 90 | 6763.0 | 3% |
| Denver | 60.5 | 71.3 | 4335.3 | 15% |
| Detroit | 55.4 | 55 | 4916.9 | -10% |
| El Paso | 41.5 | 39 | 2659.1 | 8% |
| Eugene | 45 | 71 | 3697.4 | 5% |
| Fort Collins | 36 | 77 | 2897.0 | 12% |
| Fort Worth | 34.4 | 40.2 | 2399.8 | 16% |
| Fresno | 46.3 | 55.9 | 4587.6 | 6% |
| Honolulu | 63.7 | 45.2 | 5731.1 | 6% |
| Houston | 48.7 | 49.3 | 3734.3 | 8% |
| Indianapolis | 29.8 | 41.1 | 2345.4 | 5% |
| Jacksonville | 26.8 | 39.5 | 1146.7 | 6% |
| Kansas City, MO | 34.2 | 40.3 | 1497.7 | 4% |
| Las Vegas | 41.1 | 52 | 4509.5 | 6% |
| Long Beach | 69.9 | 66.4 | 9395.9 | 2% |
| Los Angeles | 67.4 | 56 | 8355.8 | 4% |
| Louisville | 33.3 | 42.6 | 1881.8 | 4% |
| Madison | 48.7 | 72.6 | 3204.0 | 7% |
| Memphis | 36.8 | 42.3 | 2082.1 | 0% |
| Mesa | 37.3 | 58.5 | 3434.0 | 7% |
| Miami | 79.2 | 59.7 | 12017.3 | 11% |
| Milwaukee | 62.1 | 54 | 6236.2 | 2% |
| Minneapolis | 69.2 | 81.3 | 7493.9 | 7% |
| Missoula | 46 | 60 | 2548.8 | 7% |
| Nashville | 28.3 | 32.8 | 1355.3 | 10% |
| New Orleans | 57.6 | 60.1 | 2265.8 | 30% |
| New York City | 89.2 | 65.1 | 27927.3 | 5% |
| Oakland | 72 | 60.9 | 7357.9 | 6% |
| Oklahoma City | 33.1 | 39.8 | 1023.1 | 10% |
| Omaha | 45.1 | 40.8 | 3488.8 | 9% |
| Philadelphia | 79 | 67.5 | 11641.3 | 4% |
| Phoenix | 40.8 | 54.3 | 3008.4 | 7% |
| Pittsburgh | 61.9 | 39.9 | 5513.9 | -1% |
| Portland, OR | 64.7 | 72 | 4666.1 | 10% |
| Raleigh | 30.1 | 40.6 | 3086.2 | 15% |
| Sacramento | 47.1 | 68.9 | 4944.2 | 5% |
| Salt Lake City | 57 | 70 | 1723.0 | 4% |
| San Antonio | 37.6 | 42 | 3122.3 | 12% |
| San Diego | 50.9 | 45.5 | 4230.2 | 7% |
| San Francisco | 86 | 75.1 | 18091.1 | 8% |
| San Jose | 50.5 | 56.9 | 5702.6 | 9% |
| Seattle | 73.1 | 63 | 7962.5 | 12% |
| Spokane | 48 | 48.6 | 3579.4 | 3% |
| St. Louis | 64.5 | 56.9 | 5104.7 | -1% |
| Tucson | 42.4 | 67.9 | 2324.2 | 2% |
| Tulsa | 39.5 | 43.6 | 2030.0 | 3% |
| Virginia Beach | 32.9 | 45.9 | 1806.2 | 3% |
| Washington, DC | 77.3 | 69.5 | 10803.4 | 13% |
| Wichita, KS | 35 | 43.5 | 2858.4 | 4% |

Bike & Walk Scores ⁴, Population Density ⁵, & Population Change ⁶

FIGURE 3.1.1 - BIKE & WALK SCORES, POPULATION DENSITY, & POPULATION CHANGE

Legend:

- Purple** = Small or mid-sized cities,
- Green** = Five highest values for large cities,
- Red** = Five lowest values for large cities,
- Blue** = Five highest values for small or mid-sized cities,
- Yellow** = Five lowest values for small or mid-sized cities

Population density is shown as persons per square mile. Populations for each city can be found in Chapter V: Appendix.

Demographics: Age ⁷, People of Color ⁸, Poverty ⁹, & Car Ownership ¹⁰

**FIGURE 3.1.2 - DEMOGRAPHICS:
AGE, PEOPLE OF COLOR, POVERTY,
& CAR OWNERSHIP**

Legend:

- Purple** = Small or mid-sized cities;
- Green** = Five highest values for large cities;
- Red** = Five lowest values for large cities;
- Blue** = Five highest values for small or mid-sized cities;
- Yellow** = Five lowest values for small or mid-sized cities

Averages are simple averages, not population-weighted.

| COMMUNITY | OLDER MEDIAN AGE | HIGHER % PPL OF COLOR | HIGHER % BELOW POVERTY LEVEL | HIGHER % HOUSEHOLDS W/ NO VEHICLE |
|-----------------------|------------------|-----------------------|------------------------------|-----------------------------------|
| Albany | 31.2 | 49% | 26% | 15% |
| Albuquerque | 36.0 | 59% | 19% | 3% |
| Anchorage | 32.8 | 40% | 8% | 2% |
| Arlington, TX | 32.8 | 58% | 17% | 2% |
| Atlanta | 33.5 | 63% | 24% | 8% |
| Austin | 32.4 | 51% | 17% | 3% |
| Baltimore | 34.7 | 72% | 23% | 16% |
| Baton Rouge | 31.3 | 63% | 26% | 4% |
| Bellingham | 31.1 | 21% | 22% | 5% |
| Boston | 31.7 | 55% | 21% | 23% |
| Boulder | 28.7 | 19% | 22% | 5% |
| Burlington | 26.7 | 16% | 25% | 6% |
| Charleston | 34.0 | 29% | 16% | 4% |
| Charlotte | 33.8 | 57% | 16% | 4% |
| Chattanooga | 37.0 | 43% | 21% | 5% |
| Chicago | 33.9 | 68% | 22% | 16% |
| Cleveland | 35.8 | 66% | 36% | 10% |
| Colorado Springs | 34.5 | 31% | 13% | 2% |
| Columbus, OH | 32.1 | 42% | 21% | 4% |
| Dallas | 32.5 | 71% | 23% | 4% |
| Davis | 25.6 | 44% | 29% | 4% |
| Denver | 34.2 | 47% | 16% | 4% |
| Detroit | 34.8 | 90% | 39% | 12% |
| El Paso | 32.6 | 86% | 21% | 2% |
| Eugene | 33.9 | 21% | 23% | 5% |
| Fort Collins | 29.3 | 19% | 18% | 2% |
| Fort Worth | 32.0 | 59% | 18% | 2% |
| Fresno | 30.2 | 72% | 30% | 4% |
| Honolulu | 40.9 | 84% | 12% | 8% |
| Houston | 32.7 | 75% | 22% | 4% |
| Indianapolis | 34.0 | 43% | 21% | 4% |
| Jacksonville | 35.7 | 47% | 17% | 4% |
| Kansas City, MO | 35.3 | 45% | 18% | 5% |
| Las Vegas | 37.4 | 54% | 17% | 4% |
| Long Beach | 34.2 | 72% | 20% | 5% |
| Los Angeles | 35.0 | 72% | 22% | 7% |
| Louisville | 37.3 | 33% | 18% | 4% |
| Madison | 30.8 | 25% | 19% | 8% |
| Memphis | 33.5 | 73% | 28% | 5% |
| Mesa | 36.1 | 36% | 16% | 3% |
| Miami | 39.7 | 89% | 28% | 9% |
| Milwaukee | 31.0 | 64% | 28% | 8% |
| Minneapolis | 31.9 | 40% | 21% | 9% |
| Missoula | 32.5 | 11% | 19% | 3% |
| Nashville | 34.0 | 44% | 18% | 3% |
| New Orleans | 35.5 | 69% | 26% | 9% |
| New York City | 35.9 | 68% | 20% | 46% |
| Oakland | 36.2 | 73% | 20% | 8% |
| Oklahoma City | 34.0 | 45% | 18% | 2% |
| Omaha | 34.2 | 33% | 16% | 3% |
| Philadelphia | 33.9 | 65% | 26% | 19% |
| Phoenix | 33.3 | 56% | 22% | 4% |
| Pittsburgh | 32.9 | 36% | 22% | 12% |
| Portland, OR | 36.8 | 28% | 17% | 7% |
| Raleigh | 32.9 | 46% | 15% | 3% |
| Sacramento | 34.2 | 66% | 21% | 3% |
| Salt Lake City | 31.8 | 35% | 19% | 5% |
| San Antonio | 33.1 | 75% | 20% | 4% |
| San Diego | 34.2 | 57% | 15% | 3% |
| San Francisco | 38.4 | 59% | 12% | 20% |
| San Jose | 36.1 | 73% | 11% | 2% |
| Seattle | 35.8 | 34% | 13% | 10% |
| Spokane | 35.8 | 18% | 20% | 3% |
| St. Louis | 34.8 | 57% | 27% | 10% |
| Tucson | 33.2 | 55% | 25% | 5% |
| Tulsa | 34.9 | 44% | 20% | 3% |
| Virginia Beach | 35.4 | 37% | 8% | 2% |
| Washington, DC | 33.8 | 64% | 18% | 27% |
| Wichita, KS | 34.4 | 37% | 17% | 2% |

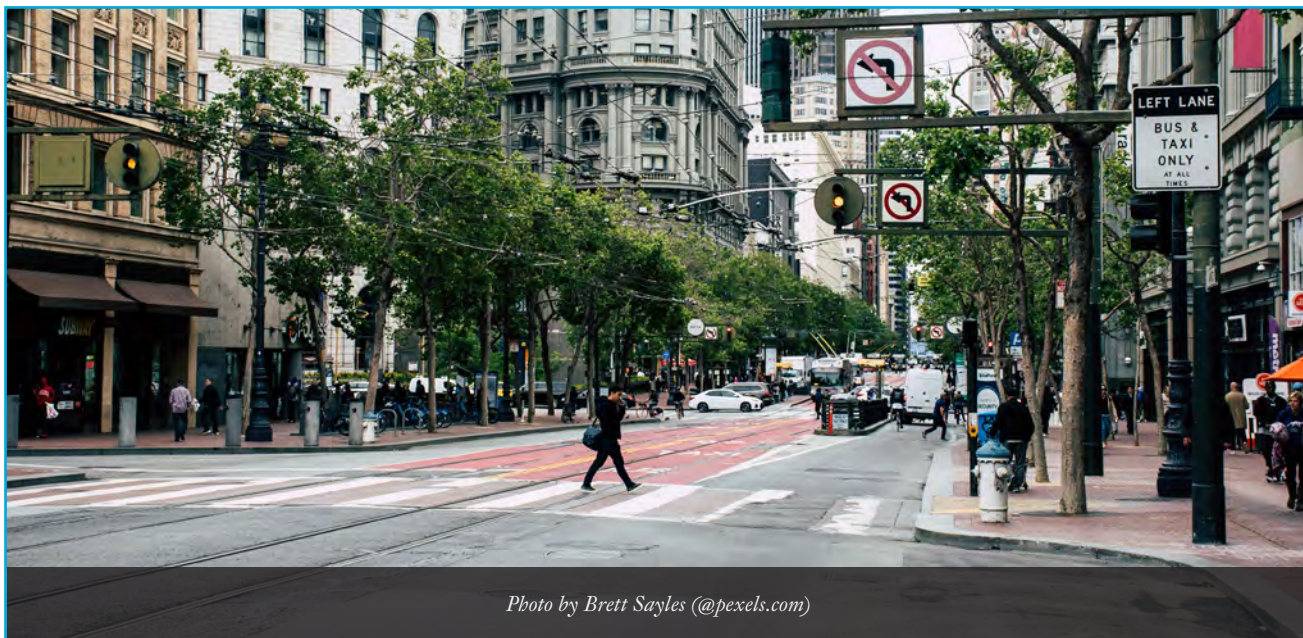


Photo by Brett Sayles (@pexels.com)

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3.2 - CITIES: OVERVIEW OF KEY FEDERAL BENCHMARKS ON BIKING & WALKING

This section includes charts that include all of the cities included in the Benchmarking Report data, the 50 largest cities in the United States and the small or mid-sized cities that have been included in prior Benchmarking Reports. These charts help contextualize the large and other cities according to the key federal data benchmarks of bicycling and walking to work and bicycling and walking safety.

BIKING TO WORK: There has been remarkable stability among the large cities with the highest rates of bicycling to work, with no changes in the top 10 since the 2016 Benchmarking Report. Nineteen of the 50 largest cities had a rate of bicycling to work lower than the national average while only one of the small or mid-sized cities included did.

WALKING TO WORK: Among large cities the top 10 for highest rates of walking to work are unchanged since the 2016 Benchmarking Report, but there have been some changes in order with Seattle and Minneapolis moving up. Three of the 5 large cities with the lowest rates of walking to work stayed in the bottom 5.

COMBINED ACTIVE COMMUTING RATE: Washington, DC unseated Boston as the large city with the highest combined rate of bicycling and walking to work. The three large cities with the lowest combined rates of bicycling and walking to work – Oklahoma City, Wichita, and Fort Worth – also had the lowest combined rates of bicycling and walking to work in the 2016 Benchmarking Report.



Group ride, photo courtesy of Coast Bike Share, St. Petersburg

| COMMUNITY | % OF COMMUTERS WHO BIKE TO WORK (2016) | % OF COMMUTERS WHO WALK TO WORK (2016) |
|-----------------------|----------------------------------------|----------------------------------------|
| Albany | 0.9% | 10.6% |
| Albuquerque | 1.5% | 2.0% |
| Anchorage | 1.2% | 3.3% |
| Arlington, TX | 0.2% | 1.7% |
| Atlanta | 0.8% | 4.6% |
| Austin | 1.4% | 2.3% |
| Baltimore | 0.8% | 6.7% |
| Baton Rouge | 0.6% | 3.3% |
| Bellingham | 3.3% | 8.3% |
| Boston | 2.1% | 14.8% |
| Boulder | 10.3% | 11.4% |
| Burlington | 5.6% | 21.7% |
| Charleston | 3.1% | 6.0% |
| Charlotte | 0.2% | 2.2% |
| Chattanooga | 0.5% | 2.9% |
| Chicago | 1.6% | 6.7% |
| Cleveland | 0.7% | 5.3% |
| Colorado Springs | 0.6% | 1.8% |
| Columbus, OH | 0.7% | 3.0% |
| Dallas | 0.2% | 1.9% |
| Davis | 21.1% | 4.7% |
| Denver | 2.3% | 4.5% |
| Detroit | 0.7% | 3.7% |
| El Paso | 0.2% | 1.7% |
| Eugene | 7.4% | 7.4% |
| Fort Collins | 6.6% | 3.8% |
| Fort Worth | 0.2% | 1.2% |
| Fresno | 1.1% | 1.5% |
| Honolulu | 2.0% | 8.3% |
| Houston | 0.5% | 2.1% |
| Indianapolis | 0.5% | 1.9% |
| Jacksonville | 0.6% | 1.6% |
| Kansas City, MO | 0.3% | 2.1% |
| Las Vegas | 0.4% | 1.8% |
| Long Beach | 1.0% | 2.5% |
| Los Angeles | 1.2% | 3.5% |
| Louisville | 0.4% | 2.3% |
| Madison | 5.2% | 9.5% |
| Memphis | 0.2% | 1.9% |
| Mesa | 0.9% | 1.5% |
| Miami | 1.0% | 4.2% |
| Milwaukee | 1.0% | 5.0% |
| Minneapolis | 4.3% | 7.2% |
| Missoula | 7.2% | 6.8% |
| Nashville | 0.2% | 2.0% |
| New Orleans | 3.1% | 4.7% |
| New York City | 1.1% | 10.0% |
| Oakland | 3.1% | 4.0% |
| Oklahoma City | 0.2% | 1.5% |
| Omaha | 0.3% | 2.3% |
| Philadelphia | 2.1% | 8.2% |
| Phoenix | 0.7% | 1.8% |
| Pittsburgh | 2.0% | 11.1% |
| Portland, OR | 6.5% | 6.0% |
| Raleigh | 0.5% | 1.8% |
| Sacramento | 2.1% | 3.1% |
| Salt Lake City | 2.7% | 5.2% |
| San Antonio | 0.2% | 1.7% |
| San Diego | 1.0% | 3.1% |
| San Francisco | 4.1% | 10.6% |
| San Jose | 0.9% | 1.7% |
| Seattle | 3.8% | 10.1% |
| Spokane | 0.8% | 3.7% |
| St. Louis | 0.9% | 4.3% |
| Tucson | 2.9% | 3.3% |
| Tulsa | 0.3% | 1.7% |
| Virginia Beach | 0.5% | 2.6% |
| Washington, DC | 4.3% | 13.3% |
| Wichita, KS | 0.3% | 1.4% |

Percent of Commuters Who Walk Or Bike to Work ¹¹

FIGURE 3.2.1 - PERCENT OF COMMUTERS WHO WALK OR BIKE TO WORK

Legend:

- Purple** = Small or mid-sized cities;
- Green** = Five highest values for large cities;
- Red** = Five lowest values for large cities;
- Blue** = Five highest values for small or mid-sized cities;
- Yellow** = Five lowest values for small or mid-sized cities

| COMMUNITY | % OF COMMUTERS WHO BIKE OR WALK TO WORK (2012-2016) | FATALITIES PER 10K PPL WHO WALK TO WORK (2012-2016) | FATALITIES PER 10K PPL WHO BIKE TO WORK (2012-2016) |
|------------------|-----------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|
| Albany | 11.5% | 4.8 | 4.9 |
| Albuquerque | 3.4% | 46.6 | 5.8 |
| Anchorage | 4.5% | 3.1 | 1.6 |
| Arlington, TX | 1.9% | 0.4 | 17.0 |
| Atlanta | 5.5% | 42.3 | 3.3 |
| Austin | 3.7% | 19.6 | 2.3 |
| Baltimore | 7.6% | 14.0 | 4.4 |
| Baton Rouge | 3.9% | 39.4 | 14.7 |
| Bellingham | 11.7% | 1.4 | 19.4 |
| Boston | 16.7% | 22.0 | 2.8 |
| Boulder | 21.8% | 0.3 | 9.6 |
| Burlington | 27.4% | 0.0 | 42.7 |
| Charleston | 9.1% | 5.6 | 29.0 |
| Charlotte | 2.4% | 17.9 | 15.0 |
| Chattanooga | 3.4% | 15.0 | 21.2 |
| Chicago | 8.3% | 9.7 | 2.9 |
| Cleveland | 6.0% | 7.7 | 2.1 |
| Colorado Springs | 2.4% | 2.8 | 3.2 |
| Columbus, OH | 3.7% | 2.4 | 8.2 |
| Dallas | 2.1% | 39.0 | 9.0 |
| Davis | 25.8% | 0.0 | 14.4 |
| Denver | 6.8% | 33.9 | 2.7 |
| Detroit | 4.4% | 20.6 | 20.2 |
| El Paso | 2.0% | 3.6 | 3.2 |
| Eugene | 14.8% | 0.4 | 20.0 |
| Fort Collins | 10.4% | 0.7 | 2.2 |
| Fort Worth | 1.5% | 48.9 | 15.3 |
| Fresno | 2.5% | 20.5 | 9.5 |
| Honolulu | 10.3% | 1.1 | 18.2 |
| Houston | 2.6% | 17.8 | 9.0 |
| Indianapolis | 2.3% | 4.9 | 11.2 |
| Jacksonville | 2.2% | 16.8 | 24.1 |
| Kansas City, MO | 2.5% | 5.6 | 15.8 |
| Las Vegas | 2.2% | 10.2 | 10.8 |
| Long Beach | 3.4% | 17.7 | 2.9 |
| Los Angeles | 4.7% | 4.6 | 5.9 |
| Louisville | 2.7% | 2.9 | 12.2 |
| Madison | 14.7% | 1.4 | 6.0 |
| Memphis | 2.1% | 2.0 | 17.6 |
| Mesa | 2.4% | 14.3 | 11.0 |
| Miami | 5.2% | 19.6 | 12.9 |
| Milwaukee | 6.0% | 1.9 | 3.2 |
| Minneapolis | 11.5% | 25.7 | 1.3 |
| Missoula | 13.9% | 0.0 | 4.6 |
| Nashville | 2.3% | 1.7 | 5.3 |
| New Orleans | 7.8% | 6.4 | 6.6 |
| New York City | 11.2% | 16.8 | 3.5 |
| Oakland | 7.0% | 44.4 | 2.6 |
| Oklahoma City | 1.7% | 4.4 | 34.3 |
| Omaha | 2.6% | 2.5 | 0.0 |
| Philadelphia | 10.3% | 32.9 | 2.7 |
| Phoenix | 2.5% | 15.1 | 17.1 |
| Pittsburgh | 13.1% | 1.4 | 18.9 |
| Portland, OR | 12.5% | 17.8 | 0.9 |
| Raleigh | 2.3% | 1.2 | 7.9 |
| Sacramento | 5.2% | 43.6 | 9.0 |
| Salt Lake City | 7.9% | 2.2 | 28.7 |
| San Antonio | 1.9% | 2.9 | 26.8 |
| San Diego | 4.0% | 40.7 | 4.2 |
| San Francisco | 14.7% | 16.9 | 1.1 |
| San Jose | 2.6% | 28.2 | 7.1 |
| Seattle | 13.8% | 12.1 | 1.0 |
| Spokane | 4.4% | 14.2 | 24.1 |
| St. Louis | 5.2% | 6.3 | 10.5 |
| Tucson | 6.2% | 3.5 | 5.4 |
| Tulsa | 2.0% | 37.5 | 11.2 |
| Virginia Beach | 3.2% | 2.8 | 9.5 |
| Washington, DC | 17.6% | 6.8 | 0.5 |
| Wichita, KS | 1.7% | 10.2 | 10.9 |

Percent of Commuters Who Bike & Walk to Work & Bike/Pedestrian Fatalities ¹²

FIGURE 3.2.2 - PERCENT OF COMMUTERS WHO BIKE & WALK TO WORK & BIKE/PEDESTRIAN FATALITIES

Legend:

- Purple = Small or mid-sized cities;
- Green = Five highest values for large cities;
- Red = Five lowest values for large cities;
- Blue = Five highest values for small or mid-sized cities;
- Yellow = Five lowest values for small or mid-sized cities

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¹² U.S. Census Bureau. *American Community Survey (ACS) Table B08006* 5-year estimate (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for City and Person Type (2012-2016)*. Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>

3.3 - CITIES: RATES OF ACTIVE COMMUTING

Rates of Active Commuting

FIGURE 3.3.1A - RATES OF ACTIVE COMMUTING IN LARGE CITIES ^{1 3}

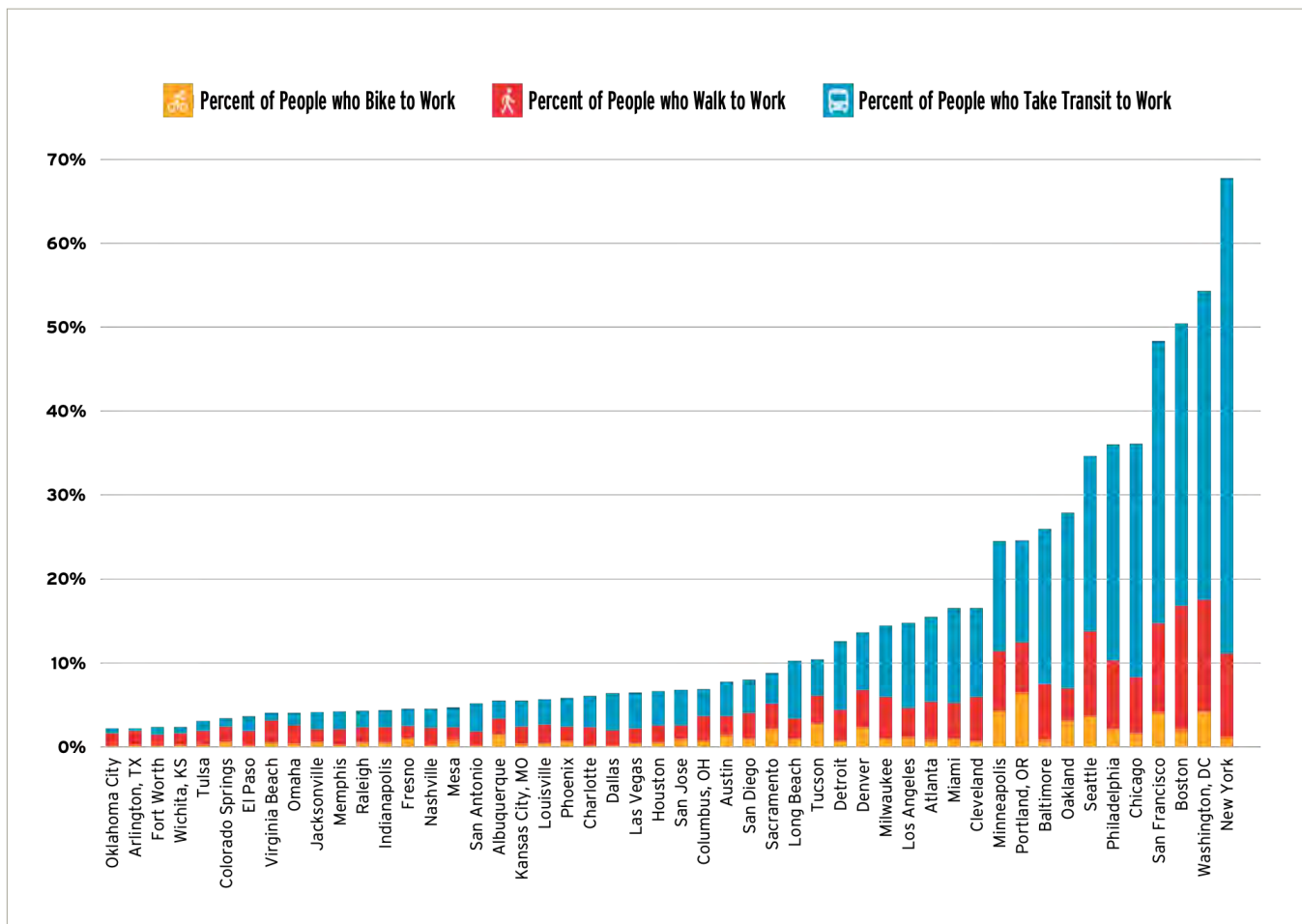
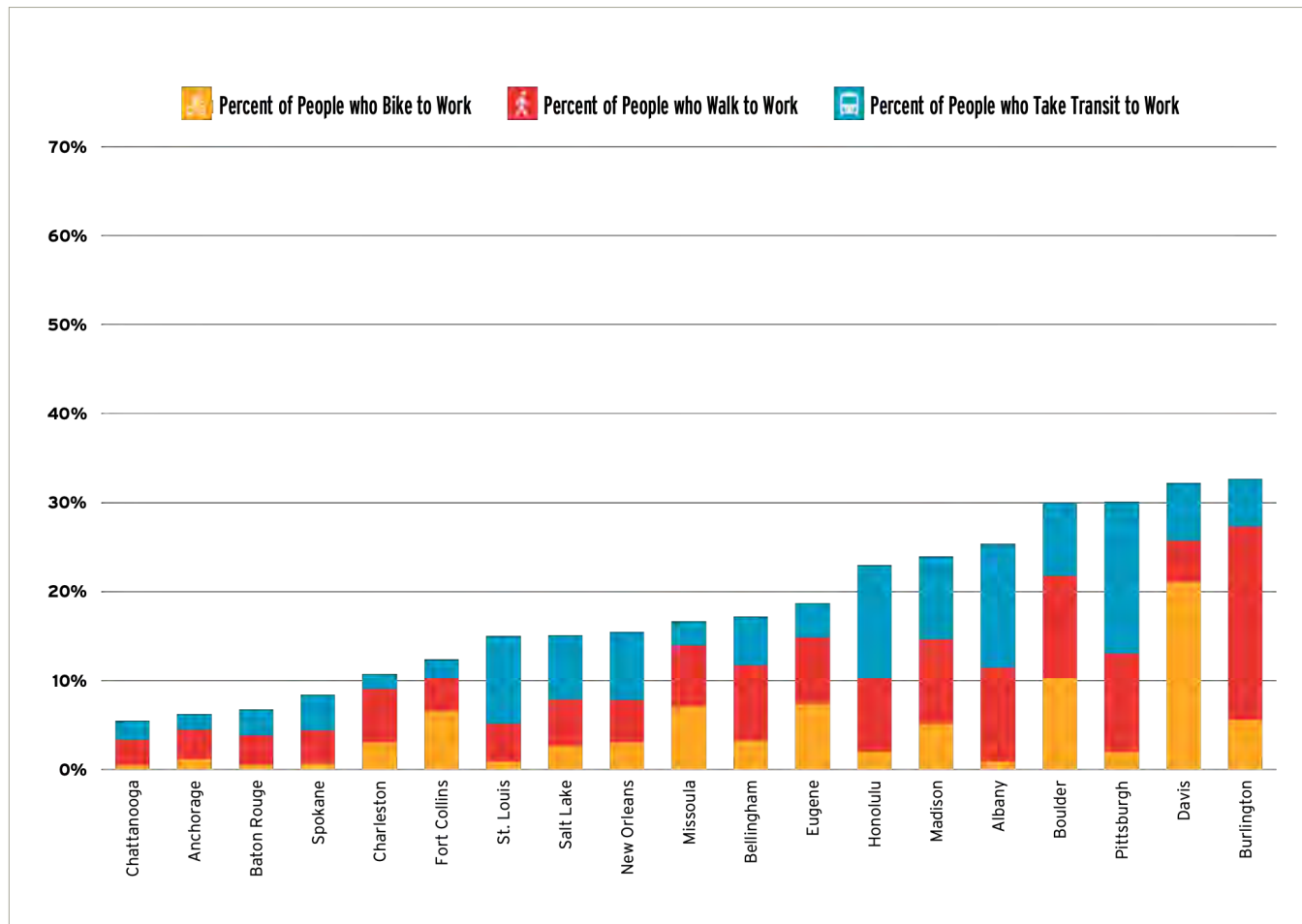


FIGURE 3.3.1B - RATES OF ACTIVE COMMUTING: IN SMALL OR MID-SIZED CITIES ¹⁴



(@pexels.com)

Changes in Active Commuter Modeshare

FIGURE 3.3.2A - CHANGES IN ACTIVE COMMUTER MODESHARE, LARGE CITIES ¹⁵

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| COMMUNITY | % OF PPL WHO BIKE TO WORK (2016) | % POINT CHANGE IN PPL WHO BIKE TO WORK (2010-2016) | % OF PPL WHO WALK TO WORK (2016) | % POINT CHANGE IN PPL WHO WALK TO WORK (2010-2016) | % OF PPL WHO TAKE TRANSIT TO WORK (2016) | % POINT CHANGE IN PPL WHO TAKE TRANSIT TO WORK (2010-2016) |
|------------------|----------------------------------|----------------------------------------------------|----------------------------------|----------------------------------------------------|------------------------------------------|------------------------------------------------------------|
| Albuquerque | 1.5% | 0.2 | 2.0% | -0.1 | 2.1% | 0.0 |
| Arlington, TX | - 0.2% | 0.1 | - 1.7% | -0.2 | - 0.2% | 0.0 |
| Atlanta | 0.8% | 0.2 | 4.6% | 0.2 | 10.0% | + 2.6 |
| Austin | 1.4% | 0.3 | 2.3% | 0.1 | 4.0% | + 0.8 |
| Baltimore | 0.8% | 0.2 | + 6.7% | -0.1 | + 18.4% | 0.1 |
| Boston | 2.1% | + 0.6 | + 14.8% | -0.1 | + 33.6% | - 0.7 |
| Charlotte | - 0.2% | 0.1 | 2.2% | 0.3 | 3.7% | 0.0 |
| Chicago | 1.6% | + 0.5 | + 6.7% | + 0.8 | + 27.8% | - 1.2 |
| Cleveland | 0.7% | 0.2 | 5.3% | + 0.8 | 10.6% | + 1.4 |
| Colorado Springs | 0.6% | 0.0 | 1.8% | - 0.6 | - 1.0% | 0.6 |
| Columbus, OH | 0.7% | 0.1 | 3.0% | 0.1 | 3.2% | -0.1 |
| Dallas | - 0.2% | - 0.1 | 1.9% | 0.0 | 4.3% | -0.1 |
| Denver | + 2.3% | 0.4 | 4.5% | 0.3 | 6.8% | + 1.0 |
| Detroit | 0.7% | 0.4 | 3.7% | + 0.7 | 8.2% | -0.2 |
| El Paso | - 0.2% | 0.1 | 1.7% | -0.2 | - 1.7% | 0.4 |
| Fort Worth | - 0.2% | 0.1 | - 1.2% | -0.1 | - 0.9% | 0.5 |
| Fresno | 1.1% | 0.3 | - 1.5% | - 0.6 | - 2.0% | 0.3 |
| Houston | 0.5% | 0.1 | 2.1% | -0.1 | 4.0% | + 0.8 |
| Indianapolis | 0.5% | 0.2 | 1.9% | -0.1 | 2.0% | -0.1 |
| Jacksonville | 0.6% | 0.1 | - 1.6% | 0.0 | 2.0% | - 0.5 |
| Kansas City, MO | 0.3% | 0.1 | 2.1% | 0.0 | 3.1% | + 0.6 |
| Las Vegas | 0.4% | - 0.0 | 1.8% | -0.1 | 4.3% | 0.1 |
| Long Beach | 1.0% | - 0.1 | 2.5% | - 0.5 | 6.8% | 0.3 |
| Los Angeles | 1.2% | 0.3 | 3.5% | 0.0 | 10.1% | + 0.9 |
| Louisville | 0.4% | - 0.0 | 2.3% | 0.2 | 3.0% | + 0.8 |
| Memphis | - 0.2% | 0.1 | 1.9% | -0.2 | 2.1% | 0.4 |
| Mesa | 0.9% | - 0.1 | - 1.5% | -0.1 | 2.3% | - 0.3 |
| Miami | 1.0% | + 0.5 | 4.2% | + 0.7 | 11.3% | 0.4 |
| Milwaukee | 1.0% | 0.2 | 5.0% | 0.2 | 8.5% | 0.0 |
| Minneapolis | + 4.3% | + 0.6 | + 7.2% | + 0.5 | + 13.1% | + 0.8 |
| Nashville | - 0.2% | - 0.1 | 2.0% | 0.2 | 2.2% | -0.2 |
| New York | 1.1% | 0.5 | + 10.0% | -0.1 | + 56.6% | - 1.4 |
| Oakland | + 3.1% | + 1.1 | 4.0% | - 0.4 | + 20.8% | - 4.1 |
| Oklahoma City | - 0.2% | - 0.0 | - 1.5% | 0.1 | - 0.5% | 0.2 |
| Omaha | 0.3% | 0.1 | 2.3% | - 0.3 | - 1.5% | -0.1 |
| Philadelphia | + 2.1% | 0.5 | + 8.2% | -0.2 | + 25.7% | 0.5 |
| Phoenix | 0.7% | 0.1 | 1.8% | -0.1 | 3.4% | 0.1 |
| Portland, OR | + 6.5% | + 1.1 | + 6.0% | + 0.6 | 12.1% | 0.0 |
| Raleigh | 0.5% | 0.1 | 1.8% | - 0.5 | 2.0% | -0.1 |
| Sacramento | + 2.1% | - 0.0 | 3.1% | 0.0 | 3.7% | 0.2 |
| San Antonio | - 0.2% | 0.1 | - 1.7% | - 0.5 | 3.3% | 0.0 |
| San Diego | 1.0% | 0.1 | 3.1% | 0.0 | 3.9% | 0.1 |
| San Francisco | + 4.1% | + 1.2 | + 10.6% | + 0.8 | + 33.6% | - 1.1 |
| San Jose | 0.9% | 0.2 | - 1.7% | - 0.2 | 4.2% | - 0.7 |
| Seattle | + 3.8% | + 1.0 | + 10.1% | + 1.4 | + 20.8% | - 2.0 |
| Tucson | + 2.9% | + 0.7 | 3.3% | - 0.5 | 4.2% | - 0.6 |
| Tulsa | - 0.3% | - 0.0 | - 1.7% | - 0.4 | - 1.1% | -0.1 |
| Virginia Beach | 0.5% | - 0.1 | 2.6% | + 0.3 | - 0.9% | 0.0 |
| Washington, DC | + 4.3% | + 2.0 | + 13.3% | + 1.4 | + 36.8% | + 0.8 |
| Wichita, KS | 0.3% | - 0.0 | - 1.4% | 0.1 | - 0.7% | 0.2 |

FIGURE 3.3.2B - CHANGES IN ACTIVE COMMUTER MODESHARE, SMALL OR MID-SIZED CITIES ¹⁶

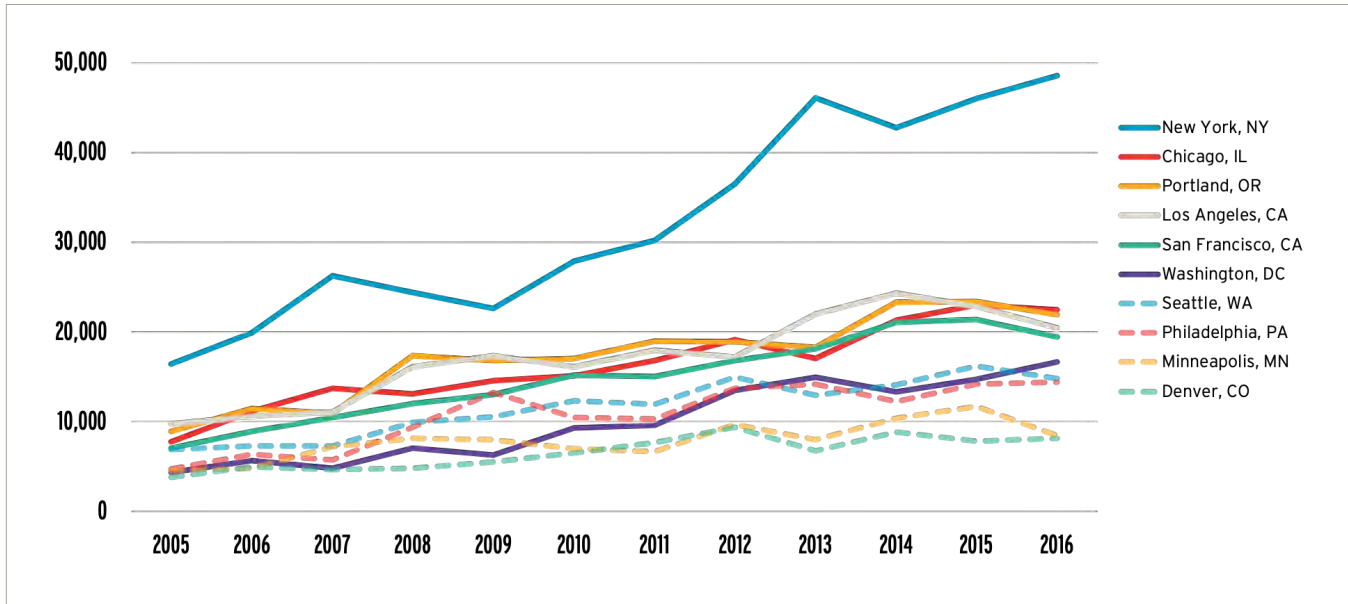
Legend: **Green** = 5 highest values; **Red** = 5 lowest values

| COMMUNITY | % OF PPL WHO BIKE TO WORK (2016) | % POINT CHANGE IN PPL WHO BIKE TO WORK (2010-2016) | % OF PPL WHO WALK TO WORK (2016) | % POINT CHANGE IN PPL WHO WALK TO WORK (2010-2016) | % OF PPL WHO TAKE TRANSIT TO WORK (2016) | % POINT CHANGE IN PPL WHO TAKE TRANSIT TO WORK (2010-2016) |
|----------------|----------------------------------|----------------------------------------------------|----------------------------------|----------------------------------------------------|------------------------------------------|------------------------------------------------------------|
| Albany | - 0.9% | 0.0 | + 10.6% | - -0.4 | + 13.9% | - -1.0 |
| Anchorage | 1.2% | 0.2 | - 3.3% | 0.6 | - 1.8% | -0.3 |
| Baton Rouge | - 0.6% | - -0.1 | - 3.3% | -0.2 | 2.9% | -0.5 |
| Bellingham | 3.3% | - -0.9 | 8.3% | + 1.0 | 5.5% | 0.2 |
| Boulder | + 10.3% | 0.6 | + 11.4% | + 2.1 | 8.3% | + 1.5 |
| Burlington | 5.6% | + 1.8 | + 21.7% | + 1.2 | 5.3% | -0.6 |
| Charleston | 3.1% | + 1.4 | 6.0% | + 1.0 | - 1.7% | + 1.3 |
| Chattanooga | - 0.5% | 0.1 | - 2.9% | 0.6 | - 2.1% | -0.2 |
| Davis | + 21.1% | + 3.5 | 4.7% | 0.8 | 6.5% | + 0.8 |
| Eugene | + 7.4% | - -0.7 | 7.4% | + 1.0 | 3.9% | + 2.0 |
| Fort Collins | + 6.6% | - -0.1 | - 3.8% | 0.7 | - 2.0% | - -1.0 |
| Honolulu | 2.0% | 0.5 | 8.3% | - -0.6 | + 12.6% | 0.0 |
| Madison | 5.2% | 0.7 | + 9.5% | 0.1 | + 9.3% | - -0.8 |
| Missoula | + 7.2% | + 1.4 | 6.8% | -0.1 | - 2.7% | 0.0 |
| New Orleans | 3.1% | + 1.3 | 4.7% | - -0.6 | 7.7% | - -0.7 |
| Pittsburgh | 2.0% | 0.8 | + 11.1% | - -0.7 | + 17.1% | + 2.4 |
| Salt Lake City | 2.7% | 0.5 | 5.2% | - -0.3 | 7.2% | - -1.5 |
| Spokane | - 0.8% | - -0.4 | - 3.7% | 0.3 | 4.0% | 0.4 |
| St. Louis | - 0.9% | 0.1 | 4.3% | 0.3 | + 9.8% | 0.8 |



10 Cities with the Most Bike Commuters

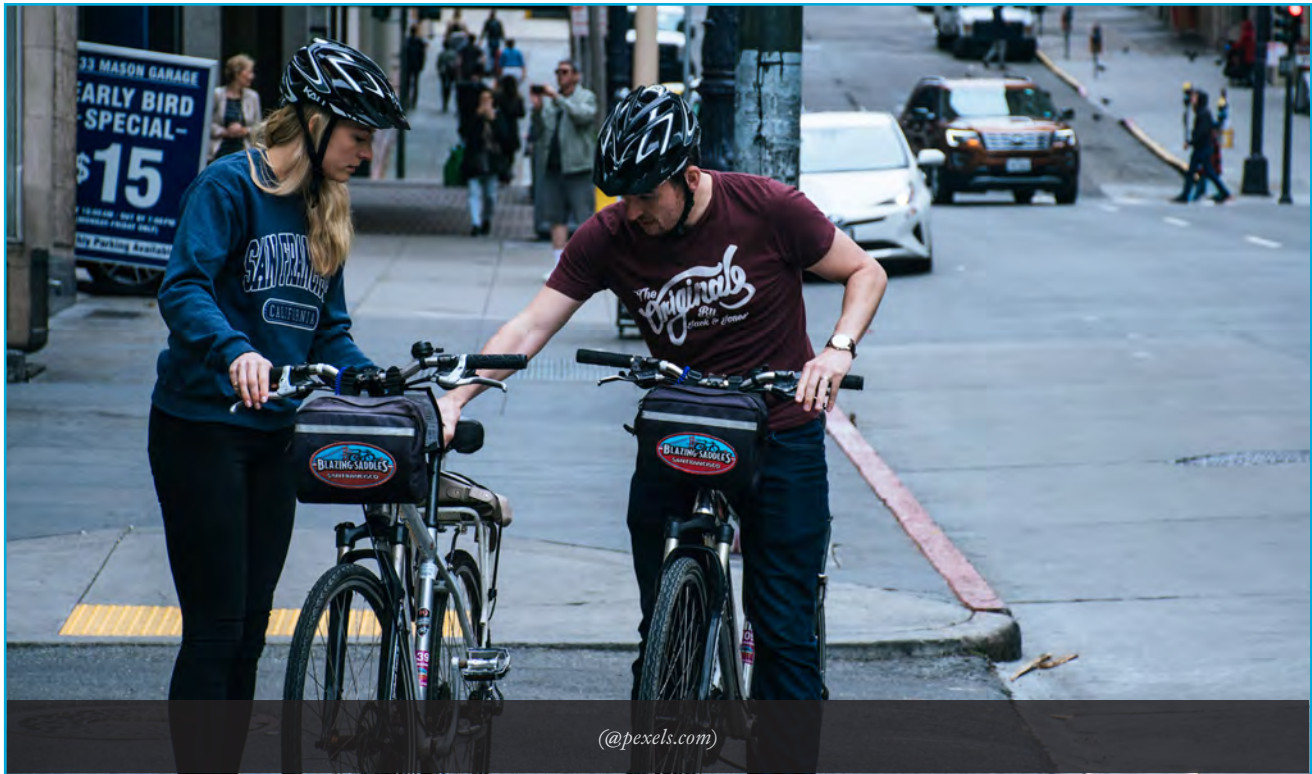
FIGURE 3.3.3A - NUMBER OF BICYCLE COMMUTERS IN THE 10 CITIES WITH MOST BIKE COMMUTERS ¹⁷



In 2005, only one city had more than 10,000 bike commuters. As of 2016, there are 8 cities with more than 10,000 bike commuters – including 4 cities with over 20,000 – according to the Census Bureau. Between 2005 and 2016, the percentage of people biking to work more than doubled in 5 of the 10 cities with the most bike commuters. These 10 cities account for slightly less than 23% of all bike commuters nationwide.

FIGURE 3.3.3B - NUMBER OF BICYCLE COMMUTERS IN THE 10 CITIES WITH MOST BIKE COMMUTERS

| COMMUNITY | ESTIMATED # OF BICYCLE COMMUTERS IN 2016 ¹⁸ | CHANGE IN # OF BICYCLE COMMUTERS (2005-2016) ¹⁸ | % CHANGE IN RATE OF PPL BIKING TO WORK (2005-2016) ¹⁸ | % CHANGE IN POPULATION (2005-2016) ¹⁹ |
|-------------------|--------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------------|--------------------------------------------------|
| New York, NY | 48601 | 32133 | 153% | 7% |
| Chicago, IL | 22449 | 14637 | 153% | 0% |
| Portland, OR | 21982 | 13040 | 82% | 25% |
| Los Angeles, CA | 20495 | 10674 | 79% | 7% |
| San Francisco, CA | 19429 | 12376 | 110% | 21% |
| Washington, DC | 16647 | 12311 | 165% | 32% |
| Seattle, WA | 14801 | 7838 | 53% | 31% |
| Philadelphia, PA | 14397 | 9619 | 144% | 11% |
| Minneapolis, MN | 8465 | 3876 | 51% | 18% |
| Denver, CO | 8181 | 4367 | 54% | 27% |



Topic References

13 See footnote 11.

14 See footnote 11.

15 See footnote 11.

16 U.S. Census Bureau. *American Community Survey (ACS) Table B08006* 5-year estimates (2010 and 2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

17 U.S. Census Bureau. *American Community Survey (ACS) Table B08006* 1-year estimates (2005-2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

18 See footnote 17.

19 U.S. Census Bureau. *American Community Survey (ACS) Table B01003* 1-year estimates (2005 and 2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

3.4 - CITIES: DEMOGRAPHICS OF ACTIVE TRANSPORTATION COMMUTERS

The Benchmarking Report began looking at over- or under-representation of people of color and low-income commuters among those who walk to work or take transit to work in 2016.

The Benchmarking Report has not included bicycling to work in this analysis because demographic data on who rides a bicycle to work is not available in tabular data at the city level. The Census Bureau produced some national demographics data about who bikes to work in 2014.²⁰ Data regarding women bicycling to work is available and reported in Figure 3.4.5.

For national demographic data, please see Section 1.2 Nation: Demographics of Active Transportation.



Low Income Commuters & Walking to Work

FIGURE 3.4.1A - LOW INCOME COMMUTERS & WALKING TO WORK, LARGE CITIES

Legend: **Green** = High values for walking to work, low values for poverty status-related data; **Orange** = low values for poverty/walking inter-related data; **Red** = Low values for walking to work, high values for poverty status; **Blue** = high values for poverty/walking inter-related data

| COMMUNITY | 2016 % OF PPL WHO WALK TO WORK ²¹ | 2016 % OF ALL COMMUTERS WHO HAVE LOW INCOME ²² | 2016 % OF PPL WHO WALK TO WORK WHO HAVE LOW INCOME ²³ | OVER- OR UNDER-REPRESENTATION OF LOW INCOME WORKERS AMONG PPL WHO WALK TO WORK (IN % POINTS) |
|------------------|----------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Boston | 14.8% | 21.1% | 18.6% | -2.6 |
| Washington, DC | 13.3% | 17.9% | 12.8% | -5.1 |
| San Francisco | 10.6% | + 12.5% | 14.1% | 1.7 |
| Seattle | 10.1% | + 13.0% | 16.9% | 4.0 |
| New York City | 10.0% | 20.3% | 22.0% | 1.7 |
| Philadelphia | 8.2% | - 25.9% | 22.2% | -3.6 |
| Minneapolis | 7.2% | 21.3% | 34.6% | 13.2 |
| Baltimore | 6.7% | - 23.1% | 23.2% | 0.2 |
| Chicago | 6.7% | 21.7% | 22.9% | 1.2 |
| Portland, OR | 6.0% | 16.9% | 28.5% | 11.6 |
| Cleveland | 5.3% | - 36.0% | 42.0% | 6.0 |
| Milwaukee | 5.0% | - 28.4% | 43.1% | 14.8 |
| Atlanta | 4.6% | - 24.0% | 25.3% | 1.4 |
| Denver | 4.5% | 16.4% | 20.0% | 3.6 |
| Miami | 4.2% | - 27.6% | 34.0% | 6.3 |
| Oakland | 4.0% | + 20.0% | 28.7% | 8.7 |
| Detroit | 3.7% | - 39.4% | 46.0% | 6.6 |
| Los Angeles | 3.5% | 21.5% | 35.5% | 14.0 |
| Tucson | 3.3% | - 25.1% | 50.0% | 24.9 |
| San Diego | 3.1% | + 15.0% | 25.9% | 10.9 |
| Sacramento | 3.1% | 21.4% | 27.3% | 5.8 |
| Columbus, OH | 3.0% | 21.2% | 43.3% | 22.1 |
| Virginia Beach | 2.6% | + 8.2% | 21.7% | 13.5 |
| Long Beach | 2.5% | 20.3% | 35.4% | 15.2 |
| Austin | 2.3% | 16.7% | 33.9% | 17.3 |
| Omaha | 2.3% | + 16.3% | 29.6% | 13.3 |
| Louisville | 2.3% | 17.7% | 39.3% | 21.6 |
| Charlotte | 2.2% | + 15.8% | 22.4% | 6.6 |
| Kansas City, MO | 2.1% | 18.3% | 35.3% | 17.0 |
| Houston | 2.1% | 21.9% | 38.7% | 16.9 |
| Nashville | 2.0% | 18.0% | 31.3% | 13.3 |
| Albuquerque | 2.0% | 18.9% | 36.2% | 17.3 |
| Memphis | 1.9% | - 27.6% | 42.6% | 15.1 |
| Dallas | 1.9% | 22.9% | 35.1% | 12.2 |
| Indianapolis | 1.9% | 20.9% | 38.8% | 17.9 |
| Colorado Springs | 1.8% | + 12.8% | 30.4% | 17.5 |
| Las Vegas | 1.8% | 16.8% | 31.0% | 14.2 |
| Raleigh | 1.8% | + 14.9% | 26.5% | 11.6 |
| Phoenix | 1.8% | 22.3% | 38.6% | 16.3 |
| El Paso | 1.7% | 21.0% | 48.5% | 27.5 |
| Tulsa | 1.7% | 20.3% | 41.1% | 20.7 |
| Arlington, TX | 1.7% | 16.6% | 39.2% | 22.6 |
| San Antonio | 1.7% | 19.5% | 39.3% | 19.7 |
| San Jose | 1.7% | + 10.9% | 24.3% | 13.4 |
| Jacksonville | 1.6% | 17.0% | 31.7% | 14.7 |
| Mesa | 1.5% | + 16.2% | 24.5% | 8.3 |
| Fresno | 1.5% | - 30.0% | 48.9% | 18.9 |
| Oklahoma City | 1.5% | 17.8% | 32.5% | 14.7 |
| Wichita, KS | 1.4% | 17.1% | 47.7% | 30.5 |
| Fort Worth | 1.2% | 18.0% | 39.5% | 21.6 |

FIGURE 3.4.1B - LOW INCOME COMMUTERS & WALKING TO WORK, SMALL OR MID-SIZED CITIES

Legend: **Green** = High values for walking to work, low values for poverty status-related data; **Orange** = low values for poverty/walking inter-related data; **Red** = Low values for walking to work, high values for poverty status; **Blue** = high values for poverty/walking inter-related data

| COMMUNITY | 2016 % OF PPL WHO WALK TO WORK ^{2,4} | 2016 % OF ALL COMMUTERS WHO HAVE LOW INCOME ^{2,5} | 2016 % OF PPL WHO WALK TO WORK WHO HAVE LOW INCOME ^{2,6} | OVER- OR UNDER-REPRESENTATION OF LOW INCOME WORKERS AMONG PPL WHO WALK TO WORK (IN % POINTS) |
|----------------|-----------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Burlington | 21.7% | 25.1% | 38.6% | 13.5 |
| Boulder | 11.4% | 22.0% | 40.0% | 18.0 |
| Pittsburgh | 11.1% | 22.3% | 35.2% | 12.9 |
| Albany | 10.6% | - 25.6% | + 24.1% | - 1.5 |
| Madison | 9.5% | + 18.6% | + 51.9% | + 33.3 |
| Bellingham | 8.3% | 22.2% | 40.6% | 18.5 |
| Honolulu | 8.3% | + 12.1% | - 16.9% | + 4.8 |
| Eugene | 7.4% | 23.1% | + 56.5% | + 33.4 |
| Missoula | 6.8% | 19.3% | 39.0% | 19.7 |
| Charleston | 6.0% | + 16.3% | + 42.6% | + 26.3 |
| Salt Lake City | 5.2% | 19.1% | - 28.8% | 9.7 |
| New Orleans | 4.7% | - 26.2% | 30.1% | + 3.9 |
| Davis | 4.7% | - 28.8% | 34.2% | + 5.4 |
| St. Louis | 4.3% | - 26.7% | - 25.9% | - 0.8 |
| Fort Collins | 3.8% | + 17.8% | 34.9% | 17.1 |
| Spokane | 3.7% | 19.7% | 32.7% | 13.0 |
| Baton Rouge | 3.3% | - 26.1% | + 53.3% | + 27.1 |
| Anchorage | 3.3% | + 8.1% | - 17.6% | 9.5 |
| Chattanooga | 2.9% | 21.1% | + 44.7% | + 23.7 |

Most cities reviewed for the Benchmarking Report have an over-representation of low-income workers among people who walk to work. There are only 5 cities in our data set – Boston, Washington DC, Philadelphia, Albany NY, and St. Louis where low-income workers are under-represented among people who walk to work.

In large cities, the overall rate of walking to work seems to be related to over- or under-representation of low-income workers among people who walk to work, with cities with higher rates of walking to work being less likely to have an over-representation. In the other cities this appears to be less true.

Low Income Commuters & Taking Transit to Work

FIGURE 3.4.2A - LOW INCOME COMMUTERS & TAKING TRANSIT TO WORK, LARGE CITIES

Legend: **Green** = High values for taking transit to work, low values for poverty status-related data; **Orange** = low values for poverty/transit-related data; **Red** = Low values for taking transit to work, high values for poverty status; **Blue** = high values for poverty/transit-related data

| COMMUNITY | 2016 % OF PPL WHO TAKE TRANSIT TO WORK ²⁷ | 2016 % OF ALL COMMUTERS WHO HAVE LOW INCOME ²⁸ | 2016 % OF PPL WHO TAKE TRANSIT TO WORK WHO HAVE LOW INCOME ²⁹ | OVER- OR UNDER-REPRESENTATION OF LOW INCOME WORKERS AMONG PPL WHO TAKE TRANSIT TO WORK (IN % POINTS) |
|------------------|------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| El Paso | - 1.7% | 21.0% | • 57.1% | 36.1 |
| Colorado Springs | - 1.0% | + 12.8% | • 47.9% | 35.1 |
| Louisville | 3.0% | 17.7% | • 47.6% | 29.9 |
| Tulsa | - 1.1% | 20.3% | • 49.6% | 29.3 |
| Tucson | 4.2% | - 25.1% | • 53.6% | 28.5 |
| San Antonio | 3.3% | 19.5% | • 47.4% | 27.9 |
| Jacksonville | 2.0% | 17.0% | 44.4% | 27.4 |
| Raleigh | 2.0% | + 14.9% | 42.2% | 27.3 |
| Oklahoma City | - 0.5% | 17.8% | 42.4% | 24.6 |
| Kansas City, MO | 3.1% | 18.3% | 42.4% | 24.0 |
| Las Vegas | 4.3% | 16.8% | 38.9% | 22.1 |
| Indianapolis | 2.0% | 20.9% | 42.8% | 21.9 |
| Mesa | 2.3% | + 16.2% | 37.7% | 21.5 |
| Long Beach | 6.8% | 20.3% | 41.4% | 21.2 |
| Omaha | - 1.5% | + 16.3% | 37.3% | 21.0 |
| Albuquerque | 2.1% | 18.9% | 39.7% | 20.8 |
| San Diego | 3.9% | + 15.0% | 35.1% | 20.1 |
| Miami | 11.3% | - 27.6% | • 47.3% | 19.7 |
| Los Angeles | 10.1% | 21.5% | 41.2% | 19.7 |
| Wichita, KS | - 0.7% | 17.1% | 36.8% | 19.6 |
| Fort Worth | - 0.9% | 18.0% | 37.5% | 19.6 |
| Columbus, OH | 3.2% | 21.2% | 40.5% | 19.3 |
| Memphis | 2.1% | - 27.6% | • 46.9% | 19.3 |
| Nashville | 2.2% | 18.0% | 36.8% | 18.8 |
| Phoenix | 3.4% | 22.3% | 40.7% | 18.4 |
| Charlotte | 3.7% | + 15.8% | 33.9% | 18.1 |
| Fresno | - 2.0% | - 30.0% | • 47.5% | 17.5 |
| Austin | 4.0% | 16.7% | 33.9% | 17.2 |
| Virginia Beach | - 0.9% | + 8.2% | 24.8% | 16.6 |
| Dallas | + 4.3% | 22.9% | • 38.4% | 15.5 |
| Milwaukee | 8.5% | - 28.4% | 43.4% | 15.1 |
| Atlanta | 10.0% | - 24.0% | 38.7% | 14.7 |
| Houston | 4.0% | 21.9% | 36.0% | 14.1 |
| Minneapolis | + 13.1% | 21.3% | 33.4% | 12.1 |
| Cleveland | 10.6% | - 36.0% | 46.7% | 10.7 |
| Denver | 6.8% | 16.4% | 26.2% | 9.8 |
| Detroit | 8.2% | - 39.4% | • 48.4% | 9.0 |
| San Jose | 4.2% | + 10.9% | • 19.0% | 8.1 |
| Portland, OR | 12.1% | 16.9% | 24.4% | 7.5 |
| Sacramento | 3.7% | 21.4% | 24.7% | 3.2 |
| Baltimore | + 18.4% | - 23.1% | 25.2% | 2.1 |
| Seattle | + 20.8% | + 13.0% | • 14.9% | 1.9 |
| San Francisco | + 33.6% | + 12.5% | • 12.0% | -0.5 |
| Arlington, TX | - 0.2% | 16.6% | • 15.9% | -0.7 |
| Oakland | + 20.8% | 20.0% | • 18.8% | -1.2 |
| Chicago | + 27.8% | 21.7% | • 20.0% | -1.7 |
| Boston | + 33.6% | 21.1% | • 18.8% | -2.3 |
| New York City | + 56.6% | 20.3% | • 17.1% | -3.2 |
| Philadelphia | + 25.7% | - 25.9% | • 22.6% | -3.2 |
| Washington, DC | + 36.8% | 17.9% | • 13.3% | -4.6 |

FIGURE 3.4.2B - LOW INCOME COMMUTERS & TAKING TRANSIT TO WORK, SMALL OR MID-SIZED CITIES

Legend: **Green** = High values for taking transit to work, low values for poverty status-related data; **Orange** = low values for poverty/transit-related data; **Red** = Low values for taking transit to work, high values for poverty status; **Blue** = high values for poverty/transit-related data

| COMMUNITY | 2016 % OF PPL WHO TAKE TRANSIT TO WORK ³⁰ | 2016 % OF ALL COMMUTERS WHO HAVE LOW INCOME ³¹ | 2016 % OF PPL WHO TAKE TRANSIT TO WORK WHO HAVE LOW INCOME ³² | OVER- OR UNDER-REPRESENTATION OF LOW INCOME WORKERS AMONG PPL WHO TAKE TRANSIT TO WORK (IN % POINTS) |
|----------------|------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Fort Collins | - 2.0% | + 17.8% | + 69.1% | 51.3 |
| Bellingham | 5.5% | 22.2% | + 57.7% | 35.6 |
| Eugene | 3.9% | 23.1% | + 56.7% | 33.6 |
| Missoula | - 2.7% | 19.3% | + 50.8% | 31.6 |
| Baton Rouge | 2.9% | - 26.1% | + 51.7% | 25.6 |
| Charleston | - 1.7% | + 16.3% | 41.7% | 25.4 |
| Burlington | 5.3% | 25.1% | 48.2% | 23.1 |
| Spokane | 4.0% | 19.7% | 41.6% | 21.9 |
| St. Louis | + 9.8% | - 26.7% | 44.1% | 17.4 |
| New Orleans | 7.7% | - 26.2% | 43.3% | 17.1 |
| Madison | + 9.3% | + 18.6% | 35.2% | 16.7 |
| Chattanooga | - 2.1% | 21.1% | 37.6% | 16.5 |
| Davis | 6.5% | - 28.8% | 43.6% | 14.8 |
| Salt Lake City | 7.2% | 19.1% | + 33.5% | 14.4 |
| Boulder | 8.3% | 22.0% | 34.3% | 12.3 |
| Anchorage | - 1.8% | + 8.1% | + 17.3% | 9.2 |
| Honolulu | + 12.6% | + 12.1% | + 20.7% | 8.7 |
| Albany | + 13.9% | - 25.6% | + 30.2% | 4.7 |
| Pittsburgh | + 17.1% | 22.3% | + 26.9% | 4.6 |

In large cities, there are more large cities where under-representation of low-income workers among people who take transit to work is more common than among people who walk to work. In the other cities reviewed for the Benchmarking Report, low-income workers are over-represented among people who take transit to work in every city. This may suggest that larger cities struggle to provide access to transit for lower-income workers.

Over-representation is more likely to occur when there is a high percentage of low-income workers who take transit. This does not appear to be too correlated with having a high percentage of low-income workers – of large cities with the 5 highest percentages of low-income workers, only one – Detroit – is among the 5 highest percentages of low-income workers who take transit to work.

Commuters of Color & Walking to Work

FIGURE 3.4.3A - COMMUTERS OF COLOR & WALKING TO WORK, LARGE CITIES

Legend: Green = High values for walking to work, low values for race/ethnicity-related data; Orange = low values for race/ethnicity & walking data; Red = Low values for walking to work, high values for race/ethnicity; Blue = high values for race/ethnicity & walking data

| COMMUNITY | 2016 % OF PPL WHO WALK TO WORK ³³ | 2016 % OF ALL COMMUTERS WHO ARE PPL OF COLOR ³⁴ | 2016 % OF PPL WHO WALK TO WORK WHO ARE PPL OF COLOR ³⁴ | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG PPL WHO WALK TO WORK (IN % POINTS) |
|------------------|----------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Raleigh | 1.8% | 37% | 50% | 13.4 |
| Oklahoma City | - 1.5% | 29% | 42% | 13.4 |
| San Antonio | - 1.7% | - 21% | 31% | 10.7 |
| Phoenix | 1.8% | 25% | 35% | 10.0 |
| Wichita, KS | - 1.4% | - 21% | 31% | 9.9 |
| Las Vegas | 1.8% | 34% | 44% | 9.2 |
| Arlington, TX | - 1.7% | 34% | 43% | 8.7 |
| Albuquerque | 2.0% | 27% | 35% | 8.7 |
| Louisville | 2.3% | 25% | 33% | 7.9 |
| Tulsa | - 1.7% | 31% | 39% | 7.3 |
| Colorado Springs | 1.8% | - 19% | 26% | 7.1 |
| Omaha | 2.3% | - 18% | 24% | 5.4 |
| Mesa | - 1.5% | - 15% | 19% | 4.5 |
| Fort Worth | - 1.2% | 33% | 37% | 4.0 |
| El Paso | 1.7% | - 16% | 20% | 3.7 |
| Minneapolis | + 7.2% | 26% | 29% | 3.6 |
| Long Beach | 2.5% | 44% | 48% | 3.4 |
| Dallas | 1.9% | 36% | 39% | 3.0 |
| Los Angeles | 3.5% | 46% | 49% | 2.8 |
| Oakland | 4.0% | + 55% | 57% | 2.6 |
| Tucson | 3.3% | 25% | 27% | 2.5 |
| Memphis | 1.9% | + 65% | 67% | 2.2 |
| Jacksonville | - 1.6% | 36% | 37% | 1.5 |
| Portland, OR | + 6.0% | - 19% | 20% | 1.5 |
| Seattle | + 10.1% | 26% | 27% | 1.2 |
| Houston | 2.1% | 40% | 41% | 1.1 |
| Atlanta | 4.6% | + 48% | 49% | 1.1 |
| Austin | 2.3% | - 22% | 23% | 1.0 |
| Miami | 4.2% | - 20% | 20% | -0.1 |
| Virginia Beach | 2.6% | 31% | 30% | -1.2 |
| Indianapolis | 1.9% | 34% | 32% | -1.5 |
| Fresno | - 1.5% | 42% | 41% | -1.9 |
| San Francisco | + 10.6% | 46% | 44% | -2.6 |
| Kansas City, MO | 2.1% | 34% | 31% | -2.9 |
| Denver | 4.5% | - 19% | 16% | -3.5 |
| San Diego | 3.1% | 33% | 28% | -4.4 |
| Cleveland | 5.3% | + 51% | 46% | -4.8 |
| San Jose | - 1.7% | + 56% | 51% | -4.9 |
| Nashville | 2.0% | 34% | 28% | -5.8 |
| Sacramento | 3.1% | 46% | 39% | -6.8 |
| Columbus, OH | 3.0% | 33% | 26% | -6.8 |
| Charlotte | 2.2% | 45% | 38% | -7.2 |
| Chicago | + 6.7% | 43% | 34% | -8.8 |
| New York City | + 10.0% | + 53% | 44% | -9.1 |
| Boston | + 14.8% | 40% | 29% | -11.5 |
| Milwaukee | 5.0% | 45% | 33% | -12.1 |
| Baltimore | + 6.7% | + 62% | 50% | -12.2 |
| Detroit | 3.7% | + 84% | 71% | -13.6 |
| Philadelphia | + 8.2% | + 52% | 37% | -14.4 |
| Washington, DC | + 13.3% | + 47% | 31% | -16.7 |

FIGURE 3.4.3B - COMMUTERS OF COLOR & WALKING TO WORK, SMALL OR MID-SIZED CITIES

Legend: **Green** = High values for walking to work, low values for race/ethnicity-related data; **Orange** = low values for race/ethnicity & walking data; **Red** = Low values for walking to work, high values for race/ethnicity; **Blue** = high values for race/ethnicity & walking data

| COMMUNITY | 2016 % OF PPL WHO WALK TO WORK ³⁵ | 2016 % OF ALL COMMUTERS WHO ARE PPL OF COLOR ³⁶ | 2016 % OF PPL WHO WALK TO WORK WHO ARE PPL OF COLOR ³⁶ | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG PPL WHO WALK TO WORK (IN % POINTS) |
|----------------|----------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Davis | 4.7% | 30% | 45% | 15.4 |
| Charleston | 6.0% | 21% | 31% | 9.9 |
| Eugene | 7.4% | 14% | 21% | 7.0 |
| Fort Collins | - 3.8% | - 9% | 16% | 6.9 |
| St. Louis | 4.3% | + 43% | 49% | 6.4 |
| Chattanooga | - 2.9% | 35% | 40% | 5.5 |
| Boulder | + 11.4% | - 11% | 16% | 4.6 |
| Spokane | - 3.7% | - 12% | 16% | 3.8 |
| Missoula | 6.8% | - 8% | 11% | 3.3 |
| Baton Rouge | - 3.3% | + 56% | 58% | 2.3 |
| Pittsburgh | + 11.1% | 26% | 28% | 1.8 |
| Bellingham | 8.3% | 16% | 17% | 1.4 |
| Madison | + 9.5% | 18% | 18% | 0.6 |
| Burlington | + 21.7% | - 12% | 12% | 0.4 |
| Salt Lake City | 5.2% | 23% | 23% | 0.3 |
| Albany | + 10.6% | + 38% | 38% | -0.1 |
| Anchorage | - 3.3% | 30% | 29% | -1.1 |
| Honolulu | 8.3% | + 80% | 73% | -6.6 |
| New Orleans | 4.7% | + 56% | 44% | -11.5 |

People of color are not over-represented among people who walk to work to the same extent as people who have lower incomes. In larger cities, many of the cities with lower rates of walking to work also have people of color over-represented among those who walk to work. Some of the cities, such as Raleigh and Oklahoma City, where people of color are over-represented among people who walk to work also have some of the lower Walk Scores of cities reviewed in the Benchmarking Report.

Commuters of Color & Taking Transit to Work

FIGURE 3.4.4A - COMMUTERS OF COLOR & TAKING TRANSIT TO WORK, LARGE CITIES

Legend: **Green** = High values for taking transit to work, low values for race/ethnicity-related data; **Orange** = low values for race/ethnicity & transit data; **Red** = Low values for taking transit to work, high values for race/ethnicity; **Blue** = high values for race/ethnicity & transit data

| COMMUNITY | 2016 % OF PPL WHO TAKE TRANSIT TO WORK ³⁷ | 2016 % OF ALL COMMUTERS WHO ARE PPL OF COLOR ³⁸ | 2016 % OF PPL WHO TAKE TRANSIT TO WORK WHO ARE PPL OF COLOR ³⁸ | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG PPL WHO TAKE TRANSIT TO WORK (IN % POINTS) |
|------------------|------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Louisville | 3.0% | 25% | 68% | 42.6 |
| Kansas City, MO | 3.1% | 34% | 74% | 40.4 |
| Indianapolis | 2.0% | 34% | 68% | 34.1 |
| Tulsa | - 1.1% | 31% | 64% | 33.0 |
| Jacksonville | 2.0% | 36% | 68% | 32.5 |
| Omaha | - 1.5% | - 18% | 50% | 31.4 |
| Atlanta | 10.0% | + 48% | 79% | 30.5 |
| Columbus, OH | 3.2% | 33% | 62% | 29.6 |
| Virginia Beach | - 0.9% | 31% | 60% | 29.6 |
| Fort Worth | - 0.9% | 33% | 62% | 29.5 |
| Cleveland | 10.6% | + 51% | 78% | 27.4 |
| Nashville | 2.2% | 34% | 61% | 27.1 |
| Charlotte | 3.7% | 45% | 72% | 26.7 |
| Dallas | 4.3% | 36% | 62% | 26.2 |
| Oklahoma City | - 0.5% | 29% | 55% | 25.9 |
| Fresno | - 2.0% | 42% | 68% | 25.2 |
| Raleigh | 2.0% | 37% | 61% | 24.1 |
| Memphis | 2.1% | + 65% | 89% | 24.0 |
| Milwaukee | 8.5% | 45% | 68% | 23.1 |
| Colorado Springs | - 1.0% | - 19% | 40% | 20.8 |
| Baltimore | + 18.4% | + 62% | 82% | 20.6 |
| Las Vegas | 4.3% | 34% | 55% | 20.3 |
| Wichita, KS | - 0.7% | - 21% | 41% | 20.1 |
| Houston | 4.0% | 40% | 58% | 17.9 |
| Mesa | 2.3% | - 15% | 33% | 17.9 |
| Tucson | 4.2% | 25% | 41% | 16.8 |
| Miami | 11.3% | - 20% | 36% | 15.6 |
| Los Angeles | 10.1% | 46% | 61% | 15.4 |
| Phoenix | 3.4% | 25% | 40% | 14.4 |
| San Antonio | 3.3% | - 21% | 35% | 14.1 |
| Philadelphia | + 25.7% | + 52% | 65% | 13.9 |
| Minneapolis | + 13.1% | 26% | 39% | 13.2 |
| Long Beach | 6.8% | 44% | 56% | 11.9 |
| Denver | 6.8% | - 19% | 31% | 11.6 |
| Albuquerque | 2.1% | 27% | 38% | 11.0 |
| Austin | 4.0% | - 22% | 32% | 10.5 |
| Detroit | 8.2% | + 84% | 94% | 9.7 |
| San Diego | 3.9% | 33% | 42% | 9.3 |
| Sacramento | 3.7% | 46% | 54% | 8.1 |
| El Paso | - 1.7% | - 16% | 23% | 7.2 |
| Seattle | + 20.8% | 26% | 32% | 6.3 |
| Portland, OR | 12.1% | - 19% | 24% | 5.6 |
| Boston | + 33.6% | 40% | 46% | 5.4 |
| San Jose | 4.2% | + 56% | 61% | 4.4 |
| New York City | + 56.6% | + 53% | 57% | 3.5 |
| San Francisco | + 33.6% | 46% | 49% | 2.8 |
| Washington, DC | + 36.8% | + 47% | 50% | 2.7 |
| Chicago | + 27.8% | 43% | 44% | 1.7 |
| Oakland | + 20.8% | + 55% | 52% | -2.2 |
| Arlington, TX | - 0.2% | 34% | 28% | -5.9 |

FIGURE 3.4.4B- COMMUTERS OF COLOR & TAKING TRANSIT TO WORK, SMALL OR MID-SIZED CITIES

Legend: **Green** = High values for taking transit to work, low values for race/ethnicity-related data; **Orange** = low values for race/ethnicity & transit data; **Red** = Low values for taking transit to work, high values for race/ethnicity; **Blue** = high values for race/ethnicity & transit data

| COMMUNITY | 2016 % OF PPL WHO TAKE TRANSIT TO WORK ³⁹ | 2016 % OF ALL COMMUTERS WHO ARE PPL OF COLOR ⁴⁰ | 2016 % OF PPL WHO TAKE TRANSIT TO WORK WHO ARE PPL OF COLOR ⁴⁰ | OVER- OR UNDER-REPRESENTATION OF PPL OF COLOR AMONG PPL WHO TAKE TRANSIT TO WORK (IN % POINTS) |
|----------------|------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Charleston | - 1.7% | 21% | 82% | 61.0 |
| Chattanooga | - 2.1% | 35% | 84% | 49.6 |
| St. Louis | + 9.8% | + 43% | 81% | 38.5 |
| Albany | + 13.9% | + 38% | 70% | 32.5 |
| New Orleans | 7.7% | + 56% | 82% | 25.7 |
| Davis | 6.5% | 30% | 52% | 22.4 |
| Baton Rouge | 2.9% | + 56% | 74% | 17.9 |
| Pittsburgh | + 17.1% | 26% | 44% | 17.4 |
| Anchorage | - 1.8% | 30% | 46% | 16.4 |
| Madison | + 9.3% | 18% | 32% | 14.8 |
| Burlington | 5.3% | - 12% | 27% | 14.8 |
| Missoula | - 2.7% | - 8% | 21% | 13.6 |
| Bellingham | 5.5% | 16% | 26% | 9.9 |
| Eugene | 3.9% | 14% | 22% | 8.3 |
| Boulder | 8.3% | - 11% | 19% | 7.4 |
| Salt Lake City | 7.2% | 23% | 30% | 7.0 |
| Honolulu | + 12.6% | + 80% | 86% | 6.6 |
| Fort Collins | - 2.0% | - 9% | 14% | 4.7 |
| Spokane | 4.0% | - 12% | 14% | 1.7 |



Bike on a bus in Oakland, CA, photo courtesy of Alliance for Biking and Walking

People of color are much more likely to be over-represented among people who take transit to work than among people who walk to work. In 72% of the large cities reviewed (36 out of 50), people of color are over-represented by at least 10 percentage points among people who take transit to work. People of color are over-represented among people who take transit to work in every one of the other cities reviewed for the Benchmarking Report.

Women Biking & Walking to Work

FIGURE 3.4.5A - WOMEN BIKING & WALKING TO WORK, LARGE CITIES ⁴¹

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| COMMUNITY | 2016 % OF PPL WHO WALK TO WORK WHO ARE FEMALE | OVER- OR UNDER-REPRESENTATION OF WOMEN AMONG PPL WHO WALK TO WORK (IN % POINTS) | 2016 % OF PPL WHO BIKE TO WORK WHO ARE FEMALE | UNDER-REPRESENTATION OF WOMEN AMONG PPL WHO BIKE TO WORK (IN % POINTS) |
|------------------|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|
| Albuquerque | 47.5% | -0.6 | 26.6% | -21.5 |
| Arlington, TX | 45.2% | -1.5 | 28.2% | -18.5 |
| Atlanta | - 41.0% | - 8 | - 19.8% | - 29.2 |
| Austin | 46.3% | 1.3 | 29.3% | + -15.7 |
| Baltimore | + 52.8% | -0.2 | 27.8% | - 25.2 |
| Boston | + 52.7% | + 2.2 | 28.5% | -22 |
| Charlotte | - 39.3% | - 8.7 | 25.5% | -22.5 |
| Chicago | + 50.2% | + 2 | 28.5% | -19.7 |
| Cleveland | 44.2% | - 7.1 | - 20.5% | - 30.8 |
| Colorado Springs | 43.2% | -2.4 | - 15.0% | - 30.6 |
| Columbus, OH | 44.3% | -4.7 | 27.9% | -21.1 |
| Dallas | 41.8% | -2.7 | - 15.3% | - 29.1 |
| Denver | 44.2% | -2 | 29.3% | -16.9 |
| Detroit | 46.5% | - 7.1 | + 32.4% | -21.2 |
| El Paso | 49.1% | + 3.7 | - 19.7% | - 25.7 |
| Fort Worth | 46.7% | 0.9 | - 8.8% | - 37.1 |
| Fresno | 48.4% | 1.5 | 25.0% | -22 |
| Houston | 46.6% | + 2.9 | - 18.7% | -25 |
| Indianapolis | 44.9% | -4.9 | 29.6% | -20.2 |
| Jacksonville | - 36.2% | - 12.1 | 23.7% | -24.6 |
| Kansas City, MO | 43.1% | - 5.8 | + 38.8% | + -10.2 |
| Las Vegas | - 41.0% | - 5.6 | 22.0% | -24.5 |
| Long Beach | + 50.9% | + 4.3 | 28.7% | -17.9 |
| Los Angeles | 48.8% | + 3.7 | - 19.9% | - 25.2 |
| Louisville | 46.2% | -2.6 | 28.1% | -20.7 |
| Memphis | - 36.6% | - 13.8 | - 17.4% | - 33 |
| Mesa | 43.3% | -2.6 | 29.3% | -16.7 |
| Miami | 47.1% | + 2.1 | 23.0% | -22 |
| Milwaukee | + 52.3% | 0.9 | 30.0% | -21.4 |
| Minneapolis | 47.3% | -0.7 | + 34.7% | + -13.2 |
| Nashville | 43.1% | -5.5 | 20.9% | - 27.7 |
| New York City | + 51.5% | + 2.9 | 26.5% | -22.2 |
| Oakland | + 54.2% | + 6.3 | + 37.7% | + -10.2 |
| Oklahoma City | - 41.5% | -4.7 | 27.3% | -18.9 |
| Omaha | 47.1% | -0.8 | 30.5% | -17.4 |
| Philadelphia | + 53.6% | 1.8 | + 37.1% | + -14.7 |
| Phoenix | 43.9% | -1.5 | 25.0% | -20.5 |
| Portland, OR | 47.2% | -0.8 | + 36.0% | + -12 |
| Raleigh | - 40.3% | - 8.3 | 28.7% | -20 |
| Sacramento | 48.3% | -0.2 | + 35.2% | + -13.3 |
| San Antonio | 43.8% | -2.9 | 22.2% | -24.5 |
| San Diego | - 39.6% | -5.3 | 24.6% | -20.3 |
| San Francisco | 47.8% | 1.6 | + 31.3% | + -14.9 |
| San Jose | + 50.5% | + 6.4 | 24.0% | -20 |
| Seattle | 43.1% | -3.9 | 29.8% | -17.3 |
| Tucson | 43.8% | -3.9 | + 32.5% | + -15.2 |
| Tulsa | 42.5% | -4.2 | 27.7% | -19 |
| Virginia Beach | - 33.6% | - 12.6 | 29.8% | -16.4 |
| Washington, DC | + 49.9% | -1.2 | + 39.0% | + -12.1 |
| Wichita, KS | - 41.2% | -5.4 | - 14.8% | - 31.8 |

FIGURE 3.4.5B - WOMEN BIKING & WALKING TO WORK, SMALL OR MID-SIZED CITIES ⁴²

Legend: **Green** = 5 highest values; **Red** = 5 lowest values

| COMMUNITY | 2016 % OF PPL WHO WALK TO WORK WHO ARE FEMALE | OVER- OR UNDER-REPRESENTATION OF WOMEN AMONG PPL WHO WALK TO WORK (IN % POINTS) | 2016 % OF PPL WHO BIKE TO WORK WHO ARE FEMALE | UNDER-REPRESENTATION OF WOMEN AMONG PPL WHO BIKE TO WORK (IN % POINTS) |
|----------------|-----------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|
| Albany | + 51.3% | 0.6 | - 20.3% | -30.4 |
| Anchorage | - 35.1% | -10.8 | - 22.2% | -23.7 |
| Baton Rouge | - 40.0% | -9.1 | - 24.8% | -24.2 |
| Bellingham | + 53.8% | + 5.2 | 35.1% | -13.5 |
| Boulder | 46.1% | -0.8 | 35.0% | + -11.8 |
| Burlington | + 54.8% | + 6.1 | 30.9% | -17.7 |
| Charleston | + 52.2% | + 1.5 | + 38.9% | + -11.7 |
| Chattanooga | 45.2% | -4.4 | + 37.1% | -12.5 |
| Davis | + 60.2% | + 10.8 | + 42.7% | + -6.6 |
| Eugene | 50.1% | 1.2 | 31.5% | -17.4 |
| Fort Collins | - 42.4% | -4.4 | 35.9% | + -10.9 |
| Honolulu | 50.0% | + 3.5 | 31.5% | -15.1 |
| Madison | 50.2% | 1.5 | 31.9% | -16.8 |
| Missoula | 45.3% | -4.4 | + 37.4% | -12.3 |
| New Orleans | 46.1% | -4.4 | + 37.0% | -13.4 |
| Pittsburgh | 49.7% | 0.5 | - 28.7% | -20.5 |
| Salt Lake City | - 41.2% | -2.6 | 33.2% | + -10.6 |
| Spokane | 49.3% | 0.6 | - 17.2% | -31.5 |
| St. Louis | - 42.6% | -8 | 31.2% | -19.4 |



Children in Cargo Bike, photo courtesy of Bike Arlington, VA

Women are under-represented among people who walk to work in 68% of the 50 largest cities in the United States.

Women are under-represented among people who bike to work in every one of the 50 largest cities in the United States and in each of the other cities reviewed for the Benchmarking Report. Davis, California – the city with the highest rate of bicycling to work in the United States – has the least under-representation of women in all cities reviewed for this report.

Topic References

20 Brian McKenzie. U.S. Census Bureau. *Modes Less Traveled – Bicycling and Walking to Work in the United States: 2008-2012* (2014). Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf>

21 U.S. Census Bureau. *American Community Survey (ACS) Table B08006 1-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

22 U.S. Census Bureau. *ACS Table B17001 5-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. (For the purpose of this chart, low-income refers to workers making 150% of the federal poverty level or less).

23 U.S. Census Bureau. *ACS Table B08122 5-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>.

24 See footnote 21.

25 See footnote 22.

26 See footnote 23.

27 See footnote 21.

28 See footnote 22.

29 See footnote 23.

30 See footnote 21.

31 See footnote 22.

32 See footnote 23.

33 See footnote 21.

34 U.S. Census Bureau. *ACS Table B08105H 5-year estimate* (2016). Available at <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. (For the purpose of this chart, “People of Color” refers to all persons who are not “White Alone, Not Hispanic or Latino”).

35 See footnote 21.

36 See footnote 34.

37 See footnote 21.

38 See footnote 34.

39 See footnote 21.

40 See footnote 34.

41 See footnote 11.

42 See footnote 11.

3.5 - CITIES: PUBLIC HEALTH INDICATORS & BIKING & WALKING

This section – Cities: Public Health Indicators & Biking & Walking – looks at chronic disease rates that often have a relationship to physical activity.

This section does not include the small or mid-sized cities included elsewhere in the Benchmarking Report because the data source for chronic diseases used, the Center for Disease Control and Prevention’s Behavioral Risk Factor Surveillance Survey, did not have data for at least one year for a majority of those cities.

The following definitions may be helpful for interpreting this section:

- **BODY MASS INDEX** – Body Mass Index (BMI) is a person’s weight in kilograms divided by the square of the person’s height in meters.⁴³ When using pounds and inches, a conversion factor is used. BMI is often used as a screening tool. It is not a diagnostic tool that assesses the health of an individual. For adults, BMI is interpreted into weight status categories: underweight, normal or healthy weight, overweight, and obese. People who have obesity, compared to people with normal or healthy weight, are at an increased risk for many serious diseases and health conditions.⁴⁴
- **RECOMMENDED AEROBIC PHYSICAL ACTIVITY** – The U.S. Department of Health and Human Services first developed aerobic physical activity guidelines in 2008 and released the 2nd edition in 2018. In both guidelines the recommended aerobic physical activity for adults is at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic physical activity each week.⁴⁵
- **DIABETES** – There are 3 types of diabetes.⁴⁶ The data reported in the Benchmarking Report is from a survey that asks whether a person has been told by a doctor that they have diabetes and does not refer to a specific type.
- **HIGH BLOOD PRESSURE** – “Having high blood pressure means the pressure of the blood in your blood vessels is higher than it should be.”⁴⁷ This condition increases a person’s risk for heart disease and stroke, two of the leading causes of death for Americans.
- **ASTHMA** – Asthma is a chronic disease that affects a person’s lungs and can cause inflammation that makes it difficult to breathe. According to the CDC, asthma costs the United States \$56 billion each year.⁴⁸



Family biking, photo courtesy of the CDC

Percentage of Adults Overweight or With Obesity & Active Commuting

FIGURE 3.5.1 - PERCENTAGE OF POPULATION OVERWEIGHT OR WITH OBESITY & ACTIVE COMMUTING

Legend: **Green** = 10 lowest values for BMI-related data, 10 highest values for commute-related data;

Red = 10 highest values for BMI-related data, 10 lowest values for commute-related data

| COMMUNITY | % OF POP. THAT IS OVERWEIGHT (2016) ⁴⁹ | % OF POP. WITH OBESITY (2016) ⁴⁹ | CHANGE IN % OF POP. THAT IS OVERWEIGHT (2010-16) ⁴⁹ | CHANGE IN % OF POP. WITH OBESITY (2010-16) ⁴⁹ | % OF PPL WHO WALK OR BIKE TO WORK (2016) ⁵⁰ |
|------------------|---------------------------------------------------|---------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| Albuquerque | - 37.2% | 27.1% | - 6.4% | - 24.9% | 3.4% |
| Arlington, TX | + 33.0% | 30.6% | -4.0% | + -13.5% | - 1.9% |
| Atlanta | 35.3% | 30.3% | - 4.2% | 5.6% | 5.5% |
| Austin | + 32.9% | 29.4% | + -11.3% | 9.0% | 3.7% |
| Baltimore | 34.2% | 29.8% | + -11.0% | 6.3% | + 7.6% |
| Boston | - 36.7% | + 22.0% | - 5.3% | + -0.1% | + 16.9% |
| Charlotte | 34.7% | 30.5% | -0.8% | 8.9% | 2.4% |
| Chicago | 34.7% | 29.8% | 1.3% | 10.3% | + 8.3% |
| Cleveland | 34.3% | 29.8% | + -16.1% | - 20.5% | 6.0% |
| Colorado Springs | 36.3% | + 23.1% | -3.9% | + -2.3% | 2.4% |
| Columbus, OH | 34.2% | 30.2% | -2.3% | + -1.0% | 3.7% |
| Dallas | 34.7% | - 34.6% | - 16.4% | 2.4% | - 2.1% |
| Denver | - 36.6% | + 22.4% | -2.0% | 14.2% | 6.8% |
| Detroit | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | 4.4% |
| El Paso | 34.6% | - 34.3% | + -15.9% | - 19.9% | - 2.0% |
| Fort Worth | + 33.0% | 30.6% | -4.0% | + -13.5% | - 1.5% |
| Fresno | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | 2.5% |
| Houston | 36.0% | 29.5% | - 5.9% | 1.4% | 2.6% |
| Indianapolis | 35.8% | - 31.0% | 0.2% | 10.0% | 2.3% |
| Jacksonville | 35.3% | 29.1% | -0.3% | 11.7% | - 2.2% |
| Kansas City, MO | - 36.5% | 29.6% | 1.5% | + 0.2% | 2.5% |
| Las Vegas | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | 2.2% |
| Long Beach | 35.7% | 24.9% | -6.6% | 2.5% | 3.4% |
| Los Angeles | 35.7% | + 24.9% | -6.6% | 2.5% | 4.7% |
| Louisville | + 33.1% | - 32.2% | -5.7% | 3.1% | 2.7% |
| Memphis | + 30.4% | - 40.5% | + -13.9% | 13.1% | - 2.1% |
| Mesa | 34.4% | 28.7% | + -16.3% | - 25.9% | 2.4% |
| Miami | - 37.0% | 25.2% | -1.3% | + -11.0% | 5.2% |
| Milwaukee | 34.2% | 30.2% | -2.4% | 16.2% | 6.0% |
| Minneapolis | - 36.5% | 25.9% | -0.6% | 3.8% | + 11.5% |
| Nashville | 35.0% | 30.3% | -6.3% | - 22.5% | 2.3% |
| New York City | 34.4% | + 24.0% | + -8.5% | 9.5% | + 11.2% |
| Oakland | + 31.6% | + 18.4% | + -14.5% | 0.9% | 7.0% |
| Oklahoma City | 36.1% | - 31.4% | - 3.6% | 4.5% | - 1.7% |
| Omaha | - 37.5% | - 31.7% | 0.9% | - 22.7% | 2.6% |
| Philadelphia | + 33.3% | 28.7% | -6.9% | - 17.6% | + 10.3% |
| Phoenix | 34.4% | 28.7% | + -16.3% | - 25.9% | 2.5% |
| Portland, OR | 34.7% | 26.3% | - 2.8% | 1.1% | + 12.5% |
| Raleigh | + 33.9% | 29.3% | -5.8% | 8.6% | 2.3% |
| Sacramento | - 37.1% | + 24.9% | - 5.6% | 3.5% | 5.2% |
| San Antonio | + 32.4% | - 39.1% | -3.2% | - 31.2% | - 1.9% |
| San Diego | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | 4.0% |
| San Francisco | + 31.6% | + 18.4% | + -14.5% | + 0.9% | + 14.7% |
| San Jose | 36.4% | + 18.9% | -7.0% | + -10.9% | 2.6% |
| Seattle | 35.3% | + 24.1% | 1.0% | 5.6% | + 13.8% |
| Tucson | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | Not Reported For at Least One Year | 6.2% |
| Tulsa | - 37.1% | 30.0% | - 2.1% | + -0.5% | - 2.0% |
| Virginia Beach | - 36.6% | - 30.9% | - 14.3% | 1.9% | 3.2% |
| Washington, DC | 36.1% | 26.4% | -2.4% | 4.8% | + 17.6% |
| Wichita, KS | 34.4% | - 31.7% | 0.1% | - 17.1% | - 1.7% |

Recommended Aerobic Physical Activity & Biking & Walking to Work

FIGURE 3.5.2 - RECOMMENDED AEROBIC PHYSICAL ACTIVITY & BIKING & WALKING TO WORK

Legend: **Green** = 10 highest values; **Red** = 10 lowest values

| COMMUNITY | % OF ADULTS GETTING RECOMMENDED AEROBIC PHYSICAL ACTIVITY (2015) ⁵¹ | % CHANGE IN ADULTS GETTING RECOMMENDED AEROBIC PHYSICAL ACTIVITY (2011-2015) ⁵¹ | % OF PPL WHO WALK OR BIKE TO WORK ⁵² |
|------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------|
| Albuquerque | + 58.5% | + 12.3% | 3.4% |
| Arlington, TX | - 44.6% | -6.5% | - 1.9% |
| Atlanta | 50.6% | -2.9% | 5.5% |
| Austin | 50.2% | - 10.2% | 3.7% |
| Baltimore | 53.5% | + 16.0% | + 7.6% |
| Boston | 51.2% | - 9.6% | + 16.9% |
| Charlotte | 46.6% | -7.4% | 2.4% |
| Chicago | 49.1% | -6.1% | + 8.3% |
| Cleveland | 51.1% | -5.3% | 6.0% |
| Colorado Springs | + 57.8% | -6.3% | 2.4% |
| Columbus, OH | 49.2% | -1.7% | 3.7% |
| Dallas | - 44.2% | - 9.4% | - 2.1% |
| Denver | + 59.7% | -2.9% | 6.8% |
| Detroit | Not Reported For at Least One Year | Not Reported For at Least One Year | 4.4% |
| El Paso | - 43.6% | na | - 2.0% |
| Fort Worth | - 44.6% | -6.5% | - 1.5% |
| Fresno | Not Reported For at Least One Year | Not Reported For at Least One Year | 2.5% |
| Houston | - 44.8% | - 12.3% | 2.6% |
| Indianapolis | - 45.8% | -0.8% | 2.3% |
| Jacksonville | 53.8% | -1.3% | - 2.2% |
| Kansas City, MO | 50.2% | + 3.2% | 2.5% |
| Las Vegas | na | na | 2.2% |
| Long Beach | 56.6% | 1.1% | 3.4% |
| Los Angeles | 56.6% | 1.1% | 4.7% |
| Louisville | - 46.2% | -2.0% | 2.7% |
| Memphis | - 44.7% | + 18.1% | - 2.1% |
| Mesa | 52.9% | 0.0% | 2.4% |
| Miami | 48.9% | -3.4% | 5.2% |
| Milwaukee | + 57.8% | -1.7% | 6.0% |
| Minneapolis | 56.4% | 1.5% | + 11.5% |
| Nashville | - 43.3% | 0.5% | 2.3% |
| New York City | 46.4% | - 10.2% | + 11.2% |
| Oakland | + 58.0% | - 7.0% | 7.0% |
| Oklahoma City | 48.7% | + 8.6% | - 1.7% |
| Omaha | 51.6% | + 4.8% | 2.6% |
| Philadelphia | 48.1% | - 6.7% | + 10.3% |
| Phoenix | 52.9% | 0.0% | 2.5% |
| Portland, OR | + 60.2% | -0.2% | + 12.5% |
| Raleigh | 50.4% | 1.4% | 2.3% |
| Sacramento | + 61.6% | + 3.4% | 5.2% |
| San Antonio | - 44.9% | - 10.7% | - 1.9% |
| San Diego | Not Reported For at Least One Year | Not Reported For at Least One Year | 4.0% |
| San Francisco | + 58.0% | - 7.0% | + 14.7% |
| San Jose | + 61.9% | 0.9% | 2.6% |
| Seattle | + 60.1% | + 10.2% | + 13.8% |
| Tucson | Not Reported For at Least One Year | Not Reported For at Least One Year | 6.2% |
| Tulsa | Not Reported For at Least One Year | Not Reported For at Least One Year | - 2.0% |
| Virginia Beach | 51.9% | + 3.0% | 3.2% |
| Washington, DC | 54.3% | -1.1% | + 17.6% |
| Wichita, KS | 49.8% | + 13.1% | - 1.7% |

Diabetes & Biking & Walking to Work

FIGURE 3.5.3 - DIABETES & BIKING & WALKING TO WORK

Legend: Green = 10 lowest values for diabetes-related data, 10 highest values for commute-related data;
 Red = 10 highest values for diabetes-related data, 10 lowest values for commute-related data

| COMMUNITY | % OF ADULTS WHO HAVE DIABETES (2016) ⁵³ | % CHANGE IN ADULTS WHO HAVE DIABETES (2010-2016) ⁵³ | % OF PPL WHO WALK OR BIKE TO WORK ⁵⁴ |
|------------------|----------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------|
| Albuquerque | 9.3% | - 31.5% | 3.4% |
| Arlington, TX | - 10.9% | + -6.8% | - 1.9% |
| Atlanta | 10.8% | 23.9% | 5.5% |
| Austin | 10.4% | - 81.9% | 3.7% |
| Baltimore | - 10.9% | 10.4% | + 7.6% |
| Boston | + 8.6% | 9.7% | + 16.9% |
| Charlotte | 9.8% | 6.8% | 2.4% |
| Chicago | 10.0% | 13.1% | + 8.3% |
| Cleveland | 9.1% | + -14.2% | 6.0% |
| Colorado Springs | + 6.7% | 13.1% | 2.4% |
| Columbus, OH | 10.0% | 7.1% | 3.7% |
| Dallas | 8.8% | 8.4% | - 2.1% |
| Denver | + 6.3% | 15.7% | 6.8% |
| Detroit | Not Reported for at least One Year | Not Reported for at least One Year | 4.4% |
| El Paso | - 15.5% | - 26.9% | - 2.0% |
| Fort Worth | - 10.9% | + -6.8% | - 1.5% |
| Fresno | Not Reported for at least One Year | Not Reported for at least One Year | 2.5% |
| Houston | 9.6% | 13.4% | 2.6% |
| Indianapolis | - 12.7% | - 32.0% | 2.3% |
| Jacksonville | 10.2% | 9.4% | - 2.2% |
| Kansas City, MO | 10.3% | 13.4% | 2.5% |
| Las Vegas | Not Reported for at least One Year | Not Reported for at least One Year | 2.2% |
| Long Beach | 10.7% | 23.0% | 3.4% |
| Los Angeles | 10.7% | 23.0% | 4.7% |
| Louisville | - 11.1% | - 60.9% | 2.7% |
| Memphis | - 11.5% | + -9.4% | - 2.1% |
| Mesa | 10.5% | - 47.5% | 2.4% |
| Miami | - 11.1% | - 47.5% | 5.2% |
| Milwaukee | 9.3% | 21.7% | 6.0% |
| Minneapolis | + 8.0% | - 50.6% | + 11.5% |
| Nashville | 10.6% | 21.6% | 2.3% |
| New York City | 10.1% | 15.6% | + 11.2% |
| Oakland | + 6.3% | + -12.0% | 7.0% |
| Oklahoma City | - 10.8% | 24.5% | - 1.7% |
| Omaha | + 8.6% | 14.5% | 2.6% |
| Philadelphia | 9.8% | + -4.7% | + 10.3% |
| Phoenix | 10.5% | - 47.5% | 2.5% |
| Portland, OR | 9.0% | - 38.8% | + 12.5% |
| Raleigh | + 7.2% | + -2.8% | 2.3% |
| Sacramento | + 7.2% | - 13.9% | 5.2% |
| San Antonio | 10.7% | 16.3% | - 1.9% |
| San Diego | Not Reported for at least One Year | Not Reported for at least One Year | 4.0% |
| San Francisco | + 6.3% | + -12.0% | + 14.7% |
| San Jose | 9.7% | 13.3% | 2.6% |
| Seattle | + 8.1% | 25.9% | + 13.8% |
| Tucson | Not Reported for at least One Year | Not Reported for at least One Year | 6.2% |
| Tulsa | - 11.3% | 3.3% | - 2.0% |
| Virginia Beach | 10.4% | 22.7% | 3.2% |
| Washington, DC | 8.7% | + 0.1% | + 17.6% |
| Wichita, KS | 9.4% | 20.8% | - 1.7% |

High Blood Pressure & Biking & Walking to Work

FIGURE 3.5.4 - HIGH BLOOD PRESSURE & BIKING & WALKING TO WORK

Legend: **Green** = 10 lowest values for high blood pressure-related data, 10 highest values for commute-related data;
Red = 10 highest values for high blood pressure-related data, 10 lowest values for commute-related data

| COMMUNITY | % OF ADULTS WITH HIGH BLOOD PRESSURE (2015) ⁵⁵ | % CHANGE IN ADULTS WITH HIGH BLOOD PRESSURE (2011-2015) ⁵⁵ | % OF PPL WHO WALK OR BIKE TO WORK (2016) ⁵⁶ |
|------------------|-----------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------|
| Albuquerque | 28.2% | -10.1% | 3.4% |
| Arlington, TX | 29.2% | -1.8% | -1.9% |
| Atlanta | 31.7% | 8.1% | 5.5% |
| Austin | +27.3% | -15.1% | 3.7% |
| Baltimore | -34.0% | 4.6% | +7.6% |
| Boston | 28.9% | 6.4% | +16.9% |
| Charlotte | -34.2% | -20.7% | 2.4% |
| Chicago | 29.6% | 0.8% | +8.3% |
| Cleveland | -33.1% | -11.3% | 6.0% |
| Colorado Springs | +25.4% | 4.8% | 2.4% |
| Columbus, OH | 32.1% | 1.6% | 3.7% |
| Dallas | 28.3% | +4.5% | -2.1% |
| Denver | +26.0% | 3.6% | 6.8% |
| Detroit | Not Reported for at least One Year | Not Reported for at least One Year | 4.4% |
| El Paso | 27.8% | Not Reported for at least One Year | -2.0% |
| Fort Worth | 29.2% | -1.8% | -1.5% |
| Fresno | Not Reported for at least One Year | Not Reported for at least One Year | 2.5% |
| Houston | 27.7% | +7.1% | 2.6% |
| Indianapolis | 30.3% | +7.8% | 2.3% |
| Jacksonville | -35.2% | -0.4% | -2.2% |
| Kansas City, MO | 30.6% | +3.9% | 2.5% |
| Las Vegas | Not Reported for at least One Year | Not Reported for at least One Year | 2.2% |
| Long Beach | 27.7% | 1.5% | 3.4% |
| Los Angeles | 27.7% | 1.5% | 4.7% |
| Louisville | -36.5% | 6.6% | 2.7% |
| Memphis | -39.5% | 6.0% | -2.1% |
| Mesa | 29.7% | -10.9% | 2.4% |
| Miami | 30.7% | -1.3% | 5.2% |
| Milwaukee | -33.3% | -17.5% | 6.0% |
| Minneapolis | +24.8% | 3.1% | +11.5% |
| Nashville | -32.9% | +6.8% | 2.3% |
| New York City | 28.4% | -2.0% | +11.2% |
| Oakland | +25.5% | +5.4% | 7.0% |
| Oklahoma City | 31.8% | +5.5% | -1.7% |
| Omaha | 30.6% | -9.6% | 2.6% |
| Philadelphia | 32.2% | 7.0% | +10.3% |
| Phoenix | 29.7% | -10.9% | 2.5% |
| Portland, OR | +27.1% | -3.0% | +12.5% |
| Raleigh | 29.5% | -12.4% | 2.3% |
| Sacramento | 30.8% | -14.0% | 5.2% |
| San Antonio | +27.4% | +20.2% | -1.9% |
| San Diego | Not Reported for at least One Year | Not Reported for at least One Year | 4.0% |
| San Francisco | +25.5% | +5.4% | +14.7% |
| San Jose | +21.9% | +19.7% | 2.6% |
| Seattle | +27.0% | -2.6% | +13.8% |
| Tucson | Not Reported for at least One Year | Not Reported for at least One Year | 6.2% |
| Tulsa | -34.7% | 0.2% | -2.0% |
| Virginia Beach | 32.4% | -3.1% | 3.2% |
| Washington, DC | 29.1% | 3.4% | +17.6% |
| Wichita, KS | -32.7% | 4.9% | -1.7% |

Asthma & Biking & Walking to Work

FIGURE 3.5.5 - ASTHMA & BIKING & WALKING TO WORK

Legend: Green = 10 lowest values for asthma-related data, 10 highest values for commute-related data;

Red = 10 highest values for asthma-related data, 10 lowest values for commute-related data

| COMMUNITY | % OF ADULTS WITH ASTHMA (2016) ⁵⁷ | % CHANGE IN ADULTS WITH ASTHMA (2010-2016) ⁵⁷ | % OF PPL WHO WALK OR BIKE TO WORK (2016) ⁵⁸ |
|------------------|----------------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| Albuquerque | - 17.8% | - 87.6% | 3.4% |
| Arlington, TX | 9.1% | + -10.6% | - 1.9% |
| Atlanta | 8.0% | + -10.7% | 5.5% |
| Austin | Not Reported for at least One Year | Not Reported for at least One Year | 3.7% |
| Baltimore | - 10.3% | 16.2% | + 7.6% |
| Boston | - 10.6% | 10.2% | + 16.9% |
| Charlotte | + 7.7% | - 28.7% | 2.4% |
| Chicago | 9.0% | 0.7% | + 8.3% |
| Cleveland | 7.8% | + -11.8% | 6.0% |
| Colorado Springs | - 10.8% | 19.1% | 2.4% |
| Columbus, OH | 9.2% | -9.0% | 3.7% |
| Dallas | + 6.4% | + -24.0% | - 2.1% |
| Denver | 8.3% | + -15.8% | 6.8% |
| Detroit | Not Reported for at least One Year | Not Reported for at least One Year | 4.4% |
| El Paso | 8.0% | - 37.6% | - 2.0% |
| Fort Worth | 9.1% | + -10.6% | - 1.5% |
| Fresno | Not Reported for at least One Year | Not Reported for at least One Year | 2.5% |
| Houston | + 6.8% | - 37.8% | 2.6% |
| Indianapolis | 9.8% | -6.6% | 2.3% |
| Jacksonville | + 7.3% | + -27.4% | - 2.2% |
| Kansas City, MO | 9.1% | -8.2% | 2.5% |
| Las Vegas | Not Reported for at least One Year | Not Reported for at least One Year | 2.2% |
| Long Beach | + 6.5% | 2.0% | 3.4% |
| Los Angeles | + 6.5% | 2.0% | 4.7% |
| Louisville | - 11.5% | 17.7% | 2.7% |
| Memphis | 8.5% | - 33.1% | - 2.1% |
| Mesa | 9.2% | -4.3% | 2.4% |
| Miami | + 5.2% | + -32.7% | 5.2% |
| Milwaukee | 8.8% | -4.9% | 6.0% |
| Minneapolis | + 7.4% | -10.1% | + 11.5% |
| Nashville | - 11.8% | - 111.3% | 2.3% |
| New York City | 8.5% | + -14.4% | + 11.2% |
| Oakland | - 10.3% | - 25.5% | 7.0% |
| Oklahoma City | 10.0% | 12.1% | - 1.7% |
| Omaha | 8.4% | 6.6% | 2.6% |
| Philadelphia | - 12.7% | 17.8% | + 10.3% |
| Phoenix | 9.2% | -4.3% | 2.5% |
| Portland, OR | 9.1% | 6.9% | + 12.5% |
| Raleigh | 9.4% | - 68.4% | 2.3% |
| Sacramento | - 10.8% | - 25.3% | 5.2% |
| San Antonio | + 7.4% | 20.5% | - 1.9% |
| San Diego | Not Reported for at least One Year | Not Reported for at least One Year | 4.0% |
| San Francisco | - 10.3% | - 25.5% | + 14.7% |
| San Jose | + 6.6% | -6.3% | 2.6% |
| Seattle | 8.5% | -4.4% | + 13.8% |
| Tucson | Not Reported for at least One Year | Not Reported for at least One Year | 6.2% |
| Tulsa | 9.5% | 2.8% | - 2.0% |
| Virginia Beach | 8.7% | 10.0% | 3.2% |
| Washington, DC | 8.6% | + -15.6% | + 17.6% |
| Wichita, KS | 10.1% | 3.4% | - 1.7% |

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- 53 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey data for Metropolitan Statistical Areas* (2010 and 2016). Available at <https://chronicdata.cdc.gov/browse?category=Behavioral+Risk+Factors>.
- 54 See Footnote 11.
- 55 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey data for Metropolitan Statistical Areas* (2011 and 2015). Available at <https://chronicdata.cdc.gov/browse?category=Behavioral+Risk+Factors>.
- 56 See Footnote 11.
- 57 Centers for Disease Control and Prevention. *Behavioral Risk Factor Surveillance Survey data for Metropolitan Statistical Areas* (2010 and 2016). Available at <https://chronicdata.cdc.gov/browse?category=Behavioral+Risk+Factors>.
- 58 See Footnote 11.

3.6 - CITIES:

BIKING & WALKING ROAD SAFETY

Progress on Pedestrian Safety in the 10 Cities with the Most Pedestrian Deaths (2007-2016)

FIGURE 3.6.1A - CITIES WITH MOST PEDESTRIAN DEATHS ⁵⁹

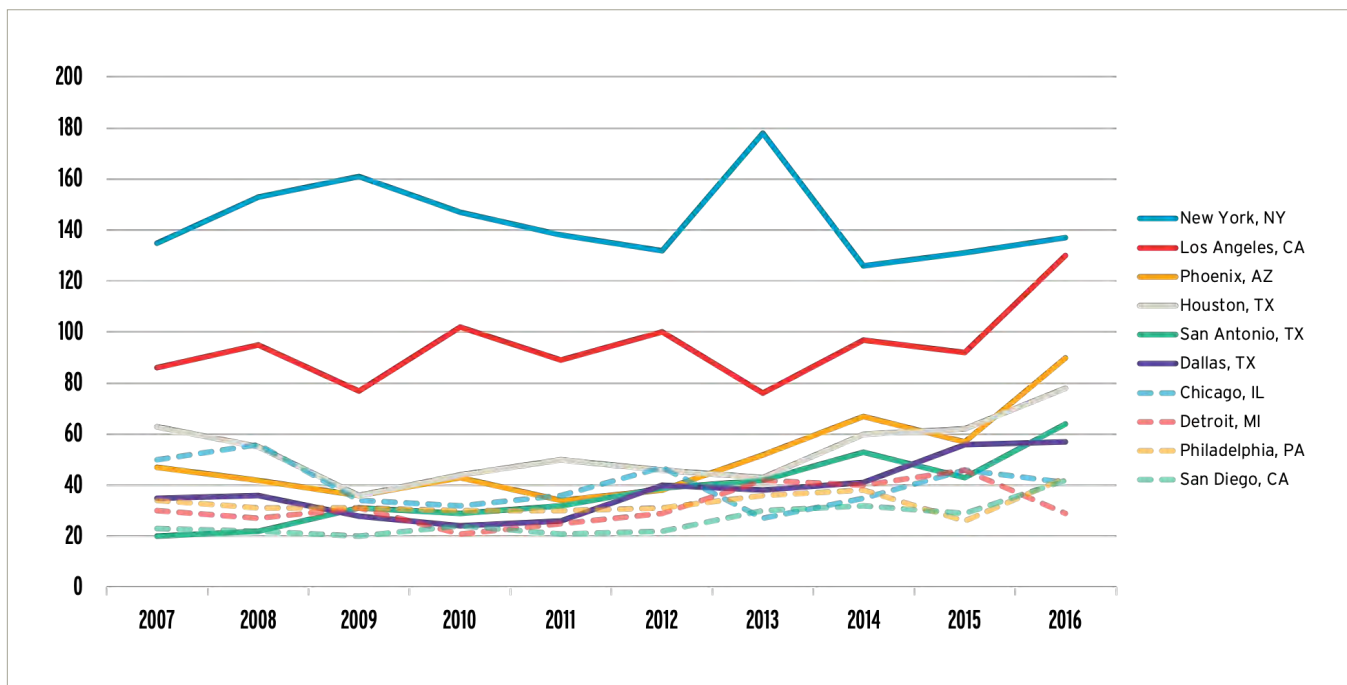


FIGURE 3.6.1B - CITIES WITH MOST PEDESTRIAN DEATHS, CHANGES OVER TIME (2007-2016) ⁶⁰

| COMMUNITY | TOTAL PEDESTRIAN FATALITIES | % CHANGES BASED ON 5-YEAR AVERAGES (2007-2011 AND 2012-2016) | | |
|------------------|-----------------------------|--------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------|
| | | TOTAL PEDESTRIAN FATALITIES | RATE OF PEDESTRIAN FATALITIES PER 10K PEOPLE WHO WALK TO WORK | RATE OF PEDESTRIAN FATALITIES PER 100K RESIDENTS |
| New York, NY | 1438 | -4% | -8% | -8% |
| Los Angeles, CA | 944 | 10% | 8% | 6% |
| Houston, TX | 537 | 17% | 9% | 9% |
| Phoenix, AZ | 506 | 50% | 48% | 41% |
| Chicago, IL | 404 | -6% | -18% | -6% |
| Dallas, TX | 381 | 56% | 32% | 46% |
| San Antonio, TX | 375 | 80% | 103% | 64% |
| Philadelphia, PA | 330 | 12% | 10% | 8% |
| Detroit, MI | 320 | 39% | 14% | 50% |
| San Diego, CA | 265 | 41% | 28% | 33% |



Pedestrian Fatalities: Total & Per Commuter

Forty percent of large cities had their highest number of pedestrian fatalities in the decade between 2007 and 2016 in 2016.

Most large cities saw the average number of pedestrian fatalities rise over the last decade (34 out of 50) and the rate of pedestrian fatalities per 10,000 people who walk to work rise over the last decade (31 out of 50). Worse pedestrian fatality statistics were also seen in the other cities reviewed for the Benchmarking Report, with 11 out of the 19 other cities reporting worse statistics over time.

FIGURE 3.6.2A - PEDESTRIAN FATALITIES: TOTAL & PER COMMUTER, LARGE CITIES ⁶¹

Legend: **Red** = Cities where 2016 was highest value from 2007-2016; **Green** = Lowest value cities; **Orange** = Highest value cities

| COMMUNITY | 2016 TOTAL PEDESTRIAN FATALITIES | TOTAL PEDESTRIAN FATALITIES | | % CHANGE IN TOTAL PEDESTRIAN FATALITIES | PEDESTRIAN FATALITY RATE PER 10K PPL WHO WALK TO WORK | | % CHANGE IN PEDESTRIAN FATALITY RATE PER 10K PPL WHO WALK TO WORK |
|------------------|----------------------------------|-----------------------------|--------------|-----------------------------------------|-------------------------------------------------------|--------------|-------------------------------------------------------------------|
| | | AVG. 2007-11 | AVG. 2012-16 | | AVG. 2007-11 | AVG. 2012-16 | |
| Albuquerque | 31 | 11 | 21.6 | -96% | 21.2 | -42.7 | -101% |
| Arlington, TX | 7 | +4.4 | +5.4 | 23% | 13.5 | 16.9 | 25% |
| Atlanta | 21 | 14 | 16.8 | 20% | 16.1 | 16.8 | 4% |
| Austin | 29 | 17 | 23.8 | 40% | 17.7 | 20.5 | 16% |
| Baltimore | 14 | 12.4 | 12.4 | 0% | 7.2 | 6.8 | -5% |
| Boston | 13 | +7.8 | 8 | 3% | +1.7 | +1.6 | -8% |
| Charlotte | 22 | 15 | 16 | 7% | 20.7 | 18.2 | -12% |
| Chicago | 41 | -41.6 | -39.2 | +6% | +5.6 | +4.6 | -18% |
| Cleveland | 1 | +4.4 | +3.8 | +14% | 6.6 | +4.9 | +27% |
| Colorado Springs | 5 | +1.8 | +5.6 | -211% | +3.4 | 14.0 | -317% |
| Columbus, OH | 1 | 12.8 | +7.6 | +41% | 11.6 | 6.0 | +48% |
| Dallas | 57 | -29.8 | -46.4 | -56% | -30.9 | -40.7 | 32% |
| Denver | 19 | 11.4 | 15.4 | 35% | 8.7 | 9.6 | 11% |
| Detroit | 29 | -26.8 | -37.2 | 39% | -40.8 | -46.6 | 14% |
| El Paso | 23 | 12.6 | 16.4 | 30% | -24.7 | 32.9 | 33% |
| Fort Worth | 29 | 16 | 20.6 | 29% | -43.0 | -44.4 | 3% |
| Fresno | 6 | 10.2 | 9.8 | -4% | -26.8 | -33.9 | 26% |
| Houston | 78 | -49.6 | -57.8 | 17% | 23.5 | 25.7 | 9% |
| Indianapolis | 20 | 13.6 | 20.8 | -53% | 17.9 | 28.2 | -58% |
| Jacksonville | 1 | 21.4 | 18.2 | +15% | -41.1 | 28.7 | +30% |
| Kansas City, MO | 7 | 10.8 | 8.8 | +19% | 23.6 | 17.7 | +25% |
| Las Vegas | 13 | 9 | 9.6 | 7% | 18.9 | 19.6 | 4% |
| Long Beach | 14 | 8.6 | 10.6 | 23% | 13.5 | 20.0 | -48% |
| Los Angeles | 130 | -89.8 | -99 | 10% | 14.1 | 15.1 | 8% |
| Louisville | 17 | 14.6 | 14.2 | -3% | -24.1 | 22.0 | -9% |
| Memphis | 28 | 13 | 22.4 | -72% | 23.7 | -42.3 | -79% |
| Mesa | 10 | +4.8 | +6.6 | 38% | 14.8 | 20.6 | 39% |
| Miami | 1 | 16 | 16.4 | 3% | 23.8 | 19.6 | -18% |
| Milwaukee | 13 | 12 | 12.8 | 7% | 9.7 | 9.7 | 1% |
| Minneapolis | 8 | +4.6 | +4.6 | 0% | +3.6 | +2.9 | +20% |
| Nashville | 16 | 10.8 | 13.2 | 22% | 19.9 | 19.4 | -3% |
| New York City | 137 | -146.8 | -140.8 | -4% | +3.9 | +3.6 | -8% |
| Oakland | 9 | +6.6 | 9.6 | 45% | 8.4 | 12.1 | 44% |
| Oklahoma City | 25 | 9.8 | 16.8 | -71% | -24.4 | -39.0 | -60% |
| Omaha | 4 | +2.4 | +5.4 | -125% | +4.2 | 10.5 | -150% |
| Philadelphia | 43 | -31.2 | -34.8 | 12% | 6.0 | 6.6 | 10% |
| Phoenix | 90 | -40.4 | -60.8 | -50% | -32.9 | -48.9 | -48% |
| Portland, OR | 1 | 8.6 | 9 | 5% | +5.7 | +4.6 | +19% |
| Raleigh | 7 | 8.2 | +7.4 | +10% | 17.4 | 17.8 | 2% |
| Sacramento | 15 | 11.4 | 11.4 | 0% | 18.6 | 17.8 | -4% |
| San Antonio | 64 | -26.8 | -48.2 | -80% | 21.4 | -43.6 | -103% |
| San Diego | 42 | -22 | -31 | 41% | 11.6 | 14.7 | 28% |
| San Francisco | 14 | 18.6 | 17.8 | +4% | +4.3 | +3.5 | +19% |
| San Jose | 21 | 13.2 | 19.4 | -47% | 15.3 | 24.1 | -58% |
| Seattle | 6 | 8.2 | +7.6 | +7% | +2.7 | +1.9 | +28% |
| Tucson | 16 | 13.2 | 14.4 | 9% | 16.1 | 18.9 | 17% |
| Tulsa | 15 | 10 | 12 | 20% | -25.9 | -37.5 | 45% |
| Virginia Beach | 2 | +4 | +3 | +25% | 7.5 | +4.9 | +35% |
| Washington, DC | 8 | 12.6 | 9.2 | +27% | +3.5 | +2.0 | +43% |
| Wichita, KS | 6 | +4 | +4.4 | 10% | 16.4 | 17.9 | 9% |

FIGURE 3.6.2B - PEDESTRIAN FATALITIES: TOTAL & PER COMMUTER, SMALL OR MID-SIZED CITIES ⁶²

Legend: **Red** = Cities where 2016 was highest value from 2007-2016; **Green** = Lowest value cities; **Orange** = Highest value cities

| COMMUNITY | 2016 TOTAL PEDESTRIAN FATALITIES | TOTAL PEDESTRIAN FATALITIES | | % CHANGE IN TOTAL PEDESTRIAN FATALITIES | PEDESTRIAN FATALITY RATE PER 10K PPL WHO WALK TO WORK | | % CHANGE IN PEDESTRIAN FATALITY RATE PER 10K PPL WHO WALK TO WORK |
|----------------|----------------------------------|-----------------------------|--------------|-----------------------------------------|-------------------------------------------------------|--------------|-------------------------------------------------------------------|
| | | AVG. 2007-11 | AVG. 2012-16 | | AVG. 2007-11 | AVG. 2012-16 | |
| Albany | 3 | 1 | 2.2 | -120% | + 2.2 | 4.4 | -100% |
| Anchorage | 8 | 4.4 | 7.4 | -68% | 11.0 | 14.4 | 30% |
| Baton Rouge | 12 | 5.6 | 10 | -79% | 14.4 | 29.0 | -101% |
| Bellingham | 0 | + 0.2 | + 0.6 | -200% | + 0.6 | + 1.7 | -187% |
| Boulder | 3 | 1.2 | 0.8 | +33% | 2.6 | 1.2 | +53% |
| Burlington | 5 | + 0 | + 0.2 | na | + 0.0 | + 0.4 | na |
| Charleston | 2 | 6.2 | 4.2 | -32% | 21.3 | 10.2 | -52% |
| Chattanooga | 1 | 4 | 3.2 | -20% | 18.0 | 14.3 | -21% |
| Davis | 0 | + 0.2 | + 0.4 | -100% | + 1.8 | 2.8 | -50% |
| Eugene | 2 | 2 | 1.6 | -20% | 4.4 | 2.9 | +34% |
| Fort Collins | 2 | + 0.6 | + 0.8 | 33% | 2.4 | 2.5 | 7% |
| Honolulu | 7 | 9.4 | 8.2 | -13% | 6.1 | 5.6 | -8% |
| Madison | 5 | 3 | 3 | 0% | 2.5 | + 2.2 | -10% |
| Missoula | 0 | + 0.4 | + 0.6 | 50% | + 1.9 | + 2.4 | 23% |
| New Orleans | 14 | 9.8 | 13.6 | 39% | 12.6 | 16.8 | -33% |
| Pittsburgh | 6 | 5.4 | 4.6 | -15% | 3.4 | 2.8 | -17% |
| Salt Lake City | 5 | 4.2 | 5.4 | 29% | 8.0 | 10.2 | 28% |
| Spokane | 3 | 3.2 | 2.6 | -19% | 10.1 | 7.7 | +24% |
| St. Louis | 18 | 11.8 | 13.4 | 14% | 19.6 | 21.2 | 8% |



Pedestrian Fatalities: As a Percent of All Traffic Fatalities & Per Capita

| COMMUNITY | PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES | | CHANGE IN PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES | PEDESTRIAN FATALITIES PER 100K RESIDENTS |
|------------------|--------------------------------------------------------|--------------|------------------------------------------------------------------|------------------------------------------|
| | AVG. 2007-11 | AVG. 2012-16 | | 2012-2016 |
| Albuquerque | 25% | - 36% | - 47% | - 3.9 |
| Arlington, TX | + 16% | 21% | 32% | 1.4 |
| Atlanta | 27% | 32% | 20% | - 3.7 |
| Austin | 29% | 31% | 5% | 2.6 |
| Baltimore | - 31% | - 37% | 18% | 2.0 |
| Boston | - 36% | 33% | -8% | + 1.2 |
| Charlotte | 25% | 23% | -8% | 2.0 |
| Chicago | 27% | 31% | 14% | 1.4 |
| Cleveland | + 13% | + 13% | -2% | + 1.0 |
| Colorado Springs | + 8% | + 19% | - 128% | + 1.2 |
| Columbus, OH | 23% | + 15% | + -34% | + 0.9 |
| Dallas | 23% | 30% | 28% | - 3.6 |
| Denver | 29% | 34% | 17% | 2.3 |
| Detroit | 27% | 31% | 17% | - 5.4 |
| El Paso | 23% | 30% | 28% | 2.4 |
| Fort Worth | 24% | 28% | 17% | 2.5 |
| Fresno | 30% | - 45% | - 51% | 1.9 |
| Houston | 23% | 27% | 19% | 2.6 |
| Indianapolis | 18% | 24% | 34% | 2.5 |
| Jacksonville | 19% | + 15% | + -22% | 2.1 |
| Kansas City, MO | 18% | + 16% | -8% | 1.9 |
| Las Vegas | 26% | + 19% | + -24% | 1.6 |
| Long Beach | 28% | 34% | 20% | 2.3 |
| Los Angeles | - 36% | - 39% | 9% | 2.5 |
| Louisville | 22% | + 19% | + -14% | 2.3 |
| Memphis | + 15% | 23% | - 60% | - 3.4 |
| Mesa | + 15% | + 19% | 28% | 1.4 |
| Miami | - 36% | 33% | -7% | - 3.8 |
| Milwaukee | 31% | 26% | + -16% | 2.1 |
| Minneapolis | 21% | 34% | - 60% | + 1.1 |
| Nashville | + 16% | 22% | - 34% | 2.1 |
| New York City | - 53% | - 55% | 2% | 1.7 |
| Oakland | 22% | - 35% | - 54% | 2.3 |
| Oklahoma City | + 14% | 23% | - 68% | 2.7 |
| Omaha | + 12% | + 18% | - 52% | + 1.2 |
| Philadelphia | - 32% | - 36% | 12% | 2.2 |
| Phoenix | 26% | 33% | 27% | - 3.9 |
| Portland, OR | 30% | 27% | + -10% | 1.5 |
| Raleigh | 28% | 21% | + -24% | 1.7 |
| Sacramento | 29% | 27% | -8% | 2.4 |
| San Antonio | 22% | 30% | - 35% | - 3.3 |
| San Diego | 28% | - 36% | 30% | 2.3 |
| San Francisco | - 49% | - 55% | 12% | 2.1 |
| San Jose | - 31% | 34% | 10% | 1.9 |
| Seattle | - 34% | 30% | + -14% | + 1.1 |
| Tucson | 24% | 26% | 9% | - 2.7 |
| Tulsa | 20% | 25% | 22% | - 3.0 |
| Virginia Beach | + 16% | + 14% | + -10% | + 0.7 |
| Washington, DC | - 40% | - 43% | 7% | 1.4 |
| Wichita, KS | + 15% | + 13% | -8% | + 1.1 |

FIGURE 3.6.3A - PEDESTRIAN FATALITIES: AS A PERCENT OF ALL TRAFFIC FATALITIES & PER CAPITA, LARGE CITIES ^{6,3}

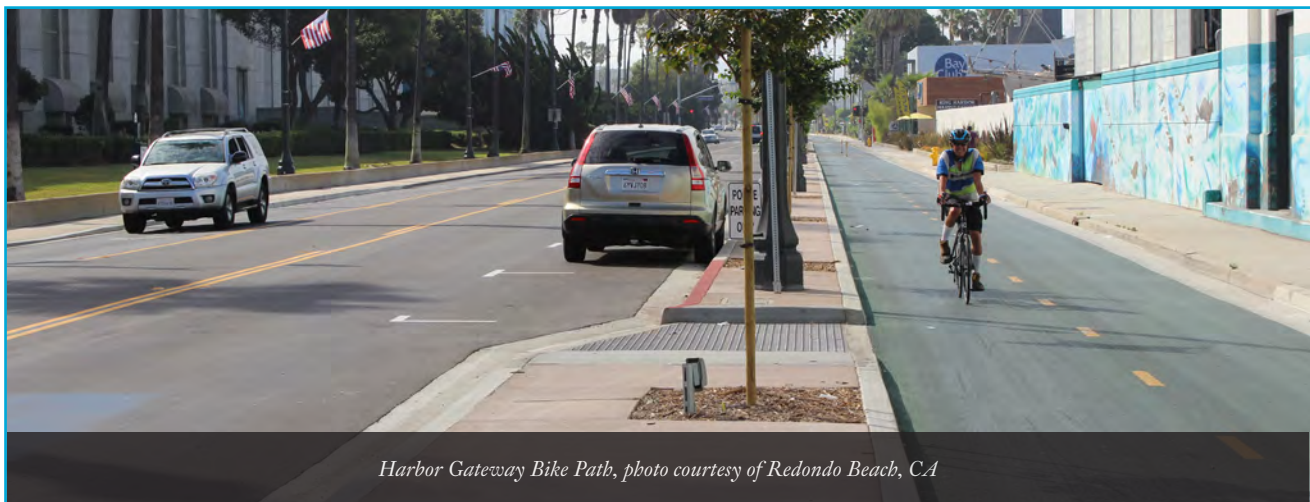
Legend:
Green = Lowest value cities;
Red = Highest value cities

FIGURE 3.6.3B - PEDESTRIAN FATALITIES: AS A PERCENT OF ALL TRAFFIC FATALITIES & PER CAPITA, SMALL OR MID-SIZED CITIES ⁶⁴

Legend: **Green** = Lowest value cities; **Red** = Highest value cities

| COMMUNITY | PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES | | CHANGE IN PEDESTRIAN FATALITIES AS A % OF ALL TRAFFIC FATALITIES | PEDESTRIAN FATALITIES PER 100K RESIDENTS |
|----------------|--------------------------------------------------------|--------------|------------------------------------------------------------------|------------------------------------------|
| | AVG. 2007-11 | AVG. 2012-16 | | 2012-2016 |
| Albany | 21% | - 38% | - 82% | 2.2 |
| Anchorage | 27% | - 41% | - 50% | 2.5 |
| Baton Rouge | + 19% | 26% | - 38% | - 4.4 |
| Bellingham | 25% | 30% | 20% | + 0.7 |
| Boulder | - 43% | 36% | + -15% | + 0.8 |
| Burlington | + 0% | - 50% | na | + 0.5 |
| Charleston | 26% | + 22% | + -14% | - 3.2 |
| Chattanooga | + 16% | + 12% | + -29% | 1.8 |
| Davis | - 33% | + 22% | + -33% | + 0.6 |
| Eugene | - 30% | 33% | 10% | 1.0 |
| Fort Collins | + 12% | + 16% | 33% | + 0.5 |
| Honolulu | - 46% | - 40% | -12% | 2.3 |
| Madison | 25% | - 37% | - 46% | 1.2 |
| Missoula | + 20% | 27% | 36% | 0.9 |
| New Orleans | 27% | 29% | 8% | - 3.6 |
| Pittsburgh | 30% | 26% | + -14% | 1.5 |
| Salt Lake City | 21% | 34% | - 59% | - 2.8 |
| Spokane | - 31% | 26% | + -17% | 1.2 |
| St. Louis | 26% | 29% | 13% | - 4.2 |

Nationally, bicyclist and pedestrian fatalities combined make up approximately 15% of all traffic fatalities. In the cities reviewed for the Benchmarking Report, almost all cities had more than 15% of traffic fatalities attributable to pedestrian fatalities (44 out of 50 large cities and 17 out of 19 other cities). The percentage of traffic fatalities comprised of pedestrian fatalities increased in most cities reviewed for the Benchmarking Report (34 out of 50 large cities and 12 out of 19 other cities).



Harbor Gateway Bike Path, photo courtesy of Redondo Beach, CA

Progress on Bicyclist Safety in the 10 Cities with the Most Bicyclist Deaths (2007-2016)

FIGURE 3.6.4A - CITIES WITH MOST BICYCLIST DEATHS ⁶⁵

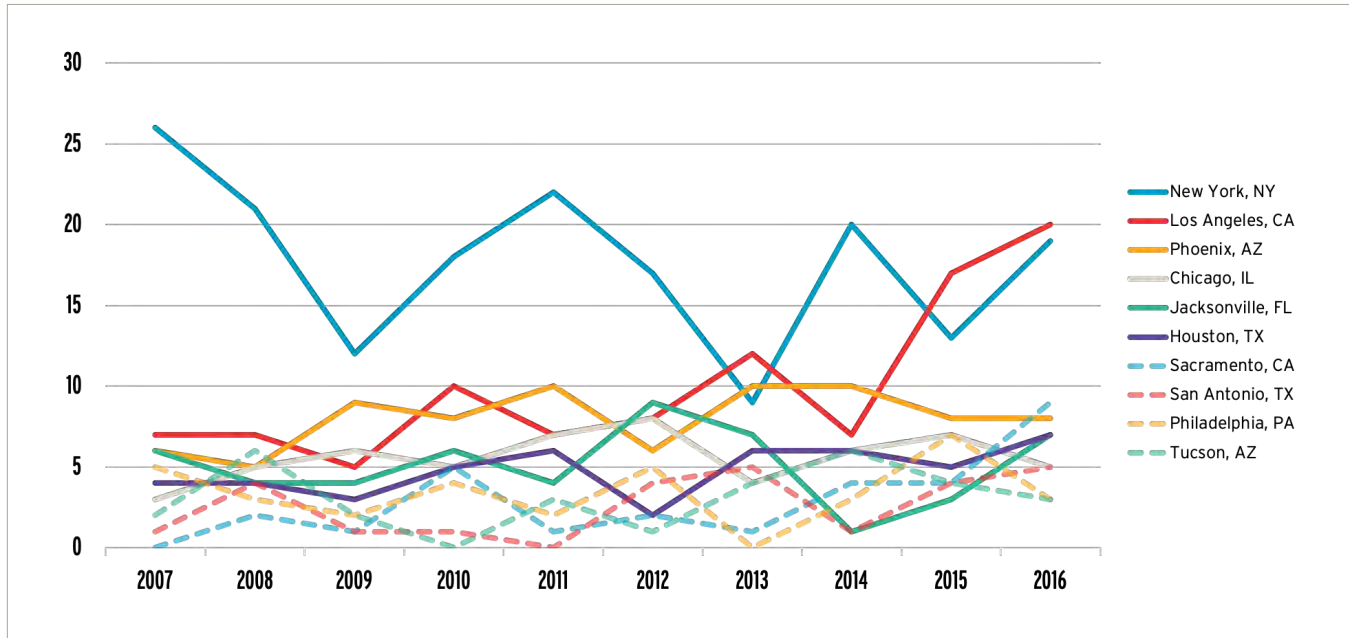


FIGURE 3.6.4B - CITIES WITH MOST BICYCLIST DEATHS, CHANGES OVER TIME (2007-2016) ⁶⁶

| COMMUNITY | TOTAL BICYCLIST FATALITIES | % CHANGES BASED ON 5-YEAR AVERAGES (2007-2011 & 2012-2016) | | |
|------------------|----------------------------|------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|
| | | TOTAL BICYCLIST FATALITIES | RATE OF BICYCLIST FATALITIES PER 10K PPL WHO BIKE TO WORK | RATE OF BICYCLIST FATALITIES PER 100K RESIDENTS |
| New York, NY | 177 | -21.2% | -53.0% | -24% |
| Los Angeles, CA | 100 | 77.8% | 29.8% | 72% |
| Phoenix, AZ | 80 | 10.5% | -3.4% | 3% |
| Chicago, IL | 56 | 15.4% | -17.7% | 15% |
| Jacksonville, FL | 51 | 12.5% | -21.6% | 7% |
| Houston, TX | 48 | 18.2% | -18.1% | 10% |
| Philadelphia, PA | 34 | 12.5% | -13.2% | 9% |
| Tucson, AZ | 31 | 38.5% | 9.4% | 37% |
| Sacramento, CA | 29 | 122.2% | 130.5% | 113% |
| San Antonio, TX | 26 | 171.4% | 92.1% | 148% |

Bicyclist Fatalities: Total & Per Commuter

FIGURE 3.6.5A - BICYCLIST FATALITIES: TOTAL & PER COMMUTER, LARGE CITIES ⁶⁷

Legend: **Red** = Cities where 2016 was highest value from 2007-2016; **Green** = Lowest value cities; **Orange** = Highest value cities

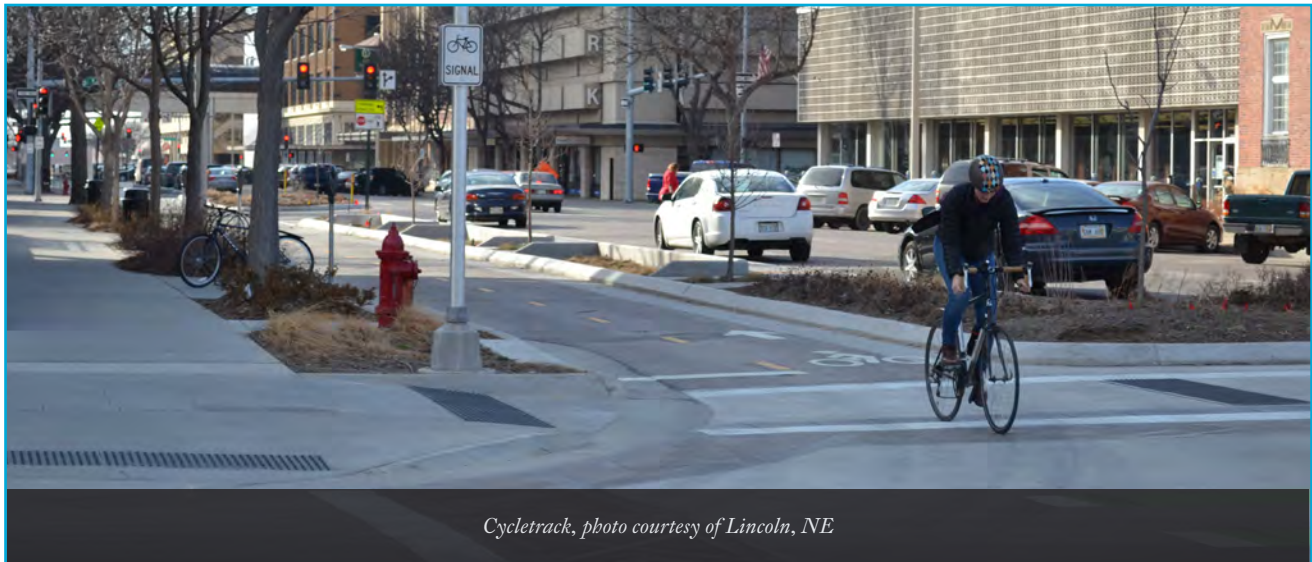
| COMMUNITY | 2016 TOTAL BICYCLIST FATALITIES | TOTAL BICYCLIST FATALITIES | | % CHANGE IN TOTAL BICYCLIST FATALITIES | BICYCLIST FATALITY RATE PER 10K PPL WHO BIKE TO WORK | | % CHANGE IN BICYCLIST FATALITY RATE PER 10K PPL WHO BIKE TO WORK |
|------------------|---------------------------------|----------------------------|--------------|----------------------------------------|------------------------------------------------------|--------------|------------------------------------------------------------------|
| | | AVG. 2007-11 | AVG. 2012-16 | | AVG. 2007-11 | AVG. 2012-16 | |
| Albuquerque | 1 | 2.2 | 2.2 | 0% | 6.9 | 5.8 | -16% |
| Arlington, TX | 1 | + 0.6 | 0.8 | 33% | - 19.2 | - 17.0 | -12% |
| Atlanta | 1 | + 0.6 | + 0.6 | 0% | 3.7 | 3.3 | -12% |
| Austin | 2 | 1.2 | 1.6 | 33% | + 2.2 | + 2.3 | 2% |
| Baltimore | 1 | 0.8 | 1 | 25% | 4.3 | 4.4 | 2% |
| Boston | 0 | 1.4 | 2 | 43% | + 3.0 | 2.8 | -7% |
| Charlotte | 1 | 1.6 | 1.4 | -13% | - 28.7 | - 15.0 | + -48% |
| Chicago | 5 | - 5.2 | - 6 | 15% | 3.5 | 2.9 | -18% |
| Cleveland | 0 | 0.8 | + 0.2 | + -75% | 8.9 | 2.1 | + -77% |
| Colorado Springs | 0 | 1 | + 0.4 | + -60% | 9.2 | 3.2 | + -65% |
| Columbus, OH | 1 | 2 | 2.6 | 30% | 7.5 | 8.2 | 11% |
| Dallas | 0 | 1.4 | 1.2 | -14% | - 16.5 | 9.0 | -46% |
| Denver | 4 | 1.6 | 2.2 | 38% | + 2.5 | + 2.7 | 7% |
| Detroit | 4 | 1.8 | 3.2 | - 78% | - 29.4 | - 20.2 | -31% |
| El Paso | 0 | + 0.4 | + 0.2 | + -50% | 10.1 | 3.2 | + -69% |
| Fort Worth | 1 | 1.2 | 1.2 | 0% | - 27.1 | - 15.3 | -43% |
| Fresno | 0 | - 2.8 | 2 | + -29% | - 20.8 | 9.5 | + -55% |
| Houston | 7 | - 4.4 | - 5.2 | 18% | 10.9 | 9.0 | -18% |
| Indianapolis | 6 | 1.8 | 2.2 | 22% | 12.6 | 11.2 | -11% |
| Jacksonville | 7 | - 4.8 | - 5.4 | 13% | - 30.7 | - 24.1 | -22% |
| Kansas City, MO | 2 | + 0.6 | 1.2 | - 100% | 10.4 | - 15.8 | - 52% |
| Las Vegas | 2 | 1.6 | 1.2 | + -25% | 13.6 | 10.8 | -21% |
| Long Beach | 0 | 2 | + 0.6 | + -70% | 8.3 | 2.9 | + -65% |
| Los Angeles | 20 | - 7.2 | - 12.8 | 78% | 4.6 | 5.9 | 30% |
| Louisville | 2 | 1.6 | 1.4 | -13% | - 14.4 | 12.2 | -16% |
| Memphis | 2 | 1.4 | 1.2 | -14% | - 24.9 | - 17.6 | -29% |
| Mesa | 3 | 2.2 | 2 | -9% | 10.9 | 11.0 | 0% |
| Miami | 4 | 1 | 2.6 | - 160% | 9.7 | 12.9 | - 33% |
| Milwaukee | 1 | + 0.4 | 0.8 | - 100% | + 2.0 | 3.2 | - 56% |
| Minneapolis | 1 | 1.8 | 1.2 | + -33% | + 2.3 | + 1.3 | + -46% |
| Nashville | 1 | + 0.6 | + 0.4 | + -33% | 6.0 | 5.3 | -11% |
| New York City | 19 | - 19.8 | - 15.6 | -21% | 7.6 | 3.5 | + -53% |
| Oakland | 1 | 1.4 | 1.6 | 14% | 3.6 | + 2.6 | -27% |
| Oklahoma City | 2 | + 0.6 | 2 | - 233% | 13.2 | - 34.3 | - 159% |
| Omaha | 0 | + 0.4 | + 0 | + -100% | 11.5 | + 0.0 | + -100% |
| Philadelphia | 3 | - 3.2 | - 3.6 | 13% | + 3.1 | + 2.7 | -13% |
| Phoenix | 8 | - 7.6 | - 8.4 | 11% | - 17.7 | - 17.1 | -3% |
| Portland, OR | 5 | 2 | 2 | 0% | + 1.2 | + 0.9 | -19% |
| Raleigh | 1 | 1 | 1 | 0% | 11.2 | 7.9 | -30% |
| Sacramento | 9 | 1.8 | - 4 | - 122% | 3.9 | 9.0 | - 130% |
| San Antonio | 5 | 1.4 | - 3.8 | - 171% | 14.0 | - 26.8 | - 92% |
| San Diego | 1 | - 3.4 | 2.8 | -18% | 5.9 | 4.2 | -29% |
| San Francisco | 1 | 1.8 | 2.2 | 22% | + 1.3 | + 1.1 | -17% |
| San Jose | 3 | 1.4 | 3.2 | - 129% | 3.7 | 7.1 | - 91% |
| Seattle | 1 | 1.8 | 1.4 | + -22% | + 1.7 | + 1.0 | -45% |
| Tucson | 3 | - 2.6 | - 3.6 | 38% | 4.9 | 5.4 | 9% |
| Tulsa | 0 | + 0.4 | + 0.6 | 50% | 6.2 | 11.2 | - 81% |
| Virginia Beach | 2 | + 0.6 | 1.2 | - 100% | 4.3 | 9.5 | - 119% |
| Washington, DC | 1 | 1 | 0.8 | -20% | + 1.3 | + 0.5 | + -59% |
| Wichita, KS | 0 | + 0.2 | + 0.6 | - 200% | 4.5 | 10.9 | - 145% |

FIGURE 3.6.5B - BICYCLIST FATALITIES: TOTAL AND PER COMMUTER, SMALL OR MID-SIZED CITIES ⁶⁸

Legend: **Red** = Cities where 2016 was highest value from 2007-2016; **Green** = Lowest value cities; **Orange** = Highest value cities

| COMMUNITY | 2016 TOTAL BICYCLIST FATALITIES | TOTAL BICYCLIST FATALITIES | | % CHANGE IN TOTAL BICYCLIST FATALITIES | BICYCLIST FATALITY RATE PER 10K PPL WHO BIKE TO WORK | | % CHANGE IN BICYCLIST FATALITY RATE PER 10K PPL WHO BIKE TO WORK |
|----------------|---------------------------------|----------------------------|--------------|----------------------------------------|------------------------------------------------------|--------------|------------------------------------------------------------------|
| | | AVG. 2007-11 | AVG. 2012-16 | | AVG. 2007-11 | AVG. 2012-16 | |
| Albany | 0 | 0.4 | 0.2 | + -50% | 9.3 | 4.8 | + -49% |
| Anchorage | 0 | 0.8 | 0.6 | -25% | 4.9 | 3.1 | -37% |
| Baton Rouge | 2 | - 1.2 | - 2.4 | - 100% | - 19.3 | - 39.4 | - 104% |
| Bellingham | 1 | + 0 | 0.2 | na | + 0.0 | 1.4 | na |
| Boulder | 1 | 0.4 | 0.2 | + -50% | 0.8 | 0.3 | + -56% |
| Burlington | 0 | + 0 | + 0 | na | + 0.0 | 0.0 | na |
| Charleston | 1 | - 1.4 | - 1.2 | -14% | - 13.3 | 5.6 | + -58% |
| Chattanooga | 1 | 0.6 | 0.6 | 0% | - 20.3 | - 15.0 | -26% |
| Davis | 0 | + 0 | + 0 | na | + 0.0 | + 0.0 | na |
| Eugene | 0 | - 1 | 0.2 | + -80% | 1.6 | 0.4 | + -78% |
| Fort Collins | 0 | 0.6 | 0.4 | + -33% | 1.2 | 0.7 | -41% |
| Honolulu | 0 | 0.6 | 0.4 | + -33% | 2.3 | 1.1 | + -52% |
| Madison | 0 | 0.2 | - 1 | - 400% | 0.3 | 1.4 | - 335% |
| Missoula | 0 | + 0 | + 0 | na | + 0.0 | + 0.0 | na |
| New Orleans | 5 | - 1.6 | - 3.4 | - 113% | 6.1 | 6.4 | 4% |
| Pittsburgh | 0 | 0.2 | 0.4 | - 100% | 1.1 | 1.4 | 26% |
| Salt Lake City | 0 | 0.8 | 0.6 | -25% | 3.7 | 2.2 | -40% |
| Spokane | 2 | 0.8 | + 1 | 25% | 7.0 | - 14.2 | - 102% |
| St. Louis | 1 | 0.4 | 0.8 | + 100% | 4.0 | 6.3 | 57% |

Bicyclist fatality data in the cities reviewed for the Benchmarking Report looks better than pedestrian fatality data. While most large cities (27 out of 50) had an increase in the average number of bicyclist fatalities between 2007-2011 and 2012-2016, the rate of bicyclist fatalities per 10k people who bike to work fell in most large cities (33 out of 50).



Bicyclist Fatalities: As a Percent of All Traffic Fatalities & Per Capita

| COMMUNITY | BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES | | CHANGE IN BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES | BICYCLIST FATALITIES PER 100K RESIDENTS 2012-2016 |
|------------------|-------------------------------------------------------|--------------|-----------------------------------------------------------------|------------------------------------------------------|
| | AVG. 2007-11 | AVG. 2012-16 | | |
| Albuquerque | - 4.9% | 3.7% | + -25% | - 0.4 |
| Arlington, TX | 2.1% | 3.1% | 44% | 0.2 |
| Atlanta | + 1.2% | + 1.2% | 0% | + 0.1 |
| Austin | 2.1% | 2.1% | 0% | 0.2 |
| Baltimore | 2.0% | 3.0% | 48% | 0.2 |
| Boston | - 6.4% | - 8.2% | 28% | 0.3 |
| Charlotte | 2.7% | 2.0% | -25% | 0.2 |
| Chicago | 3.4% | 4.7% | 39% | 0.2 |
| Cleveland | 2.3% | + 0.7% | + -72% | + 0.1 |
| Colorado Springs | 4.7% | + 1.4% | + -71% | + 0.1 |
| Columbus, OH | 3.6% | 5.2% | 45% | 0.3 |
| Dallas | + 1.1% | + 0.8% | + -30% | + 0.1 |
| Denver | 4.1% | 4.9% | 19% | 0.3 |
| Detroit | 1.8% | 2.7% | 50% | - 0.5 |
| El Paso | + 0.7% | + 0.4% | + -51% | + 0.0 |
| Fort Worth | 1.8% | 1.6% | -9% | 0.1 |
| Fresno | - 8.2% | - 9.2% | 12% | - 0.4 |
| Houston | 2.0% | 2.4% | 21% | 0.2 |
| Indianapolis | 2.4% | 2.6% | 7% | 0.3 |
| Jacksonville | 4.2% | 4.4% | 4% | - 0.6 |
| Kansas City, MO | + 1.0% | 2.2% | - 127% | 0.3 |
| Las Vegas | 4.5% | 2.4% | + -47% | 0.2 |
| Long Beach | - 6.5% | 1.9% | + -71% | + 0.1 |
| Los Angeles | 2.9% | 5.0% | - 75% | 0.3 |
| Louisville | 2.4% | 1.9% | -23% | 0.2 |
| Memphis | 1.6% | + 1.3% | -20% | 0.2 |
| Mesa | - 6.9% | - 5.8% | -15% | - 0.4 |
| Miami | 2.2% | 5.3% | - 136% | - 0.6 |
| Milwaukee | + 1.0% | + 1.6% | - 57% | + 0.1 |
| Minneapolis | - 8.4% | - 9.0% | 6% | 0.3 |
| Nashville | + 0.9% | + 0.7% | + -27% | + 0.1 |
| New York City | - 7.2% | - 6.1% | -16% | 0.2 |
| Oakland | 4.8% | - 5.8% | 21% | - 0.4 |
| Oklahoma City | + 0.8% | 2.7% | - 226% | 0.3 |
| Omaha | 1.9% | + 0.0% | + -100% | + 0.0 |
| Philadelphia | 3.3% | 3.7% | 13% | 0.2 |
| Phoenix | - 4.9% | 4.6% | -7% | - 0.5 |
| Portland, OR | - 7.0% | - 6.0% | -14% | 0.3 |
| Raleigh | 3.4% | 2.8% | -16% | 0.2 |
| Sacramento | 4.6% | - 9.4% | - 105% | - 0.8 |
| San Antonio | + 1.2% | 2.4% | - 104% | 0.3 |
| San Diego | 4.3% | 3.3% | -24% | 0.2 |
| San Francisco | 4.8% | - 6.8% | 43% | 0.3 |
| San Jose | 3.3% | 5.7% | - 71% | 0.3 |
| Seattle | - 7.6% | 5.5% | + -28% | 0.2 |
| Tucson | 4.7% | - 6.5% | 38% | - 0.7 |
| Tulsa | + 0.8% | + 1.2% | 52% | 0.2 |
| Virginia Beach | 2.4% | 5.7% | - 140% | 0.3 |
| Washington, DC | 3.2% | 3.7% | 17% | + 0.1 |
| Wichita, KS | + 0.7% | 1.8% | - 152% | 0.2 |

FIGURE 3.6.6A - BICYCLIST FATALITIES: AS A PERCENT OF ALL TRAFFIC FATALITIES & PER CAPITA, LARGE CITIES ^{6,9}

Legend:
Red = Highest value cities;
Green = Lowest value cities

FIGURE 3.6.6B - BICYCLIST FATALITIES: AS A PERCENT OF ALL TRAFFIC FATALITIES & PER CAPITA, SMALL OR MID-SIZED CITIES ⁷⁰

Legend: **Red** = Highest value cities; **Green** = Lowest value cities

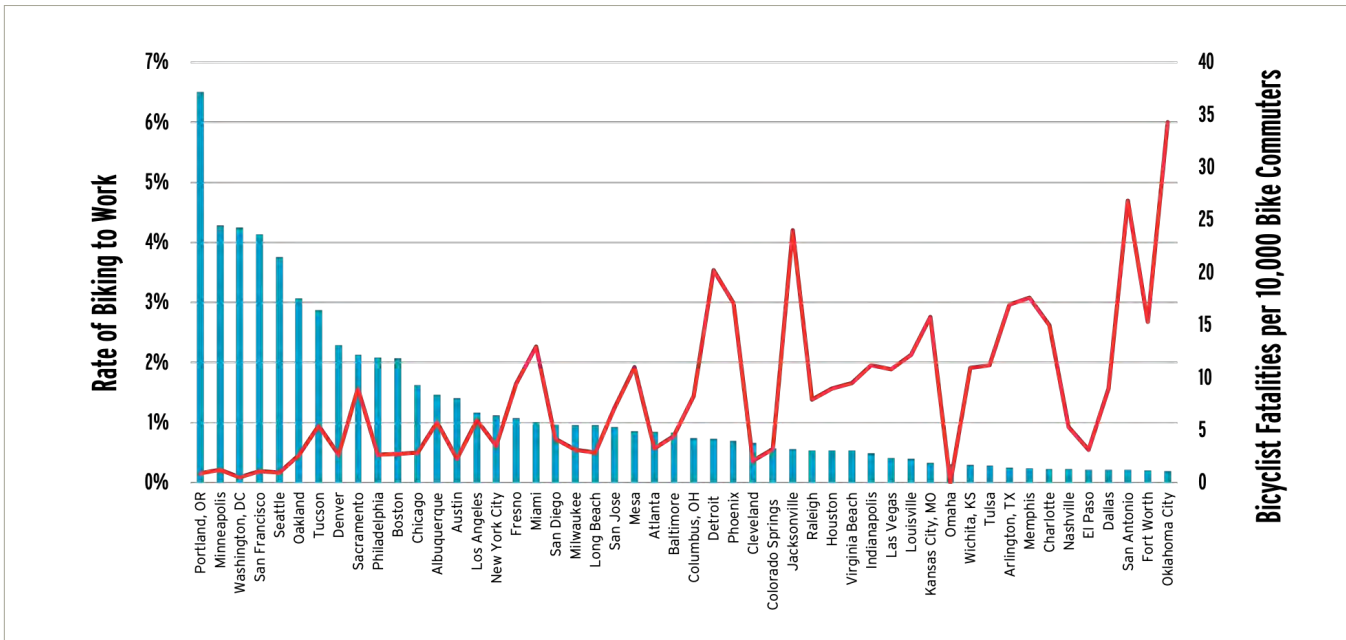
| COMMUNITY | BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES | | CHANGE IN BICYCLIST FATALITIES AS A % OF ALL TRAFFIC FATALITIES | BICYCLIST FATALITIES PER 100K RESIDENTS |
|----------------|-------------------------------------------------------|----------------|-----------------------------------------------------------------|-----------------------------------------|
| | AVG. 2007-11 | AVG. 2012-16 | | 2012-2016 |
| Albany | - 8.3% | 3.4% | + -59% | 0.2 |
| Anchorage | 4.9% | 3.3% | + -33% | 0.2 |
| Baton Rouge | 4.1% | 6.3% | 55% | - 1.0 |
| Bellingham | + 0.0% | - 10.0% | na | 0.2 |
| Boulder | - 14.3% | - 9.1% | + -36% | 0.2 |
| Burlington | + 0.0% | + 0.0% | na | + 0.0 |
| Charleston | 5.8% | 6.3% | 8% | - 0.9 |
| Chattanooga | 2.4% | 2.2% | -11% | 0.3 |
| Davis | + 0.0% | + 0.0% | na | + 0.0 |
| Eugene | - 15.2% | 4.2% | + -73% | 0.1 |
| Fort Collins | - 12.0% | - 8.0% | + -33% | 0.3 |
| Honolulu | 2.9% | 2.0% | + -33% | 0.1 |
| Madison | 1.7% | - 12.2% | - 632% | 0.4 |
| Missoula | + 0.0% | + 0.0% | na | + 0.0 |
| New Orleans | 4.3% | 7.2% | 65% | - 0.9 |
| Pittsburgh | 1.1% | 2.2% | - 102% | 0.1 |
| Salt Lake City | 4.1% | 3.8% | -7% | 0.3 |
| Spokane | - 7.8% | - 10.0% | 28% | 0.5 |
| St. Louis | 0.9% | 1.7% | - 99% | 0.3 |

Bicyclist fatalities as a percentage of all traffic fatalities can be a statistic that says as much about the mix of traffic types in a city as it does about bicyclist safety. For example, Minneapolis has one of the five highest shares of bicyclist fatalities as a percentage of all traffic fatalities, but also has one of the ten best rates of bicyclist fatalities per 10k people who bike to work. Taken together, this data suggests that Minneapolis is a safer city for all road users, with a relatively safe bicyclist population that also should be a safety priority given its share of traffic fatalities. In other cities, such as Oklahoma City, wide variations in data are likely related to a relatively small population of people who bike and the lower percentage of traffic fatalities comprised of bicyclists may reflect that many people do not feel safe while bicycling.

Note regarding “Safety in Numbers” on the following page: The evidence-base for the effect of “Safety in Numbers” is discussed in Chapter III: Make Your Case Section II: Safe Transportation. While the relationship between the number of people biking or walking and their relative safety has been established by research, there is ongoing work about the “dosage” necessary to gain a benefit from safety in numbers and how varying “dosages” may impact safety. The figures on the next page should not be interpreted to suggest specific relationships between rates of bicycling or walking to work and safety, but generally show the relationship between the two statistics.

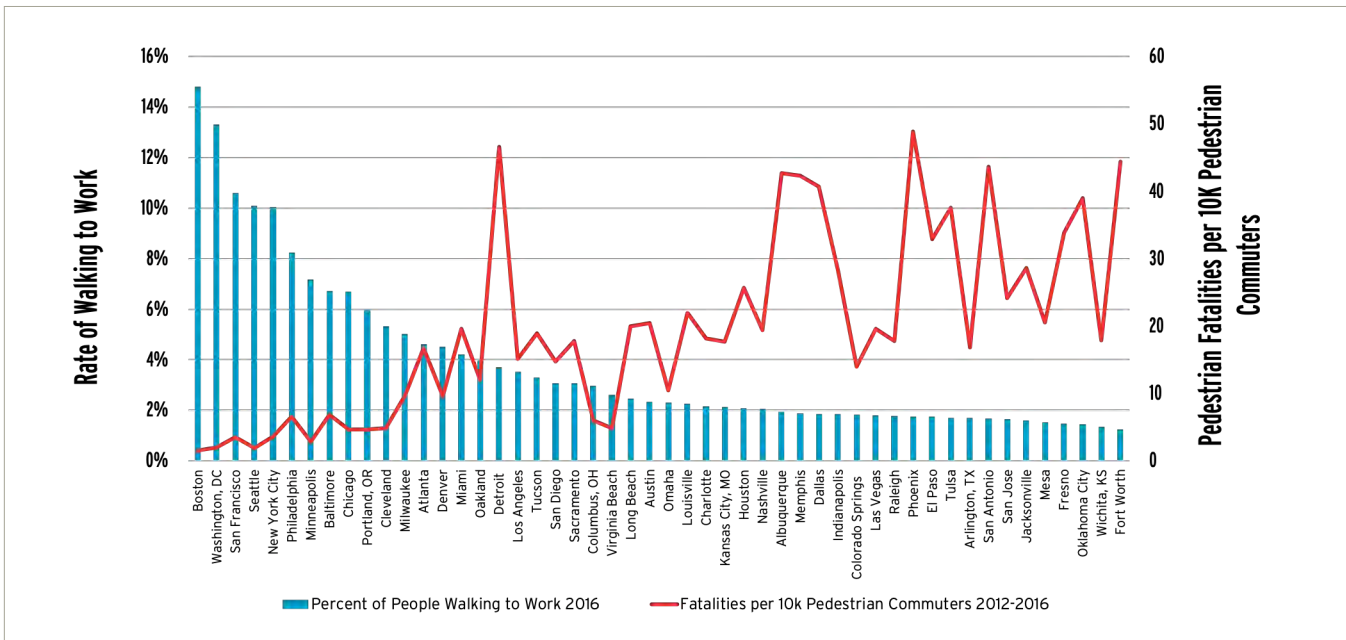
Safety in Numbers: Biking

FIGURE 3.6.7 - SAFETY IN NUMBERS: BIKING ⁷¹



Safety in Numbers: Walking

FIGURE 3.6.8 - SAFETY IN NUMBERS: WALKING ⁷²





Bike lane with bus, photo courtesy of Reston, VA

Topic References

59 National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for City and Person Type (2007-2016)*. Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx>

60 National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for City and Person Type (2007-2016)*. Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx> and *American Community Survey* Tables B08006 and B01003 5-year estimates (2011 and 2016).

61 National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for City and Person Type (2007-2016)*. Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx> and U.S. Census Bureau. *American Community Survey* Table B08006 5-year estimate (2011 and 2016).

62 See footnote 61.

63 National Highway Traffic Administration (NHTSA). *Query of Fatality Analysis Reporting System (FARS) database for City and Person Type (2007-2016)*. Available at <https://www-fars.nhtsa.dot.gov/QueryTool/QuerySection/SelectYear.aspx> and U.S. Census Bureau. *American Community Survey* Table B01003 5-year estimate (2016).

64 See footnote 63.

65 See footnote 59.

66 See footnote 60.

67 See footnote 61.

68 See footnote 61.

69 See footnote 63.

70 See footnote 63.

71 See footnote 12.

72 See footnote 12.

3.7 - CITIES: PLANS & POLICIES

This section – Cities: Plans and Policies – looks at public policies created by cities and published through a formal process. These plans and policies provide a basis for coordination between a city and other entities so that all stakeholders involved in transportation decision making have a common understanding of the goals of the city for bicycling and walking.

This section looks at three principle sources of public policy for bicycling and walking at the city level:

- **BICYCLE AND/OR PEDESTRIAN PLANS:** These plans can serve a variety of purposes and be developed in a variety of ways. Common purposes for bicycle and/or pedestrian plans include reviewing relevant city policies, developing project prioritization processes, and coordinating policies and funding decisions with stakeholders.
- **COMPLETE STREETS ACTIONS:** Complete Streets policies ensure that streets are planned, designed, and operated with the needs of all users in mind including pedestrians, bicyclists, motorists and transit riders of all ages and abilities. Complete Streets actions can take a variety of forms, such as legislation, policies adopted by the city's Department of Transportation or equivalent agency, and design guidance that gives planners and engineers the tools to put a policy into practice.
- **PARTICIPATION IN VISION ZERO EFFORTS:** The Vision Zero Network and the Road to Zero Coalition both pursue the goal of ending traffic fatalities. A discussion of both groups can be found in Chapter III: Make Your Case: Section II: Safe Transportation.



Kid with tube, photo courtesy of Bike Bakersfield

City Plans Supporting Improvements for Pedestrians & Bicyclists

FIGURE 3.7.1A - CITY PLANS SUPPORTING IMPROVEMENTS FOR PEDESTRIANS & BICYCLISTS, LARGE CITIES ⁷³

| COMMUNITY | BIKE MASTER PLAN | PEDESTRIAN MASTER PLAN | COMBINED BIKE & PEDESTRIAN MASTER PLAN | YEAR OF MOST RECENT BIKE PLAN ADOPTED | YEAR OF MOST RECENT PEDESTRIAN PLAN ADOPTED |
|------------------|-------------------------------------|------------------------|----------------------------------------|---------------------------------------|---------------------------------------------|
| Albuquerque | • | | • | 2015 | 2012 |
| Arlington, TX | | | • | 2011 | 2011 |
| Atlanta | | | • | 2008 | |
| Austin | • | • | | 2014 | 2018 |
| Baltimore | • | | • | 2015 | 2012 |
| Boston | • | • | | 2013 | 2010 |
| Charlotte | • | • | | 2017 | 2017 |
| Chicago | • | • | | 2015 | 2012 |
| Cleveland | • | | | 2007 | |
| Colorado Springs | Plan is currently under development | | • | Plan is currently under development | 2015 |
| Columbus, OH | • | | • | 2008 (Update in progress) | 2015 |
| Dallas | • | • | | 2011 | 2016 |
| Denver | • | | | 2016 | |
| Detroit | | | • | 2014 | 2014 |
| El Paso | • | | | 2016 | |
| Fort Worth | • | • | | 2009 | 2014 |
| Fresno | | | • | 2016 | 2016 |
| Houston | • | | • | 2017 | 2015 |
| Indianapolis | • | • | | 2012 | 2016 |
| Jacksonville | • | | | 2017 | |
| Kansas City, MO | Yes (being updated) | Under development | | Under development | Under development |
| Las Vegas | | | • | 2017 | 2017 |
| Long Beach | • | • | | 2017 | 2016 |
| Los Angeles | • | | • | 2010 | 2016 |
| Louisville | • | | | 2010 | |
| Memphis | | | • | 2014 | 2014 |
| Mesa | • | | | 2012 | |
| Miami | • | | • | 2009 | 2014 |
| Milwaukee | • | Under development | | 2010 | Under development |
| Minneapolis | • | • | | 2015 | 2009 |
| Nashville | | | • | 2015 | 2015 |
| New York City | • | • | | 1997 (but updates are ongoing) | Ongoing |
| Oakland | • | • | | 2007 (update in progress) | 2017 |
| Oklahoma City | | | Under development | Under development | Under development |
| Omaha | • | | • | 2016 | 2015 |
| Philadelphia | | | • | 2012 | 2012 |
| Phoenix | • | • | | 2014 | 2017 |
| Portland, OR | • | Yes (being updated) | | 2010 | 1998 |
| Raleigh | • | • | | 2016 | 2013 |
| Sacramento | • | | • | 2016 | 2006 |
| San Antonio | • | | | 2011 | |
| San Diego | • | | | 2013 | |
| San Francisco | • | • | | 2009 | 2013 (ongoing) |
| San Jose | • | • | | 2009 | 2008 |
| Seattle | • | • | | 2014 | 2017 |
| Tucson | • | • | | 2009 | 2014 |
| Tulsa | | | • | 2015 | 2015 |
| Virginia Beach | • | | • | 2011 | 2017 |
| Washington, DC | • | | | 2014 | |
| Wichita, KS | • | | | 2013 | |

FIGURE 3.7.1B - CITY PLANS SUPPORTING IMPROVEMENTS FOR PEDESTRIANS & BICYCLISTS, SMALL OR MID-SIZED CITIES ⁷⁴

| COMMUNITY | BIKE MASTER PLAN | PEDESTRIAN MASTER PLAN | COMBINED BIKE & PEDESTRIAN MASTER PLAN | YEAR OF MOST RECENT BIKE PLAN ADOPTED | YEAR OF MOST RECENT PEDESTRIAN PLAN ADOPTED |
|----------------|-------------------------------------|------------------------|----------------------------------------|---------------------------------------|---------------------------------------------|
| Albany | • | | | 2009 | |
| Anchorage | • | • | | 2010 | 2007 |
| Baton Rouge | | | • | 2009 | 2009 |
| Bellingham | • | • | | 2014 | 2012 |
| Boulder | | | • | 2014 | Update in progress |
| Burlington | | | • | 2017 | |
| Charleston | | | • | 2011 | 2011 |
| Chattanooga | • | | • | Update in progress | 2010 |
| Davis | • | | | 2014 | |
| Eugene | | | • | 2012 | 2012 |
| Fort Collins | • | • | | 2014 | 2011 |
| Honolulu | Yes (being updated) | In progress | | 2012 | |
| Madison | | | • | 2017 | 2017 |
| Missoula | Plan is currently under development | | • | Plan is currently under development | 2011 |
| New Orleans | • | • | | 2006 | 2006 |
| Pittsburgh | • | | | 1999 | |
| Salt Lake City | | | • | 2015 | 2015 |
| Spokane | • | • | • | 2015 | 2015 |
| St. Louis | | | • | 2013 | 2013 |

Over time, bicycle and/or pedestrian plans have become ubiquitous at the city-level. Most cities, whether large cities or other cities reviewed for the Benchmarking Report have adopted a bicycle and/or pedestrian plan with the last ten years. In the 50 largest cities, 84% of cities have a bicycle plan that has been adopted in the last ten years. Slightly fewer, 62% have a pedestrian plan adopted in the last ten years.



In the other cities reviewed for the Benchmarking Report, bicycle plans are also slightly more prevalent and more likely to be updated within the last ten years. Two cities are notable, Missoula, Montana has reported it is developing a bicycle plan, but did not report one yet adopted and Pittsburgh has the oldest adopted, but not updated, bicycle plan – from 1999. This stands in contrast to the oldest not updated statewide bicycle plan, which appears to be Ohio’s bicycle plan adopted in 1989.⁷⁵

Complete Streets Actions for Integrating Pedestrians & Bicyclists in Transportation Projects

FIGURE 3.7.2A - COMPLETE STREETS ACTIONS FOR INTEGRATING PEDESTRIANS & BICYCLISTS IN TRANSPORTATION PROJECTS, LARGE CITIES ^{7,6}

| COMMUNITY | NAME OF FIRST TYPE OF CITY ACTION | TYPE | YEAR OF FIRST ACTION | YEAR OF MOST RECENT ACTION (IF MULTIPLE ACTIONS TAKEN) |
|------------------|-------------------------------------------------------------------------|-----------------|----------------------|--------------------------------------------------------|
| Albuquerque | O-14-27 & O-14-32 | Legislation | 2015 | 2015 |
| Arlington, TX | | | None Taken | |
| Atlanta | | | None Taken | |
| Austin | Resolution No. 020418-40 | Resolution | 2002 | 2014 |
| Baltimore | Council Bill 09-0433 | Resolution | 2010 | |
| Boston | Complete Streets Guidelines | Design Guide | 2013 | |
| Charlotte | Urban Street Design Guidelines | Design Guide | 2007 | 2010 |
| Chicago | Safe Streets for Chicago | Agency Policy | 2006 | 2013 |
| Cleveland | Ordinance No. 798-11 | Legislation | 2011 | |
| Colorado Springs | Complete Streets Amendment to the Intermodal Transportation Plan | Plan | 2005 | |
| Columbus, OH | Complete Streets Resolution | Resolution | 2008 | 2008 |
| Dallas | Resolution 16-0173 | Resolution | 2016 | 2016 |
| Denver | Complete Streets Policy | Agency Policy | 2011 | |
| Detroit | | | None Taken | |
| El Paso | Plan El Paso | Plan | 2012 | |
| Fort Worth | Complete Streets Policy | Policy | 2016 | |
| Fresno | | | None Taken | |
| Houston | Executive Order 1-15 | Executive Order | 2013 | |
| Indianapolis | Chapter 431, Article VIII | Legislation | 2012 | |
| Jacksonville | 2030 Mobility Plan | Plan | 2011 | |
| Kansas City, MO | Resolution No. 110069, Committee Substitute for Resolution No. 170215 | Resolution | 2011 | 2017 |
| Las Vegas | Policy for Complete Streets | Policy | 2012 | 2013 |
| Long Beach | | | None Taken | |
| Los Angeles | Great Streets for Los Angeles Strategic Plan | Plan | 2015 | |
| Louisville | Complete Streets Manual | Design Guide | 2007 | 2008 |
| Memphis | An Order Establishing a Complete Streets Policy for the City of Memphis | Executive Order | 2013 | 2015 |
| Mesa | Complete Streets Policy | Policy | 2014 | |
| Miami | Resolution 09-00274 | Resolution | 2009 | |
| Milwaukee | | | None Taken | |
| Minneapolis | Complete Streets Policy | Policy | 2016 | |
| Nashville | Executive Order No. 40 | Executive Order | 2010 | 2016 |
| New York City | Sustainable Streets Strategic Plan | Plan | 2008 | 2009 |
| Oakland | Complete Streets Policy & Ordinance No. 13153 | Policy | 2013 | 2013 |
| Oklahoma City | | | None Taken | |
| Omaha | Complete Streets Policy | Policy | 2015 | |
| Philadelphia | Executive Order No. 5-09 | Executive Order | 2009 | 2012 |
| Phoenix | Ordinance S-41094 & Ordinance G-5937 | Legislation | 2014 | |
| Portland, OR | | | None Taken | |
| Raleigh | Complete Streets Policy Amendment to the 2030 Comprehensive Plan | Policy | 2015 | |
| Sacramento | Sacramento Pedestrian Friendly Street Standards | Design Guide | 2004 | |
| San Antonio | Complete Streets Policy | Policy | 2011 | |
| San Diego | Street Design Manual | Design Guide | 2002 | |
| San Francisco | Transit-First Policy | Policy | 1995 | |
| San Jose | | | None Taken | |
| Seattle | Bridging the Gap | Tax | 2006 | 2007 |
| Tucson | | | None Taken | |
| Tulsa | Resolution | Resolution | 2012 | |
| Virginia Beach | Complete Streets Administrative Directive | Agency Policy | 2014 | |
| Washington, DC | Departmental Order 06-2010 (DDOT Complete Streets Policy) | Agency Policy | 2010 | 2012 |
| Wichita, KS | Resolution No. 14-341 | Resolution | 2014 | 2014 |

FIGURE 3.7.2B - COMPLETE STREETS ACTIONS FOR INTEGRATING PEDESTRIANS & BICYCLISTS IN TRANSPORTATION PROJECTS, SMALL OR MID-SIZED CITIES ⁷⁷

| COMMUNITY | NAME OF FIRST TYPE OF CITY ACTION | TYPE | YEAR OF FIRST ACTION | YEAR OF MOST RECENT ACTION (IF MULTIPLE ACTIONS TAKEN) |
|----------------|----------------------------------------------------------------------|-----------------|----------------------|--------------------------------------------------------|
| Albany | Ordinance | Legislation | 2013 | |
| Anchorage | | | None Taken | |
| Baton Rouge | Resolution 51196 | Policy | 2014 | |
| Bellingham | Ordinance NO. 2016-09-032 | Legislation | 2016 | |
| Boulder | Transportation Master Plan | Plan | 1996 | |
| Burlington | | | None Taken | |
| Charleston | | | None Taken | |
| Chattanooga | City Code II Ch. 32, Art. XIV | Legislation | 2014 | |
| Davis | | | None Taken | |
| Eugene | | | None Taken | |
| Fort Collins | Transportation Master Plan | Plan | 2004 | |
| Honolulu | Article 33 of Chapter 14 of the Revised Ordinances of Honolulu | Legislation | 2012 | |
| Madison | Resolution No. 09-997 | Resolution | 2009 | |
| Missoula | Resolution No. 7473, Providing for a Complete Streets Policy | Resolution | 2009 | 2016 |
| New Orleans | Ordinance | Legislation | 2011 | |
| Pittsburgh | A Resolution Adopting the City of Pittsburgh Complete Streets Policy | Resolution | 2016 | |
| Salt Lake City | Salt Lake City Executive Order on Complete Streets | Executive Order | 2007 | 2010 |
| Spokane | Resolution No. 2010-0018 | Resolution | 2010 | 2011 |
| St. Louis | Board Bill No. 7 | Legislation | 2010 | 2015 |

Complete Streets actions are widespread, although they are not uniform in type or quality. Only 10 of the largest 50 cities have not taken any Complete Streets action according to data from the National Complete Streets Coalition. More large cities (17) have taken more than one action than have taken no action.



The most common types of actions taken in large cities are policy actions, either specifically internal to an agency or not, and resolutions, which are typically non-binding and may or may not have any implementation steps. Among the other cities reviewed for the Benchmarking Report, legislation – which typically results in binding ordinances that city agencies and staff must follow – are the most common type of Complete Streets action.

City Support for Efforts to Reach Zero Traffic Deaths

| COMMUNITY | VISION ZERO CITY | ROAD TO ZERO COALITION MEMBER(S) |
|------------------|------------------|------------------------------------------------------------------------------------------------------|
| Albuquerque | | |
| Arlington, TX | | |
| Atlanta | | City of Atlanta Office of Mobility Planning, Atlanta Bike |
| Austin | Yes | |
| Baltimore | | |
| Boston | Yes | Vision Zero Network - City of Boston, Walk Boston |
| Charlotte | | |
| Chicago | Yes | Chicago Department of Transportation, City of Chicago, Slow Roll Chicago |
| Cleveland | | Bike Cleveland |
| Colorado Springs | | |
| Columbus, OH | | |
| Dallas | | City of Dallas, Injury Prevention Center of Greater Dallas |
| Denver | Yes | Walk Denver |
| Detroit | | |
| El Paso | | |
| Fort Worth | | |
| Fresno | | |
| Houston | | |
| Indianapolis | | |
| Jacksonville | | |
| Kansas City, MO | | |
| Las Vegas | | |
| Long Beach | | |
| Los Angeles | Yes | Los Angeles Police Department, The Los Angeles County Metropolitan Transportation Authority (LACMTA) |
| Louisville | | Louisville Department of Public Works and Assets & Division of Transportation |
| Memphis | | City of Memphis |
| Mesa | | |
| Miami | | |
| Milwaukee | | |
| Minneapolis | Yes | |
| Nashville | | |
| New York City | Yes | New York City, Department of Transportation, & Police Department |
| Oakland | | St. Joseph Mercy Hospital - Oakland |
| Oklahoma City | | |
| Omaha | | |
| Philadelphia | Yes | City of Philadelphia |
| Phoenix | | |
| Portland, OR | Yes | |
| Raleigh | | |
| Sacramento | Yes | |
| San Antonio | Yes | City of San Antonio - TCI |
| San Diego | Yes | University of California, San Diego |
| San Francisco | Yes | San Francisco Municipal Transportation Agency, Walk San Francisco |
| San Jose | Yes | City of San Jose |
| Seattle | Yes | Seattle & King County Department of Public Health, Seattle Neighborhood Greenways |
| Tucson | | |
| Tulsa | | |
| Virginia Beach | | |
| Washington, DC | Yes | DC Government |
| Wichita, KS | | |

FIGURE 3.7.3A - CITY SUPPORT FOR EFFORTS TO REACH ZERO TRAFFIC DEATHS, LARGE CITIES ⁷⁸

FIGURE 3.7.3B - CITY SUPPORT FOR EFFORTS TO REACH ZERO TRAFFIC DEATHS, SMALL OR MID-SIZED CITIES ⁷⁹

| COMMUNITY | VISION ZERO CITY | ROAD TO ZERO COALITION MEMBER(S) |
|----------------|------------------|----------------------------------------------------------------|
| Albany | | |
| Anchorage | Yes | |
| Baton Rouge | | 19th Judicial District Court Baton Rouge, Baton Rouge - Courts |
| Bellingham | | |
| Boulder | Yes | City of Boulder |
| Burlington | | |
| Charleston | | |
| Chattanooga | | |
| Davis | | |
| Eugene | Yes | Better Eugene-Springfield Transit (BEST), City of Eugene |
| Fort Collins | | |
| Honolulu | | |
| Madison | | |
| Missoula | | |
| New Orleans | | Loyola University New Orleans |
| Pittsburgh | | City of Pittsburgh Department of Mobility and Infrastructure |
| Salt Lake City | | |
| Spokane | | |
| St. Louis | | |

» ABOUT VISION ZERO CITIES

According to the Vision Zero Network, to be recognized as a “Vision Zero City” a city must meet the following minimum criteria:

- A clear goal of eliminating traffic fatalities and severe injuries has been set.
- The Mayor has publicly, officially committed to Vision Zero.
- A Vision Zero plan or strategy is in place, or the Mayor has committed to doing so in clear time frame.
- Key city departments (including police, transportation and public health) are engaged.

» ABOUT ROAD TO ZERO COALITION MEMBERS

The Road to Zero Coalition is free to join. Interested organizations must complete a form that includes the statement of purpose: “Our goal is safe mobility for all people in the United States of America.” ⁸⁰



Lean rail, photo by SDOT (@Flickr)

Topic References

73 The League of American Bicyclists. *Bicycle Friendly Community Survey* data from questions F7 and BMR11. The Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city.

74 See footnote 73.

75 See Chapter 4: Show Your Data II: States - 2.7.1 Statewide Plans Supporting Improvements for Pedestrians and Bicyclists.

76 National Complete Streets Coalition, *National Complete Streets Policy Inventory* (retrieved May 2018). Available at <https://smartgrowthamerica.org/program/national-complete-streets-coalition/publications/policy-development/policy-atlas/>.

77 See footnote 76.

78 Vision Zero Network. *Vision Zero Cities Map* (retrieved May 2018). Available at <https://visionzeronetwork.org/resources/vision-zero-cities/>. National Safety Council. *Road to Zero Membership List* (retrieved May 2018). Available at <https://www.nsc.org/Portals/0/Documents/DistractedDrivingDocuments/Driver-Tech/Road%20to%20Zero/RTZ-Coalition-Members.pdf>.

79 See footnote 78.

80 National Safety Council. *Join the Road to Zero Coalition*. Available at <https://www.nsc.org/road-safety/get-involved/road-to-zero/join>.

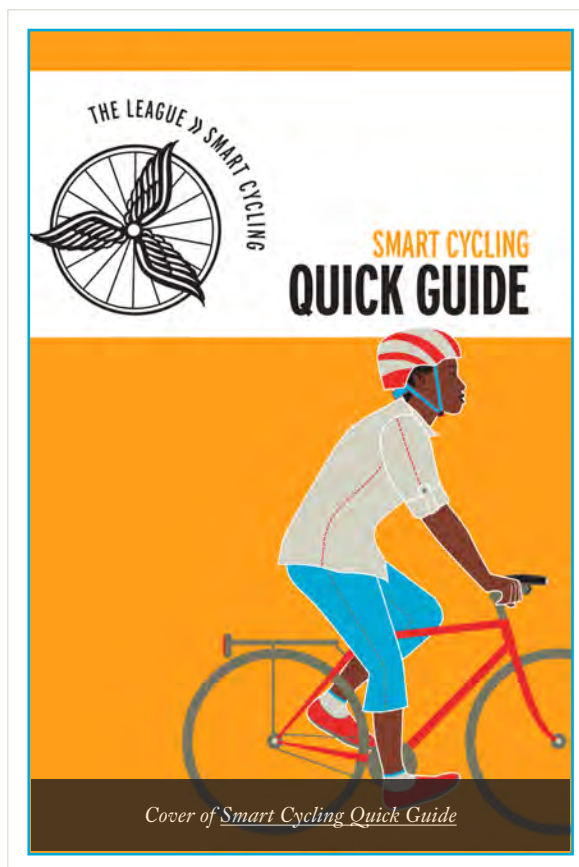
3.8 - CITIES: STAFF & COMMUNITY SUPPORT FOR BIKING & WALKING

Cities show their support for bicycling and walking in a variety of ways. This section looks at indicators of support such as bicycle and pedestrian education in schools, staff working on bicycling and walking-related activities, participation in national award programs, and organizational involvement in bicycling and walking-related issues by League of American Bicyclist (League) member groups and city-formed committees.

Bicycle safety education has been a core part of the work done by the League for at least five decades. Nationally, there are over 6,000 bicycle safety education instructors who have complete the League's League Cycling Instructor training. The hands-on training of these many dedicated instructors is complemented by resources developed by the League, such as Quick Guides that can be branded for organizations or communities; Smart Cycling videos that show basic skills and techniques of safe bicycling; and tip sheets, such as the A-B-C Quick Check which provides an easy way to remember to check your Air pressure-Brakes-Chain and Quick release before going for a ride. More information about the Smart Cycling program, including how to become a League Certified Instructor, can be found at: <https://bikeleague.org/ridesmart>.

Over the course of the Benchmarking project, Bike to Work day events and Open Street initiatives have become very commonplace.

- **BIKE TO WORK DAY EVENTS** can include a variety of community activities, but the classic activity is setting up an encouragement station at a public venue, such as a park, city building, or shared use path. At an encouragement station people who are bicycling to work can find snacks, drinks, and businesses who support bicycling. These activities help provide a reason for people to try bicycling to work and encourage them to ride more. National Bike to Work day is held on the third Friday of May.
- **OPEN STREET INITIATIVES** are based on the concept of closing streets to motor vehicle traffic and opening them up to be experienced by people bicycling, walking, or otherwise using the space. Open Street events can be structured or un-structured but provide a great way to let people experience their community in a new way and can be a part of outreach for changes to a street.



Training & Events for Bicyclists & Pedestrians

FIGURE 3.8.1A - TRAINING & EVENTS FOR BICYCLISTS & PEDESTRIANS, LARGE CITIES ⁸¹

Legend: **Red** = No training or event reported; **Orange** = Not reported

| COMMUNITY | YOUTH BICYCLE EDUCATION | ADULT BICYCLE EDUCATION | YOUTH PEDESTRIAN EDUCATION | BIKE TO WORK DAY EVENTS | OPEN STREETS INITIATIVES |
|------------------|-------------------------|-------------------------|----------------------------|-------------------------|--------------------------|
| Albuquerque | Yes | Yes | Yes | Yes | Yes |
| Arlington, TX | Yes | Yes | No | No | No |
| Atlanta | Yes | Yes | Yes | Yes | Yes |
| Austin | Yes | Yes | Not reported | Yes | Yes |
| Baltimore | Yes | Yes | Not reported | Yes | Yes |
| Boston | Yes | Yes | Yes | Yes | Yes |
| Charlotte | Yes | No | Not reported | Yes | Yes |
| Chicago | Yes | Yes | Not reported | Yes | Yes |
| Cleveland | Yes | No | Not reported | Yes | Yes |
| Colorado Springs | Yes | Yes | Not reported | Yes | No |
| Columbus, OH | Yes | Yes | Yes | Yes | Yes |
| Dallas | No | Yes | No | Yes | Yes |
| Denver | Yes | Yes | Yes | Yes | Yes |
| Detroit | Not reported | Not reported | Not reported | Not reported | Not reported |
| El Paso | No | Yes | No | Yes | Yes |
| Fort Worth | No | Yes | Yes | Yes | Yes |
| Fresno | Yes | Yes | Not reported | Yes | No |
| Houston | No | Yes | Yes | Yes | Yes |
| Indianapolis | Yes | Yes | No | Yes | Yes |
| Jacksonville | Yes | No | Yes | Yes | No |
| Kansas City, MO | Yes | Yes | Not reported | Yes | Yes |
| Las Vegas | Yes | Yes | Not reported | Yes | No |
| Long Beach | Yes | Yes | Not reported | Yes | Yes |
| Los Angeles | Yes | Yes | Not reported | Yes | Yes |
| Louisville | Yes | Yes | Yes | Yes | Yes |
| Memphis | Yes | Yes | Not reported | Yes | Yes |
| Mesa | Yes | Yes | Yes | Yes | Yes |
| Miami | Yes | No | Not reported | Yes | Yes |
| Milwaukee | Yes | Yes | Yes | Yes | No |
| Minneapolis | Yes | Yes | Not reported | Yes | Yes |
| Nashville | Yes | Yes | Not reported | Yes | No |
| New York City | Yes | Yes | Yes | Yes | No |
| Oakland | Yes | Yes | Yes | Yes | No |
| Oklahoma City | Yes | Yes | No | Yes | Yes |
| Omaha | Yes | Yes | No | No | Yes |
| Philadelphia | Yes | Yes | Yes | Yes | Yes |
| Phoenix | Yes | Yes | Yes | Yes | No |
| Portland, OR | Yes | Yes | Yes | Yes | Yes |
| Raleigh | Yes | Yes | Not reported | Yes | No |
| Sacramento | Yes | Yes | Yes | Yes | Yes |
| San Antonio | Yes | Yes | No | Yes | Yes |
| San Diego | Yes | Yes | Yes | Yes | Yes |
| San Francisco | Yes | Yes | Not reported | Yes | Yes |
| San Jose | Yes | Yes | Yes | Yes | No |
| Seattle | Yes | Yes | Yes | Yes | Yes |
| Tucson | Yes | Yes | Yes | Yes | Yes |
| Tulsa | Yes | Yes | No | Yes | Yes |
| Virginia Beach | No | Yes | Not reported | Yes | No |
| Washington, DC | Yes | Yes | Yes | Yes | Yes |
| Wichita, KS | No | Yes | Yes | Yes | Yes |

FIGURE 3.8.1B - TRAINING & EVENTS FOR BICYCLISTS & PEDESTRIANS, SMALL OR MID-SIZED CITIES ⁸²

Legend: **Red** = No training or event reported; **Orange** = Not reported

| COMMUNITY | YOUTH BICYCLE EDUCATION | ADULT BICYCLE EDUCATION | YOUTH PEDESTRIAN EDUCATION | BIKE TO WORK DAY EVENTS | OPEN STREETS INITIATIVES |
|----------------|-------------------------|-------------------------|----------------------------|-------------------------|--------------------------|
| Albany | Yes | Yes | Yes | Yes | Yes |
| Anchorage | Yes | Yes | Not reported | Yes | No |
| Baton Rouge | No | Yes | Yes | Yes | Yes |
| Bellingham | Yes | Yes | Yes | Yes | No |
| Boulder | Yes | Yes | Yes | Yes | Yes |
| Burlington | Yes | Yes | Yes | Yes | Yes |
| Charleston | Yes | No | No | No | No |
| Chattanooga | Yes | Yes | Yes | Yes | No |
| Davis | Yes | Yes | Not reported | Yes | No |
| Eugene | Yes | Yes | Yes | Yes | Yes |
| Fort Collins | Yes | Yes | Not reported | Yes | Yes |
| Honolulu | Yes | Yes | Yes | Yes | Yes |
| Madison | Yes | Yes | Yes | Yes | Yes |
| Missoula | Yes | No | Not reported | Yes | Yes |
| New Orleans | Yes | Yes | No | Yes | Yes |
| Pittsburgh | Yes | Yes | No | Yes | Yes |
| Salt Lake City | Yes | Yes | Yes | Yes | Yes |
| Spokane | Yes | Yes | Yes | Yes | Yes |
| St. Louis | Yes | Yes | Not reported | Yes | Yes |



Children learning to bike, photo courtesy of Watsonville, CA

City Staff & Biking & Walking

FIGURE 3.8.2A - CITY STAFF & BIKING & WALKING, LARGE CITIES ^{8.3}

Legend: **Green** = Highest values; **Red** = Lowest values; **Orange** = No staff reported

| COMMUNITY | REPORTED # OF FULL-TIME EQUIVALENT EMPLOYEES (FTE) WHO WORK ON BICYCLE OR PEDESTRIAN-RELATED ISSUES | FTE PER 100K RESIDENTS | SOME POLICE USE BIKES ON THE JOB | SOME POLICE ON FOOT ON THE JOB | SOME EMERGENCY MEDICAL TECHNICIANS (EMTs) USE BIKES ON THE JOB | SOME EMTs ON FOOT ON THE JOB |
|------------------|-----------------------------------------------------------------------------------------------------|------------------------|----------------------------------|--------------------------------|----------------------------------------------------------------|------------------------------|
| Albuquerque | + 15 | + 2.7 | Yes | Not Reported | No | Not Reported |
| Arlington, TX | - 1 | 0.3 | Yes | Yes | No | No |
| Atlanta | + 15 | + 3.3 | Yes | Yes | Yes | No |
| Austin | + 14.5 | + 1.6 | Yes | Not Reported | Yes | Not Reported |
| Baltimore | 4 | 0.6 | Yes | Not Reported | Yes | Not Reported |
| Boston | 10 | 1.5 | Yes | Yes | Yes | Yes |
| Charlotte | 10 | 1.2 | Yes | Not Reported | No | Not Reported |
| Chicago | 20 | 0.7 | Yes | Not Reported | Yes | Not Reported |
| Cleveland | 5 | 1.3 | Yes | Not Reported | No | Not Reported |
| Colorado Springs | 6.5 | 1.4 | Yes | Not Reported | No | Not Reported |
| Columbus, OH | + 20 | + 2.4 | No | Yes | Yes | No |
| Dallas | 2 | - 0.2 | No | Yes | No | No |
| Denver | + 26 | + 3.9 | Yes | Yes | Yes | Yes |
| Detroit | Not Reported | Not Reported | Not Reported | Not Reported | Not Reported | Not Reported |
| El Paso | 4 | 0.6 | Yes | No | No | No |
| Fort Worth | - 1 | - 0.1 | Yes | Yes | Yes | Yes |
| Fresno | - 0.8 | - 0.1 | Yes | Not Reported | Yes | Not Reported |
| Houston | 5 | - 0.2 | Yes | No | No | No |
| Indianapolis | 2 | - 0.2 | No | Yes | No | No |
| Jacksonville | - 1 | - 0.1 | Yes | Yes | No | No |
| Kansas City, MO | 5 | 1.1 | Yes | Not Reported | Not Reported | Not Reported |
| Las Vegas | Not Reported | Not Reported | Yes | Not Reported | Not Reported | Not Reported |
| Long Beach | 7.5 | 1.6 | Yes | Not Reported | Not Reported | Not Reported |
| Los Angeles | + 16 | 0.4 | Yes | Not Reported | No | Not Reported |
| Louisville | 5 | 0.8 | Yes | Yes | Yes | Yes |
| Memphis | 4 | 0.6 | Yes | Not Reported | No | Not Reported |
| Mesa | 4 | 0.9 | Yes | No | Yes | No |
| Miami | 4.5 | 1.0 | Yes | Not Reported | No | Not Reported |
| Milwaukee | - 1 | - 0.2 | Yes | Yes | No | No |
| Minneapolis | + 42.6 | + 10.5 | Yes | Not Reported | No | Not Reported |
| Nashville | 13.25 | + 2.1 | Yes | Not Reported | Yes | Not Reported |
| New York City | Not Reported | Not Reported | No | No | No | No |
| Oakland | 5.2 | 1.3 | Yes | Yes | No | No |
| Oklahoma City | - 1 | - 0.2 | Yes | No | No | No |
| Omaha | - 1 | - 0.2 | Yes | No | Not Reported | Not Reported |
| Philadelphia | 8 | 0.5 | Yes | Yes | Yes | No |
| Phoenix | 8 | 0.5 | No | No | No | No |
| Portland, OR | + 20 | + 3.2 | Yes | Yes | No | No |
| Raleigh | 2.5 | 0.6 | Yes | Not Reported | Not Reported | Not Reported |
| Sacramento | 3 | 0.6 | Yes | Yes | No | No |
| San Antonio | 3 | - 0.2 | Yes | No | No | No |
| San Diego | 10 | 0.7 | Yes | No | No | No |
| San Francisco | + 40 | + 4.7 | Yes | Not Reported | Not Reported | Not Reported |
| San Jose | 9 | 0.9 | Yes | Yes | No | No |
| Seattle | 13 | + 1.9 | Yes | Yes | No | No |
| Tucson | 2 | 0.4 | Yes | Yes | Yes | Yes |
| Tulsa | - 1.9 | 0.5 | No | No | No | No |
| Virginia Beach | - 1.5 | 0.3 | No | Not Reported | No | Not Reported |
| Washington, DC | 7 | 1.1 | Yes | Yes | Yes | Yes |
| Wichita, KS | - 1 | 0.3 | Yes | Yes | No | No |

FIGURE 3.8.2B - CITY STAFF & BIKING & WALKING, SMALL OR MID-SIZED CITIES ⁸⁴

Legend: **Green** = Highest values; **Red** = Lowest values; **Orange** = No staff reported

| COMMUNITY | REPORTED # OF FULL-TIME EQUIVALENT EMPLOYEES (FTE) WHO WORK ON BICYCLE OR PEDESTRIAN-RELATED ISSUES | FTE PER 100K RESIDENTS | SOME POLICE USE BIKES ON THE JOB | SOME POLICE ARE FOOT ON THE JOB | SOME EMERGENCY MEDICAL TECHNICIANS (EMTS) USE BIKES ON THE JOB | SOME EMTS ARE FOOT ON THE JOB |
|----------------|-----------------------------------------------------------------------------------------------------|------------------------|----------------------------------|---------------------------------|----------------------------------------------------------------|-------------------------------|
| Albany | - 1.3 | 1.3 | Yes | Yes | No | No |
| Anchorage | 2.6 | - 0.9 | Yes | Not Reported | No | Not Reported |
| Baton Rouge | Not Reported | Not Reported | No | Yes | Yes | No |
| Bellingham | - 2 | 2.4 | Yes | Yes | Yes | No |
| Boulder | + 8.3 | + 7.9 | Yes | Yes | No | No |
| Burlington | - 2 | + 4.7 | Yes | Yes | No | Yes |
| Charleston | Not Reported | Not Reported | Not Reported | Not Reported | No | No |
| Chattanooga | 6 | 3.4 | No | Yes | Yes | No |
| Davis | 4.5 | + 6.7 | Yes | Not Reported | No | Not Reported |
| Eugene | 2.8 | 1.7 | Yes | No | No | No |
| Fort Collins | + 20.5 | + 13.0 | Yes | Not Reported | Not Reported | Not Reported |
| Honolulu | 5 | 1.4 | Yes | Yes | No | No |
| Madison | + 10 | 4.1 | Yes | Yes | Yes | Yes |
| Missoula | 6 | + 8.6 | Yes | Not Reported | No | Not Reported |
| New Orleans | 5 | 1.3 | Yes | No | No | No |
| Pittsburgh | 3 | - 1.0 | Yes | Yes | No | No |
| Salt Lake City | + 7 | 3.7 | Yes | Yes | Yes | Yes |
| Spokane | - 1 | - 0.5 | No | Yes | No | No |
| St. Louis | - 2 | - 0.6 | Yes | Not Reported | No | Not Reported |



Bike Week banner on bus, photo courtesy of Bicycle Technologies International

Most large cities (39) report having at least one person who works on bicycle or pedestrian issues, but roughly half as many (19) report having at least one person per 100,000 residents working on bicycle and pedestrian issues. Among the other cities reviewed for the Benchmarking Report, most meet both of those benchmarks (16 of 19 report at least one FTE and 13 of 19 report at least 1 FTE per 100k).

City staff play an important role in planning, designing, and implementing successful infrastructure for people who bike and walk. Reported data on Full-Time Equivalent employees asks for estimates of each tenth of an employee's time spent on bicycling and walking issues. The survey questions ask for this estimate so that city's can include employees who spend significant time on bicycling and walking issues but may not have those issues in their job descriptions.

Many cities express the sentiment that accurately making this estimate is difficult because of the many people involved in discrete tasks related to bicycling and walking, such as the construction workers who build a sidewalk or the contractors who work on a bicycle plan. The survey question attempts to make this easier by asking specifically about government employees, which excludes contractors.

Bicycle Friendly Community Awards, Walk Friendly Community Awards, & NACTO Member Cities

FIGURE 3.8.3A - BICYCLE FRIENDLY COMMUNITY AWARDS, WALK FRIENDLY COMMUNITY AWARDS, & NACTO MEMBER CITIES, LARGE CITIES ^{8,5}

| COMMUNITY | BICYCLE FRIENDLY COMMUNITY (BFC) AWARDS | | | | WALK FRIENDLY COMMUNITY AWARD LEVEL | NACTO MEMBER CITY OR AFFILIATE MEMBER CITY |
|------------------|-----------------------------------------|-----------------------|-------------------------|---------------------------|-------------------------------------|--------------------------------------------|
| | INITIAL AWARD LEVEL | YEAR OF INITIAL AWARD | MOST RECENT AWARD LEVEL | YEAR OF MOST RECENT AWARD | | |
| Albuquerque | Bronze | 2005 | Bronze | 2016 | | |
| Arlington, TX | Has not applied | | Has not applied | | | |
| Atlanta | Has not applied | | Has not applied | | Bronze | Member City |
| Austin | Silver | 2007 | Gold | 2015 | Silver | Member City |
| Baltimore | Honorable Mention | 2008 | Bronze | 2015 | | Member City |
| Boston | Silver | 2011 | Silver | 2017 | | Member City |
| Charlotte | Honorable Mention | 2005 | Bronze | 2016 | Bronze | Member City |
| Chicago | Silver | 2005 | Silver | 2015 | Gold | Member City |
| Cleveland | Honorable Mention | 2008 | Bronze | 2016 | | |
| Colorado Springs | Silver | 2008 | Silver | 2017 | | |
| Columbus, OH | Bronze | 2009 | Bronze | 2017 | Silver | |
| Dallas | Has not applied | | Has not applied | | | |
| Denver | Silver | 2003 | Silver | 2015 | Gold | Member City |
| Detroit | Honorable Mention | 2012 | Honorable Mention | 2012 | | Member City |
| El Paso | Honorable Mention | 2013 | Bronze | 2016 | | Affiliate Member City |
| Fort Worth | Honorable Mention | 2012 | Bronze | 2016 | | |
| Fresno | Bronze | 2011 | Bronze | 2015 | | |
| Houston | No Award | 2003 | Bronze | 2013 | | Member City |
| Indianapolis | Honorable Mention | 2003 | Bronze | 2013 | | Affiliate Member City |
| Jacksonville | No Award | 2008 | Honorable Mention | 2010 | | |
| Kansas City, MO | Bronze | 2011 | Bronze | 2016 | | |
| Las Vegas | Bronze | 2014 | Bronze | 2014 | | |
| Long Beach | Bronze | 2009 | Silver | 2017 | | Affiliate Member City |
| Los Angeles | Honorable Mention | 2007 | Bronze | 2017 | | Member City |
| Louisville | Honorable Mention | 2005 | Silver | 2015 | | Affiliate Member City |
| Memphis | No Award | 2010 | Bronze | 2015 | | Affiliate Member City |
| Mesa | Bronze | 2003 | Silver | 2015 | | |
| Miami | Honorable Mention | 2011 | Bronze | 2016 | | |
| Milwaukee | Bronze | 2006 | Bronze | 2014 | | |
| Minneapolis | Silver | 2008 | Gold | 2015 | Gold | Member City |
| Nashville | Honorable Mention | 2009 | Bronze | 2015 | | Affiliate Member City |
| New York City | Honorable Mention | 2004 | Silver | 2014 | Platinum | Member City |
| Oakland | Bronze | 2010 | Gold | 2018 | | Affiliate Member City |
| Oklahoma City | Honorable Mention | 2014 | Honorable Mention | 2014 | | |
| Omaha | No Award | 2004 | Bronze | 2015 | Honorable Mention | |
| Philadelphia | Honorable Mention | 2006 | Silver | 2016 | Silver | Member City |
| Phoenix | Honorable Mention | 2011 | Bronze | 2014 | | Member City |
| Portland, OR | Gold | 2003 | Platinum | 2017 | | Member City |
| Raleigh | Bronze | 2011 | Bronze | 2015 | | Affiliate Member City |
| Sacramento | Bronze | 2006 | Silver | 2016 | | Member City |
| San Antonio | Bronze | 2010 | Bronze | 2018 | | Member City |
| San Diego | Honorable Mention | 2015 | Honorable Mention | 2015 | | Member City |
| San Francisco | Gold | 2006 | Gold | 2016 | Gold | Member City |
| San Jose | Bronze | 2006 | Bronze | 2013 | | Member City |
| Seattle | Gold | 2008 | Gold | 2016 | Platinum | Member City |
| Tucson | Silver | 2004 | Gold | 2016 | | |
| Tulsa | No Award | 2007 | Bronze | 2017 | | |
| Virginia Beach | Honorable Mention | 2006 | Bronze | 2015 | | |
| Washington, DC | Bronze | 2003 | Gold | 2018 | Gold | Member City |
| Wichita, KS | Honorable Mention | 2015 | Bronze | 2017 | | |

FIGURE 3.8.3B - BICYCLE FRIENDLY COMMUNITY AWARDS, WALK FRIENDLY COMMUNITY AWARDS, & NACTO MEMBER CITIES, SMALL OR MID-SIZED CITIES ^{8,6}

| BICYCLE FRIENDLY COMMUNITY (BFC) AWARDS | | | | | | |
|-----------------------------------------|---------------------|-----------------------|-------------------------|---------------------------|-------------------------------------|--------------------------------------------|
| COMMUNITY | INITIAL AWARD LEVEL | YEAR OF INITIAL AWARD | MOST RECENT AWARD LEVEL | YEAR OF MOST RECENT AWARD | WALK FRIENDLY COMMUNITY AWARD LEVEL | NACTO MEMBER CITY OR AFFILIATE MEMBER CITY |
| Albany | Honorable Mention | 2012 | Honorable Mention | 2012 | | |
| Anchorage | Bronze | 2009 | Silver | 2017 | | |
| Baton Rouge | Honorable Mention | 2003 | Bronze | 2017 | | |
| Bellingham | Silver | 2006 | Silver | 2017 | | |
| Boulder | Gold | 2004 | Platinum | 2017 | Gold | Affiliate Member City |
| Burlington | Bronze | 2005 | Silver | 2011 | Silver | Affiliate Member City |
| Charleston | Honorable Mention | 2009 | Bronze | 2010 | | Affiliate Member City |
| Chattanooga | Bronze | 2003 | Silver | 2018 | | Affiliate Member City |
| Davis | Platinum | 2005 | Platinum | 2016 | | |
| Eugene | Silver | 2004 | Gold | 2013 | Gold | |
| Fort Collins | Silver | 2003 | Platinum | 2017 | Bronze | Affiliate Member City |
| Honolulu | Honorable Mention | 2007 | Bronze | 2018 | | Affiliate Member City |
| Madison | Gold | 2006 | Platinum | 2015 | | |
| Missoula | Silver | 2003 | Gold | 2016 | | |
| New Orleans | Honorable Mention | 2008 | Silver | 2014 | Bronze | |
| Pittsburgh | Honorable Mention | 2003 | Bronze | 2014 | | Member City |
| Salt Lake City | Bronze | 2007 | Silver | 2015 | | Affiliate Member City |
| Spokane | Bronze | 2010 | Bronze | 2014 | | |
| St. Louis | No Award | 2007 | Silver | 2017 | | Affiliate Member City |



Most cities reviewed for the Benchmarking Report have participated in the League of American Bicyclists’ Bicycle Friendly Community program (47 out of 50 large cities and 100% of the 19 other cities). Most cities are also affiliate or full members of the National Association of City Transportation Officials (NACTO), with 30 of the 50 largest cities and 9 of the 19 other cities being represented. Participation in the Walk Friendly Community program is less common, with about 20% of cities reviewed for the Benchmarking Report receiving a Walk Friendly Community award.

Over 90% of large cities who participated in the Bicycle Friendly Community did so multiple times between 2003 and 2018. In many cases this has led to those communities earning higher awards, with 62% of participating large cities improving their award level in the past 15 years. Slightly more than half of those improvements (15 of 29) were from No award or an Honorable Mention to an award of Bronze.

The small or mid-sized cities reviewed for the Benchmarking Report tended to have higher award levels under the Bicycle Friendly Community program – including four of the five Platinum communities in the United States. The small or mid-sized cities were more likely to improve their award over time (15 of 19 cities improved their award) and those improvements were often to and/or from higher award levels.

League Member Organizations & Bicycle/ Pedestrian Advisory Committees

FIGURE 3.8.4A - LEAGUE MEMBER ORGANIZATIONS & BICYCLE/PEDESTRIAN ADVISORY COMMITTEES, LARGE CITIES ⁸⁷ **Legend:** **Green** = 5 highest values; **Red** = Reported as none; **Orange** = Not reported

| COMMUNITY | # OF LEAGUE MEMBER ORGS | LEAGUE MEMBER ORGANIZATIONS | BICYCLE/PEDESTRIAN ADVISORY COMMITTEE |
|------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Albuquerque | 1 | BikeABQ | Yes |
| Arlington, TX | None Found | | Not Reported |
| Atlanta | 3 | Red Bike and Green Atlanta, Atlanta Bicycle Coalition, Action Cycling - Atlanta, Inc. | None |
| Austin | 1 | Bike Austin | Yes |
| Baltimore | 2 | Bikemore, Baltimore City Recreation and Parks | Yes |
| Boston | 3 | Boston Cyclists Union, Walk Boston, MassBike | Not Reported |
| Charlotte | 1 | Trips for Kids Charlotte | Yes |
| Chicago | 5 | Women Bike Chicago, Red Bike & Green - Chicago, West Town Bikes, AlbanyParkBikes (A.P.B.), Active Transportation Alliance | Yes |
| Cleveland | 2 | St Clair Bikeworks, Bike Cleveland | Yes |
| Colorado Springs | 3 | Kids on Bikes, UCCS, Trails and Open Space Coalition | Yes |
| Columbus, OH | 2 | Consider Biking, Yay Bikes! | Yes |
| Dallas | 2 | Bike Friendly South Dallas, BikeDFW | Yes |
| Denver | 2 | Denver Bikesharing, Bike Denver | Yes |
| Detroit | 3 | Detroit Greenways Coalition, Fender Bender Detroit, Detroit Eastside Community Collaborative | Not Reported |
| El Paso | 2 | Cordero Family - Velo Paso Bicycle Pedestrian Coalition, Velo Paso Bicycle Pedestrian Coalition | Yes |
| Fort Worth | 1 | Bike Friendly Fort Worth | Yes |
| Fresno | 4 | California State Univ., Fresno, Bike Happy Foundation, Fresno County Bicycle Coalition | Yes |
| Houston | 2 | BikeHouston, Houston Bicycle Club | Yes |
| Indianapolis | 1 | IndyCog | Yes |
| Jacksonville | None Found | | None |
| Kansas City, MO | 2 | BikeWalkKC, Major Taylor Cycling Club of KC/Hill Street Spinners | Yes |
| Las Vegas | 2 | BikingLasVegas.com, Outside Las Vegas Foundation | Not Reported |
| Long Beach | 4 | Empact Communities, City Fabrick, Bikeable Communities, bikeucation | Yes |
| Los Angeles | 5 | C.I.C.L.E., Bicycle Kitchen/La Biccocina, Los Angeles County Bicycle Coalition, API Forward Movement, Walk 'n Rollers | Yes |
| Louisville | None Found | | Yes |
| Memphis | 5 | Memphis Hightailers Foundation, Bike Walk Memphis, Revolutions Memphis, Bike Class, BLDG Memphis | Yes |
| Mesa | 3 | Bike Accident Attorneys, PLC, WE-CYCLE-USA Inc. | Yes |
| Miami | 3 | HOPE___One Pedal Stroke at a Time, Inc, Dade Heritage Trust, BIKE305 | Yes |
| Milwaukee | 1 | Braise on the Go | Yes |
| Minneapolis | 3 | MnDOT, Midtown Greenway Coalition, Our Streets Minneapolis | Yes |
| Nashville | 1 | Walk/Bike Nashville | Yes |
| New York City | 9 | NYC H2O, Hazon, Inc., Unlimited Biking Rentals LLC, completegeorge.org, Exploring Paths, Transportation Alternatives, Uptown & Boogie Bicycle Advocacy, Virtuous Bicycle, Bike NY | None |
| Oakland | 3 | Bay Area Bicycle Coalition, Walk Oakland Bike Oakland, Bike East Bay | Yes |
| Oklahoma City | None Found | | Yes |
| Omaha | 4 | Omaha Bikes, Community Bike Project Omaha, Live Well Omaha, Mode Shift Omaha | Yes |
| Philadelphia | 3 | Kidical Mass Philadelphia, Bicycle Coalition of Greater Philadelphia, Neighborhood Bike Works | None |
| Phoenix | 2 | Phoenix Bike Lab, Curbside Cylery | Not Reported |
| Portland, OR | 4 | Community Cycling Center, Northwest Trail Alliance, Bike Farm, NW Bicycle Safety Council | Yes |
| Raleigh | 1 | Oaks and Spokes | Yes |
| Sacramento | 4 | Rivet Cycle Works, North Natomas Transportation Management Assoc., Walk Sacramento, Sacramento Area Bicycle Advocates | Yes |
| San Antonio | 1 | SATX Social Ride | Yes |
| San Diego | 2 | BikeSD, San Diego County Bicycle Coalition | Yes |
| San Francisco | 2 | YBike, San Francisco Bicycle Coalition | Yes |
| San Jose | 2 | Silicon Valley Bicycle Coalition, SJ Bike Party, Inc | Yes |
| Seattle | 4 | Commute Seattle, Bike Works Seattle, The Bike Shack, Cascade Bicycle Club | Yes |
| Tucson | 2 | BICAS (Bicycle Inter-Community Art & Salvage), Living Streets Alliance | Yes |
| Tulsa | 2 | Tulsa Hub, Tulsa Tough | Yes |
| Virginia Beach | 1 | Bicycle Association of Southern Tidewater | Yes |
| Washington, DC | 6 | Coalition for Smarter Growth, Bike House, Ride America for Safe Routes, Bike to the Beach, Washington Area Bicyclist Association, Gearin' Up Bicycles | Yes |
| Wichita, KS | 1 | Bike Walk Wichita Inc. | Yes |

FIGURE 3.8.4B - LEAGUE MEMBER ORGANIZATIONS & BICYCLE/PEDESTRIAN ADVISORY COMMITTEES, SMALL OR MID-SIZED CITIES ⁸⁸

Legend: **Green** = 5 highest values; **Red** = Reported as none; **Orange** = Not reported

| COMMUNITY | # OF LEAGUE MEMBER ORGS | LEAGUE MEMBER ORGANIZATIONS | BICYCLE/PEDESTRIAN ADVISORY COMMITTEE |
|----------------|-------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------|
| Albany | 1 | Albany Bicycle Coalition | Yes |
| Anchorage | 3 | Alaska Randonneurs, Alaska Injury Prevention Center, Bike Anchorage | Yes |
| Baton Rouge | 2 | Baton Rouge Advocates For Safe Streets (BRASS), Bike Baton Rouge | Yes |
| Bellingham | 1 | Whatcom Council of Governments | Yes |
| Boulder | 3 | Boulder B-cycle, Shared Paths of Boulder, Community Cycles | Yes |
| Burlington | 1 | Vermont Goldsprints | Yes |
| Charleston | 2 | SC Coastal Conservation League, Charleston Moves | Yes |
| Chattanooga | 3 | Like Riding A Bicycle, Chattanooga- Hamilton County Health Department, Bike Walk Chattanooga | Yes |
| Davis | 2 | The Bike Campaign & Bike Garage, Bike Davis | Yes |
| Eugene | 4 | Bikelane Coalition, Whiteaker Community Council, Point2point Solutions, University of Oregon Bike Program | Yes |
| Fort Collins | 3 | Bike Fort Collins, Friends of the Fort Collins Bicycle Program, Bicycle Cooperative of Fort Collins | Yes |
| Honolulu | 2 | Maui Bicycling League, Hawaii Bicycling League | Yes |
| Madison | 2 | We Are All Mechanics, LLC, Madison Bikes Inc. | Yes |
| Missoula | 3 | Bitterroot Trail Preservation Alliance, Missoulians On Bicycles, Bike/Walk Alliance for Missoula, Inc. | Yes |
| New Orleans | 1 | Bike Easy | Yes |
| Pittsburgh | 3 | Pittsburgh Green House, Maya Organization, Bike Pittsburgh | Yes |
| Salt Lake City | 1 | Salt Lake County, Utah | Yes |
| Spokane | 1 | Bike to Work Spokane Spokane Bikes | Yes |
| St. Louis | 1 | Trailnet | Yes |

Most large cities (46 out of 50) and all other cities reviewed for the Benchmarking Report have at least one member group of the League of American Bicyclists. A similar number also report having Bicycle and/or pedestrian advisory committees composed of citizens that liaise with officials to improve conditions for people who bike and walk.





Topic References

81 The League of American Bicyclists. *Bicycle Friendly Community Survey* data from questions C1-3, C5, D5, and BMR2-3. The Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city.

82 See footnote 81.

83 The League of American Bicyclists. *Bicycle Friendly Community Survey* data from questions F3, E2, and BMR4-6 and BMR8. The Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city.

84 See footnote 83.

85 The League of American Bicyclists. *Bicycle Friendly Community* application data (2003-2018). Walk Friendly Communities. *Communities (2011-2018)*. Available at <http://walkfriendly.org/communities/>. National Association of City Transportation Officials (NACTO). *Member Cities*. Available at <https://nacto.org/member-cities/>.

86 See footnote 85.

87 The League of American Bicyclists. Advocacy Organization Member Data. Available at <https://bikeleague.org/bfa/search/map>. The League of American Bicyclists. *Bicycle Friendly Community Survey* data from question F5. Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city.

88 See footnote 87.

3.9 - CITIES:

FUNDING FOR BIKING & WALKING

Reported Spending on Biking & Walking

Data on spending and spending targets appears more difficult to obtain than other data. Blank cells in the tables for Figure 3.9.1 reflect cities that did not provide answers. “Unknown” reflects cities that used open-ended portions of their survey to say they could not provide an estimate because it was not known to them. “Not reported” reflects cities that otherwise provided data but did not report data for these questions.

Cities that did report funding showed a wide range in the amount dedicated to bicycling and walking. Among large cities, five cities reported funding of less than \$1 per capita and three cities reported funding of at least \$40 per capita. If these reported figures are correct, then they show large differences in the priority or costs of investments in bicycling and walking in different cities.



Photo by Mark Klotz (@Flickr)

FIGURE 3.9.1A - REPORTED SPENDING ON BIKING & WALKING, LARGE CITIES ⁸⁹

Legend: **Green** = 3 to 5 highest values; **Blue** = Target spending reported

| COMMUNITY | CITY HAS A SPENDING TARGET | % OF TOTAL ANNUAL TRANSPORTATION BUDGET INVESTED IN BICYCLE PROJECTS (5 YR AVG) | % OF TOTAL ANNUAL TRANSPORTATION BUDGET INVESTED IN PEDESTRIAN PROJECTS (5 YR AVG) | DEDICATED CITY FUNDS TO BIKE/PED IN MOST RECENT YEAR AVAILABLE | DEDICATED REPORT FUNDING OR TARGET PER CAPITA |
|------------------|----------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|
| Albuquerque | | 15% | | \$4,000,000 | \$7.18 |
| Arlington, TX | No | | | | |
| Atlanta | | Unknown | Unknown | | |
| Austin | | | | | |
| Baltimore | | | | | |
| Boston | No | | | Unknown | |
| Charlotte | | 10% | | \$3,000,000 | \$3.71 |
| Chicago | | | | | |
| Cleveland | | 10% | | \$19,000,000 | \$48.82 |
| Colorado Springs | | Unknown | | | |
| Columbus, OH | 5% | | | \$14,944,000 | \$17.85 |
| Dallas | Yes | | | | |
| Denver | \$2,200,000 | 10% | 9% | | \$3.32 |
| Detroit | Not Reported | Not Reported | Not Reported | Not Reported | |
| El Paso | | | | \$15,150,000 | \$22.34 |
| Fort Worth | | Unknown | Unknown | | |
| Fresno | | | | | |
| Houston | \$1,100,000 | Unknown | Unknown | | \$0.49 |
| Indianapolis | No | | | \$3,000,000 | \$3.54 |
| Jacksonville | \$10,725,000 | 1% | Unknown | | \$12.52 |
| Kansas City, MO | 1% | 20% | | | |
| Las Vegas | Not Reported | | | | |
| Long Beach | 2% | | | | |
| Los Angeles | | Unknown | | \$1,294,684 | \$0.33 |
| Louisville | \$312,500 | Unknown | Unknown | | \$0.51 |
| Memphis | | | | | |
| Mesa | \$750,000 | 25% | 15% | | \$1.59 |
| Miami | | Unknown | | | |
| Milwaukee | No | | | \$1,100,000 | \$1.84 |
| Minneapolis | | | | | |
| Nashville | | | | | |
| New York City | No | | | | |
| Oakland | \$673,860 | 12% | 26% | | \$1.64 |
| Oklahoma City | | | | \$24,877,014 | \$40.12 |
| Omaha | Not Reported | | | \$250,000 | \$0.56 |
| Philadelphia | | Unknown | Unknown | | |
| Phoenix | Yes | | | Not Reported | |
| Portland, OR | Not Reported | Unknown | Unknown | | |
| Raleigh | No | | | \$1,573,000 | \$3.56 |
| Sacramento | | 15% | 7% | | |
| San Antonio | 1% | | | \$9,500,000 | \$6.60 |
| San Diego | \$700,000 | 5% | 40% | | \$0.51 |
| San Francisco | Yes | 15% | | | |
| San Jose | No | | | \$11,525,000 | \$11.42 |
| Seattle | No | | | \$30,000,000 | \$44.85 |
| Tucson | | 2% | 2% | | |
| Tulsa | \$722,500 | 6% | Unknown | | \$1.81 |
| Virginia Beach | | | | | |
| Washington, DC | \$11,000,000 | 5% | Unknown | | \$16.69 |
| Wichita, KS | \$615,000 | 2% | | | \$1.58 |

FIGURE 3.9.1B - REPORTED SPENDING ON BIKING & WALKING, SMALL OR MID-SIZED CITIES ⁹⁰

Legend: **Green** = 3 to 5 highest values; **Blue** = Target spending reported

| COMMUNITY | CITY HAS A SPENDING TARGET | % OF TOTAL ANNUAL TRANSPORTATION BUDGET INVESTED IN BICYCLE PROJECTS (5 YR AVG) | % OF TOTAL ANNUAL TRANSPORTATION BUDGET INVESTED IN PEDESTRIAN PROJECTS (5 YR AVG) | DEDICATED CITY FUNDS TO BIKE/PED IN MOST RECENT YEAR AVAILABLE | DEDICATED REPORT FUNDING OR TARGET PER CAPITA |
|----------------|----------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|
| Albany | No | | | \$15,000 | \$0.15 |
| Anchorage | | 12% | | \$2,000,000 | \$6.68 |
| Baton Rouge | No | | | | |
| Bellingham | \$2,000,000 | 50% | 25% | \$2,000,000 | \$23.68 |
| Boulder | Yes | | | \$6,556,238 | \$62.19 |
| Burlington | \$350,000 | Unknown | Unknown | | \$8.22 |
| Charleston | Not Reported | | | | |
| Chattanooga | No | | | \$1,227,420 | \$7.00 |
| Davis | | | | | |
| Eugene | Yes | | | | |
| Fort Collins | \$500,000 | 2% | Not Reported | \$500,000 | \$3.18 |
| Honolulu | At least \$400,000 | | | \$3,787,000 | \$10.83 |
| Madison | \$550,000 | Unknown | Unknown | | \$2.24 |
| Missoula | | Unknown | | | |
| New Orleans | | | | \$2,750,000 | \$7.18 |
| Pittsburgh | | | | \$2,000,000 | \$6.55 |
| Salt Lake City | | 34% | Unknown | | |
| Spokane | No | | | | |
| St. Louis | | 3% | | \$200,000 | \$0.63 |

Topic References

89 The League of American Bicyclists. *Bicycle Friendly Community Survey* data from questions F7c, F7f, F7fi, and alternate minimum survey question 7 (spending target); F10, BMR14, and alternate minimum survey question 8 (percentage of budget); and F7c1 and alternate minimum survey questions 11 and 12 (most recent year dedicated funds). Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city. U.S. Census Bureau. *American Community Survey* Table B01003 5-year estimate (2016).

90 See footnote 89.

3.10 - CITIES: INFRASTRUCTURE FOR PEOPLE BIKING & WALKING

Bike Sharing

The Benchmarking Report began reporting on bikeshare systems in the 2012 edition. In 2012, there were 5 large cities reporting that they had a bikeshare system. Since then, bikeshare systems have become near ubiquitous with all but two large cities having a bikeshare system or having one preparing to launch.

Private dock-less bikeshare systems that have proliferated in recent years, from providers such as Lime, Ofo, Spin, and others were not reviewed for the Benchmarking Report. The survey questions of the Benchmarking Report reflect public participation in most systems where a city reported data.



Blue Bike Station, photo courtesy of Massachusetts Institute of Technology

FIGURE 3.10.1A - BIKE SHARING, LARGE CITIES ⁹¹

Legend: **Red** = No bike share system reported as launched in community or only private dockless system(s) reported

| COMMUNITY | BIKESHARE SYSTEM NAME | # OF BIKESHARE STATIONS | # OF BIKESHARE BIKES | BIKESHARE IMPLEMENTED BY GOV'T | BIKESHARE IMPLEMENTED BY NON-PROFIT |
|------------------|-------------------------------------------------|-------------------------|----------------------|--------------------------------|-------------------------------------|
| Albuquerque | Pace Bike Share | 15 | 75 | | |
| Arlington, TX | Private Dockless only | | | | |
| Atlanta | Relay Bike Share | 72 | 500 | Yes | |
| Austin | Austin B-cycle | | | | |
| Baltimore | Baltimore Bike Share | | | | |
| Boston | Hubway | | 1800 | | |
| Charlotte | Charlotte B-cycle | 25 | 207 | | |
| Chicago | Divvy | | | | |
| Cleveland | UHBikes | 25 | 250 | | |
| Colorado Springs | PikeRide (launching 2018) | | | | |
| Columbus, OH | CoGo Bike Share | | | | |
| Dallas | Private Dockless only | | | | |
| Denver | Denver B-cycle | 88 | 700 | | Yes |
| Detroit | MoGo | | | | |
| El Paso | SunCycle B-cycle | | | | |
| Fort Worth | Fort Worth Bike Sharing | 46 | 350 | | Yes |
| Fresno | | | | | |
| Houston | Houston B-Cycle | 51 | 425 | Yes | Yes |
| Indianapolis | Indiana Pacers Bike Share | | | | |
| Jacksonville | Swarm | | | | |
| Kansas City, MO | Kansas City B-cycle | 30 | 161 | | |
| Las Vegas | RTC Bike Share | 21 | 180 | | |
| Long Beach | Long Beach Bike Share | 60 | 400 | | |
| Los Angeles | Metro Bike Share | 65 | 1000 | | |
| Louisville | LouVelo | 28 | 305 | Yes | |
| Memphis | Explore Bike Share | | | | |
| Mesa | Grid Bike Share | 113 | 854 | Yes | |
| Miami | Citi Bike | 175 | 1750 | | |
| Milwaukee | BublR Bikes | | | | |
| Minneapolis | Nice Ride | | | | |
| Nashville | Nashville B-cycle | | | | |
| New York City | Citi Bike | | | | |
| Oakland | Ford GoBike | 73 | 800 | Yes | |
| Oklahoma City | Spokies | 7 | 95 | | |
| Omaha | Heartland B-cycle | 35 | 199 | Yes | Yes |
| Philadelphia | Indego Bike Share | 122 | 1200 | Yes | Yes |
| Phoenix | Grid Bike Share | | 500 | | |
| Portland, OR | Biketown | 123 | 1000 | Yes | Yes |
| Raleigh | Planned | | 300 | | |
| Sacramento | Tower Bridge Bike Share (name likely to change) | 400 | 900 | Yes | |
| San Antonio | Swell Cycle | 55 | 450 | Yes | Yes |
| San Diego | Discover Bike | 100 | 700 | Yes | |
| San Francisco | Ford GoBike | 35 | 350 | | |
| San Jose | Ford GoBike | | | | |
| Seattle | Private Dockless only | | | | |
| Tucson | Tugo Bike Share | 36 | 330 | Yes | |
| Tulsa | Tulsa Bike Share | 25 | 160 | | Yes |
| Virginia Beach | | | | | |
| Washington, DC | Capital Bikeshare | 266 | 2136 | Yes | |
| Wichita, KS | Bike Share ICT | 18 | 100 | | Yes |

FIGURE 3.10.1B - BIKE SHARING, SMALL OR MID-SIZED CITIES ⁹²

Legend: Red = No bike share system reported as launched in community or only private dockless system(s) reported

| COMMUNITY | BIKESHARE SYSTEM NAME | # OF BIKESHARE STATIONS | # OF BIKESHARE BIKES | BIKESHARE IMPLEMENTED BY GOV'T | BIKESHARE IMPLEMENTED BY NON-PROFIT |
|----------------|-------------------------------------|-------------------------|----------------------|--------------------------------|-------------------------------------|
| Albany | CDPHP Cycle | | | | |
| Anchorage | | | | | |
| Baton Rouge | Some planning | | | | |
| Bellingham | Launching in 2018 | | | | |
| Boulder | Boulder B-cycle | | | | |
| Burlington | Greenride BikeShare | 15 | 100 | Yes | Yes |
| Charleston | Holy Spokes | | | | |
| Chattanooga | Chattanooga Bicycle Transit System | | | | |
| Davis | JUMP | | | | |
| Eugene | PeaceHealth Rides | | | | |
| Fort Collins | Fort Collins Bike Share | 17 | 91 | Yes | Yes |
| Honolulu | Biki | 100 | 1000 | Yes | Yes |
| Madison | Madison Bcycle | 44 | 365 | Yes | Yes |
| Missoula | Dasani Blue Bikes | | | | |
| New Orleans | Blue Bikes | | | | |
| Pittsburgh | Healthy Ride | | | | |
| Salt Lake City | GREENbike Salt Lake City Bike Share | 32 | 294 | Yes | Yes |
| Spokane | Planned | | | | |
| St. Louis | St. Louis Bike Share | | | | |

In 2014, the North American Bikeshare Association (NABSA) was incorporated and it hired its first Executive Director in 2017. NABSA currently has over 70 members, including members outside of North America. According to NABSA, there were over 50,000 bikeshare bikes in the United States in 2016 and 28 million trips were taken on bike share bikes in 2016. ⁹³



Reported Bicycle & Pedestrian Infrastructure

FIGURE 3.10.2A - REPORTED BICYCLE & PEDESTRIAN INFRASTRUCTURE, LARGE CITIES ⁹⁴

Legend: **Green** = 5 highest values; **Red** = 5 lowest values

| COMMUNITY | MILES OF PAVED PUBLIC PATHS | MILES OF PROTECTED & BUFFERED BIKE LANES | MILES OF OTHER BIKE LANES | MILES OF BIKE INFRASTRUCTURE PER SQUARE MILE | MILES OF SIDEWALKS | MILES OF SIDEWALKS PER SQUARE MILE |
|------------------|-----------------------------|------------------------------------------|---------------------------|----------------------------------------------|--------------------|------------------------------------|
| Albuquerque | 152 | 15.5 | 215 | 2.0 | Not reported | Not reported |
| Arlington, TX | 37 | 0 | 11.6 | 0.5 | 1188 | 12.4 |
| Atlanta | 42 | 9 | 47 | 0.7 | 884 | 6.6 |
| Austin | 27 | 37.6 | 0 | 0.2 | Not reported | Not reported |
| Baltimore | 35 | 1.45 | 35 | 0.9 | Not reported | Not reported |
| Boston | 53 | 6.8 | 102 | 3.4 | Not reported | Not reported |
| Charlotte | 50 | 3 | 69 | 0.4 | Not reported | Not reported |
| Chicago | 42 | 85.5 | 99 | 1.0 | Not reported | Not reported |
| Cleveland | 42.3 | 1.5 | 33 | 1.0 | Not reported | Not reported |
| Colorado Springs | 78.4 | 0 | 120.6 | 1.0 | Not reported | Not reported |
| Columbus, OH | 147 | 9.5 | 55.5 | 1.0 | 2340 | 10.8 |
| Dallas | 103 | 8.1 | 5 | 0.3 | 4972 | 14.6 |
| Denver | 64.6 | 12.33 | 330 | 2.7 | 3500 | 22.9 |
| Detroit | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported |
| El Paso | 16 | 0 | 80.3 | 0.4 | 2510 | 9.8 |
| Fort Worth | 51.4 | 8.0 | 65.2 | 0.4 | 2500 | 7.4 |
| Fresno | 18 | 0 | 155 | 1.5 | Not reported | Not reported |
| Houston | 220 | 1.5 | 6.7 | 0.4 | 4490 | 7.5 |
| Indianapolis | 73.1 | 10 | 75 | 0.4 | 1466 | 4.1 |
| Jacksonville | 30.3 | 0 | 179.6 | 0.3 | 3114.1 | 4.2 |
| Kansas City, MO | 115 | 7 | 37 | 0.5 | 2233 | 7.1 |
| Las Vegas | 36.5 | 14.9 | 61.87 | 0.8 | Not reported | Not reported |
| Long Beach | 38.6 | 7.3 | 153 | 4.0 | Not reported | Not reported |
| Los Angeles | 119.7 | 6.7 | 377 | 1.1 | Not reported | Not reported |
| Louisville | 69 | 5.2 | 151 | 0.7 | 1800 | 5.5 |
| Memphis | 37.6 | 4.89 | 63.1 | 0.3 | Not reported | Not reported |
| Mesa | 28 | 12.3 | 57.5 | 0.7 | Not reported | Not reported |
| Miami | 23.3 | 5.31 | 16.7 | 1.3 | Not reported | Not reported |
| Milwaukee | 24 | 1.8 | 165 | 2.0 | 3000 | 31.3 |
| Minneapolis | 94 | 95 | 70 | 4.8 | Not reported | Not reported |
| Nashville | 113 | 0 | 90.2 | 0.4 | Not reported | Not reported |
| New York City | 310 | 51 | 360 | 2.4 | 12750 | 42.1 |
| Oakland | 0 | 0 | 13 | 0.2 | 1120 | 20.0 |
| Oklahoma City | 81 | 0.5 | 7 | 0.1 | 2500 | 4.1 |
| Omaha | 138 | 5 | 13.1 | 2.0 | Not reported | Not reported |
| Philadelphia | Not reported | Not reported | Not reported | Not reported | 2700 | 20.1 |
| Phoenix | 51 | 11 | 496 | 1.1 | Not reported | Not reported |
| Portland, OR | 94.3 | 29.0 | 207.7 | 2.5 | 2455 | 18.5 |
| Raleigh | 97.6 | 0.4 | 42.8 | 1.0 | 849 | 5.9 |
| Sacramento | 41.5 | 7 | 107.6 | 1.6 | Not reported | Not reported |
| San Antonio | 83 | 1 | 219 | 0.7 | 4511 | 9.8 |
| San Diego | 132.5 | 6.4 | 329.7 | 1.4 | 5000 | 15.4 |
| San Francisco | 69.5 | 30.9 | 152.5 | 5.4 | Not reported | Not reported |
| San Jose | 113 | 66 | 376 | 3.1 | 6400 | 36.2 |
| Seattle | 48 | 9.5 | 98 | 1.9 | 2268 | 27.0 |
| Tucson | 61.9 | 0 | 7 | 0.3 | 1800 | 7.9 |
| Tulsa | 60 | 9.5 | 72.1 | 0.7 | 1002 | 5.1 |
| Virginia Beach | 57.2 | 0.1 | 19.6 | 0.3 | Not reported | Not reported |
| Washington, DC | 74.1 | 2.3 | 21 | 1.6 | 1922 | 31.5 |
| Wichita, KS | 70 | 6.3 | 11 | 0.6 | 2700 | 19.9 |

FIGURE 3.10.2B - REPORTED BICYCLE & PEDESTRIAN INFRASTRUCTURE, SMALL OR MID-SIZED CITIES ⁹⁵

Legend: **Green** = 5 highest values; **Red** = 5 lowest values

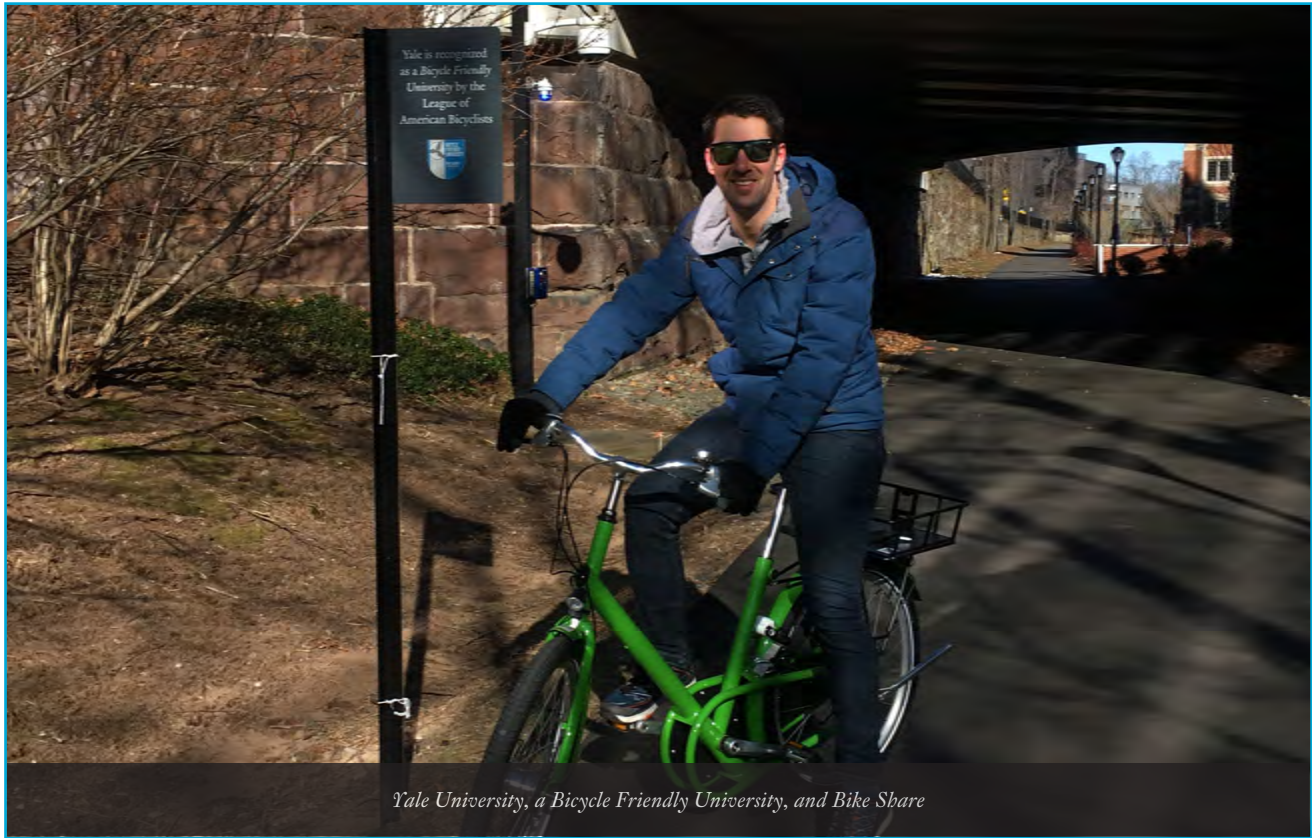
| COMMUNITY | MILES OF PAVED PUBLIC PATHS | MILES OF PROTECTED AND BUFFERED BIKE LANES | MILES OF OTHER BIKE LANES | MILES OF BIKE INFRASTRUCTURE PER SQUARE MILE | MILES OF SIDEWALKS | MILES OF SIDEWALKS PER SQUARE MILE |
|----------------|-----------------------------|--------------------------------------------|---------------------------|----------------------------------------------|--------------------|------------------------------------|
| Albany | 7 | 0 | 3.9 | 0.5 | 289 | 13.5 |
| Anchorage | 350 | 0 | 80.6 | 3.1 | Not reported | Not reported |
| Baton Rouge | 9 | 0 | 25.7 | 0.5 | 938 | 12.2 |
| Bellingham | 9.1 | 1.8 | 29.3 | 1.5 | 160 | 5.9 |
| Boulder | 60 | 5.5 | 73 | 5.6 | 456 | 18.5 |
| Burlington | 16.45 | 2.7 | 7.3 | 2.6 | 127 | 12.3 |
| Charleston | Not reported | Not reported | Not reported | Not reported | Not reported | Not reported |
| Chattanooga | 28 | 0 | 17 | 0.3 | 488 | 3.6 |
| Davis | 65 | 3 | 70 | 14.0 | Not reported | Not reported |
| Eugene | 46 | 4.7 | 182 | 5.3 | 772 | 17.7 |
| Fort Collins | 65 | 16.5 | 183 | 4.9 | Not reported | Not reported |
| Honolulu | 47 | 8.2 | 125.3 | 3.0 | 4000 | 65.6 |
| Madison | 16 | 3 | 298 | 4.1 | 1197 | 15.6 |
| Missoula | 20 | 1.6 | 33 | 2.0 | Not reported | Not reported |
| New Orleans | 30.2 | 8.2 | 59.4 | 0.6 | 2650 | 15.7 |
| Pittsburgh | 21 | 6.5 | 29.2 | 1.0 | 2040 | 36.8 |
| Salt Lake City | 60 | 101 | 212 | 3.4 | 998.7 | 9.0 |
| Spokane | 74.7 | 0 | 35.5 | 1.9 | 1265 | 21.4 |
| St. Louis | 39 | 24 | 24.9 | 1.4 | Not reported | Not reported |



Casual ride on citibikes, photo by NYC DOT (@Flickr)

Bicycle and Pedestrian infrastructure are very important to the safety and comfort of people who bike and walk but has been difficult to track over time in the Benchmarking Report. Cities can and do have different ways of tracking infrastructure data, and over time the Benchmarking Report data has also reflected those differences. One source of inconsistency is whether miles of infrastructure are reported as lane miles (meaning a street with sidewalks on both sides would count for twice the length of the street) or centerline miles (meaning a street with sidewalks on both sides would only count for the length of the street).

Pedestrian infrastructure, in the form of sidewalks, was significantly less reported than bicycle infrastructure. Miles of sidewalks was not reported in nearly half of large cities (23 out of 50) and about a third of the other cities reviewed for the Benchmarking Report (6 out of 19). Where it was reported, it was often much more common on an absolute and per square mile basis than bicycle infrastructure.



Topic References

91 The League of American Bicyclists. *Bicycle Friendly Community Survey* data from question B21 and alternate minimum survey questions 19 and 20. Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city. If survey data did not provide system name, then system name was obtained from public website listed in Appendix..

92 See footnote 91.

93 North American Bikeshare Association. *Media Kit*. Available at <https://nabsa.net/media-kit/>.

94 The League of American Bicyclists. *Bicycle Friendly Community Survey* data from questions B14 and B16 and BMR Supplemental question BMR1. Alliance for Biking and Walking. *Bicycling and Walking in the United States: 2016 Benchmarking Report*. Available at https://bikeleague.org/sites/default/files/2016BenchmarkingReport_web.pdf. The most recent year reported to either survey was used for this chart and is identified in the Appendix for each city. See also footnote 5.

95 See footnote 94.



Appendix

“ Bicyclists should be expected on roadways, except where prohibited, and on shared use paths. Safe, convenient, well-designed, well-maintained facilities... are important to accommodate and encourage bicycling. ”

IN THIS CHAPTER

The Benchmarking Report compiles data from a variety of sources. Use the Appendix to learn about the sources used in the Benchmarking Report and the surveys that were used to report data that was not available from other sources.

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» ONLINE COMPANION SITE

Benchmarking Report Website - Bikingandwalkingbenchmarks.org

In 2017, the American Public Health Association and the Institute of Transportation Engineers, in partnership with the League of American Bicyclists, launched bikingandwalkingbenchmarks.org, an online companion tool for the Benchmarking Report. The website currently provides data from every edition of the Benchmarking Report and will be updated to include data from the 2018 report.

The Benchmarking Report website is organized to allow comparison between states and between cities. The data for states and cities is drawn from 24 data sources and organized into 53 interactive charts.

Users of the Benchmarking Report website are invited to explore the Benchmarking Report data in three ways:

1

EXPLORE DATA BY LOCATION

This option provides comparative data, either for cities or states. This is the primary means of exploring the 53 interactive charts available on bikingandwalkingbenchmarks.org. This area is explored by selecting a city or state, either of which is automatically matched with two comparison cities or states based on population. Users can select up to three comparative cities or states based on their preferences.

2

EXPLORE GENERAL TRENDS

This option provides access to the Make Your Case sections published in the 2016 Benchmarking Report. In this area are selected interactive charts and inset articles on innovative and exciting programs related to biking and walking.

3

EXPLORE THE RAW DATA

Raw data for cities and states are available in Microsoft Excel format on the front page of bikingandwalkingbenchmarks.org. These city and state spreadsheets contain more information than is presented on the website for researchers who are interested in more in-depth analysis using the data developed by the Benchmarking Report.

The Benchmarking Report website has a custom reporting mechanism that allows users to bookmark useful charts. By bookmarking a number of charts users can create a multi-page report of their selected charts for selected states and/or cities to provide a localized picture of the data.

» STATE SURVEY

The state survey used for the 2018 Benchmarking Report is the same survey used for the League of American Bicyclists' 2017 Bicycle Friendly State (BFS) ranking. The BFS program began in 2008. Beginning in 2012, the Alliance for Biking and Walking and the League of American Bicyclists began sharing the BFS survey data between the BFS program and Benchmarking Report. The state survey was significantly revised for 2017 after an extensive consultation process with member organizations of the League and state Departments of Transportation.

The state survey is distributed to bicycle coordinators at state Departments of Transportation or other contacts as suggested by either member organizations of the League or state Departments of Transportation.

Learn more at <https://bikeleague.org/states>.

The survey consists of 84 survey questions and 9 open-ended questions.

- FOR 28 OF THE 84 SURVEY QUESTIONS**, the League initially answered the questions with public data or data that was have obtained from a prior survey. These questions are distinguished in three ways on this survey:

 1. These questions have a gray font.
 2. These questions have an explanatory paragraph that generally includes the data source used.
 3. These questions do not generally ask for an answer, but instead ask for a link to a source.
- FOR 8 OF THE 84 QUESTIONS**, the data provided are only used for the biennial Benchmarking Report. These questions are distinguished by the italicized phrase: "This data is not judged for the Bicycle Friendly State ranking but is used for the Benchmarking Report."

2018 Progress Report

Virginia shows strong positive trends for bicyclists over the last decade.

It is one of a few states that has one of the 10 best trends for each federal data indicator, led by the state's increase in the use of federal funds for bicycling and walking. Virginia just misses out on taking all five Bicycle Friendly Actions due to a low rate of funding in 2013, but will likely pass the 2% threshold when fiscal year 2018 data is reported based on current trends.

The big next step would be to continue the trend in increases in bicycling to work so that the state exceeds the national average.

| Bicycle Friendly Actions | New Progress in 2018 |
|--------------------------------------------------------------|----------------------|
| Complete Streets Law / Policy | Yes |
| Safe Passing Law (3ft+) | Yes |
| Statewide bike plan in last 10 years | Yes |
| Bicycle Safety Emphasis Area | Yes |
| 2% or more fed funds on bike/ped (in last five fiscal years) | No |

Featured Statewide Member - Virginia Bicycle Federation

The Virginia Bicycling Federation is a statewide advocacy organization working to change public policy and community attitudes, to improve the safety, convenience, and acceptance of bicycling; and to promote bicycling for transportation, recreation, public health and economic development.

With roots going back to about 1980, the current organization was formed in the early 1990s by bike clubs and other organizations, businesses and individuals coming together to form a unified voice.

We helped develop the VDOT Policy for Integrating Bicycle and Pedestrian Accommodations. We stay engaged with VDOT officials, and with legislators, to ensure implementation and improvement of these policies.

We work with state and local governments to promote bicycling-oriented tourism, and economic development through bicycling. For example, we've been working with VDOT, AASHTO, Adventure Cycling, and local planners to improve routing and signage of US Bike Routes 1 and 76.

Bike Virginia, which offers multi-day tour rides, is also a statewide member of the League of American Bicyclists.

| Federal Data on Biking | Year-Year Trend | Year-Year Rank |
|------------------------|----------------------------------|-----------------------------------------------|
| Ridership | 0.4% of commuters biking to work | One of 10 largest increases in bike commuting |
| | | 31/50 |

Example of BFA Report Card, courtesy of the League of American Bicyclists

Infrastructure & Funding

» USE OF FEDERAL TRANSPORTATION FUNDING

IF1. Analysis of FHWA Spending Data. *The League will provide an analysis of FHWA data from the Fiscal Management Information System (FMIS) at least one month before the deadline for this application. Our analysis looks at the % of federal funds spent on bike/ped, per capita federal funds spent on bike/ped, the number of federal funding programs used for bike/ped, and whether or not TAP was used for bike/ped. If you would like to provide additional information on how your state has used FHWA funds for bicycling and/or walking-related investments, then please do so here.*

IF2. Did your state transfer any funds from the Transportation Alternatives Program (TAP) to other federal-aid categories in FY 2016?

- Yes
- No

IF3. If your state transferred TAP funds, what percent of the statewide Transportation Alternatives fund was transferred? *The League will provide an analysis of FHWA data from the Fiscal Management Information System (FMIS) at least one month before the deadline for this application. If you would like to provide additional information about how those transferred funds were used then please do so here.*

IF4. If eligible, did your state apply for 405 non-motorized safety funding?

- Yes
- No
- My state was not eligible

» DESIGN & EXISTENCE OF INFRASTRUCTURE

IF5. Has your state DOT recommended protected or separated bike lanes during the planning and design phase of a roadway project?

- Yes
- No

IF6. Does your state DOT allow 10 foot lane widths without a design exception or other process triggered by that lane width for state DOT controlled or funded roads with posted speed limits of 35 mph or less that are not limited access roads?

- Yes
- No

IF7. Does your state DOT have a design manual, or has your state adopted or endorsed a design manual, that includes guidance for protected and/or separated bike lanes?

- Yes
- No

IF8. Has your state DOT established circumstances under which a separated or protected bike lane can be created without a design exception, or similar process, triggered by inclusion of that lane?

- Yes
- No

IF9. Has your state DOT recommended buffered bike lanes during the planning or design phase of a roadway project?

- Yes
- No

IF10. Please provide a link to a document that describes guidelines for the inclusion of bicycle facilities based on roadway characteristics (e.g. ADT, speed, or land use) if your state DOT has such a document.

E.g. <http://www.idot.illinois.gov/assets/uploads/files/doing-business/manuals-split/design-and-environment/bde-manual/chapter%2017%20bicycle%20and%20pedestrian.pdf>

IF11. Are bike boxes installed on any state-controlled roadway in your state?

- Yes
- No

IF12. Are bike specific traffic signals installed on any state-controlled roadway in your state?

- Yes
- No

» STATE TRANSPORTATION FUNDING

IF13. What is the amount of state funding (i.e. derived from state revenue sources) allocated to bicycling and walking projects and programs in FY2016?

IF14. Does your state DOT provide competitive grants using state funding for bicycle and pedestrian-related planning, projects, or programs?

- Yes
- No

» STATE TRANSPORTATION FUNDING RESTRICTIONS

IF15. Does your state DOT or a state law impose a financial burden on local governments if roadway lanes are reduced or dedicated to bicycle space rather than motor vehicles? E.g. reduced maintenance distribution or requiring a locality pay for maintenance when the locality would not pay for roadway lane maintenance. If this does not apply to your state because your state DOT only builds and maintains state-owned roads then answer “Does not apply.”

- Yes
- No
- Does not apply

If Yes, please describe.

IF16. What, if any, state revenue sources regularly used for transportation funding administered by the state DOT cannot fund bicycling and walking projects?

» PLANNED & RECENTLY BUILT BICYCLE & PEDESTRIAN FACILITIES

IF17. How many LANE MILES of planned bicycle facilities does your state expect to have installed on or adjacent to state owned or controlled roads within the next 2 years?

IF18. How many LANE MILES of bicycle facilities has your state installed on or adjacent to state owned or controlled roads within the past 2 years?

IF19. How many LANE MILES of planned pedestrian facilities does your state expect to have installed on or adjacent to state owned or controlled roads within the next 2 years? *This data is not judged for the Bicycle Friendly State ranking, but is used for the Benchmarking Report.*

IF20. How many LANE MILES of pedestrian facilities has your state installed on or adjacent to state owned or controlled roads within the past 2 years? *This data is not judged for the Bicycle Friendly State ranking, but is used for the Benchmarking Report.*

Education & Encouragement

» MODE SHARE & ADVOCACY

EE1. Is there an active statewide bicycle or pedestrian advocacy group? *The League will provide the name(s) of currently active advocacy groups in your state at least one month before the deadline for this application. If you would like to submit additional information, please do so here.*

- I'd like to provide information for another group
- All groups that I am aware of were identified
- I am not familiar with the named group(s)

If “I'd like to provide information for another group” is selected, then the following fields will appear.

- Please enter the name of the statewide bicycle and pedestrian group(s)
- Please enter a contact name for the group named above
- Please enter an email address for the contact named above
- Would you like to enter another group? [repeats form]

EE2. Analysis of people who bike. *The League will provide an analysis of American Community Survey data regarding people who bike in your state at least one month before the deadline for this application. If you would like to submit additional information about how many people bike in your state, please do so here.*

EE3. Analysis of people who walk. *The League will provide an analysis of American Community Survey data regarding people who walk in your state at least one month before the deadline for this application. If you would like to submit additional information about how many people walk in your state, please do so here. This data is not judged for the Bicycle Friendly State ranking, but is used by the Benchmarking Report.*

» DRIVER EDUCATION REQUIREMENTS

EE4. Does your state driver's license test require that a test taker answer at least one question about a motorist's responsibilities towards a bicyclist?

- Yes
- No

If No, please let us know more [Optional]:

- The driver's license test has a pool of questions and there is no guarantee such a question is asked
- I am not familiar enough with the driver's license test questions to answer
- My state does not include questions about responsibilities towards bicyclists in driver's license testing at all

EE5. Does your state driver's license test require that a test taker answer at least one question about a motorist's responsibilities towards a pedestrian? *This data is not judged for the Bicycle Friendly State ranking, but is used by the Benchmarking Report.*

- Yes
- No

If No, please let us know more [Optional]:

- The driver's license test has a pool of questions and there is no guarantee such a question is asked
- I am not familiar enough with the driver's license test questions to answer
- My state does not include questions about responsibilities towards bicyclists in driver's license testing at all

» STATE DOT EDUCATION & ENCOURAGEMENT SUPPORT

EE6. Does the state invest in educational materials that teach people how to ride bicycles safely?

- Yes
- No

If Yes, options are provided to provide a link or upload an example:

EE7. Does your state DOT maintain a webpage or website that directs bicyclists to relevant state traffic laws, planning documents, and/or other state programs that affect bicycling in your state?

- Yes
- No

If Yes, please provide a link to the website or webpage [Required].

EE8. Did your state DOT sponsor or host at least one conference open to the public focused on biking and/or walking within the last 18 months?

- Yes
- No

If Yes, please provide a link to a website that shows a schedule for the conference [Required].

EE9. Did your state DOT sponsor or host an event or series of events to promote bicycling and/or walking as a way to increase physical activity within the last 18 months?

- Yes
- No

If Yes, please provide a link to a website that references the event(s) [Required].

Legislation & Enforcement

» LAWS THAT CREATE PROTECTIONS FOR PEOPLE WHO BIKE AND WALK

LE1. Does your state define a safe passing distance for motorists overtaking bicyclists as 3 feet or more? *The League will answer this question based on information available here: <http://bikeleague.org/sites/default/files/SafePassingWeb.pdf>. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE2. Does your state specify a safe passing distance for motorists overtaking bicyclists as a distance sufficient to avoid contact with a bicyclist if the bicyclist were to fall over? *The League will answer this question based on information available here: <http://bikeleague.org/sites/default/files/SafePassingWeb.pdf>. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE3. Does your state have a Vulnerable Road User law and/or there are increased penalties for motorists who injure or kill vulnerable road users, including cyclists? *The League will answer this question based on information available here: http://bikeleague.org/sites/default/files/vulnerable_road_user_law.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE4. Does your state have a law that protects pedestrians in a non-signalized crosswalk? *The League will answer this question based on information available here: <http://www.ncsl.org/research/transportation/pedestrian-crossing-50-state-summary.aspx>. If you disagree with that data, then please provide a citation the law that contradicts it. This data is not judged for the Bicycle Friendly State ranking, but will be used in the Benchmarking Report.*

» LAWS THAT REGULATE THE BEHAVIOR OF PEOPLE WHO BIKE AND WALK

LE5. Does your state have a law that allows bicyclists to legally signal a right turn with his/her right hand?

- Yes
- No
- Not Sure

If Yes, please provide the citation(s) for the law used to answer this question (Optional):

LE6. Analysis of mandatory use laws with exceptions and standards. *The League will answer this question based on information available here: http://bikeleague.org/sites/default/files/Mandatory_Separated_Facilities_Chart_o.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE7. Analysis of Where to Ride laws with exceptions and model language. *The League will answer this question based on information available here: <http://bikeleague.org/sites/default/files/WhereToRideWeb.pdf>. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE8. Is there a mandatory bicycle helmet law (by state law or enabling legislation)? *The League will answer this question based on information available here: http://bikeleague.org/sites/default/files/state-helmet-laws-chart_.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE9. If your state requires bicycle helmet use, what is the highest age that the law applies to? *The League will answer this question based on information available here: http://bikeleague.org/sites/default/files/state-helmet-laws-chart_.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE10. Are there limitations on whether the failure to wear a helmet can be used in a lawsuit? *The League will answer this question based on information available here: http://bikeleague.org/sites/default/files/state-helmet-laws-chart_.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE11. Does your state have language in its vehicle code prohibiting a motorist from opening an automobile's door unless the motorist is able to do so safely? *The League will answer this question based on information available here: http://www.bikeleague.org/sites/default/files/dooring_BLU.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

» LAWS THAT INFLUENCE THE BUILT ENVIRONMENT

LE12. Does your state have a law allowing transportation agencies, or other authorities, to post 20 mph or lower speed limits, where appropriate, on roads that are not within a work zone or school zone?

- Yes
- No
- Not Sure

If Yes, please provide the citation(s) for the law used to answer this question (Optional):

» LAWS THAT REGULATE DRIVER BEHAVIOR & METHODS OF ENFORCEMENT

LE13. Does your state have a primary enforcement cell phone use ban for all drivers? *The League will answer this question based on information available here: http://www.ghsa.org/sites/default/files/2017-01/DistractedDrivingLawChart_Jan17.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE14. Does your state have a primary enforcement cell phone use ban for novice drivers? *The League will answer this question based on information available here: http://www.ghsa.org/sites/default/files/2017-01/DistractedDrivingLawChart_Jan17.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE15. Does your state have a primary enforcement texting ban for all drivers? *The League will answer this question based on information available here: http://www.ghsa.org/sites/default/files/2017-01/DistractedDrivingLawChart_Jan17.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE16. Does your state have a primary enforcement texting ban for novice drivers? *The League will answer this question based on information available here: http://www.ghsa.org/sites/default/files/2017-01/DistractedDrivingLawChart_Jan17.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE17. Does your state require the use of a hands-free device for cell phone use while driving? *The League will answer this question based on information available here: http://www.ghsa.org/sites/default/files/2017-01/DistractedDrivingLawChart_Jan17.pdf. If you disagree with that data, then please provide a citation the law that contradicts it.*

LE18. Does your state permit photo enforcement of traffic laws?

- Yes
- No
- Not Sure

If Yes, please provide the citation(s) for the law used to answer this question (Optional):

Policies & Programs

» COMPLETE STREETS

PP1. Does your state have a Complete Streets policy? *The League will answer this question based on information available here: <https://smartgrowthamerica.org/program/national-complete-streets-coalition/policy-development/policy-atlas/>. If that information is not correct, please provide a link to your policy below.*

PP2. How does your state DOT ensure compliance with and the implementation of your state's Complete Streets policy? Please mark all that are appropriate.

- Project Development Process,
- Exception Procedure,
- Checklist
- Funding is tied to compliance, or
- Other (Please explain)

If Other, please explain your state DOT's compliance strategy.

PP3. Did the state DOT sponsor one or more trainings for state and/or local government employees that included instruction on the implementation of the state's Complete Streets policy or bicycle and pedestrian accommodation policy in 2016?

- Yes
- No

PP4. Does your state have a formal Complete Streets policy exception process that creates a written explanation of each project exception that is publicly reported or available by Freedom of Information Act request?

- Yes
- No

PP5. Does your state DOT have a rumble strip policy, guidance document, or standard?

- Yes
- No

If Yes, please provide a link for your state DOT's rumble strip policy, guidance document, or standard.

OR Please upload your state DOT's rumble strip policy, guidance document, or standard.

PP6. Does your state DOT have chip seal policy, guidance document, or standard?

- Yes
- No

If Yes, please provide a link for your state DOT's chip seal policy, guidance document, or standard. OR Please upload your state DOT's chip seal policy, guidance document, or standard.

» STATE OF PRACTICE DEVELOPMENT

PP7. Did the state DOT sponsor one or more trainings that included instruction on the following infrastructure type in 2016:

- Protected bike lanes
- Rural bicycling routes
- Buffered bike lanes
- Bicycle signals
- HAWK signals
- Pedestrian priority zones/woonerfs
- Leading pedestrian intervals
- Low-cost plazas/parklets/sidewalk expansion

PP8. Does the state DOT have a full-time bike/ped coordinator, program manager or equivalent position?

- Yes
- No

If No, please tell us more:

- The bike/ped coordinator is a part-time position
- The bike/ped coordinator is a responsibility of an employee with other responsibilities
- The bike/ped coordinator position has been vacant for more than 12 out of the past 18 months
- Other

If Other, please describe.

» DESIGN AND ACCESS POLICIES

PP9. Has your state adopted the National Association of City Transportation Officials (NACTO) Urban Street Design Guide? *The League will answer this question based on information available here: <http://nacto.org/publication/urban-street-design-guide/endorsement-campaign/>. If you disagree with that data, then please provide a link to a document that shows that engineers in your state DOT can use the Urban Street Design Guide.*

PP10. Has your state adopted the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide? *The League will answer this question based on information available here: <http://nacto.org/publication/urban-bikeway-design-guide/endorsement-campaign/>. If you disagree with that data, then please provide a link to a document that shows that engineers in your state DOT can use the Urban Bikeway Design Guide.*

PP11. Does your state DOT address bicycle and pedestrian access on, or alternatives to, network significant bridges and tunnels?

- Yes
- No

If Yes, please provide a link or describe the law/policy (Optional).

PP12. Does your state DOT use context-sensitive design speeds when setting roadways speeds?

- Yes
- No

If Yes, please provide a link or describe the law/policy (Optional).

PP13. If your state operates or funds transit, do you have a written policy for bicycle accommodations on transit vehicles?

- Yes
- No

If Yes, please provide a link (Optional).

» SUSTAINABLE TRANSPORTATION POLICIES

PP14. What steps has your state DOT taken to reduce the cost of bicycle and pedestrian infrastructure? Please select all that are appropriate.

- Coordinating improvements with repaving and other maintenance projects
- Investing in new technologies that allow the production of bicycle and/or pedestrian infrastructure at scale
- Updating project development processes to include bicycling and walking improvements as a matter of course
- Pursuing Programmatic Categorical Exclusion Agreements or other environmental review streamlining.
- Other

If Other, please describe (Optional).

PP15. How has your state DOT worked to incorporate health into transportation decision-making?

- The state DOT regularly works with the state Department of Health on planning activities
- The state DOT has a formal process for integrating health considerations into project development (e.g. a Health Impact Assessment)
- The state DOT has a formal process for integrating health considerations into project selection (e.g. selection criteria include effects on physical activity)
- The state DOT promotes active transportation in coordination with the state air quality agency when developing and implementing the State Implementation Plan for air quality conformity
- The state DOT has stated health goals in its Long-Range Transportation Plan
- The state DOT and the state Department of Health partner, coordinate, or collaborate on a physical activity-related grant program, technical assistance program, or other program
- The state DOT does not see health as part of its mission
- Other

If Other, please describe (Optional).

Evaluation & Planning

» STATE DOT BICYCLE & PEDESTRIAN PLANS

EPI. Does the state have a statewide bike plan and/or a combined bike and pedestrian plan that was adopted within 10 years of FY2016? *The League will provide the year of the most recent plan that we are aware of at least one month before the deadline for this application.*

- Yes
- No

If Yes, what year was the most recent plan adopted?

EP2. Does the state have a statewide pedestrian plan that was adopted within 10 years of FY2016? Only answer yes if this is a standalone pedestrian plan and is different than the plan referenced in EP1. *This data is not judged for the Bicycle Friendly State Ranking, but is used for the Benchmarking Report.*

- Yes
- No

If Yes, what year was the most recent plan adopted?

EP3. Does your state DOT plan to begin or finish an update to any bike/ped plan within the next year?

- Yes
- No

EP4. Does your state DOT have an up-to-date inventory of bicycle facilities, as defined by your state DOT, which includes at least all state DOT owned facilities?

- Yes
- No

If Yes, the following fields appear:

Is this inventory available to the public?

- Yes
- No

If Yes, please provide a link.

Is this inventory available to MPOs and other public agencies so that they can add their facilities?

- Yes
- No

EP5. Does your state DOT include design guidance on the following facilities in a bike and/or pedestrian plan, state DOT document, or by reference to an AASHTO, NACTO, or another design guidance document? Please mark all that are appropriate.

- Bicycle lanes
- Bicycle paths
- Protected bike lanes
- Rural bicycling routes
- Buffered bike lanes
- HAWK signals
- Sidewalks
- Leading pedestrian intervals

EP6. Does your bike plan or pedestrian plan recommend that any other state guidelines, plans, policies, or other documents are updated in order to implement the bike plan or pedestrian plan?

- Yes
- No

If Yes, please list all such documents.

EP7. Does your state DOT target bicycle and pedestrian investments based on any of the following factors?

Please mark all that are appropriate.

- Transportation Equity factors, such as low vehicle ownership and low income, older adult, or minority groups;
- Mobility factors, such as areas with high population/employment density and proximity to transit;
- Health factors, such as low rates of physical activity or high rates of diabetes or heart disease;
- Economic development factors, such as proximity to parks or destination trail development; and/or
- Other

If Other, please explain.

EP8. Has your state DOT bike plan, state DOT policy, or has any state DOT funded project attempted to identify bike/ped network gaps created by state DOT funded or controlled limited access facilities, including when new limited access facilities are built?

- Yes
- No

EP9. Does your state recognize and promote improvements to long-distance bicycle routes, such as the U.S. Bicycle Route System routes? For example, the Adventure Cycling Association and the American Association of State Highway and Transportation Officials co-operate to designate, promote, and improve long-distance bicycle routes. This nationally coordinated route system provides for bicycling-related tourism development: www.adventurecycling.org/usbrs.

- Yes
- No

» BICYCLE & PEDESTRIAN SAFETY

EP10. What is the year that your state plans to reach zero traffic fatalities? Please answer with a four-digit year (e.g. 2020). If your state does not have such a plan, then please enter NA.

EP11. Is bicycle safety an emphasis area in the state Strategic Highway Safety Plan? *The League will provide its understanding this answer based on data available at the site below at least one month before the deadline for this application: https://rspcb.safety.fhwa.dot.gov/shsp_cop.aspx#. If you disagree with that data, or our understanding of that data, then please upload a version of your Strategic Highway Safety Plan that confirms this answer if it conflicts with the information provided by the League.*

EP12. Is pedestrian safety an emphasis area in the state Strategic Highway Safety Plan?
The League will provide its understanding this answer based on data available at the site below at least one month before the deadline for this application: https://rspcb.safety.fhwa.dot.gov/shsp_cop.aspx#. This data is not judged for the Bicycle Friendly State ranking, but is used for the Benchmarking Report. *If you disagree with that data, or our understanding of that data, then please upload a version of your Strategic Highway Safety Plan that confirms this answer if it conflicts with the information provided by the League.*

EP13. Analysis of bicyclist fatalities. *The League will provide the per capita fatality rate, per bike commuter fatality rate, and rate of change of bicycle fatalities in your state based on NHTSA FARS data at least one month before the survey deadline. If you would like to provide any additional information about bicyclist fatalities in your state, please do so here.*

» UNDERSTANDING PEOPLE WHO BIKE & WALK

EP14. Has your state DOT implemented a program, or created a funding program for local entities, to conduct surveys and/or counts of people who bike and walk in the past 18 months?

- Yes
- No

If Yes, please provide a link to information about this program

EP15. Please indicate methodologies used for counting people who bike and walk that your state DOT has used or funded in the past 18 months:

Please mark all that are appropriate.

- Continuous permanent counters
- Continuous mobile counters
- Pedestrian/Bicyclist Documentation Project counts
- Mobile app data (e.g. Strava metro)
- Other

If Other, please explain.

EP16. Is your state DOT currently working with USDOT, other states, and/or cities or other entities within your state to provide bicycle and pedestrian count data in a uniform or standard format?

- Yes
- No

EP17. If your state operates or funds fixed route transit, have you conducted or funded a rider survey with questions about biking and/or walking access to transit in the last 18 months?

- Yes
- No
- My state does not operate or fund fixed route transit
- Please contact the following person in our transit agency

If Yes, please provide a link to survey results. If Please contact the following person in our transit agency, the following fields will appear.

- Name of Contact (first and last),
- Contact's email address

» FORMAL USER GROUP ENGAGEMENT

EP18. Does your state have a combined bicycle and pedestrian advisory council (BPAC) or similar group with bicyclist participation?

- Yes
- No

EP19. Does your state have a standalone pedestrian advisory council? *This data is not judged for the Bicycle Friendly State ranking, but will be used for the Benchmarking Report.*

- Yes
- No

EP20. If you have a BPAC or similar group, does it meet at least twice a year? When answering this question please answer it from the perspective of an individual committee. If you have a BAC that meets once a year and a PAC that meets once a year that should not result in a “Yes” for this question.

- Yes
- No

EP21. If you have a BPAC or similar group, how many state and local agencies regularly attend meetings?

EP22. If you have a BPAC or similar group, how many user groups or representatives regularly attend meetings?

General Overview

G1. Please list and describe the three most impressive improvements of or investments in bicycling and walking in your state from the last year. Please separate each aspect by a semi-colon [;] so that we can easily separate each aspect.

G2. Please list and describe three aspects that must be improved in order to make the state more bicycle and walking friendly. Please separate each aspect by a semi-colon [;] so that we can easily separate each aspect.

G3. Please list and describe up to three currently existing State DOT efforts that you believe should be supported by state and local bicycling and walking advocates over the next year. Please separate each aspect by a semi-colon [;] so that we can easily separate each aspect.

G4. Please make your case in a creative way - video, infographic, etc... Contact your Governor, Secretary of DOT, or other officials to make the most persuasive case possible.

» COMMUNITY SURVEY

The community survey used for the 2018 Benchmarking Report is based on the application for a Bicycle Friendly Community (BFC) award. The BFC program was created in 1995 and significantly updated to its “5 E” (Engineering, Education, Encouragement, Enforcement, and Evaluation & Planning) format in 2002. It has been updated periodically since then in order to account for new actions taken by communities, such as bikeshare and an increased interest in separated or protected bike lanes. In 2014-2015 it was updated as part of the League of American Bicyclists’ Equity Initiative.

The Benchmarking Report began in 2007 under the Alliance for Biking and Walking. Its city survey was not coordinated with the BFC application. In order to provide comparable data, supplemental questions were added to the Fall 2017 BFC application round and can be found at the end of the survey. Each question added for specifically for the Benchmarking Report begins with the prefix BMR.

In several cases, there were questions in the existing BFC application that closely mirrored but did not precisely follow past Benchmarking Report questions. Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in **GREEN**.

The community survey was distributed to all contacts that had submitted past Benchmarking Report surveys to the Alliance and the most recent contacts who had submitted BFC applications for the 67 of 69 communities included in past Benchmarking Reports that had participated in the BFC program. Distribution occurred through several rounds of email and phone calls in some cases, including to new contacts identified from community websites.

You can learn more about the BFC program at <https://bikeleague.org/community>.



Engineering

» POLICIES AND DESIGN STANDARDS

B1. Does your community currently have any of the following policies in place?

- Local Complete Streets ordinance adopted by local governing body*
- Local Complete Streets policy*
- Local bicycle routine accommodation policy*
- Local Complete Streets or bicycle routine accommodation resolution*
- None of the above

***B1A.** What year was the ordinance, policy, or resolution adopted or passed?

***B1B.** Please provide a link to the ordinance, policy, or resolution.

***B1C.** Since the adoption of the ordinance, policy, or resolution, what percentage of the implemented road projects (where bicycle facilities were considered) have included bicycle facilities?

- 0-10%
- 11-25%
- 26-50%
- 51-75%
- More than 75%
- Unknown

B2. Does your community have bicycle facility selection criteria that increases separation and protection of bicyclists based of levels of motor vehicle speed and volume?

- Yes*
- No

***B2A.** Please describe.

B3. Does your community currently have any of the following policies in place that promote shorter distances between homes and destinations? Check all that apply.

- Mixed-use zoning or incentives
- Planned Unit Development zoning
- Transit Oriented Development ordinance or program
- Form-based/design-based codes
- Connectivity policy or standards
- None of the above

B4. Does your community currently have any of the following street design policies in place that promote a more comfortable cycling environment? Check all that apply.

- Design manual that incorporates the AASHTO Guide for the Development of Bicycle Facilities, 4th Edition
- Design manual that incorporates the NACTO Urban Bikeway Design Guide
- Design manual that incorporates the NACTO Urban Street Design Guide
- Design manual that incorporates the FHWA's Small Town and Rural Multimodal Network Guide
- Streetscape design guidelines
- None of the above

B5. Does your community currently have any of the following additional policies in place? Check all that apply.

- Policy to preserve abandoned rail corridors for multi-use trails
- Policy to utilize utility corridors for multi-use trails
- Accommodation of bicyclists through construction sites in the public right-of-way
- Maximum car parking standards
- No minimum car parking standards
- Paid public car parking
- Shared-parking allowances
- Congestion charges
- None of the above

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

B6. How do engineers and planners learn how to accommodate bicyclists according to the most current AASHTO or NACTO standards? Check all that apply.

- FHWA/National Highway Institute Training Course
- Portland State University Initiative for Bicycle and Pedestrian Innovation Training Course
- Staff participate in bicycle-specific conferences/trainings/educational tours
- Webinars
- Internal peer training
- Training by outside consultant/advocate
- Require project consultants to have bike/ped qualifications
- None of the above

» END-OF-TRIP FACILITIES

B7. What policies or programs increase the amount of end-of-trip facilities for bicyclists? Check all that apply.

- Bike parking ordinance for existing buildings specifying amount and location
- Bike parking ordinance for all new developments specifying amount and location
- Ordinance requiring showers and lockers in existing non-residential buildings
- Ordinance requiring showers and lockers in new non-residential buildings
- Building accessibility ordinance (Bicycles are allowed to be parked inside non-residential buildings)
- Public uncovered bike racks
- Public covered bike racks
- Bike valet parking available at community events
- Ordinance that allows on-street bike parking/bicycle corrals
- Ordinance that allows bike parking to substitute for car parking
- Requirement for new developments to meet LEED-Neighborhood Development silver standards or higher
- Developers are eligible for density bonuses for providing end-of-trip facilities
- Subsidy program for private bike parking installation
- Public or private program that provides grants for bike racks or free bike racks upon request
- None of the above

B8. What, if any, end-of-trip facilities are available to the general public in your community? Check all that apply.

- Publicly accessible bicycle repair stations
- Publicly accessible air pumps
- Bicycle Station or Hub that provides lockers and/or showers for commuters
- None of the above

B9. Do your standards for bicycle parking: Check all that apply.

- Conform with APBP Guidelines?
- Address the need for parking spaces for cargo bicycles?
- Address the need for facilities to recharge electric assist bicycles?
- No standards

B10. What percentage of public and private bike racks conform with APBP Guidelines?

- 10% or less
- 11-25%
- 26-50%
- 51-75%
- More than 75%
- Unknown

B11. Is there a program (e.g. publicly funded, public-private partnership, or development regulation) that provides or increases bike parking at any of the following locations?

Check all that apply.

- Public & private schools (K-12)
- Day care, child care centers and preschools
- Higher Education Institutions
- Libraries
- Hospitals and medical centers
- Parks & recreation centers
- Other government-owned buildings and facilities
- Event venues (e.g. convention center, movie complex)
- Hotels & restaurants
- Office buildings
- Retail stores (excluding grocery stores)
- Grocery stores
- Multi-family housing (excluding subsidized or public housing, if any)
- Subsidized or public housing
- None of the above

» BICYCLE ACCESS TO PUBLIC TRANSPORTATION

B12. Does your community have a rail transit or bus system?

- Yes*
- No

***B12A.** Are bikes allowed inside transit vehicles? Check all that apply.

- Yes, at all times in buses
- Yes, at all times in rail vehicles
- Only outside of rush hour service in buses
- Only outside of rush hour service in rail vehicles
- Folding bikes are allowed in folded position in buses
- Folding bikes are allowed in folded position in rail vehicles
- There is specialized space (e.g. hooks or luggage space) for bikes in buses
- There is specialized space (e.g. hooks or luggage space) for bikes in rail vehicles
- None of the above

***B12B.** What percentage of buses are equipped with bike racks?

- None
- 10% or less
- 11-25%
- 26-50%
- 51-75%
- 75-99%
- 100%

***B12C.** What percentage of transit stops are equipped with secure and convenient bike parking, including bus stops?

- None
- 10% or less
- 11-25%
- 26-50%
- 51-75%
- 75-99%
- 100%
- Unknown

***B12D.** Has your community made specific bicycle infrastructure investments around major transit stops to improve accessibility?

- Yes*
- No

*Please describe any bicycle infrastructure investments around major transit stops that have improved accessibility.

***B12E.** How are residents and visitors encouraged to combine cycling and public transportation? Check all that apply.

- Cyclists can practice mounting their bike on a bus bike rack at community events
- Brochure describing bike rack use/how to store bikes inside a transit vehicle
- Video describing bike rack use/how to store bikes inside a transit vehicle
- Information on bike racks/storage provided on transit schedules
- Stickers on the outside of buses with bike racks that say bicycles are welcome
- None of the above

» OFF-STREET BICYCLE FACILITIES

B13. Are there any off-street facilities within your community's boundaries that can be legally used by bicyclists?

- Yes*
- No

***B13A.** How many miles of the following off-street accommodations that can be legally used by bicyclists are within your community's boundaries? Answer all that apply. (in miles)

- Paved shared use paths (≥10 feet) (# only)
- Paved shared use paths (≥ 8 and <10 feet) (# only)
- Natural surface shared use paths (≥10 feet) (# only)
- Natural surface shared use paths (≥ 8 and <10 feet) (# only)
- Singletrack (# only)

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

***B13B.** Which of the following features are provided for bicyclists and pedestrians at off-street path crossings of roads with posted speed limits above 25 mph? Check all that apply.

- Bike/pedestrian overpasses/underpasses
- Raised path crossings
- Refuge islands
- Path crossing with high visibility markings/signs/HAWK signals/ Rapid Flashing Beacons
- Curb extensions
- Signalized crossings
- None of the above
- N/A – no crossings of roads with posted speed limits above 25 mph

***B13C.** What measures have been taken to improve the safety and convenience of bicyclists on off-street paths? Check all that apply.

- “Cut-throughs” that improve network connectivity for bicyclists (e.g. connecting dead-ends or cul-de-sacs)
- Off-street way-finding signage with easily visible distance and/or riding time information for bicyclists while riding
- Parallel but separated paths for bicyclists and pedestrians
- Signage or markings to designate right-of-way on shared-use paths
- Education/awareness campaign about shared-use path etiquette
- None of the above

***B13D.** What maintenance practices ensure the off-street bicycle facilities remain usable and safe?

Sweeping

- Quarterly or more frequently
- Annually
- As needed
- Never

Vegetation maintenance

- Quarterly or more frequently
- Annually
- As needed
- Never

Snow and ice clearance

- N/A - No snow or ice
- Before roadways
- Same time as roadways
- After roadways
- Never

Surface repair

- Within 24 hours of complaint
- Within one week of complaint
- Within one month of complaint or longer
- Never

» ON-STREET BICYCLE FACILITIES

B14. What is the centerline mileage of your total road network (including federal, state, county and private roads)? (# only)

B15. How many miles of road network fall within the following posted speed limits? (in centerline miles)

- ≤ 25mph (# only)
- >25mph and ≤35mph (# only)
- >35mph (# only)

B16. Does your community have on-street bicycle facilities?

- Yes*
- No

***B16A.** Are there any on-street bicycle facilities on roads with posted speeds of ≤ 25mph?

- Yes**
- No

****B16A1.** On streets with posted speeds of ≤ 25 mph, how many miles of each of the following bicycle facilities are there that meet or exceed current AASHTO or NACTO standards? (Answer in centerline miles. Write “o” if facility is not present in community.)

- Bike boulevards (# only)
- Shared lane markings (not counted under Bicycle Boulevards) (# only)
- Wide paved shoulders (ridable surface ≥ 4 feet, and minimum clear path of ≥ 4 feet between rumble strips) (# only)
- Bike lanes (incl. standard, contra-flow, left-side) (ridable surface ≥ 4 feet) (# only)
- Buffered bike lanes (# only)
- Protected bike lanes (one-way or two-way) (# only)
- Raised cycle tracks (one-way or two-way) (# only)

***B16B.** Are there any on-street bicycle facilities on roads with posted speeds of >25 mph and ≤ 35 mph?

- Yes**
- No

****B16B1.** On streets with posted speeds of > 25 mph and ≤ 35 mph, how many miles of each of the following bicycle facilities are there that meet or exceed current AASHTO or NACTO standards? (Answer in centerline miles. Write “o” if facility is not present in community.)

- Shared lane markings (# only)
- Wide paved shoulders (ridable surface ≥ 4 feet, and minimum clear path of ≥ 4 feet between rumble strips) (# only)
- Bike lanes (incl. standard, contra-flow, left-side) (ridable surface ≥ 4 feet) (# only)
- Buffered bike lanes (# only)
- Protected bike lanes (one-way or two-way) (# only)
- Raised cycle tracks (one-way or two-way) (# only)

***B16C.** Are there any on-street bicycle facilities on roads with posted speeds of >35 mph?

- Yes**
- No

****B16C1.** On streets with posted speeds of > 35 mph, how many miles of each of the following bicycle facilities are there that meet or exceed current AASHTO or NACTO standards? (Answer in centerline miles. Write “o” if facility is not present in community.)

- Wide paved shoulders (ridable surface ≥ 4 feet, and minimum clear path of ≥ 4 feet between rumble strips) (# only)
- Bike lanes (incl. standard, contra-flow, left-side) (ridable surface ≥ 4 feet) (# only)
- Buffered bike lanes (# only)
- Protected bike lanes (one-way or two-way) (# only)
- Raised cycle tracks (one-way or two-way) (# only)

***B16D.** What maintenance practices ensure that any on-street bicycle facilities (including shoulders) remain usable and safe?

Sweeping

- Before other travel lanes
- Same time as other travel lanes
- After other travel lanes
- Never

Snow and ice clearance

- N/A - No snow or ice
- Before other travel lanes
- Same time as other travel lanes
- After other travel lanes
- Never

Pothole maintenance/ surface repair

- Within 24 hours of complaint
- Within one week of complaint
- Within one month of complaint or longer
- Never

B17. Within the last five years, has your community ever removed a bicycle facility without an improved replacement?

- Yes*
- No

*If yes, please explain.

» OTHER BICYCLE ACCOMMODATIONS

B18. How has your community calmed traffic? Check all that apply.

- Speed limits 20 mph or less on residential streets
- Used lower design speeds when designing for new roadways
- Physically altered the road layout or appearance
- Converted one-way streets to two-way traffic
- Road diets
- Lane diets
- Speed feedback signs/cameras
- Car-free/Car-restricted zones
- Shared Space/Home Zone/Living Street/Woonerf
- None of the above

B19. In what other ways has your community improved riding conditions and amenities for on-street bicyclists?

Check all that apply.

- Roundabouts that accommodate bicycles
- Colored bike lanes outside of conflict zones
- Contra-flow bike lanes (e.g. a one-way bike lane installed heading the opposite direction of the adjacent one-way street)**
- Removal of on-street car parking
- Advisory bike lanes
- Bicycle left turn lanes
- Shared bicycle/bus lanes
- Reverse angle parking
- On-street way-finding signage with distance and/or time information
- Signed bike routes
- Bicycle-friendly storm sewer grates
- None of the above

B20. Are there any signalized intersections in your community?

- Yes*
- No

***B20A.** Which of the following accommodations are available at signalized intersections to improve conditions for bicyclists?

- Video or microwave detection for demand-activated signals
- Demand activated signals with loop detector (and marking)
- Push-buttons that are accessible from the road
- Timed signals
- Signals timed for bicycle speeds
- Bicycle Signal Heads
- Advanced Stop Line or Bike Box
- Protected intersection
- Colored bike lanes in conflict areas
- Intersection crossing markings for bicycles
- Refuge islands
- Right corner islands (“pork chops”)
- None of the above

» BIKE SHARING

B21. Does your community currently have a community-wide bike sharing program that is open to the general public?

- Yes*
- No
- Launching in the next 12 months**

*If yes:

***B21A.** Please provide a link to your bike sharing program website.

***B21B.** What is the name of your city’s bike share program?

***B21C.** Who is involved in implementation of this program? Implementation includes operation and financial support.

- Government
- Nonprofit organization

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

***B21D.** What type of system is your bike sharing program?

- Automated kiosk-style bike share system
- GPS-enabled bike share system
- Short-term bike rentals
- Long-term bike rentals
- Bike library (free rentals)
- Unregulated program (i.e. Yellow Bike)

***B21E.** How many bikes are in the system? (# only)

***B21F.** How many stations are in the system?

***B21G.** What is the average station density? (number of stations per square mile)

***B21H.** How many trips were made in the last calendar year?

***B21I.** Are there options for transporting children as passengers?

- Yes
- No

***B21J.** What specific efforts, if any, have been implemented to make the bike sharing program accessible to low-income populations your community? Check all that apply.

- Cash or non-credit card dependent payment system
- Subsidized bike share memberships
- Community outreach
- Walkable station spacing in low-income communities
- None of the above

***B21K.** Does your bike share program make ridership publicly available online?

- Yes
- No
- N/A – no ridership data collected

****If launching in next 12 months:**

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

****B21L.** Expected launch date:

****B21M.** Please provide a link to your bike sharing program website.

****B21N.** What is the name of your city's bike share program?

****B21O.** Who is involved in implementation of this program? Implementation includes operation and financial support.

- Government
- Nonprofit organization

****B21P.** What type of system will your bike sharing program be?

- Automated kiosk-style bike share system
- GPS-enabled bike share system
- Short-term bike rentals
- Long-term bike rentals
- Bike library (free rentals)
- Unregulated program (i.e. Yellow Bike)

****B21Q.** How many bikes will be in the system? (# only)

****B21R.** How many stations will be in the system?

****B21S.** Will there be options for transporting children as passengers?

- Yes
- No

***B21T.** What specific efforts, if any, are being planned to make the bike sharing program accessible to low-income populations your community? Check all that apply.

- Cash or non-credit card dependent payment system
- Subsidized bike share memberships
- Community outreach
- Walkable station spacing in low-income communities
- None of the above

» OTHER BICYCLE-RELATED AMENITIES

B22. Which of the following bicycling amenities are available within your community boundaries? Check all that apply

- BMX track
- Velodrome
- Indoor cyclist training facility
- Cyclocross course
- Mountain bike park
- Pump tracks
- Bicycle-accessible skate park
- Snow/Fat tire bike trails
- Signed loop route(s) around the community
- None of the above

B23. Which of the following safety amenities are available in your community? Check all that apply

- Emergency call boxes/phones along trails
- Street lighting on most arterials
- Street lighting on most non-arterials
- Lighting of most shared-use paths
- None of the above

» ENGINEERING BONUS POINTS

B24. Describe any other policies, amenities, infrastructure improvements or maintenance programs that your community provides or requires that create a comfortable and attractive bicycling environment for bicyclists of all ages and abilities. Use this space to expand on answers checked above, or to describe additional facilities or physical amenities provided that have not yet been covered.

Education

» YOUTH BICYCLE EDUCATION

C1. Do any public or private elementary schools offer regular bicycle education to students?

- Yes*
- No
- N/A - No elementary schools

***C1A.** What percentage of your public and private elementary schools offer bicycle education?

- 1-25%
- 26-50%
- 51-75%
- 75-99%
- 100%

***C1B.** What type of bicycle education is offered?

- Mandatory on-bike education
- Optional on-bike education
- Bicycle safety presentation with no on-bike component

***C1C.** Are bicycles provided to students by the school district, police, nonprofit or other entity to allow every student the opportunity to participate in on-bike instruction?

- Yes, bicycles are provided to all students
- Yes, a limited number of bicycles are available for students in need
- No, bicycles are not provided

C2. Do any public or private middle schools offer regular bicycle education to students?

- Yes*
- No
- N/A - No middle schools

***C2A.** What percentage of your public and private middle schools offer regular bicycle education?

- 1-25%
- 26-50%
- 51-75%
- 75-99%
- 100%

***C2B.** What type of bicycle education is offered?

- Mandatory on-bike education
- Optional on-bike education
- Bicycle safety presentation with no on-bike component

***C2C.** Are bicycles provided to students by the school district, police, nonprofit or other entity to allow every student the opportunity to participate in on-bike instruction?

- Yes, bicycles are provided to all students
- Yes, a limited number of bicycles are available for students in need
- No, bicycles are not provided

C3. Do any public or private high schools offer regular bicycle education to students?

- Yes*
- No
- N/A - No high schools

***C3A.** What percentage of your public and private high schools offer regular bicycle education?

- 1-25%
- 26-50%
- 51-75%
- 75-99%
- 100%

***C3B.** What type of bicycle education is offered?

- Mandatory on-bike education
- Optional on-bike education
- Bicycle safety presentation with no on-bike component

***C3C.** Are bicycles provided to students by the school district, police, nonprofit or other entity to allow every student the opportunity to participate in on-bike instruction?

- Yes, bicycles are provided to all students
- Yes, a limited number of bicycles are available for students in need
- No, bicycles are not provided

C4. Outside of schools, how are children and youth taught safe cycling skills?

Check all that apply.

- Learn to ride classes
- Bike clinics or rodeos
- ABCs of Family Biking, family bike show-and-tell, or similar program focused on families with toddlers and young children
- Youth bike clubs
- Scouts bicycle training
- Youth development road or cross racing teams
- Youth development mountain bike racing teams
- Helmet fit seminars
- Safety town area
- Trail riding classes
- Summer camps
- Bicycle-related after school programming
- Bicycle safety is taught as part of driver education curriculum
- None of the above

» ADULT BICYCLE EDUCATION

C5. Are bicycle safety or riding skills-related classes or hands-on instruction offered to adults in your community?

- Yes*
- No

***C5A.** What type of classes are available for adults? Check all that apply.

- Classes that include on-bike instruction
- Classroom-based classes
- Information sessions/workshops

***C5B.** What topics are covered in these classes? Check all that apply.

- Introduction to bicycling/Learn to ride/Bike handling basics
- Safe riding skills/habits
- Bicycle maintenance
- Sharing the road, trail, or path with vehicles or pedestrians
- Bike commuting basics

***C5C.** Who teaches these classes? Check all that apply.

- League Cycling Instructor
- Local bike shop employee
- Local bicycle advocate
- Local law enforcement officer

***C5D.** On average, how often are these classes offered?

- Monthly or more frequently
- Quarterly
- Semi-annually
- Annually
- Less than annually
- On demand

***C5E.** Are bicycles provided to adults by the community, police, nonprofit or other entity to allow every resident to participate in on-bike instruction?

- Yes
- No

C6. Which of the following communications methods are used to share bicycle information with adults in your community? Check all that apply.

- Community-wide public education campaign
- Community-wide Bicycle Ambassador program
- Educational group rides
- Videos on community website/TV channel/social media
- Bike-specific website or social media accounts for community
- Neighborhood listserves
- Community newsletter (print or digital)
- Community maps (print or digital)
- Handouts or brochures
- Welcome packet for new residents
- Permanent signage, displays, or information kiosks
- Table or booth at community events
- None of the above

C7. Which of the following information is shared using the methods checked above? Check all that apply.

- Introduction to bicycling/Learn to ride/Bike handling basics
- Safe riding skills/habits
- Bicycle maintenance
- Sharing the road, trail, or path with vehicles or pedestrians
- Commuting tips and resources
- Traffic laws/ rules of the road
- Bicycle purchase and fitting guidance
- Equipment, gear, and accessories
- Theft prevention
- Riding in inclement weather
- Family biking
- None of the above

C8. Do any of the above educational classes, resources, or programs for adults specifically target any of the following traditionally-underrepresented groups? Check all that apply.

- Women
- People of Color
- Seniors
- Non-English speakers
- Low-income populations
- University students
- LGBT+ community
- ADA community
- Homeless community
- None of the above

» MOTORIST EDUCATION

C9. In what ways have motorists in your community been educated on sharing the road safely with bicyclists of all ages and abilities? Check all that apply.

- Public service announcements
- Community-wide public education campaign
- Share the Road educational videos on community website/TV channel/social media
- Dedicated Share the Road website or social media sites
- Neighborhood listserves
- Community newsletter/magazine article/blog
- Community maps (print or digital)
- Information in new resident packet
- Information for students and parents from the school system
- Utility bill insert
- Flyer/handout
- Info sessions/lunch seminars
- Billboards
- Share the Road Signs
- Share the Road information in driver's education and testing
- None of the above

C10. Which of the following groups of professional drivers receive training that includes information on sharing the road with bicyclists? Check all that apply.

- Local government staff
- Taxi drivers
- Transit operators
- School bus operators
- Delivery/Commercial drivers
- Emergency vehicle drivers
- None of the above

» BICYCLE SAFETY EDUCATION RESOURCES

C11. How many League Cycling Instructors are active (have taught a class in the last year) in your community? (# only)

C12. Are any of the following educational materials published by the League of American Bicyclists provided to community residents and/or businesses?

- Smart Cycling Quick Guide
- Smart Cycling Student Manual
- Smart Cycling Education videos
- None of the above

» EDUCATION BONUS POINTS

C13. Describe any other education efforts in your community that promote safe cycling. Use this space to expand on answers checked above, or to describe additional educational programs or services that have not yet been covered.

Encouragement

» ENCOURAGEMENT POLICIES, PROGRAMS & PARTNERSHIPS

D1. Which of the following community-wide bicycle encouragement programs or policies exist in your community? Check all that apply.

- Trip reduction ordinance or incentive program
- Guaranteed Ride Home program
- Local business incentive program that rewards customers arriving by bicycle
- Local recognition program for businesses that are bicycle-friendly for their employees and/or customers
- Locally-designated Bicycle Friendly Business District
- None of the above

D1A. Please provide links for any programs checked above:

D2. What other groups actively promote bicycling in the community? Check all that apply.

- Chamber of Commerce
- Downtown Business Association/Business District
- Tourism Board
- Other civic associations (e.g. Rotary, Lion's Club, etc.)
- None of the above

D3. Does your community actively promote the League of American Bicyclists' Bicycle Friendly Business (BFB) or Bicycle Friendly University (BFU) programs in your community?

- Yes
- No

» ROUTE-FINDING SUPPORT

D4. What up-to-date mapping and route-finding information is available for your community? Check all that apply.

- Web-based route finding service
- Smart phone app
- Printed/digital bicycle network map
- Printed/digital mountain bike trails map
- Printed/digital greenways and trails map
- Printed/digital Safe Routes to Schools map(s)
- None of the above

» BICYCLE CULTURE AND PROMOTION

D5. How is National Bike Month/your own dedicated Bike Month promoted in your community? Check all that apply.

Learn about National Bike Month and see the League's National Bike Month Guide for ideas to improve your community's Bike Month efforts.

- Official Proclamation
- Community-wide Bike to Work Day/Week
- Bike to School Day/Week
- Bike to Church Day or similar
- Community Rides
- Mayor-led/Council-led Ride
- Public Service Announcements
- Videos promoting bicycling on community website/TV channel
- Publish a guide or calendar of Bike Month Events
- Bike Month Website
- Commuter Challenge
- Challenges aimed at students biking to school
- Non-commuting related (i.e. errand-running) biking challenges and programs
- National Bike Challenge /Global Bike Challenge
- Bike Commuter energizer stations/breakfasts
- Car-free days
- CycloFemme Ride
- Kidical Mass Ride
- Open Streets/Ciclovia/Sunday Parkways
- Mentoring program for new riders
- Bike valet parking at events
- Bicycle-themed festival/parade/show
- Public education campaign relating to cycling (e.g. with a focus on public health or environmental benefits)
- Trail construction or maintenance day
- None of the above

D6. How is bicycling promoted in your community outside of Bike Month? Check all that apply.

- Community and charity rides
- Mayor-led/Council-led rides
- Videos on bicycling on community website/TV channel
- Public Service Announcements
- Trail construction or maintenance day
- Kidical Mass Ride
- Open Streets/Ciclovia/Sunday Parkways
- Commuter Challenge
- Non-commuting related (i.e. errand-running) challenges and programs
- Challenges aimed at students biking to school
- National Bike Challenge /Global Bike Challenge
- Business program that provides discounts for customers arriving by bicycle
- Triathlons and bicycle races
- Bike commuter events
- Car-free days
- Publish a guide or calendar of community bicycle events
- Mentoring program for new riders
- Bike valet parking at events
- International Bike to School Day in October
- Winter Bike to Work/School Day(s)
- Bicycle-themed festivals/parades/shows
- Public education campaign related to cycling (e.g. with a focus on public health or environmental benefits)
- Community celebration/ride each time a bicycle project is completed
- None of the above

D7. Are any bicycle events specifically marketed to any of the following traditionally underrepresented groups? Check all that apply.

- Women
- People of Color
- Seniors
- Families with toddlers and young children
- Non-English speakers
- Low-income populations (as defined by local regulations)
- LGBT+ community
- ADA community
- Homeless community
- None of the above
- N/A - No bicycle events

D8. How does the municipality sponsor or actively support bicycle events in the community? Check all that apply.

- Organize event(s)
- Fund event(s)
- Contribute in-kind funding (i.e. police presence, closing roads, etc.)
- Assist in promoting event(s)
- None of the above
- N/A - No bicycle events

D9. Are any of the following cycling clubs/groups active in your community? Check all that apply.

- Recreational bike clubs
- Mountain bike clubs
- Cyclocross clubs
- Friends of the Trail groups
- National Mountain Bike Patrol
- Racing clubs or teams
- Kidical Mass, Family Bike Party, or other family-oriented groups
- Senior ride groups
- Women-only ride groups
- LGBT+ ride groups
- People of Color ride groups
- Bike polo/La Crosse clubs
- Slow ride group
- None of the above

D10. Does your community have any of the following youth programs centered on encouraging bicycling for children and youth? Check all that apply.

- Safe Routes to School program
- Trips for Kids chapter
- Earn a Bike program
- Create a Commuter program
- None of the above

» ACCESS TO BICYCLE EQUIPMENT & REPAIR SERVICES

D11. What is the ratio of for-profit specialty bicycle retailers (shops dedicated primarily to selling bikes and bike-related equipment) to population within your community's boundaries?

- 1 shop for every 1-15,000 residents
- 1 shop for every 15,001-30,000 residents
- 1 shop for every 30,001-50,000 residents
- 1 shop for more than 50,001 residents
- There are no specialty bicycle retailers located within the community's boundaries, but there is at least one shop close by.
- There are no specialty bicycle retailers located within or near the community's boundaries.

D12. Is there at least one bike co-op or nonprofit community bike shop within the community's boundaries?

- Yes*
- No

***D12A.** Do(es) the co-op/nonprofit community bike shop(s) receive any of the following support from the local government? Check all that apply.

- Grants
- Free or subsidized property/space for a duration of at least 5 years
- Contracts for services, e.g. bicycle skills or maintenance education, event support, etc.
- Free bicycle safety accessories for distribution, e.g. helmets or lights
- Provision of abandoned or impounded bicycles for resale
- Free PSA or advertising space
- None of the above

» ENCOURAGEMENT BONUS POINTS

D13. Describe any other events, programs or policies your community has to encourage bicycling. Use this space to expand on answers checked above, or to describe additional encouragement efforts that have not yet been covered.

Enforcement & Safety

» PUBLIC OUTREACH

E1. How does your police department interact with the local cycling community? Check all that apply.

- A police officer is an active member of or regularly attends meetings of the bicycle advisory committee
- Identified law-enforcement point person to interact with bicyclists
- Identified law-enforcement point person to Safe Routes to Schools program
- Police department assist with bicycle events/rides
- Police department hosts bicycle events/rides
- Officers provide bike safety education
- Officers distribute bike safety/theft deterrent information
- Police officers report potential hazards to traffic engineers and planners to identify sites in need of safety improvements for bicyclists
- None of the above

E2. What percentage of patrol officers are regularly on bikes?

- None
- 1-20%
- 21-50%
- More than 50%

E3. What other public or private bicycle safety programs are in place? Check all that apply.

- Helmet giveaways
- Light giveaways
- Volunteer trail watch programs/patrols
- None of the above

» BICYCLE-RELATED TRAINING FOR LAW ENFORCEMENT PERSONNEL

E4. What kind of bicycle-related training is offered to police officers? Check all that apply.

- Basic academy training
- International Police Mountain Bike Association training
- Law Enforcement Bicycle Association training
- National Highway Traffic Safety Administration Law Enforcement Training
- Smart Cycling course
- Completion of League Cycling Instructor certification by one or more officers
- Presentation/Training by League Cycling Instructor or local bicycle advocate
- Institute for Police Training and Development bicycle training
- Training on racial profiling awareness in multimodal transportation enforcement
- Training on bicycle crash types, numbers and locations
- None of the above

» BICYCLE-RELATED LAWS

E5. Are there any local ordinances or state laws that protect bicyclists in your community? Check all that apply.

- Specific penalties for failing to yield to a cyclist when turning
- It is illegal to park or drive in a bike lane (intersections excepted)
- Penalties for motor vehicle users that ‘door’ bicyclists
- Ban on cell phone use while driving
- Ban on texting while driving
- Vulnerable road user law
- Safe passing distance law
- It is illegal to harass a cyclist
- Photo enforcement for red lights and/or speed
- None of the above

E6. Do any local ordinances in your community place restrictions on bicyclists? Check all that apply.

- Local law requires bicyclists to use side paths regardless of their usability
- Local law requires bicyclists to use bike lanes when provided
- Local law requires that bicyclists are required to ride as far to the right of the road as practicable without exceptions
- Local law restricts usage of electric-assist bicycles
- Mandatory bike registration
- Mandatory helmet use for all ages
- Restrictions on sidewalk riding outside of the Central Business District
- Restrictions on sidewalk riding inside the Central Business District
- Dismount zones/regulations on shared-use paths
- Local or school policies restrict youths from riding to school
- Bicycles are banned from one or more road that is open to vehicles
- None of the above

» BICYCLE-RELATED ENFORCEMENT PRACTICES & PROGRAMS

E7. Which of the following bicycle-related enforcement practices exist in the community? Check all that apply.

- Data-driven enforcement of traffic violations most likely to lead to crashes, injuries, and fatalities
- Positive enforcement ticketing
- Ticket diversion program for bicyclists
- Ticket diversion program for motorists with educational content specifically related to interacting and sharing the road with bicyclists
- None of the above

E8. How does your community use traffic citation data?

Check all that apply.

- Raw data are published and made available to the public on a regular basis
- Analysis and reports are published and made available to the public on a regular basis
- Data are only available to the public by FOIA request
- Analysis and reports are developed but not shared/are only used internally
- Data/reports are shared with transportation agencies to improve infrastructure
- Data are not collected
- Unknown

» BICYCLE SAFETY POLICIES & PROGRAMS

E9. Is there a specific plan, policy or program to further increase bicycle safety in your community?

- Vision Zero policy/Policy to eliminate traffic fatalities within a specific time frame not to exceed 20 years*
- Towards Zero Deaths program or similar data-driven, interdisciplinary approach that targets areas for improvement and employs proven countermeasures, integrating application of education, enforcement, engineering, and emergency medical and trauma services*
- Traffic safety plan*
- None of the above

***E9A.** Please provide a link or upload the policy/program/plan document.

» CRASH & FATALITY REPORTING

E10. Do police officers report bicyclist crash data?

- Yes*
- No

***E10A.** On average over the past five calendar years, how many bicyclists have been in a crash involving a motor vehicle annually? (# only)

E11. On average over the past five calendar years, how many bicyclists have died due to a crash involving a motor vehicle annually? (# only)

» ENFORCEMENT & SAFETY BONUS POINTS

E12. Describe any other enforcement or safety programs/policies relating to bicycling. Use this space to expand on answers checked above, or to describe additional enforcement or safety programs or policies that have not yet been covered.

Evaluation & Planning

» STAFFING AND COMMITTEES

F1. Is there a bike program manager or primary point of contact for bicycling issues at your local government?

- There is a full-time, paid bike program manager whose primary role is helping the community become bicycle-friendly and encouraging ridership.*
- Promoting bicycling is a part of someone's official job description but they have other responsibilities as well.*
- Helping the community become bicycle-friendly and encouraging ridership is a responsibility shared among multiple staff.
- Promoting bicycling is not a part of anyone's official job description, but at least one staff member has permission to help the community become bicycle-friendly during working hours.
- A citizen volunteer is appointed by the government to help the community become bicycle-friendly.*
- Currently, no one is focused on encouraging ridership or helping the community become more bicycle-friendly.

***F1A.** Provide contact information if different from applicant.

F2. Is there a Safe Routes to School Coordinator?

- There is a full-time, paid Safe Routes to School Coordinator.*
- Promoting Safe Routes to School educational programs and infrastructure improvements is a part of someone's official job description but they have other responsibilities as well.*
- Promoting Safe Routes to School educational programs and infrastructure improvements is a responsibility shared among multiple staff.
- Promoting Safe Routes to School educational programs and infrastructure improvements is not a part of anyone's official job description, but at least one staff member has permission to help the business become bicycle-friendly during working hours.
- A citizen volunteer is appointed by the government to promote Safe Routes to School educational programs and infrastructure improvements.*
- Currently, no one is focused on Safe Routes to School educational programs and infrastructure improvements.

***F2A.** Provide contact information if different from applicant.

F3. How many government employees (including the Bicycle Program Manager and the Safe Routes to Schools Coordinator), expressed in full-time equivalents (FTE), work on bicycle issues in your community? NOTE: A person that spends 1/10 of their time on bicycle issues would be counted as 0.1 FTE. (# only)

F4. Does your local government provide any of the following professional development opportunities for employees who have bicycle-related responsibilities?

Check all that apply.

- League Cycling Instructor (LCI) certification
- Association of Pedestrian and Bicycle Professionals (APBP) membership
- Other professional memberships/accreditations related to bicycles
- Attend bicycle-related webinars/trainings
- Attend bicycle-related conferences
- Present at bicycle-related webinars, trainings, or conferences
- None of the above

F5. Does your community have an officially-recognized Bicycle Advisory Committee?

- Yes*
- No

***F5A.** How often does the committee meet?

- Monthly or more frequently
- Every two months
- Quarterly
- Annually
- Irregularly

***F5B.** Provide contact information for the Bicycle Advisory Committee Chair.

F6. Does your local government have an internal equity, diversity, and inclusion (EDI) initiative, committee, or position?

- Yes*
- No

***F6A.** Provide the name and email address of the primary contact.

***F6B.** Please describe how, if at all, the EDI initiative, committee, or position supports equitable bike planning or outreach in the community.

» PLANNING, FUNDING, & IMPLEMENTATION

F7. Does your community have a comprehensive bicycle master plan or similar section in another document?

- Yes*
- No
- Plan is currently under development**

If yes:

***F7A.** What year was the plan adopted?

***F7B.** Provide a link to the plan.

***F7C.** Is there a dedicated budget for implementation of the plan?

- Yes***
- No

*****F7C1.** What is the designated annual budget? (If budget is not consistent annually, provide the annual average from the last 10 years or length of plan.) (# only)

*****F7C2.** List or describe funding source(s).

***F7D.** Does your plan include a goal to increase bicycle facilities?

- Yes*
- No

***F7D1.** Please list or describe these goals.

***F7E.** How have community planning staff reached out to minority, non-English speaking, and/or low-income communities to ensure that they are included in the decision-making process?

If Plan is currently under development:

****F7F.** Is there a planned budget for implementation of the plan?

- Yes***
- No

*****F7F1.** What is the planned annual budget? (# only)

****F7G.** How are community planning staff reaching out to minority, non-English speaking, and/or low-income communities to ensure that they are included in the decision-making process?

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

F8. What other local agencies have a bicycle master plan or similar section in another transportation demand management document? Check all that apply.

- Transit agency
- School district
- Higher education institution(s)
- Hospital or medical center(s)
- Parks & Recreation
- Metropolitan Planning Organization
- Regional Planning Commission
- County/Borough/Parish
- None of the above

F9. Is community-wide bicycle planning integrated with planning for any of the following: Check all that apply.

- Transit stops
- Public & private schools (K-12)
- Higher education institutions
- Hospitals and medical centers
- Parks & recreation centers
- Subsidized or public housing
- None of the above

F10. What percentage of the community's total annual transportation budget – on average over the last five fiscal years – was invested in bicycle projects? (drop-down menu: “unknown” and 0-100% options)

F11. Is bicycle-related funding specifically allocated to underrepresented areas of your community? (E.g. low-income neighborhoods, etc.)

- Yes*
- No

***F11A.** Please describe.

F12. How many lane miles of planned bicycle facilities does your community expect to have installed in the next four years? (# only) Write “0” if there are no specific goals or plans for additional bicycle facilities to be installed in the next four years.

F13. How many lane miles of bicycle facilities has your community installed in the last two years? (# only) Write “o” if no new bicycle facilities have been installed in the last two years.

» EVALUATING RIDERSHIP

F14. How does your community collect information on bicycle usage? Check all that apply.

- Automated /electronic bicycle counters
- Regular statistically-valid community bicycle surveys
- Travel diaries
- Household travel surveys that include bicycle trips
- App-based or other opt-in electronic data collection (e.g. Strava, Zap, etc.)
- Regular manual counts of bicyclists on trails
- Regular manual counts of bicyclists on the road
- Regular counts of parked bicycles at transit stations (if applicable)
- Regular counts of parked bicycles at schools
- Regular counts of parked bicycles at other destinations (downtown business district, etc.)
- Manual counts that include demographic data collection (e.g. gender, race, age, etc.)
- Manual counts that specifically target traditionally underrepresented neighborhoods
- Cordon counts that include bicyclists
- Any other type of count that includes bicyclists
- None of the above

If the community has collected ridership data locally for any of the following categories, please provide up to one PDF or excel file for each category where ridership data are available: (file uploads only available through online application – additional files may be uploaded at the end of the application.)

F14A. Utilitarian ridership data collected locally (e.g. bicycle rides for commuting, running errands, transportation, etc.)

F14B. Recreational ridership data collected locally (e.g. rides solely for exercise or fun.)

F14C. Demographic ridership data collected locally (e.g. rider age, race, gender, etc.)

F14D. School ridership data collected locally (e.g. rides by or with K-12 or younger children – either riding on their own or being carried in a child seat, trailer, etc.)

F14e. Other ridership data (e.g. any other bicycle ridership data collected locally that doesn't fall under the above categories.)

F15. Does your community establish target goals for bicycle use? (E.g. a certain level of bicycle mode share)

- Yes*
- No

***F15A.** Please list or describe these goals.

» EVALUATING THE BICYCLE NETWORK

F16. Does your community routinely conduct pre/post bicycle mode share evaluations of bicycle-related road projects?

- Yes
- No

F17. Which of the following mechanisms are in place for bicyclists to identify problem areas or hazards to traffic engineers, planners, and police? Check all that apply.

- Online reporting system (e.g. SeeClickFix)
- Mobile app
- Hotline
- Regular meeting
- Contact directly via call/voicemail/fax/email/text/social media
- None of the above

F18. How has your community conducted a network analysis to evaluate current conditions for bicyclists and identify significant infrastructure barriers to bicycling? Check all that apply.

- GIS-based network analysis
- Level of Traffic Stress analysis
- Bicycle Level of Service for roads
- Bicycle Level of Service for intersections
- Multimodal Level of Service
- None of the above

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

» EVALUATION & PLANNING BONUS POINTS

F19. Besides the Bicycle Friendly Community program, what other national programs does your community participate in to improve for bicycling? Check all that apply.

- U.S. DOT Mayor's Challenge for Safer People and Safer Streets
- National League of Cities/Let's Move! Cities, Towns and Counties
- LEED® for Neighborhood Development
- NACTO Cities for Cycling
- None of the above

F20. Describe any other efforts by your community to evaluate and/or plan for bicycle ridership and/or networks. Use this space to expand on answers checked above, or to describe any additional evaluation & planning efforts that have not yet been covered.

Final Overview

G1. What are the top three reasons your community has made bicycling a priority? Click up to three.

- Improved quality of life
- Improving public health
- Community connectivity
- Provide affordable transportation options
- Reduce car-parking demands
- Climate change/environmental stewardship concerns
- Decrease traffic congestion
- Increase tourism
- Increase property values
- Cooperation with adjacent communities
- Public demand
- Economic development
- Support Smart Growth or other growth management goals
- Traffic and bicycle/pedestrian safety
- Meet local or state requirements
- None of the above

G2. Briefly describe the most positive outcome of your community's support for bicycling.

G3. Describe any improvements that have occurred for cycling in your community since your last application. (Write N/A if this is your first time applying.)

G4. What could be done differently in order to make bicycling safer, more enjoyable and/or more convenient in your community?

G5. What specific bicycle-related improvements are planned in the next 12 months that directly affect your community?

G6. We often get requests for example BFC applications from aspiring communities. Are you willing to share your application?

- Yes
- No

G7. How did you hear about the Bicycle Friendly Community program?

Supplementary Benchmarking Report City Survey

****These supplementary questions are only required if you are participating in the 2018 Bicycle & Walking Benchmarking Report (BMR) Project. Learn more at <https://bicyclefriendly.secure-platform.com/a/page/community/BMR>.

» (BMR) ENGINEERING

BM1. How many miles of public sidewalks are within your community? *Public sidewalks are paved paths within the roadway right-of-way that are designed for pedestrian use. Often, bicycling is not allowed and the pavement is less than 8 feet wide. Please answer in lane miles.*

Existing questions that were modified after comparison to past Benchmarking Report questions are highlighted in GREEN.

» (BMR) EDUCATION

BMR2. What percentage of your public and private schools (elementary, middle, and high) offer pedestrian safety education?

- 1-25%
- 26-50%
- 51-75%
- 76-100%

BMR3. Outside of schools, are pedestrian safety skills taught to children and youth by city-sponsored programming?

- Yes
- No

» (BMR) ENFORCEMENT & SAFETY

BMR4. What percentage of Emergency Medical Technicians or paramedics are regularly on bikes?

- None
- 1- 20%
- 21-50%
- More than 50%

BMR5. What percentage of patrol officers are regularly on foot?

- None
- 1- 20%
- 21-50%
- More than 50%

BMR6. What percentage of Emergency Medical Technicians or paramedics are regularly on foot?

- None
- 1- 20%
- 21-50%
- More than 50%

BMR7. Does your city require motorists to yield to pedestrians?

- Yes*
- No

***BMR7A.** If yes, what is the monetary penalty for a motorist who fails to yield to a pedestrian?

» (BMR) EVALUATION & PLANNING

BMR8. How many government employees (including the Pedestrian Program Manager and the Safe Routes to Schools Coordinator), expressed in full-time equivalents (FTE), work on pedestrian issues in your community?

NOTE: A person that spends 1/10 of their time on bicycle issues would be counted as 0.1 FTE. Please do not double count any employee time reported in Question F3 under BFC: Evaluation & Planning. (# only)

BMR9. How many lane miles of planned pedestrian facilities does your city expect to have installed in the next four years? (# only)

BMR10. How many lane miles of pedestrian facilities has your city installed in the last two years? (# only)

BMR11. Which of the following plans has your city adopted? Please include any bicycle master plans already mentioned in Question F3 under BFC: Evaluation & Planning. Check all that apply.

- A combined bicycle and pedestrian master plan
- A standalone bicycle master plan
- A standalone pedestrian master plan
- A trails master plan
- A mountain bike master plan
- None of the above

BMR12. Which of the following goals has your city published as part of any adopted plan? Check all that apply.

- Increase pedestrian facilities
- Increase bicycling facilities
- Increase walking
- Increase biking
- Increase physical activity
- Decrease pedestrian fatalities
- Decrease bicyclist fatalities
- Decrease pedestrian injuries
- Decrease bicyclist injuries
- None of the above / N/A - no plan

BMR13. Has your city adopted any of the above goals as part of any of the following plans? Check all that apply.

- A carbon emissions reduction plan
- A public health improvement plan
- A transportation congestion mitigation plan
- A public safety improvement plan
- None of the above

BMR14. What percentage of the community's total annual transportation budget – on average over the last five fiscal years – was invested in pedestrian projects?

If you are unable to differentiate between bicycle and pedestrian budgets, please include the total bike/ped budget in F10 under BFC: Evaluation & Planning, and enter "unknown" here.

(drop-down menu: "unknown" and 0-100% options)

BMR15. How does your community collect information on pedestrian trips? Check all that apply.

- Automated /electronic pedestrian counters
- Regular statistically-valid community pedestrian surveys
- Household travel surveys that include pedestrian trips
- Regular manual counts of pedestrians on trails
- Regular manual counts of pedestrians within roadway right-of-way (e.g. on sidewalks or shared space)
- Manual counts that include demographic data collection (e.g. gender, race, age, etc.)
- Manual counts that specifically target traditionally underrepresented neighborhoods
- App-based or other opt-in electronic data collection (e.g. Strava, Zap, etc.)
- Cordon counts that include pedestrians
- Any other type of count that includes pedestrians
- None of the above

» ALTERNATIVE MINIMUM BENCHMARKING SURVEY FOR CITIES

The alternative minimum benchmarking survey for cities was distributed to cities that did not complete any other survey in an attempt to update as much data as possible. Full or partial responses to this alternative minimum survey allowed the 2018 Benchmarking Report to provide updated data for 10 cities.

Bicycle & Pedestrian Infrastructure

1 » Please report the number of lane miles of protected bike lanes in your city (also called cycle tracks, separated bike lanes, or buffered bike lanes).

For the purpose of this question, protected bike lanes are bicycle-only lanes that are on or adjacent to the roadway, separated from motorized vehicles with a physical barrier, such as bollards, curb, raised pavement or painted buffer zone.

Lane miles are measured the total length and lane count of a protected bicycle facility. Lane miles are calculated by multiplying the centerline mileage of a bike lane by the number of lanes it has (e.g. a two-way cycletrack has two lanes).

2 » Please report the number of lane miles of unprotected bike lanes in your city.

For the purpose of this question, unprotected bike lanes are bicycle-only lanes that are on a roadway, designated with a painted stripe, next to motorized traffic lanes. They are not protected with a physical barrier or painted buffer zone.

3 » Please report the number of lane miles of public sidewalks in your city.

For the purpose of this question, public sidewalks are publicly owned paved paths within the roadway right-of-way (ROW) that are designed for pedestrian use. Usually, bicycling is not allowed*

4 » Please report the number of lane miles of paved public paths in your city.

For the purpose of this question, paved public paths are publicly owned paths outside the roadway right-of-way (ROW), open to both bicycling and walking, but closed to motorized vehicles.

City Budget for Biking & Walking

5 » Does your city have an overall bicycle and pedestrian spending target?

Yes/No/Other

6 » If your bicycle and pedestrian spending target is expressed as a percentage, what is the current target as a percentage (%) of the city's transportation budget?

7 » If your bicycle and pedestrian spending target is expressed as a dollar value, what is the current target as a dollar value?

8 » How much did your city budget for transportation programs overall in the last fiscal year?

9 » Please indicate the amount in dollars dedicated to bicycle and pedestrian programs in the last fiscal year.

10 » Please indicate the amount in dollars dedicated to other transportation programs (not including bicycle and pedestrian programs) in the last fiscal year.

11 » Please indicate the last fiscal year used to answer the two preceding questions.

12 » Expressed in Full-Time Equivalents (FTE), how many city employees and regularly hired contractors worked on bicycle and/or pedestrian issues as detailed in their job description in the last two years?

For the purpose of this question, a FTE is a person or combination of persons who works 2,000 hours over the course of a year (2,000 hours = 1 FTE). Safe Routes to School program work should be included as bicycle and pedestrian work.

City Goals & Plans

13 » Please indicate whether your city has adopted goals to do any of the following things through a publicly available document.

- Goal to increase bicycle facilities
- Goal to increase pedestrian fatalities

- Goal to increase bicycling (defined in trips, modeshare, or any other metric)
- Goal to increase walking (defined in trips, modeshare, or any other metric)
- Goal to increase physical activity (defined by any metric)
- Goal to decrease pedestrian fatalities
- Goal to decrease bicyclist fatalities

City Activities

14 » Please indicate whether any of the following education activities were available in your city in the past two years.

- Youth bicycle education
- Adult bicycle education
- Youth pedestrian education

15 » Was at least one Bike to Work Day event hosted in your city in the past two years?

Yes/No

16 » Did your city host an open streets initiative (also known as "ciclovía," "Sunday Streets," or "Saturday Parkways") in the past two years?

For the purpose of this question, an open streets initiative is a program that regularly closes one or more streets to motorized traffic and encourages pedestrian and bicyclist use of the street(s). Please do not include one-time events such as marathons, bike races, or festivals. Yes/No

Bikeshare

17 » Does your city currently have one or more public bike share program(s)?

For the purpose of this question, a public bike share program is a publicly or privately funded program that allows members of the general public to rent a bicycle that is allowed to be parked on public property or use such a bicycle through a membership in the program.

- Yes, my city has a public bike share program
- Yes, my city has more than one public bike share program
- No, my city does not have any public bike share program as described for this question

18 » How many bicycles are available to be rented by the public in your city at any given time?

For the purpose of this question, if your city has multiple public bike share programs then the total of all programs should be reported.

» DATA SOURCES USED FOR COMMUNITY SURVEY DATA

The 2018 Benchmarking Report is a continuation of the 5 editions of the Benchmarking Report that were published by the Alliance for Biking and Walking. In compiling data for the 6th edition, the League of American Bicyclists chose to include as much data as possible, even if a community did not provide a response to a survey distributed for the 2018 Benchmarking Report.

The table below describes the data sources used for providing data for all communities included in the Benchmarking Report. The most recent data available for any reported data was used. If you have questions about the data used, please contact Ken McLeod at ken@bikeleague.org.

| COMMUNITY | DATA SOURCE(S) USED IN BENCHMARKING REPORT | LAST BICYCLE FRIENDLY COMMUNITY APPLICATION |
|----------------------------|----------------------------------------------|---------------------------------------------|
| Albany, New York | Older BMR data | Fall 2012 |
| Albuquerque, New Mexico | Older BFC data | Fall 2016 |
| Anchorage, Alaska | Older BFC data | Spring 2017 |
| Arlington, Texas | Older BMR data | None |
| Atlanta, Georgia | BFC Application & Benchmarking Report Survey | None |
| Austin, Texas | Older BFC data | Fall 2015 |
| Baltimore, Maryland | Older BFC data | Spring 2015 |
| Baton Rouge, Louisiana | Older BMR data | Spring 2013 |
| Bellingham, Washington | BFC Application & Benchmarking Report Survey | Fall 2012 |
| Boston, Massachusetts | Minimum BMR Survey + 2016 BMR | Spring 2011 |
| Boulder, Colorado | Older BMR data | Fall 2012 |
| Burlington, Vermont | BFC Application & Benchmarking Report Survey | Fall 2011 |
| Charleston, South Carolina | Older BMR data | Fall 2010 |
| Charlotte, North Carolina | Older BFC data | Fall 2016 |
| Chattanooga, Tennessee | Older BMR data | Fall 2014 |
| Chicago, Illinois | Older BFC data | Spring 2015 |
| Cleveland, Ohio | Older BFC data | Fall 2016 |
| Colorado Springs, Colorado | Older BFC data | Spring 2017 |
| Columbus, Ohio | Older BMR data | Fall 2013 |
| Dallas, Texas | Older BMR data | None |
| Davis, California | Older BFC data | Spring 2016 |
| Denver, Colorado | BFC Application & Benchmarking Report Survey | Spring 2015 |
| Detroit, Michigan | Older BMR data (2014) | Spring 2012 |
| El Paso, Texas | Older BMR data | Fall 2014 |

| COMMUNITY | DATA SOURCE(S) USED IN BENCHMARKING REPORT | LAST BICYCLE FRIENDLY COMMUNITY APPLICATION |
|----------------------------------|---------------------------------------------------------------|----------------------------------------------------|
| Eugene, Oregon | Older BMR data | Fall 2013 |
| Fort Collins, Colorado | Older BFC data | Spring 2017 |
| Fort Worth, Texas | BFC Application & Benchmarking Report Survey | Fall 2013 |
| Fresno, California | Older BFC data | Fall 2015 |
| Houston, Texas | BFC Application & Benchmarking Report Survey | Fall 2013 |
| Indianapolis, Indiana | Older BMR data | Spring 2013 |
| Jacksonville, Florida | BFC Application & Benchmarking Report Survey | Fall 2010 |
| Kansas City, Missouri | Minimum BMR Survey + Older BFC | Fall 2016 |
| Las Vegas, Nevada | BFC Application & Benchmarking Report Survey (plus older BFC) | Spring 2014 |
| Long Beach, California | Minimum BMR Survey + Older BFC | Spring 2017 |
| Los Angeles, California | Older BFC data | Spring 2017 |
| Louisville, Kentucky | BFC Application & Benchmarking Report Survey | Spring 2015 |
| Madison, Wisconsin | BFC Application & Benchmarking Report Survey | Fall 2015 |
| Memphis, Tennessee | Older BFC data | Spring 2015 |
| Mesa, Arizona | BFC Application & Benchmarking Report Survey | Fall 2015 |
| Miami, Florida | Older BFC data | Fall 2016 |
| Milwaukee, Wisconsin | Older BMR data | Fall 2014 |
| Minneapolis, Minnesota | Older BFC data | Fall 2015 |
| Missoula, Montana | Older BFC data | Fall 2016 |
| Nashville, Tennessee | Older BFC data | Spring 2015 |
| New Orleans, Louisiana | Minimum BMR Survey + 2016 BMR | Fall 2014 |
| New York, New York | Older BMR data | Spring 2014 |
| Oakland, California | BFC Application & Benchmarking Report Survey | Fall 2014 |
| Oklahoma City, Oklahoma | Minimum BMR Survey + 2016 BMR | Fall 2014 |
| Omaha, Nebraska | BFC Application & Benchmarking Report Survey (plus older BFC) | Fall 2015 |
| Philadelphia, Pennsylvania | BFC Application & Benchmarking Report Survey | Fall 2016 |
| Phoenix, Arizona | Minimum BMR Survey + 2016 BMR | Fall 2014 |
| Pittsburgh, Pennsylvania | Minimum BMR Survey + 2016 BMR | Spring 2014 |
| Portland, Oregon | BFC Application & Benchmarking Report Survey (plus older BFC) | Fall 2017 |
| Raleigh, North Carolina | Minimum BMR Survey + Older BFC | Fall 2015 |
| Sacramento, California | BFC Application & Benchmarking Report Survey | Spring 2016 |
| Salt Lake City, Utah | BFC Application & Benchmarking Report Survey | Spring 2015 |
| San Antonio, Texas | Minimum BMR Survey + 2016 BMR | Fall 2014 |
| San Diego, California | BFC Application & Benchmarking Report Survey | Fall 2015 |
| San Francisco, California | Minimum BMR Survey + Older BFC | Fall 2016 |
| San Jose, California | Older BMR data | Spring 2013 |
| Seattle, Washington | Older BMR data | Fall 2014 |
| Spokane, Washington | Older BMR data | Fall 2014 |
| St. Louis, Missouri | Older BFC data | Spring 2017 |
| Tucson, Arizona | BFC Application & Benchmarking Report Survey | Spring 2016 |
| Tulsa, Oklahoma | BFC Application & Benchmarking Report Survey | Spring 2009 |
| Honolulu, Hawaii | Minimum BMR Survey + 2016 BMR | Fall 2014 |
| Virginia Beach, Virginia | Older BFC data | Fall 2015 |
| Washington, District of Columbia | BFC Application & Benchmarking Report Survey | Spring 2011 |
| Wichita, Kansas | BFC Application & Benchmarking Report Survey | Fall 2016 |

» ADDITIONAL DATA ON BIKESHARE IN COMMUNITIES

In recent years bikeshare has been a very dynamic industry. To ensure that the Benchmarking Report could continue to provide useful information on communities with bikeshare systems, the Benchmarking team searched for bikeshare in each community, but did not include private dockless systems.

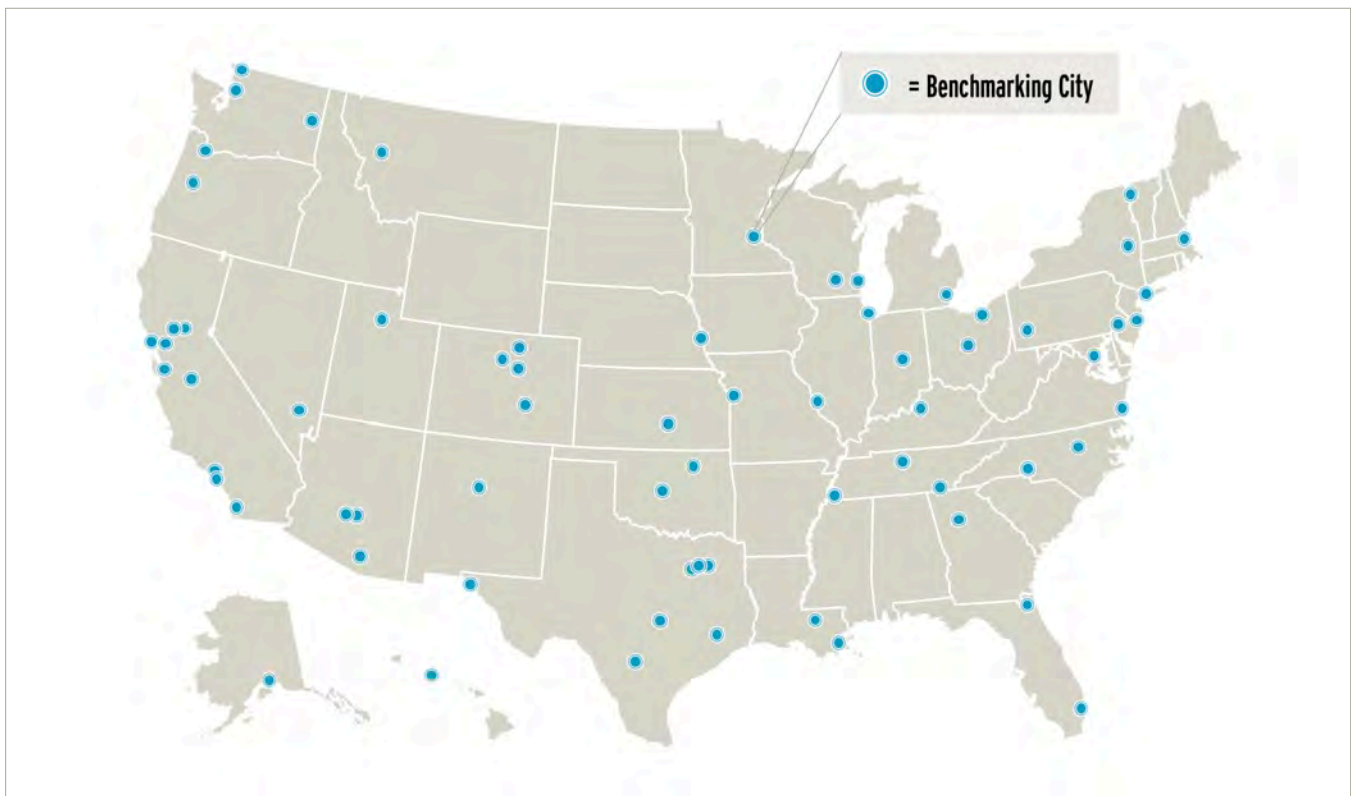
| COMMUNITY | STATE | CITY SIZE | BIKESHARE SYSTEM NAME | BIKESHARE WEBSITE |
|------------------|-------|-----------|---------------------------|-----------------------------------------------------------------------------------------------------------------|
| Albuquerque | NM | Large | Pace Bike Share | http://zagster.com/abq/ |
| Arlington | TX | Large | Private Dockless only | |
| Atlanta | GA | Large | Relay Bike Share | http://relaybikeshare.com/ |
| Austin TX | TX | Large | Austin B-cycle | https://austinbicycle.com/about/stats-facts |
| Baltimore | MD | Large | Baltimore Bike Share | https://www.bmorebikeshare.com/ |
| Boston | MA | Large | Hubway | https://www.thehubway.com/ |
| Charlotte | NC | Large | Charlotte B-cycle | https://charlotte.bcycle.com/ |
| Chicago | IL | Large | Divvy | https://www.divvybikes.com/ |
| Cleveland | OH | Large | UHBikes | http://uhbikes.com/ |
| Colorado Springs | CO | Large | PikeRide (launching 2018) | https://downtowncs.com/getting-around/bikeshare/ |
| Columbus OH | OH | Large | CoGo Bike Share | https://www.cogobikeshare.com/ |
| Dallas | TX | Large | Private Dockless only | |
| Denver | CO | Large | Denver B-cycle | |
| Detroit | MI | Large | MoGo | https://mogodetroit.org/ |
| El Paso | TX | Large | SunCycle B-cycle | https://elpaso.bcycle.com/ |
| Fort Worth | TX | Large | Fort Worth Bike Sharing | https://fortworth.bcycle.com/ |
| Fresno | CA | Large | | |
| Houston | TX | Large | Houston B-Cycle | https://houston.bcycle.com/ |
| Indianapolis | IN | Large | Indiana Pacers Bike Share | https://www.pacersbikeshare.org/ |
| Jacksonville | FL | Large | Swarm | http://www.swarmbikes.com/ |
| Kansas City | MO | Large | Kansas City B-cycle | https://kansascity.bcycle.com/ |
| Las Vegas | NV | Large | RTC Bike Share | https://bikeshare.rtcnv.com/ |
| Long Beach | CA | Large | Long Beach Bike Share | https://www.longbeachbikeshare.com/ |
| Los Angeles | CA | Large | Metro Bike Share | https://bikeshare.metro.net/ |
| Louisville | KY | Large | LouVelo | https://louvelo.com/ |
| Memphis | TN | Large | Explore Bike Share | https://explorebikeshare.bcycle.com/ |
| Mesa | AZ | Large | Grid Bike Share | http://gridbikes.com/ |
| Miami | FL | Large | Citi Bike | http://citibikemiami.com/ |
| Milwaukee | WI | Large | BublR Bikes | https://bublrbikes.org/ |

| COMMUNITY | STATE | CITY SIZE | BIKESHARE SYSTEM NAME | BIKESHARE WEBSITE |
|----------------|-------|-----------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minneapolis | MN | Large | Nice Ride | https://www.niceridemn.org/ |
| Nashville | TN | Large | Nashville B-cycle | https://nashville.bcycle.com/ |
| New York City | NY | Large | Citi Bike | https://www.citibikenyc.com/ |
| Oakland | CA | Large | Ford GoBike | http://www2.oaklandnet.com/government/o/PWA/s/BicycleandPedestrianProgram/BikeShare/index.htm |
| Oklahoma City | OK | Large | Spokies | http://spokiesokc.com/ |
| Omaha | NE | Large | Heartland B-cycle | https://heartland.bcycle.com/ |
| Philadelphia | PA | Large | Indego Bike Share | https://www.rideindego.com/ |
| Phoenix AZ | AZ | Large | Grid Bike Share | http://gridbikes.com/ |
| Portland OR | OR | Large | Biketown | https://www.biketownpdx.com/ |
| Raleigh | NC | Large | Planned | https://dtraleigh.com/2017/12/latest-update-on-raleigh-bikeshare-plans-for-may-2018-launch/ |
| Sacramento | CA | Large | Tower Bridge Bike Share (name likely to change) | https://www.bikethetower.com/ |
| San Antonio | TX | Large | Swell Cycle | https://sanantonio.bcycle.com/ |
| San Diego | CA | Large | Discover Bike | http://www.discoverbikesandiego.com/ |
| San Francisco | CA | Large | Ford GoBike | https://www.fordgobike.com/ |
| San Jose | CA | Large | Ford GoBike | https://www.fordgobike.com/ |
| Seattle | WA | Large | Private Dockless only | |
| Tucson | AZ | Large | Tugo Bike Share | https://tugobikeshare.com/ |
| Tulsa | OK | Large | Tulsa Bike Share | http://www.tulsaworld.com/news/government/city-s-new-bike-share-program-to-begin-with-stations/article_63bb233a-9610-5519-b6ce-76b73e4b45a9.html |
| Virginia Beach | VA | Large | | |
| Washington DC | DC | Large | Capital Bikeshare | https://www.capitalbikeshare.com/ |
| Wichita | KS | Large | Bike Share ICT | http://bikeshareict.com/ |
| Albany NY | NY | Other | CDPHP Cycle | https://cdphpcycle.com/ |
| Anchorage | AK | Other | | |
| Baton Rouge | LA | Other | Some planning | http://www.braf.org/bikeshare/ |
| Bellingham | WA | Other | Launching in 2018 | |
| Boulder | CO | Other | Boulder B-cycle | https://boulder.bcycle.com/ |
| Burlington | VT | Other | Greenride BikeShare | https://catmavt.org/bikeshare |
| Charleston | SC | Other | Holy Spokes | https://charlestonbikeshare.com/ |
| Chattanooga | TN | Other | Chattanooga Bicycle Transit System | https://bikechattanooga.com/ |
| Davis | CA | Other | JUMP | http://www.davisvanguard.org/2018/03/bike-share-davis-not-everyone/ |
| Eugene | OR | Other | PeaceHealth Rides | https://peacehealthrides.com/ |
| Fort Collins | CO | Other | Fort Collins Bike Share | http://bikefortcollins.org/programs/bike-share |
| Madison WI | WI | Other | Madison Bcycle | https://madison.bcycle.com/ |
| Missoula | MT | Other | Dasani Blue Bikes | http://www.ci.missoula.mt.us/1096/Dasani-Blue-Bikes |
| New Orleans | LA | Other | Blue Bikes | https://bluebikesnola.com/ |
| Pittsburgh | PA | Other | Healthy Ride | http://pghbikeshare.org/ |
| Salt Lake City | UT | Other | GREENbike Salt Lake City Bike Share | https://greenbikeslc.org/ |
| Spokane | WA | Other | Planned | |
| St. Louis | MO | Other | St. Louis Bike Share | http://www.stlbikeshare.org/ |
| Honolulu | HI | Other | Biki | https://gobiki.org/ |

» POPULATIONS OF THE FIFTY MOST POPULOUS U.S. CITIES

The 50 most-populous cities in the U.S. are determined by using the most recent population estimates for urban areas as provided by the 2016 American Community Survey (ACS). Place data are collected for population from ACS 5-year estimates. With populations changing, two cities (Tulsa, OK, and Wichita, KS) have been added to the original 50 most-populous cities included in earlier reports. Tulsa was added to the 2012 *Benchmarking Report* when New Orleans' population dropped. Wichita was added to the 2014 *Benchmarking Report* when Honolulu's population dropped. Though New Orleans and Honolulu are no longer within the 50 most-populous cities, they are included to provide consistency and to take advantage of the already collected data.

The year of each cities BFC application, if applicable, has been included in order to show the current relationship between the League and the cities within the scope of the *Benchmarking Report*.



| POPULATION RANK | LAST BFC APP | COMMUNITY | STATE | POPULATION ESTIMATE |
|-----------------|--------------|------------------|-------|---------------------|
| 1 | 2014 | New York City | NY | 8,426,743 |
| 2 | 2017 | Los Angeles | CA | 3,900,794 |
| 3 | 2015 | Chicago | IL | 2,717,534 |
| 4 | 2013 | Houston | TX | 2,217,706 |
| 5 | 2016 | Philadelphia | PA | 1,555,072 |
| 6 | 2014 | Phoenix | AZ | 1,514,208 |
| 7 | 2014 | San Antonio | TX | 1,413,881 |
| 8 | 2015 | San Diego | CA | 1,359,791 |
| 9 | None | Dallas | TX | 1,260,688 |
| 10 | 2013 | San Jose | CA | 1,000,860 |
| 11 | 2015 | Austin | TX | 887,061 |
| 12 | 2010 | Jacksonville | FL | 846,951 |
| 13 | 2013 | Indianapolis | IN | 841,449 |
| 14 | 2016 | San Francisco | CA | 840,763 |
| 15 | 2013 | Columbus | OH | 824,663 |
| 16 | 2013 | Fort Worth | TX | 796,614 |
| 17 | 2016 | Charlotte | NC | 792,137 |
| 18 | 2012 | Detroit | MI | 690,074 |
| 19 | 2014 | El Paso | TX | 676,325 |
| 20 | 2015 | Memphis | TN | 657,167 |
| 21 | 2014 | Seattle | WA | 653,017 |
| 22 | 2011 | Boston | MA | 650,281 |
| 23 | 2015 | Denver | CO | 649,654 |
| 24 | 2011 | Washington | DC | 647,484 |
| 25 | 2015 | Nashville | TN | 634,512 |
| 26 | 2015 | Baltimore | MD | 622,454 |
| 27 | 2013 | Portland | OR | 612,206 |
| 28 | 2014 | Oklahoma City | OK | 610,672 |
| 29 | 2015 | Louisville | KY | 608,732 |
| 30 | 2014 | Las Vegas | NV | 605,097 |
| 31 | 2014 | Milwaukee | WI | 599,498 |
| 32 | 2016 | Albuquerque | NM | 556,092 |
| 33 | 2016 | Tucson | AZ | 528,374 |
| 34 | 2015 | Fresno | CA | 510,451 |
| 35 | 2016 | Sacramento | CA | 480,566 |
| 36 | 2017 | Long Beach | CA | 470,237 |
| 37 | 2016 | Kansas City | MO | 467,990 |
| 38 | 2015 | Mesa | AZ | 458,860 |
| 39 | None | Atlanta | GA | 448,901 |
| 40 | 2015 | Virginia Beach | VA | 448,290 |
| 41 | 2017 | Colorado Springs | CO | 442,040 |
| 42 | 2015 | Omaha | NE | 440,034 |
| 43 | 2015 | Raleigh | NC | 432,520 |
| 44 | 2016 | Miami | FL | 424,632 |
| 45 | 2014 | Oakland | CA | 408,073 |
| 46 | 2015 | Minneapolis | MN | 399,950 |
| 47 | 2009 | Tulsa | OK | 398,082 |
| 48 | 2016 | Cleveland | OH | 390,584 |
| 49 | 2016 | Wichita | KS | 387,147 |
| 50 | None | Arlington | TX | 379,716 |

» POPULATIONS OF ADDITIONAL MID-AND-SMALL SIZED CITIES

| LAST BFC APP | COMMUNITY | STATE | POPULATION ESTIMATE |
|--------------|----------------|-------|---------------------|
| 2012 | Albany | NY | 98,468 |
| 2017 | Anchorage | AK | 299,107 |
| 2013 | Baton Rouge | LA | 229,186 |
| 2012 | Bellingham | WA | 82,944 |
| 2012 | Boulder | CO | 103,919 |
| 2011 | Burlington | VT | 42,570 |
| 2010 | Charleston | SC | 127,694 |
| 2014 | Chattanooga | TN | 174,483 |
| 2016 | Davis | CA | 66,510 |
| 2013 | Eugene | OR | 159,615 |
| 2017 | Fort Collins | CO | 153,292 |
| 2014 | Honolulu | HI | 347,973 |
| 2015 | Madison | WI | 243,122 |
| 2016 | Missoula | MT | 69,190 |
| 2014 | New Orleans | LA | 376,738 |
| 2014 | Pittsburgh | PA | 305,928 |
| 2015 | Salt Lake City | UT | 190,679 |
| 2014 | Spokane | WA | 210,695 |
| 2017 | St. Louis | MO | 317,850 |



OVERVIEW OF DATA SOURCES

The following table includes descriptions of the data sources used to compare cities and states in the *2016 Benchmarking Report*. All datasets listed below were accessed to update data as available for comparison in the *2018 Benchmarking Report*.

| ABBREVIATION | DESCRIPTION | METHOD OF DATA COLLECTION | FREQUENCY OF DATA COLLECTION | LAST DATE AVAILABLE |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------|
| ACS | American Community Survey (ACS): a survey conducted by the US Census Bureau that collects year-round data and releases new data annually | Every year over 3.5 million households are contacted and respond by internet, mail, telephone, or live in-person interview. More information is available at https://www.census.gov/programs-surveys/acs/about.html | Continuous | 2016 (as of writing) |
| BRFSS | Behavioral Risk Factor Surveillance System (BRFSS): from Centers for Disease Control and Prevention (CDC); statewide health information | Telephone health survey. More information is available at https://www.cdc.gov/brfss/about/index.htm | Continuous | 2016, last date available may vary by topic |
| BTS | Bureau of Transportation Statistics (BTS): State Transportation Statistics 2015 | A statistical profile of transportation as reported by the 50 states and the District of Columbia. More information is available at https://www.bts.gov/bts-publications/state-transportation-statistics/state-transportation-statistics-2015 | Yearly | 2015 |
| CEN | Decennial Census (CEN): from the U.S. Census Bureau | The goal of the decennial census is to count everyone once, only once, and in the right place. A variety of methods are used to ensure this goal is met. More information is available at: https://www.census.gov/programs-surveys/decennial-census/about.html | Every 10 years | 2010 |
| FARS | Fatality Analysis Reporting System (FARS): a nationwide census of fatal motor vehicle crashes compiled by the National Highway Traffic Safety Administration (NHTSA) | FARS analyst from each state collects data from governments within each state. Fatalities included in FARS must involve a motor vehicle traveling on a public way and result in a death within 30 days of the crash. More information is available at: https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars | Yearly | 2016 |
| FMIS | Fiscal Management Information System (FMIS): from the Federal Highway Administration (FHWA) | Staff at FHWA Division Offices and state Departments of Transportation enter information into FMIS according to their level of project approval authority. Projects are coded as they are obligated and most projects are coded based on project segments rather than tracked for the entire project. More information is available at: https://www.gao.gov/assets/670/666442.pdf | Continuous | 2017 |

| ABBREVIATION | DESCRIPTION | METHOD OF DATA COLLECTION | FREQUENCY OF DATA COLLECTION | LAST DATE AVAILABLE |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------|
| GHSA | Governors Highway Safety Association (GHSA): tracks laws related to behavioral safety such as distracted driving and automated enforcement | Data are collected from State Highway Safety Offices, and other organizations such as the Insurance Institute for Highway Safety and National Conference of State Legislatures, and compiled by GHSA. More information is available at: https://www.ghsa.org/state-laws/issues | Continuous | 2018 |
| BFA | Bicycle Friendly America (BFA): from the League of American Bicyclists tracks efforts by states (BFS), communities (BFC), businesses (BFB), and universities (BFU) through BFA programs for each entity. | Online surveys are sent to states. Online applications are available to any community, business, or university interested in participating. More information is available at: http://bikeleague.org/bfa | Varies by program | 2018 |
| NCSRTS | National Center for Safe Routes to School (NCSRTS): Walk to School Day Participation is tracked through the "Who's Biking" website. | Schools can register their school as participating in Walk to School Day by completing an online form. More information is available at: http://www.walkbiketoschool.org/registration/whosbiking.php | Continuous | 2018 |
| NCSC | National Complete Streets Coalition (NCSC): tracks Complete Streets policies through its Complete Streets Policy Inventory | Monitors adoption of policies through its network, media, and other sources. More information is available at: https://smartgrowthamerica.org/program/national-complete-streets-coalition/policy-development/policy-atlas/ | Continuous | 2018 |
| NHTS | National Household Travel Survey (NHTS): a national survey conducted by FHWA, the NHTS is "the authoritative source on the travel behavior of the American public.... It includes daily non-commercial travel by all modes." | The NHTS in 2017 used address-based sampling to obtain survey respondents and collected survey data by phone, paper, and web. The survey documents travel behavior for all members of 129,969 households as collected from April 2016 to April 2017. More information is available at: https://nhts.ornl.gov/ | Every 5-7 years since 1969 | 2017 |
| RTC | Rails-to-Trails Conservancy (RTC): tracks current information about the trails movement and rail-trail use at the national and state level | Monitors rail trails through media, interviews with trail managers, and its network. More information is available at: https://www.railstotrails.org/our-work/united-states/ | "Periodically" | 2018 |
| SRTSNP | Safe Routes to School National Partnership (SRTSNP): monitors and collects benchmarking data on the national Safe Routes to School program and produces biennial state report cards | Secondary data collection from the Federal Highway Administration and other sources. More information is available at: https://www.saferoutespartnership.org/resources/2016-state-report-map | Biennial | 2018 |
| WISQARS | Web-based Injury Statistics Query and Reporting System (WISQARS): from the Center of Disease Control and Prevention's online database that provides fatal and nonfatal injury, violent death, and cost of injury data. | Data are collected from a variety of other sources including the National Vital Statistics System (NVSS), National Electronic Injury Surveillance System - All Injury program (NEISS-AIP), National Violent Death Reporting System (NVDRS), and U.S. Census Bureau. More information is available at: https://www.cdc.gov/injury/wisqars/dataandstats.html | Yearly | 2016 |

» NATIONAL DATA SOURCES ON BIKING & WALKING

American Community Survey

The American Community Survey (ACS) is an ongoing survey facilitated by the U.S. Census Bureau, which gathers social, economic, housing, and demographic data of U.S. households, including commuter modes of transportation. The ACS differs from the Census in that ACS data are collected annually, throughout the year. The Census, on the other hand, is conducted only once per decade on one day in April.

Biking and walking commute ACS data presented in the Benchmarking Report is based on one question included in the ACS that asks: “How did this person usually get to work LAST WEEK? If this person usually used more than one method of transportation during the trip, mark (X) the box of the one used for most of the distance.” Respondents can indicate “bicycle” or “walked.”¹

There are several reasons to be hesitant to only rely on ACS data to understand the prevalence of biking and walking in any community, including:

- The time of year travel data are collected likely influences reported biking and walking trips;

- The survey only addresses commuter trips, which significantly limits generalizations regarding biking and walking trips for other purposes; and
- Respondents are asked to report only the primary mode of transportation, omitting more detailed information regarding multimodal trips, such as walking to a bus stop.

Communities and states could consider supplementing ACS data with other forms of data collection to better understand issues such as seasonal variation in biking and walking, non-commute trips, and multimodal trips.

Approximately 3.5 million households participate in the ACS survey every year. Data are released annually as 1-year and 5-year rolling estimates and are available online at <http://www.census.gov/acs> and <http://factfinder.census.gov>.

Past Benchmarking Reports used 3-year estimates to balance precision and currency of data.² In 2015, the 3-year estimate program was eliminated due to funding constraints.³

¹ Brian McKenzie. U.S. Census Bureau. *Modes Less Traveled – Bicycling and Walking to Work in the United States: 2008-2012* (2014). Available at <https://www.census.gov/prod/2014pubs/acs-25.pdf>.

² U.S. Census Bureau. *When to Use 1-year, 3-year, or 5-year Estimates* (Last Revised: September 6, 2018). Available at <https://www.census.gov/programs-surveys/acs/guidance/estimates.html>.

³ Economic Development Association of Minnesota. *ACS 3-Year Data Product Eliminated — You Can Help* (March-April 2015). Available at http://www.edam.org/mpage/dev_2015_Mar_Apr_09.

National Household Travel Survey

The National Household Travel Survey (NHTS) is a national survey conducted by the U.S. Department of Transportation every five to seven years. The survey collects data on transportation patterns in the United States including trip mode, purpose, distance and duration for a given 24-hour period. The survey is conducted by telephone and in 2009 approximately 150,000 landlines were randomly selected to participate. States and MPOs have the option to purchase an add-on of additional household travel samples. In 2009, fourteen states purchased increased sample sizes, increasing their samples by between 1,200 and 20,000 depending on the state. The larger samples are useful in providing a more accurate description of travel behavior for specific geographic areas and assists in more detailed local planning and transportation forecasting efforts.

Data compiled by the Federal Highway Administration (FHWA) are available online at <http://nhts.ornl.gov>.

National Bicycle & Pedestrian Documentation Project

The National Bicycle and Pedestrian Documentation Project (NBPD) is a joint effort by Alta Planning + Design and the Institute of Transportation Engineers (ITE). The project aims to establish a consistent methodology for conducting bicycle and pedestrian counts and to establish a national database for these data to better estimate existing and future bicycle and pedestrian demand. Any community using Eco-Counter technology can submit their data to the project for a free summary report. For guidelines on conducting counts and submitting data to the project, visit <http://bikepeddocumentation.org>.

Walk Score, Bike Score, & Transit Score

Walk Score was created to promote walkable neighborhoods and has since expanded to creating scores for biking and taking transit. Recently acquired by real estate website, Redfin, Walk Score aims to have a score included with every real estate listing to help potential buyers evaluate walkability and transportation options in locations where they might want to live. Though scoring varies by the mode, scores can be described everything from as a walker/ rider/ biker's paradise to somewhat walkable/ some transit/ bikeable, or as car-dependent for Walk Score. For example, a Walk Score of 92 would be described as a Walker's Paradise.

Walk Score analyzes walking routes based on nearby amenities. Amenities within a 5-minute walk (typically 0.25 miles) are scored with maximum points. More distant amenities score lower points, with no points after a 30-minute walk. Walk Score does account for some walkability measures, such as analyzing population density, block length, and intersection density, but has been noted for not being able to account for all elements of the pedestrian environment, such as noting safe walking routes with sidewalks or the size of the roads being crossed (e.g., two lane road versus a four lane arterial).

Transit Score is based on data released by local public transportation agencies. Scoring is assigned based on the frequency, type of transit, and distance to the stops from the mapped location.

Bike Score is dependent on four equally weighted factors: bike lanes; hills; destinations and road connectivity; and bike commuting mode share.

To access these three scoring tools, please visit www.walkscore.com.



FIND YOUR ANGLE QUESTIONNAIRES

Questions Given to Find Your Angle Featured individuals

1. Why do you believe biking and walking are important?
2. What are the key aspects of biking and walking that your work impacts?
3. Are you familiar with past Benchmarking Reports?
4. If so, how have you used the Benchmarking Report or its data in your work?
5. If not, how do you measure success or progress in your work?
6. What, if any, data related to biking and walking have you looked for and been unable to find?
7. What is the message you give about biking and walking as modes of transportation?
8. Is your message different depending on who you are talking to? How?
9. Does your message depend on data? If so, why? If not, what does your message rely on?

Questions Given to Congresswoman Matsui

1. You have been the champion for Complete Streets and safe streets legislation, why is this issue important to you?
2. What impact do you hope Complete Streets policies have on bicycling and walking?
3. What role do you believe biking and walking play in our transportation system?
4. What is the message you give about biking and walking as modes of transportation?
5. Is your message different depending on who you are talking to? How?
6. Does your message depend on data? If so, why? If not, what does your message rely on?



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It is an honor to continue the work of the Alliance and work with so many dedicated public servants, community organizations, businesses, and private citizens to compile the data for the Benchmarking Report. Each of the people below, and many others who were not specifically listed in application or survey responses, made the 2018 Benchmarking Report possible. Any oversights are the responsibility of the Benchmarking team.

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THE LEAGUE OF AMERICAN BICYCLISTS was founded in 1880 as a membership organization for bicyclists. Today, the League brings people together to promote communities that are safer, stronger and better connected through bicycling and walking.

THE BENCHMARKING REPORT was started by the Alliance for Biking and Walking, which helped grow the community of organizations involved in bicycling and walking issues. The League is proud to continue the work of the Alliance for Biking and Walking by presenting its Sixth Edition.

This report is intended to be a guide to publicly available data on bicycling and walking, and the public policy that supports creating a healthy, active America through bicycling and walking. We hope you enjoy the data and discussions in this report.

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