

# Bicycling and Walking in the U.S.



Benchmarking Report 2007

Copyright August 2007 by Thunderhead Alliance  
The Library of Congress, United States Copyright Office

All rights reserved. No part of this report may be reproduced or transmitted in any form or by any means without the written permission of Thunderhead Alliance. Requests should be sent to Thunderhead's main office at the address below:

1700 Pennsylvania Avenue NW, Suite 400  
Washington, DC, 20006  
Phone: 202-349-1479  
E-mail: [info@thunderheadalliance.org](mailto:info@thunderheadalliance.org)  
Web site: <http://www.thunderheadalliance.org>

Cover photos courtesy of:  
Transportation Alternatives,  
the San Francisco Bicycle Coalition,  
and Arjan van der Gaag





## Bicycling and Walking in the U.S. Thunderhead Alliance Benchmarking Report 2007

Funding for this report was provided by the Centers for Disease Control and Prevention, Planet Bike and the Bikes Belong Coalition.



This project was also made possible with on-going support from the National Bicycle Dealers Association.

# Report Credits:

Project Manager:  
Sue Knaup, Thunderhead Alliance

Author:  
Kristen Steele, Thunderhead Alliance

Research Consultants:  
John Pucher, Ph.D, Rutgers University  
Ralph Buehler, Rutgers University

Research Assistant:  
Neal Patel

ITE Review Committee:  
Ed Stollof, AICP  
Philip Caruso, P.E., FITE, FASCE  
Matthew Ridgway, AICP, Fehr & Peers  
Robert Wunderlich, P.E., City of Garland, Texas

CDC Advisors:  
Stephen Skowronski  
Andrew L. Dannenberg, MD, MPH

Quality Control:  
Bob McCarty, Prescott Alternative Transportation

National Data Collection:  
Neal Patel  
Amanda Posner, Chicagoland Bicycle Federation  
Paul Roots, Chicagoland Bicycle Federation  
Miriam Dasic, Chicagoland Bicycle Federation

Reviewers:  
Jim Swanson  
Dave Snyder

Editor:  
Debbie Stewart, Stewart Communications

Design and Layout:  
Kristen Steele, Thunderhead Alliance





# Acknowledgements

This report has depended on many people for its creation.

Thanks to the Centers for Disease Control & Prevention, Planet Bike, and Bikes Belong Coalition for funding this project. Thanks also to the National Bicycle Dealers Association for their financial support of Thunderhead Alliance.

Thunderhead would especially like to thank Randy Neufeld of Chicagoland Bicycle Federation (CBF) and founding chair of Thunderhead Alliance for being the spark behind the Benchmarking Project. Thanks also go to CBF's Nick Jackson for helping coordinate data collection and to Miriam Hammond, Paul Roots and Amanda Posner for their work on data collection, outreach and research.

Thanks also to Dr. John Pucher and Ralph Buehler of Rutgers University for their guidance, as well as for their contributions to the data analysis and editing of this report. And, to Bob McCarty for quality control and Neal Patel for his assistance with research, data collection, and illustrations.

Thanks to the Institute of Transportation Engineers' review team for their advice during the drafting of this report. Also, thanks to our advisors at the Centers for Disease Control & Prevention for providing their expertise, especially on the public health component of the project.

Last and most importantly, thanks to the leaders of Thunderhead Alliance member organizations who supported this project. These leaders were the vital links to local officials and delivered the city and state surveys on time. This project would not have been possible without them and it is in support of their vital work that this report has been produced.

Thanks to the following organizations and people for their help providing data for this report.

Alabama Department of Transportation, Mary Lou Crenshaw  
AlaBike, Robin Denson  
Alaska Department of Transportation, Bob Laurie  
Alta Planning and Design, Michael G. Jones  
Arizona Department of Transportation, Michael Sanders  
Atlanta Regional Commission, Regan Hammond  
Austin Cycling Association, Steve Coyle  
B.I.K.E.S. of Charlotte Mecklenberg, Martin Zimmerman  
Bicycle Advocacy of Central Arkansas, Ken Gould  
Bicycle Alliance of Washington, Barb Culp, Julie Mercer, Mark Canizaro  
Bicycle Coalition of Greater Philadelphia, John Boyle  
Bicycle Coalition of Maine, Jeffrey Miller  
Bicycle Coalition of New Mexico, Gail Ryba  
Bicycle Colorado, Dan Grunig  
Bicycle Federation of Wisconsin, Dar Ward, Jessica Wineberg, and Jack Hirt  
Bicycle Transportation Alliance, Evan Manvel and Emily Gardner  
Bicycling for Louisville, Barry Zalph  
Bike ABQ, Silda Mason  
Bikeable Communities, Stephen Schnitker  
BikeDFW, Michelle Holcomb  
Bike Denver, Lise Neer  
Bike Houston, Regina Garcia  
Bike Walk Mississippi, James Moore  
Bike Walk Virginia, Allen Turnbull  
Bike-Walk Alliance of New Hampshire, Dave Topham  
Boston Metropolitan Planning Organization, Cathy Buckley-Lewis  
California Bicycle Coalition, KC Butler  
California Department of Transportation, Ken McGuire  
Calumet Citizens for Connecting Communities, Mitch Barloga  
Capitol Region Council of Governments, Sandy Fry  
Cascade Bicycle Club Advocacy Committee, David Hiller  
Central Ohio Bicycle Advocacy Coalition, John Gideon  
Chicagoland Bicycle Federation, Ben Gomberg, Nick Jackson and Rob Sadowsky

# Acknowledgements cont.

City & County of Honolulu Department of  
Transportation Services, Chris Sayers  
City of Albuquerque, Jim Arrowsmith  
City of Atlanta, Heather Alhadeff and Michael Flemming  
City of Colorado Springs, Kristin Bennett  
City of Denver, James Mackay  
City of Houston, Lilibeth Andre and Rita Balchus  
City of Mesa, Transportation Department, Mitchell Foy  
City of Miami, David Henderson  
City of Minneapolis, Donald Pflaum  
City of Oakland, Jason Patton and Jennifer Stanley  
City of Oklahoma City, Lanc Gross  
City of Phoenix, Srinivas Goundla  
City of San Jose, John Brazil  
City of Seattle, Peter Lagerwey  
City of Tucson, Tom Thivener  
City of Virginia Beach, Barbara Duke  
Cleveland City Planning Commission, Martin Cader  
Coalition of Arizona Bicyclists, Bill Lazenby  
Fargo/Moorehead MetroCOG, Justin Kristan  
Federal Highway Administration, Donna Jones &  
Jatona Hatcher  
First Coast MPO, Elizabeth DeJesus  
Florida Bicycle Association, Laura Hallam  
Florida Department of Transportation, Dwight Kingsbury  
Friends of Pathways, Tim Young  
Georgia Bikes, David Crites  
Georgia Department of Transportation, Amy Goodwin  
Gluskin Townley Group, Elliot Gluskin and Jay Townley  
Hawaii Bicycling League, Kristi Schulenberg  
Hawaii Department of Transportation, Neal Honma  
Idaho Transportation Department, Mark McNeese  
Indiana Bicycle Coalition, Kent Anderson and  
Connie Szabo Schmucker  
Indiana Department of Transportation, Michael O'Loughlin  
Iowa Bicycle Coalition, Mark Wyatt  
Johnson County Bicycle Club, Dale Crawford  
Juneau Freewheelers, Dave Ringle

Kansas Department of Transportation, Paul Ahlenius, P.E.  
Kentuckiana Regional Planning & Development  
Agency, Stacey Clark  
Kentucky Department of Transportation, Tiffani Jackson  
L.A. County Bicycle Coalition, Kastle Lund,  
Matt Benjamin, and Monica Howe  
Lake Tahoe Bicycle Coalition, Ty Polastri  
League of American Bicyclists, Bill Nesper  
League of Illinois Bicyclists, Ed Barsotti  
League of Michigan Bicyclists, Rich Moeller and  
Jacob Van Dyke  
LivableStreets Alliance, Jeffrey Rosenblum, P.E.  
Los Angeles Police Department, Sgt. Eric  
LeeLouisiana Department of Transportation &  
Development, Brian Parsons  
Maine Department of Transportation, Dan Stewart  
Massachusetts Bicycle Coalition, David Watson  
Massachusetts Exec. Office of Transportation,  
Conrad Crawford  
Memphis Urban Area MPO, Paul Morris  
Metro Bicycle Coalition, Karen Parsons  
Midway TMO, Russ Stark  
Missouri Bicycle Federation, Brent Hugh  
Missouri Department of Transportation, Caryn Giarratano  
Minnesota Department of Transportation,  
Bob Works and Jim Dustrude  
Mountain State Wheelers, Dennis Strawn  
North Dakota Department of Transportation,  
Bennett Kubischta  
Nebraska Department of Transportation, Ron Schlautman  
New Hampshire Department of Transportation,  
Thomas Jameson and Paul Yeaton  
National Center for Safe Routes to Schools, Jennifer Hefferan  
New Orleans Regional Planning Commission, Dan Jatres  
New York Bicycling Coalition, Joshua Poppel  
New Mexico Department of Transportation, Tim Rogers  
Ohio Bicycle Federation, Chuck Smith  
Oklahoma Bicycle Coalition, Pete Kramer

Oklahoma City Area Regional Study Area, Lisa Kehoe  
One Less Car, Richard Chambers  
Palmetto Cycling Coalition, Natalie Cappuchio-Britt  
Pike Peak Area Bikeways Coalition, Al Brody  
Prescott Alternative Transportation, Bob McCarty  
Red Dirt Pedalers, Mary Cash  
Regional Planning Commission, Dan Jatres  
Regional Transportation Commission of S. Nevada,  
Jerry Duke and Jorge Ocon  
Rhode Island Department of Transportation, Steven  
C. Church  
Sacramento Area Bicycle Advocates, Walt Seifert  
Salt Lake City Bicycle Collective, Jason Bultman  
San Diego County Bicycle Coalition, Kathy Keehan  
San Francisco Bicycle Coalition, Andy Thornley and  
Leah Shahum  
San Francisco Municipal Transportation Agency,  
Deirdre Weinberg  
Seattle Department of Transportation, Peter Lagerway  
Silicon Valley Bicycle Coalition, Corinne Winter  
South Dakota Bicycle Coalition, Robb Rasmussen  
South Dakota Department of Transportation,  
Craig McIntyre  
Tennessee Department of Transportation,  
David Utley and Rusty Staggs  
Teton Valley Trails and Pathways, Tim Adams  
Texas Bicycle Coalition, Robin Stallings and Mark Stine  
Transportation Alternatives, Noah Budnick  
Utah Bicycle Coalition, Travis Jensen  
Utah Department of Health, Theron Jeppson  
Utah Department of Transportation, Sharon Briggs  
Vermont Bicycle & Pedestrian Coalition, Nancy  
Schulz and Lisa Buchanan  
Walk Bike Jersey, Kerri Martin  
Walk/Bike Nashville, Glen Wanner  
Washington Area Bicyclist Association, Eric Gilliland  
Wyoming Department of Transportation, Jay Meyer

*So many people contributed to the data collection of this report we have inevitably left someone off by mistake. We apologize if your name has been left off. Please let us know and we will make the correction for the pdf and future publications.*



# Contents



PHOTO COURTESY OF SEAN DREILINGER

Preface.....	6
Executive Summary.....	7
1: Introduction.....	11
2: Data Collection.....	17
3: Current Status of Bicycling.....	19
State Data Tables.....	24
City Data Tables.....	26
Bicycle Industry.....	30
4: Current Status of Walking.....	32
State Data Tables.....	38
City Data Tables.....	40
5: Bicycling & Walking Policies & Provisions.....	44
Funding Bicycling and Walking.....	47
Safe Routes to School.....	54
Bicycle and Pedestrian Staffing.....	56
Complete Streets Policies.....	60
State Data Tables.....	62
City Data Tables.....	64
Facilities.....	66
Bike Parking and Bike-Transit Integration.....	68
6: Thunderhead Alliance Bicycle and Pedestrian Advocacy.....	72
State Data Tables.....	78
City Data Tables.....	80
7: Factors Influencing Cycling, Walking and Safety.....	84
Weather.....	85
Residential Density.....	86
Car ownership.....	88
Bicycle Facilities.....	89
Fatalities vs Mode Share.....	90
Advocacy Capacity.....	92
8: Impacts of Bicycling and Walking on Public Health.....	93
Obesity Levels.....	93
Physical Activity.....	96
High Blood Pressure.....	97
Diabetes.....	98
9: Conclusions.....	99
Overview of Levels, Safety and Funding.....	100
10: Recommendations.....	103
Appendix 1: Overview of Data Sources.....	106
Appendix 2: Thunderhead Organizations & Study Area Matches.....	107
Appendix 3: Thunderhead Alliance U.S. Member Organizations.....	108
Appendix 4: Data Discrepancies.....	110
Discrepancies in Journey to Work Data.....	110
Discrepancies in Fatality Data.....	112
Appendix 5: Resources.....	114
Bibliography.....	115

# Preface

## Thunderhead Alliance: Who We Are

The Thunderhead Alliance is the only North American coalition with a mission to create, strengthen and unite state and local bicycle and pedestrian advocacy organizations. Since our founding in 1996, we have grown from 12 to 128 member organizations representing 49 states and two Canadian provinces. In the last 11 years, we have improved the effectiveness of our organizations through trainings and the sharing of best practice models in organizational development and bicycling and walking initiatives. We are continually improving our delivery channels through executive coaching, replicable models, trainings, roundtables, our on-call support system and our members' web resources library.

Thunderhead organizations inform and organize their communities to improve conditions for bicycling and walking, promoting these as healthy and enjoyable ways to travel. From advocating for bikeways and walkways to conducting safety courses, our coalition is changing attitudes and the environment in communities across North America. Thunderhead Alliance connects these grassroots forces, sharing best practices, creating peer networking and supporting each other in our efforts to promote bicycling and walking for healthy communities, a healthy environment, and a better quality of life.

## Benchmarking Project Origins

Thunderhead's Benchmarking Project began in 2003 when Randy Neufeld of the Chicagoland Bicycle Federation recognized the need for advocates to measure progress of bicycling and walking and realized the lack of available data. Thunderhead staff and board jumped on the project, recognizing the benefit of showing the impact advocacy has on increasing biking and walking. Without hard data measuring their results, Thunderhead organizations were

missing a key argument for their efforts.

In 2004 Thunderhead completed a pilot benchmarking report collecting data only on bicycling from just 15 cities and 15 states to test methods for the project. This first report helped pave a smoother path for the collection of more comprehensive data from all 50 states and 50 cities in 2006 and 2007. This is the first full report on the status of bicycling and walking in the United States. Through the ongoing Benchmarking Project, Thunderhead will publish an updated version of this report every two years and will continuously expand the scope and breadth of this project. As the project progresses, it will offer more precise benchmarks and recommendations for advocates and government officials so that they have the data and processes they need to improve bicycling and walking in the U.S. and eventually all of North America.

Leaders of Thunderhead organizations gather during a 2004 Thunderhead Retreat.





# Executive Summary

Government officials and advocates try to promote bicycling and walking, but until now there has been no way to evaluate progress. In order to improve something, one must have the means to measure it. This Report is the first to show trends in bicycling and walking levels, policies, and provisions across all 50 states and 50 major U.S. cities.

The Thunderhead Alliance Benchmarking Project is an on-going effort to collect and analyze data on bicycling and walking in all 50 states and at least the 50 most-populated U.S. cities. Thunderhead will continue to expand the scope of this project while refining its methods. This is the first biennial report. The next report is scheduled for publication in the fall of 2009.

## Benchmarking Objectives

### (1) Improve Data Collection and Availability

Thunderhead's Benchmarking Project identifies gaps in collection and availability of data on bicycling and walking. This report highlights areas where improved data collection is necessary and makes recommendations on improving data collection and accessibility. This project also provides data on cycling and walking to states and cities in a standardized format that otherwise does not exist.

### (2) Measure Progress and Evaluate Results

Thunderhead's Benchmarking Project aims to provide data to Thunderhead member organizations and government officials in a format that helps them measure their progress towards increasing bicycling and walking and evaluate the results of their efforts. Because the Benchmarking Project is ongoing, states and cities can measure their progress over time and will see the impacts of their efforts. By providing a consistent and objective tool for evaluation, organizations, states, and cities can determine what works and what doesn't. Successful models can be emulated and failed models reevaluated.

### (3) Support Efforts to Increase Bicycling and Walking

Ultimately, this Benchmarking Project supports the efforts of bicycle and pedestrian advocacy organizations and government officials to increase bicycling and walking in their communities. By providing a means for cities and states to compare themselves to one another, this report will highlight and praise successes, encourage communities making progress, and make communities aware of areas needing more effort. By highlighting the top states and communities, other states and communities will gain inspiration and best practice models. This report is intended to help states and communities set goals, plan strategies, and evaluate results.

## Data Collection

Whenever possible, Thunderhead researchers collected data for this report directly from uniform government data sources. Researchers collected data that was not readily accessible from national sources through three surveys for cities, states and advocacy organizations. From December 2006 through April 2007, the project team reached out to advocacy organizations and government officials to collect the data for their organization, state, or city. The survey data, combined with data from government data sets, was combined and analyzed for this report.

## Results

### Status of Bicycling

Nationwide, cycling has been declining since 1960 and rates of cycling are low compared to other industrialized countries. On

average, 0.4% of all trips to work in the U.S. are by bicycle. Although it is difficult to determine bicycle mode share for all trips because of limited data, the National Household Travel Survey (NHTS) estimates that 0.90% of all trips are by bike nationwide. Cities have slightly higher rates of cycling with approximately 0.94% of all trips by bike. Looking at cycling demographics, non-white workers are only slightly more likely to bike to work than the average worker. The gap between the sexes, however, is noticeably wide. Men outnumber women cyclists 3:1. There is almost no difference in cycling rates among different income classes, suggesting that cycling is a universal activity. Fatality data indicate that cyclists are at a disproportionate risk of being killed, representing 1.7% of all traffic fatalities.

### Status of Walking

Pedestrian mode share is also higher in cities (11.0% of all trips) than nationwide (8.7% of all trips). There is a greater gap between non-white vs. white pedestrian commuters (than among cyclists), however, the gap between the sexes is minor. The pedestrian mode share also differs among income classes with the lowest income categories representing the highest number of pedestrians. However, in some places, such as New York City, there is relatively equal distribution of pedestrians among income categories, suggesting income is less of a determining factor in the choice to walk. Pedestrians are also at disproportionate risk of dying in a traffic crash, representing 11% of all traffic fatalities. The disparity is even greater in cities where 11% of trips are estimated to be on foot, yet 14% of all traffic fatalities are pedestrians.

### Bicycling & Walking Policies and Provisions

A number of policies and provisions are represented in this report including funding and staffing levels, infrastructure, written policies, and bike-transit integration. States and cities ranked poorly overall on strong policies for cycling and walking. Most cities surveyed have goals for increasing cycling and walking and for increasing cycling and walking facilities. However, most cities and states answered “no” to whether or not they had spending targets for bicycle and pedestrian projects, and most have yet to adopt a complete streets policy.

### Funding Bicycling and Walking

Officials’ responses on bicycle and pedestrian funding were extremely limited, so data from the National Transportation Enhancements Clearinghouse and the Federal Highway Administration were used to assess funding.

States spend just 1.54% of their federal transportation dollars on bicycle and pedestrian projects. This amounts to just \$2.50 for bicycling and walking per capita each year. The Transportation Enhancement (TE) program accounts for 73% of all bicycle and pedestrian funds. The second greatest funding category is the Congestion Mitigation and Air Quality program, representing 9% of all federal bicycle and pedestrian funding. Over 50 federal funding programs contributed to bicycle and pedestrian projects over a three year period, though most in a relatively small amount. The variations in allocation of federal dollars to bicycle and pedestrian projects among states and cities is an indicator of the role of states and local jurisdictions in determining how their federal transportation dollars are spent.

Although TE is the largest funding source for bicycle and pedestrian infrastructure improvements, slightly less than 50% of these funds go towards bicycle and pedestrian projects (the remainder going to other spending categories allowed by the program). Only a very small amount of these funds for bicycle and pedestrian projects are in the “bicycle and pedestrian education and safety” category. Variation is great among cities and states in the use of these funds, with some spending 100% of TE funds on bicycle and pedestrian projects and some spending zero.

Safe Routes to School is the newest federal funding source that is completely dedicated to bicycle and pedestrian safety and improvements around schools. Passed by Congress in 2005, it has limited data at this point. The states that did report on spending showed a 24:76 split between education and capital projects. Allocation of funds to education and capital projects spanned the entire allowable range.

### Staffing Bicycling and Walking

Through Thunderhead surveys, officials were asked to report the number of full-time-equivalent (FTE) staff dedicated



to bicycle and pedestrian programs. On average, state Departments of Transportation (DOTs) employ 0.3 FTE staff per one million people in their state. The rate is higher among cities, which average 2.8 FTE bicycle and pedestrian staff per million people. DOTs were also surveyed on Safe Routes to School staffing, and responses indicate that while most states average just one FTE staff person dedicated to Safe Routes to School, some states have more than one and a few report no dedicated staff at this time. Some states use innovative mechanisms for increasing Safe Routes to School staffing capacity.

### **Bicycle and Pedestrian Infrastructure**

City Surveys asked cities to report miles of existing and planned facilities including sidewalks, on-street striped bike lanes, multi-use paths, and signed bike routes. The resulting data show that cities average 1.23 miles of bicycling facilities per square mile. Cities plan to double bicycle and pedestrian facilities, on average. Cities were also asked to report the number of existing bicycle racks and spaces per rack. The average number of bike parking spaces per 10,000 people is 24 spaces. The amount of bicycle parking varied greatly, with some cities reporting no bicycle parking and some cities reporting relatively large number of bike parking spaces.

### **Bike-Transit Integration**

To measure how well cities integrate cycling and transit, City and State Surveys collected data on bike parking at transit stops, bike racks on buses, and hours per week bicycles are allowed on trains. Most cities rank well regarding bike-bus integration by providing bike racks on 100% of city buses, but many ranked low on parking for cyclists at transit stops. Cities averaged 1.7 bike parking spaces per 10,000 residents at transit stops and hubs. While data for bike access on trains was sparse, cities that did report allow bikes on trains for an average of 137 hours per week (out of a total of 168). Thirty percent of cities reported that bikes are allowed on trains at all hours of the day.

### **Thunderhead Alliance Advocacy Organizations**

The number of Thunderhead Alliance state and local

bicycle and pedestrian advocacy organizations has been increasing steadily since Thunderhead was founded in 1996. This report measures organization capacity of Thunderhead Alliance member organizations and determines standards for membership, revenue, staffing and media exposure. Results from Thunderhead Organization Surveys vary widely because of the great variation in maturity and operations of these organizations as well as the communities they serve. Some organizations in this report are decades old while others were founded not long before Thunderhead began this report.

Survey responses indicate that state-wide organizations operate on three cents per state resident (on average). Organizations representing cities earn 11 cents per resident (3.7 times the amount earned by state-wide counterparts). The revenue sources of Thunderhead organizations are diversified and composed primarily of membership and donations, program fees and events, and government grants and contracts. Organizations take in a relatively small amount of funds from foundation grants and an even smaller amount from bike shops and manufacturers. Looking at membership rates, state-wide organizations average one member per 56,579 residents and organizations representing cities have higher rates with one member per 11,100 residents. When comparing staffing levels, city organizations again have a higher rate averaging 1.6 FTE staff per million people while state-wide organizations average 0.4 FTE staff per million residents.

### **Factors Influencing Cycling, Walking and Safety**

This report examines the relationship between biking and walking levels, safety, and a number of environmental and demographic variables. The environmental factors considered included weather, residential density, and cycling infrastructure. While weather seems to have little impact on cycling levels, residential density and cycling facilities may be positively linked to cycling levels. Denser cities also have higher levels of cycling and walking on average ( $r = 0.69$ )<sup>(1)</sup>. Cities with more miles of cycling facilities per square mile generally have higher levels of cycling ( $r=0.50$ ).

(1) "r" refers to the correlation coefficient, a measure of the interdependence of two variables where +1 equals a perfect positive correlation, -1 equals a perfect negative correlation, and 0 is the absence of correlation.

Demographics including income and car ownership were also considered for their impact on cycling and walking. While almost no variation in cycling levels is observed among different income classes, walking levels do decline in higher income brackets. Car ownership data from the 2000 Census and Journey to Work data from the 2005 American Community Survey (ACS) indicate that residents of cities with higher rates of cycling and walking own fewer cars ( $r = 0.76$ ). Whether not owning a car causes someone to bike or walk or vice versa cannot be determined from this report.

To explore the impact of levels of cycling and walking on safety, the Benchmarking team compared data on bicycle and pedestrian fatalities reported by cities to ACS 2005 bike and walk to work numbers. Data show a positive correlation between levels of biking and walking and safety. Cities with the highest levels of walking also had the lowest pedestrian fatality rates ( $r = -0.57$ ). The same was true for cities with the highest levels of biking which generally had lower rates of bicycle fatalities ( $r = -0.55$ ).

Lastly, the Benchmarking team examined the impact of advocacy on cycling and walking. Despite noted difficulties in measuring advocacy capacity, the team compared bike and walk to work mode share with standardized income and staffing levels of Thunderhead organizations. Data points to a positive correlation between these measures of advocacy capacity and combined biking and walking levels ( $r = 0.58$  income,  $r = 0.55$  staffing).

### Impacts of Cycling & Walking on Public Health

To see how cycling and walking impact public health, the Benchmarking team looked at trends in both levels of cycling and walking and obesity. Between 1960 and 2000, levels of bicycling and walking to work fell 67% while adult obesity levels rose 241%. At the same time, the number of children who bike or walk to school fell 68% as levels of obese children rose 367%. A negative correlation exists between current levels of adult obesity compared to current levels of biking and walking to work ( $r = -0.42$ ). The same is true for other health indices including high

blood pressure levels ( $r = -0.69$ ) and levels of diabetes ( $r = -0.66$ ). A positive correlation was found between the percent of adults who report 30 + minutes of daily physical activity and levels of biking and walking in states ( $r = 0.68$ ). Maps comparing current levels of biking and walking with obesity levels show similarities among states in the low and high range for both variables. For instance, Southern states have the lowest levels of biking and walking and the highest levels of obesity.

## Conclusions

There are many limitations with the data in this report, the most significant is the lack of reliable data on levels of cycling and walking for all trips. Despite these limitations, it is likely that levels of cycling and walking are under-reported across the board, which would still allow for comparisons among states and cities based on available data. Data from this study suggests:

1. A positive relationship exists between the built environment and levels of biking and walking.
2. Where levels of biking and walking are higher, bicycle and pedestrian safety is greater.
3. Cities with strong Thunderhead organizations generally have high levels of biking and walking.
4. Higher levels of biking and walking coincide with lower levels of obesity, high blood pressure and diabetes and higher levels of adults meeting recommended levels of daily physical activity. This suggests that increased biking and walking would contribute to a healthier society.
5. Data revealed that while some cities and states lead others as models for bicycle and pedestrian policies and provisions, all states and cities have a need for improvement.

Thunderhead makes several recommendations to government officials and advocates based on these conclusions. Recommendations include how to use this report to advocate for a greater investment in biking and walking and how to improve data collection to support future benchmarking efforts.



# 1: Introduction

## Benchmarking Bicycling & Walking

**B**enchmarking is the method of determining best practices or standards and who sets them. Bicycle and pedestrian advocates and government officials have probably all wondered at some point how their city or state compares with others. Government officials often exaggerate what their city or state is doing for bicycling and walking. At the same time, an advocate could be overly critical of the way bicycle and pedestrian policy is developing in their city or state. Benchmarking helps to show officials and advocates where their city or state actually measures up and helps them to identify areas most in need of improvement.

The Thunderhead Benchmarking Project is the first focused effort to set benchmarks for bicycling and walking in the U.S. using data from all 50 states and at least the 50 most-populous cities. Other countries are more advanced than the U.S. in benchmarking bicycling and walking and have provided examples and inspiration for this ambitious task.

### Benchmarking Efforts Abroad

Cycling benchmarking efforts have progressed further in many other countries than in the U.S.. England, Scotland, and the Netherlands all have completed benchmarking projects. More than 100 cities and regions in 20 European countries have participated in BYPAD (Bicycle Policy Audit), developed by an international consortium of bicycle experts as part of a European Union funded project. Velo Mondial completed a national cycling benchmark program with five participating countries (Czech Republic, England, Finland, Scotland and the Netherlands) that compared cycling policies at the national level. Another multi-nation benchmarking project is the Urban Transport Benchmarking Initiative, which uses benchmarking to compare European Union cities around six transport themes (Behavioral and Social Issues in Public Transport, City Logistics, Cycling,

Demand Management, Public Transport Organization and Policy, and Urban Transport for Disabled People).

### Benchmarking Bicycling in the U.K.

One benchmarking project by the Cyclist's Touring Club (CTC) investigated up to 10 cities per year between 2001 and 2003. The CTC investigated bicycling policy and practice in each city, including how bicycling is promoted and integrated into wider transportation plans. Participating jurisdictions completed a self-auditing questionnaire, received site visits from project staff to review the self-audit and create long-range action plans, and attended group workshops to collaborate with other jurisdictions. The CTC formulated and disseminated a comprehensive list of "Best Practices" to help each area make better plans for cycling. These "Best Practice" resources and photographs are located in a searchable database on CTC's website.

### Dutch Benchmarking Sophistication

The Dutch have sophisticated benchmarking techniques which utilize advanced technology. The Cycle Balance, a project of the Dutch Cyclists Union (Feitsersbond), began in 1999 and aims to, "stimulate local authorities to adopt a (still) better cycling policy... The secondary objective of the project is to enhance the position and strength of the local Cyclists Union branches."

The Cycle Balance assesses 10 dimensions of local conditions for cyclists including: directness, comfort (obstruction), comfort (road surface), attractiveness, competitiveness compared to the car, bicycle use, road safety of cyclists, urban density, cyclists' satisfaction, and cycling policy on paper. To measure these 10 dimensions they use questionnaires for the municipalities, a questionnaire on cyclists' satisfaction, data from national databases, and the Quick Scan Indicator for Cycling Infrastructure.

The Quick Scan Indicator for Cycling Infrastructure selects 12 to 16 routes at random to sample. The routes go from randomly selected houses to destinations and vice versa. Meanwhile, the project's specially designed bicycle registers data such as time, distance, speed, sound and vibrations onto a laptop computer. From these results they can determine frequency of stops, waiting time, type of road surface, maneuvers and obstacles, and use the collected data to measure the competitiveness of a bicycle. No other study surveyed uses this level of sophistication to measure environmental conditions for cycling with a standardized methodology. In the end, Cycle Balance presents a report to the municipality with an assessment of cycling conditions in all 10 dimensions. Thunderhead looks forward to emulating their thoroughness and sophisticated techniques as the Benchmarking Project expands in scope.

### Benchmarking Efforts in the U.S.

Although the U.S. lags behind in efforts to benchmark



bicycling and walking, there have been notable efforts over the last 10 years.

### Bicycle Friendly Community Awards

Although they don't use the term "benchmarking," the League of American Bicyclists (LAB) has created a system for scoring cities based on a measure of "bicycle-friendliness." The Bicycle Friendly Communities program began in 1995 and is an awards program that recognizes municipalities that actively support bicycling. Cities interested in receiving a "Bicycle Friendly Community" designation submit a two-part application to the League. The application is scored by a committee that consults with national and local cyclists. The first part of the application is a general community profile that determines whether a city meets basic eligibility requirements. If they do, they are notified and then submit part two of the application process, which is a detailed audit of their efforts to increase cycling and safety. Since its redesign and relaunch in 2003, 162 municipalities have applied for Bicycle Friendly Community designation and 71 have received an award at some level.

LAB's Bicycle Friendly Community program includes Bronze, Silver, Gold, and Platinum levels, awarded based on how communities score in five categories: engineering, education, encouragement, enforcement and evaluation. This program has been extremely valuable to incite a spirit of competition among communities to be designated "Bicycle Friendly." The program also forces communities to complete an in-depth application, which gives them an opportunity to evaluate where they stand and causes them to gather data on bicycling in their community.

### Benchmarking State Policies

The National Center for Bicycling and Walking (NCBW) conducted a one-time study between December 2002 and February 2003 to evaluate state Departments of Transportation (DOTs) accommodating bicycles and pedestrians. "The Benchmarking Project" focused on data from questionnaires sent to the Bicycle and Pedestrian Coordinator of state DOTs.





Denver, CO receives Bicycle-Friendly-Community award  
PHOTO COURTESY OF THE LEAGUE OF AMERICAN BICYCLISTS

NCBW identified four benchmarks: presence of statewide long-range plan for bike/pedestrian elements, accommodating bikes into all transport projects, accommodating pedestrians into all state highway projects, and other special programs.

NCBW assessed whether each state met national standards for these Benchmarks. Results were reported as “Yes” or “No” for each state meeting all or part of the benchmark, and summarized by each benchmark. They concluded that most state DOTs did not meet the benchmarks they identified for bicycle and pedestrian planning, accommodation (design), and special programs. All four of the benchmarks they identified are addressed in some way in Chapter 5 of this report. Although Thunderhead’s surveys did not frame questions in the same way, its review and discussion of complete streets policies, Safe Routes to School, and other bicycle and pedestrian policies addresses many of the same issues covered in NCBW’s report.

### Evaluating Walkability & Bikeability of Communities

The Pedestrian and Bicycle Information Center’s Walkability and Bikeability checklists are another means of evaluat-

ing conditions for bicycling and walking. These checklists are community tools that allow individuals to subjectively score their communities. The document invites individuals to go for a walk or bike ride with survey in hand and to rate their experience on a scale of one to five while checking off potential problems. The document then goes through each question and offers potential solutions to common problems and also provides a list of resources at the end. This survey could be useful for community stakeholders wishing to gain insight into “bikeability” or “walkability.” It could also be used by advocates in coordinated education efforts or to raise public perception of a problem area.

### National Bicycle & Pedestrian Documentation Project

While not a benchmarking project per se, the National Bicycle and Pedestrian Documentation Project is addressing a critical component of all benchmarking efforts for bicycling and walking: trip counts. A more accurate and standardized way of measuring biking and walking trips would result in far more accurate benchmarking results. The National Bicycle and Pedestrian Documentation Project, coordinated by the Institute of Transportation Engineers, sets detailed standards and guidelines and provides tools for performing bicycle and pedestrian counts and surveys in communities. The objectives of the project are to:

“ (1) *Establish a consistent national bicycle and pedestrian count and survey methodology, building on the ‘best practices’ from around the country, and publicize the availability of this free material for use by agencies and organizations on-line.*

(2) *Establish a national database of bicycle and pedestrian count information generated by these consistent methods and practices.*

(3) *Use the count and survey information to begin analysis on the correlations between various factors and bicycle and pedestrian activity. These factors may range from land use to demographics to type of new facility.”*

As of the publication date of this report, 30 cities have conducted counts using these methodologies for pedestrians, cyclists and multi-use trails, with most counts to date having been for multi-use trails..

## Local Efforts

Efforts to measure the state of bicycling locally have also been undertaken by local advocacy organizations. Thunderhead member organizations including Transportation Alternatives (New York City), San Francisco Bicycle Coalition, and the Bicycle Transportation Alliance (Oregon) have all created report cards for rating their communities at least once. The results of these efforts are that communities receive credit for areas where they are doing well, and areas needing improvement are identified. Report cards also serve as a benchmarking tool for cities to evaluate themselves and to use these data to measure progress over time.

### Transportation Alternatives Bicycling Report Card

Transportation Alternatives (T.A.), the New York City bicycle, pedestrian and transit-advocacy organization, has the longest running report card for bicycling among U.S. cities. In 2006, T.A. published their 9th annual NYC Bicycling Report Card, assigning three grades to eight "bicycle basics" including cycling environment, safety, and parking, among others. T.A. assigns one grade based on government effort and one grade based on their assessment of the reality on the streets. A third grade is assigned by an internet public opinion poll which received twelve hundred responses for the last report. According to T.A., the purpose of the report card is "to provoke and encourage our politicians and government agencies to make NYC safer and more convenient for current cyclists and more inviting for future ones." This report card provides a useful and provoking annual assessment of bicycling conditions and progress being made towards a more bicycle-friendly NYC.

### San Francisco Bicycle Coalition Report Card on Bicycling

In 2006, the San Francisco Bicycle Coalition (SFBC), San Francisco's bicycle advocacy organization, published its first Report Card on Bicycling. Unlike T.A.'s Bicycling Report Card, SFBC's relied completely on survey responses from bicyclists in San Francisco. The survey was answered by 1,151 individuals and addressed topics such as bicycling environment, safety, theft, and transit connections. The survey also collected information on topics such as frequency and types of bicycle trips, and what prevents people from cycling more than they do. The SFBC gave San Francisco a B- over-





all and included recommendations for the city to improve the score. According to the SFBC, the report card is “an instrument to hold (our) local decision makers accountable for their stated commitments to boosting bicycling rates and safety and making biking a mainstream transportation mode.” The SFBC plans to publish an updated Report Card on Bicycling every two years.

### BTA's Bicycle Friendly Communities Report Card

The Bicycle Transportation Alliance (BTA), Oregon's state-wide bicycle advocacy organization, produced its first Bicycle-Friendly Community Report Card in 2002. Grades were given to twenty of Oregon's largest communities based on such things as quality and quantity of bicycle facilities, encouragement of bicycling, established safety programs, and feedback from community bicycle riders. The twenty communities received a letter grade ranging from A- to D-. A discussion highlighted the good, the bad and the opportunities to increase cycling in various Oregon regions. According to the BTA, their report was “designed to help communities assess their commitment to bicycling as both recreation and transportation.”

### How Thunderhead's Benchmarking Project Fits In

All of the benchmarking-like efforts described in this section can compliment or contribute in some way to Thunderhead's project. European benchmarking efforts provide examples that can be modeled and inspire the evolution of this project. LAB's Bicycle Friendly Community (BFC) program encourages competition among cities. Thunderhead's Benchmarking Project compliments this program by providing data to the public, officials, and advocates so that they can see where their strengths and weaknesses are prior to a BFC application. Cities will also see what communities they can look to as models.

The Bikeability and Walkability checklists are excellent educational tools for communities. These surveys, along with the local surveys and report cards, compliment Thunderhead's Benchmarking Project with a subjective evaluation from community stakeholders. A standardized version could be collected and results aggregated to compare these evaluations across cities

and states. Thunderhead sees great potential for more meaningful data on levels of cycling and walking for all trips through the National Bicycle and Pedestrian Documentation Project. As this project grows with more communities participating, this information will be valuable for ongoing benchmarking efforts for bicycling and walking in North America.

## Primary Objectives

### Promote Data Collection & Availability

Government officials and advocates need data to measure their progress and evaluate their efforts. Little data is currently available on bicycling and walking trips, demographics, policies and provisions. Thunderhead's Benchmarking Project attempts to fill the gap by measuring the following indicators:

- Bicycling and walking levels and demographics
- Bicycle and pedestrian fatalities
- Bicycle and pedestrian policies and provisions
  - Funding for bicycle and pedestrian projects
  - Bicycle and pedestrian staffing levels
  - Written policies on bicycling and walking
  - Bicycle infrastructure including bike lanes, paths, signed bike routes, and bicycle parking
  - Bike-transit integration including presence of bike racks on buses, bike parking at transit stops, and hours per week that bicycles are allowed on trains
- Public health indicators including levels of obesity, physical activity, diabetes, and high blood pressure.

This report includes additional data on factors that may influencing cycling and walking including weather, residential density, levels of car ownership and the capacity of Thunderhead member organizations.

Unlike other efforts where data is collected and never made public, this Benchmarking Project makes data readily

available to advocates, officials and the public so that they can work to promote bicycling and walking in their community.

## Measure Progress & Evaluate Results

Bicycling and walking benchmarking efforts in the U.S. thus far have either been narrowly focused, applied to select cities and states, or are not available for public access. Seeking to fill this gap, Thunderhead collected data from all 50 states and the 50 most-populated cities. These data can be used to measure where communities are compared to others, and will enable advocates and officials to evaluate the results of their efforts. Because the Benchmarking Project is ongoing, states and cities can measure their progress over time and will see the impacts of their efforts. By providing a consistent and objective tool for evaluation, this report allows states and cities to determine what works and what doesn't. Successful models can be emulated and failed models discarded.

## Support Efforts to Increase Bicycling and Walking

The ultimate purpose of Thunderhead's Benchmarking Project is to support the efforts of advocates and officials to increase bicycling and walking in their communities and across the U.S. By comparing bicycling and walking statistics across states and cities, this report highlights and praises efforts of communities who provide models, encourages those making progress, and makes states and cities aware of areas where they need work. Thunderhead hopes that this report will be used by communities to set goals for increasing biking and walking, plan strategies using best practice models, and evaluate results over time. Thunderhead strives to make this project a service and tool for advocates and officials so that they can chart the best course towards more bikeable and walkable communities.

## Secondary Objectives

### Make the Health Connection

The Centers for Disease Control and Prevention has declared obesity an epidemic and people are now looking more

closely at the lifestyle choices that may be to blame. Among the top are unhealthy diet and sedentary lifestyles. Studies demonstrate a link between the built environment and levels of physical activity (Goldberg, 2007; TRB, 2005). The way communities are designed is inextricably linked to the amount of physical activity its residents average. Where environments are built with bicyclists and pedestrians in mind, more people bike and walk. These environments increase opportunities for physical activity and promote healthy lifestyles. Now that people are looking for answers to reversing the obesity epidemic, increasing bicycling and walking is an obvious solution.

Thunderhead Alliance has partnered with the Centers for Disease Control and Prevention for this project in an effort to highlight the connection between healthy lifestyles and cycling and walking. This report includes data on physical activity, obesity and overweight trends, high blood pressure rates, and diabetes, to illustrate the connection between cycling and walking levels and these health indicators. Along with illustrating the correlation between cycling and walking and health, Thunderhead hopes to show, over time, that as cycling and walking levels increase, the obesity epidemic also begins to reverse. Data and illustrations in this report are intended to be used by advocates and officials to argue for biking and walking as an important part of the solution to creating healthier communities.

### Strengthen Thunderhead's Network

Lastly, Thunderhead aims to strengthen its network of bicycle and pedestrian advocacy organizations by providing members the data they need to evaluate their success, prove results, and gain prominence in their communities. Thunderhead organizations can bring data from this report back to their community leaders, government officials, and media to highlight areas in which their community is successful, making progress, and in need of improvements. Thunderhead organizations can also use these data to prove that advocacy gets results by showing the link between advocacy capacity and levels of biking and walking. This report is a tool for Thunderhead member organizations to gain prominence and win safe and accessible streets for bicycling and walking in their communities.



# 2: Data Collection

The Benchmarking team began in the fall of 2006 by identifying which variables to collect and potential sources for this information. The team created a collection tool in spreadsheet format for gathering data on all 50 states and the 50 most-populated cities (from the 2005 American Community Survey). Data that could be gathered from national sources and those that would require surveys were identified. Each potential source of data was noted where available.

## National Data Sources

**National data sources utilized for this report include:**

- Census (2000)
- American Community Survey (ACS) (2005)
- National Household Travel Survey (NHTS) (2001-2002)
- National Transportation Enhancements Clearinghouse
- Federal Highway Administration (FHWA) (2001-2006)
- Fatality Analysis Reporting System (FARS) (2003-2005)
- Web-based Injury Statistics Query & Reporting System (WISQARS) (2002-2004)
- Behavioral Risk Factor Surveillance System (BRFSS) (2005)
- National Health Interview Survey (NHIS) (2005)
- National Health and Nutrition Examination Study (NHANES) (2005-2006)
- United States Historical Climatology Network (USHCN)

A discussion of the drawbacks to some of these national sources can be found in the following chapters. These sources are identified throughout the report with accompanying data. An overview of the data sources used in this report can be found in Appendix 1 on page 106.

## City, State & Organization Surveys

Many variables this report measures are not currently available from national data sources. Measures of miles of bicycle and pedestrian facilities, staffing levels, and policies to increase bicycling, for example, are not currently collected by a single national agency. Because of the lack of aggregated data in these areas, Thunderhead relies on surveys of advocates and government officials.

Thunderhead Alliance developed three surveys for the purpose of this report. A State Survey asked for information including safety statistics, funding and staffing at the state level, state-wide policies, and bike access on state-operated trains. A City Survey asked for similar information, but also included questions on local bicycle and pedestrian facilities, planned facilities, local funding, bicycle parking and transit connectivity. A Thunderhead Organization Survey, for Thunderhead Alliance member organizations representing a state or one of the 50 cities studied here, asked organizations for information such as their population served, revenue sources, number of members, staffing levels, and media impressions.

## Survey Distribution and Collection

The surveys were sent to leaders of Thunderhead organizations, government officials, and advocates around the country in December 2006. Because the leaders of Thunderhead organizations could tap their existing relationships with local government officials, they were able to ensure the surveys made the rounds with the correct government officials to collect as much of the requested data as possible. Surveys were completed by Thunderhead leaders, Department of Transportation staff, Metropolitan Planning Organization staff, and city officials. In many cases the surveys required

input from multiple agencies because the requested data was not easily accessible in one place. The project team reached out to survey respondents through April 2007, with the final data for the report coming in early May. The team then entered survey results into the collection tool and analyzed it for quality control.

### Obstacles

Among the obstacles encountered with data collection were lack of available or collected data, inaccessibility of data, advocates who could not access officials, and inability of officials to provide data. Some cities and states may not have collected data that surveys requested such as miles of sidewalks or number of bike parking spaces. In other cases, data may exist but be inaccessible to officials or advocates who could not locate the data or had trouble getting the data from the agency who keeps it. Because this project relied on local advocates to assist in the data collection, there were cases where advocates could not access officials and times when officials were unwilling to respond to survey questions. Lack of time was the most common reason cited for these cases where surveys were returned incomplete. These obstacles are evident throughout the report and noted with asterisks to illuminate the challenges advocates and officials face with accessing data on bicycling and walking.

## Scope of Data Collection

Data collection efforts were focused on all 50 states and the 50 most-populated U.S. cities. One un-solicited City Survey was received from Amarillo, TX and so Amarillo was included in all areas with relevant data. Data was not completed for all areas in each state and city. In some cases, State and City Surveys were incomplete and in some cases, national data sets had insufficient data for a few cities. The reason for missing data was noted in the data tables in each chapter and in some cases accompanying data illustrations. In Chapter 6, only data for states and cities with Thunderhead member organizations representing them were shown. In addition, for this section,

Thunderhead Alliance member organizations who represent a location other than the top 50 most-populated cities were invited to submit their organization's information for comparison. Thunderhead received six additional Thunderhead Organization Surveys from organizations representing areas outside the scope of other chapters. These are included in Chapter 6.

### Overview of Scope of Data Collection

<b>50 cities included in this report (most to least populated)</b>
New York, Los Angeles, Chicago, Houston, Philadelphia, Phoenix, San Antonio, San Diego, Dallas, San Jose, Detroit, Indianapolis, Jacksonville, San Francisco, Columbus, Austin, Memphis, Baltimore, Fort Worth, Charlotte, El Paso, Milwaukee, Seattle, Boston, Denver, Louisville, Washington, Nashville, Las Vegas, Portland, Oklahoma City, Tucson, Albuquerque, Long Beach, Atlanta, Fresno, Sacramento, New Orleans, Cleveland, Kansas City (MO), Mesa (AZ), Virginia Beach, Omaha, Oakland, Miami, Tulsa, Honolulu, Minneapolis, Colorado Springs, Arlington (TX)
<b>Additional cities included in parts of this report:</b>
Amarillo, TX
<b>States without state-wide advocacy organizations:</b>
Alaska, Arkansas, Connecticut, Delaware, Idaho, Kansas, Kentucky, Louisiana, Minnesota, Montana, Nebraska, Nevada, North Carolina, North Dakota, Oklahoma, Pennsylvania, Tennessee, Wyoming
<b>Study area cities without a dedicated advocacy organization:</b>
Phoenix, San Antonio, Detroit, Indianapolis, Jacksonville, Memphis, El Paso, Las Vegas, Oklahoma City, Tucson, Fresno, Cleveland, Mesa (AZ), Virginia Beach, Omaha, Miami, Tulsa, Honolulu, Arlington (TX)
<b>Locations of organizations included in Chapter 6 of this report that are not one of the 50 focus-cities:</b>
Juneau, AK; Salt Lake City, UT; Jackson Hole, WY; Central CT; Central Yavapai, AZ; Central AR

**Note:** Oakland and Louisville have dedicated Thunderhead organizations but the organizations declined to be included in this report.

# 3: Current Status of Bicycling

## How Many People Bike?

This question is not easily answered with the limited data available. The most reliable source of information on how many people bike comes from the U.S. Census Journey to Work data. However, Census figures are limiting and inaccurate for a number of reasons. Because the Census only counts bicycle trips to work, it leaves out all other trips such as shopping trips, recreational trips, all trips of those under 16, and trips by unemployed people. The Census also only reports regular commute patterns, so misses people who walk or cycle one or two days a week.

### Bicycle Travel Data for All Trip Purposes from NHTS

The National Household Travel Study (NHTS) is another source of data on daily travel, sponsored by the Bureau of Transportation Statistics and the Federal Highway Administration. The NHTS attempts to collect data on all trips, not just trips to work. However, because it is a national survey, all analysis below the national level have problems with small sample sizes. It is also difficult to extract data for cities from this source, as it uses Metropolitan Statistical Areas (MSAs) which often stretch beyond city boundaries. Due to these limitations, NHTS data on city and state levels should be considered as rough estimates for cycling in these areas.

### Other Efforts to Determine Bicycle Travel

Because of the serious gap in reliable data on bicycling (and walking) trips, there have been numerous efforts to create a more reliable means to measure travel. Barnes and Krizek (2005) developed a formula for determining total cycling trips by multiplying the commute share by 1.5 and adding 0.3%. Some cities have done their own travel counts in an attempt to determine the share of all bike trips. Of all cities surveyed, eight reported having conducted some type of bicycle count at least once (Chicago, Denver, Long Beach, Los Angeles, Philadelphia, Portland, San Francisco, and San Jose). Los Angeles and Long Beach,

both in Los Angeles County, noted that Los Angeles County had commissioned a study that determined that 2.4% of all trips are by bicycle in Los Angeles County and says, *“This may be slightly higher if we limit the estimate to Los Angeles CITY.”*

Los Angeles provides an example of the discrepancies in travel counts and methods to determine bicycling (and walking) mode share. The Barnes and Krizek formula indicates that 1.19% of all trips in the City of Los Angeles are by bicycle. This number is higher than the NHTS estimate of 0.97% of all trips represented by cyclists. According to the 2000 Census, 0.61% of work trips are by bike. The Census Bureau’s American Community Survey (ACS) 2005 data shows bike to work share in Los Angeles as 0.59% (for data discrepancies between the ACS 2005 and the 2000 Census see Appendix 4). The study commissioned by Los Angeles County is more likely correct, but because there is a lack of standardized trip counts for multiple cities, Thunderhead could not extrapolate a formula for all bike trips to apply across cities and states.

### Bike Trip Data for This Report

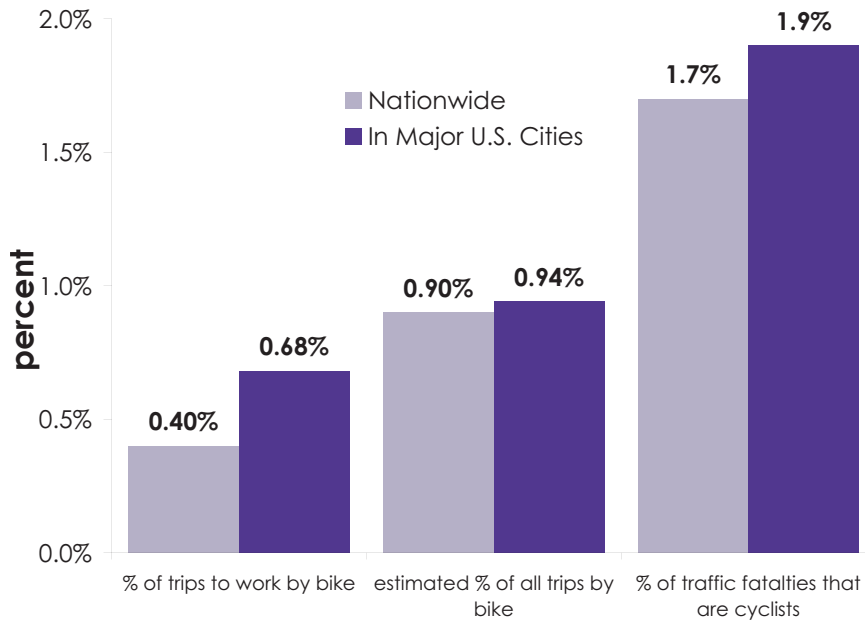
This report relied on the most consistent and dependable

PHOTO COURTESY OF CARL MILLER





## Overview of Cycling and Cycling Safety Nationwide and in Most-Populous U.S. Cities



Sources: ACS (2005), NHTS (2001-2002), FARS (2003-2005), City Surveys

**Note:** estimated % of all trips by bike is from NHTS and represents metropolitan areas as opposed to cities

source available, the 2005 ACS. While the decennial Census is taken in April, ACS data is collected throughout the year. The time of year the Census data is collected might impact reported bike and walk share of work trips. This is particularly true in cities such as Minneapolis and Washington, D.C. which can still be cold in April. Although the decennial Census has a larger sample size, in this case, the ACS may more accurately reflect bicycle travel because it is collected throughout the year. Estimated cycling mode share from the NHTS was also included in the data tables (pages 24-27) for comparison.

### The Numbers: Findings on Bicycle Mode Share

Thunderhead used 2005 ACS to determine that nationwide, an average of 0.40% of trips to work are by bike. In the major U.S. cities studied here, the bicycle commute share is higher at 0.68%. Montana has the highest bike to work share at 1.60%. According to NHTS estimates, the total bicycle mode share

nationwide is 0.90%, with the average for metropolitan areas of 0.94%. Oregon is the top state for overall bicycle mode share with 2.36% of all trips by bike. Tennessee and West Virginia rank lowest in bike to work commute share with only 0.07% of work trips by bike. Arkansas ranks lowest for all bike trips according to NHTS estimates, with only 0.15% of all trips by bike.

## Who Bikes?

### Bicycle Demographics: Data Limitations

Determining who rides bikes is also difficult: the fact that only work trips are counted leaves out trips taken for non-work purposes, such as those made by children, for recreational purposes, or in combination with other modes of transportation. Part of the efforts to increase and standardize local trip counts is including demographic information in these surveys. Local efforts have been conducted to capture information on cycling demographics (including some referenced in the Introduction chapter of this report). However, because there is no standardized format used for these surveys, Thunderhead relied on ACS and NHTS data for demographic information.

### Cyclists' Income

There is almost no variation at all in the bicycle mode share by income class. Data from the 2001 NHTS shows that cycling mode share is roughly 0.9% for all income classes. However, a more comprehensive examination of the socio-economics of cycling may reveal a difference in trip purpose among income classes (i.e. lower-income cyclists may cycle more for utility while high-income cyclists may cycle more for recreation). Regardless of the reason for cycle trips, these data show that cycling is a universal activity.

### Cyclist Mode Share by Income Class

Household Income					
Less than \$20,000	\$20,000 to \$39,999	\$40,000 to \$74,999	\$75,000 to \$99,999	\$100,000 and over	All
0.9%	0.9%	0.9%	0.9%	0.8%	0.9%

Source: Pucher, John and John L. Renne, 2003.

(cont. page 29)



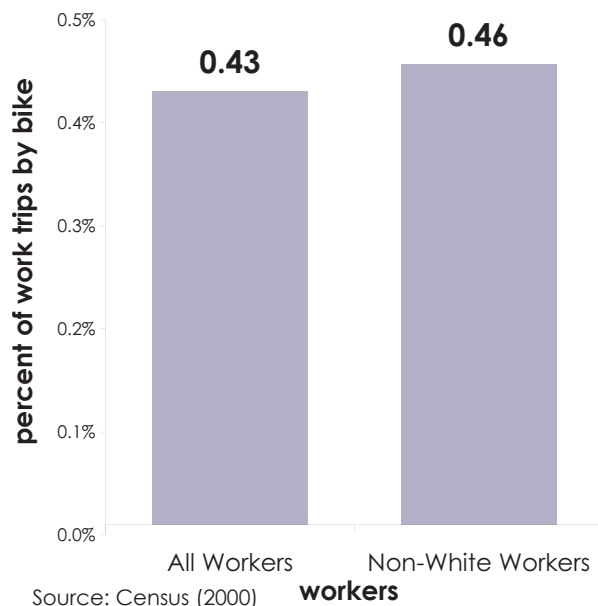
PHOTO COURTESY OF AMY KELLOGG

# Who Bikes to Work?

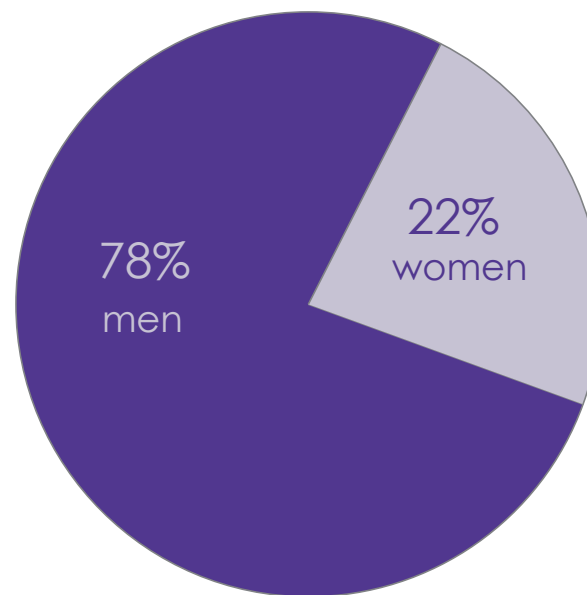
MEN BIKE TO WORK AT THREE TIMES THE RATE OF WOMEN according to ACS 2005 data. New Mexico has the highest percentage of women cyclists (40%) among states. Delaware, New Jersey, and Oklahoma have the lowest percentage of women cyclists. Only 13% of all cyclists in these states are women.

There is only a slight difference in the bicycle mode share of non-white workers compared to all workers. Non-white workers are 1.07 times as likely to bike to work than the average worker. The biggest differences are seen in West Virginia and Kentucky where non-white workers are 5.9 and 3.3 times more likely to bike to work than the average worker respectively. Although in 33 states non-whites are more likely to bike to work than any worker, in four states there is no difference in rates of biking to work between non-whites and all workers, and in 13 states non-whites are less likely to bike to work than the average worker.

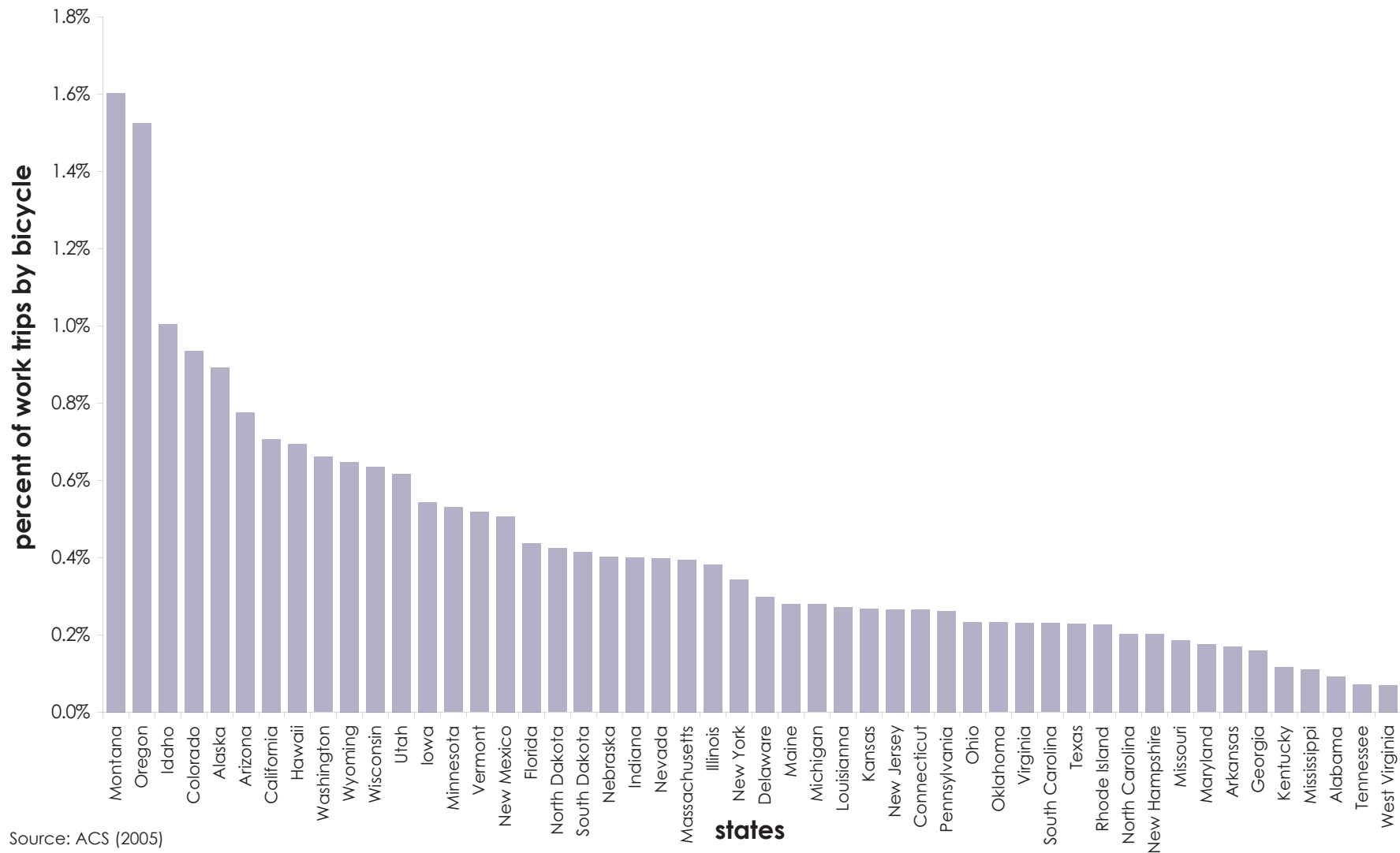
## Bicycle Mode Share of All Workers vs. Mode Share of Non-White Workers



## Bike Trips to Work by Sex



# Percent of Trips to Work by Bike in 50 States

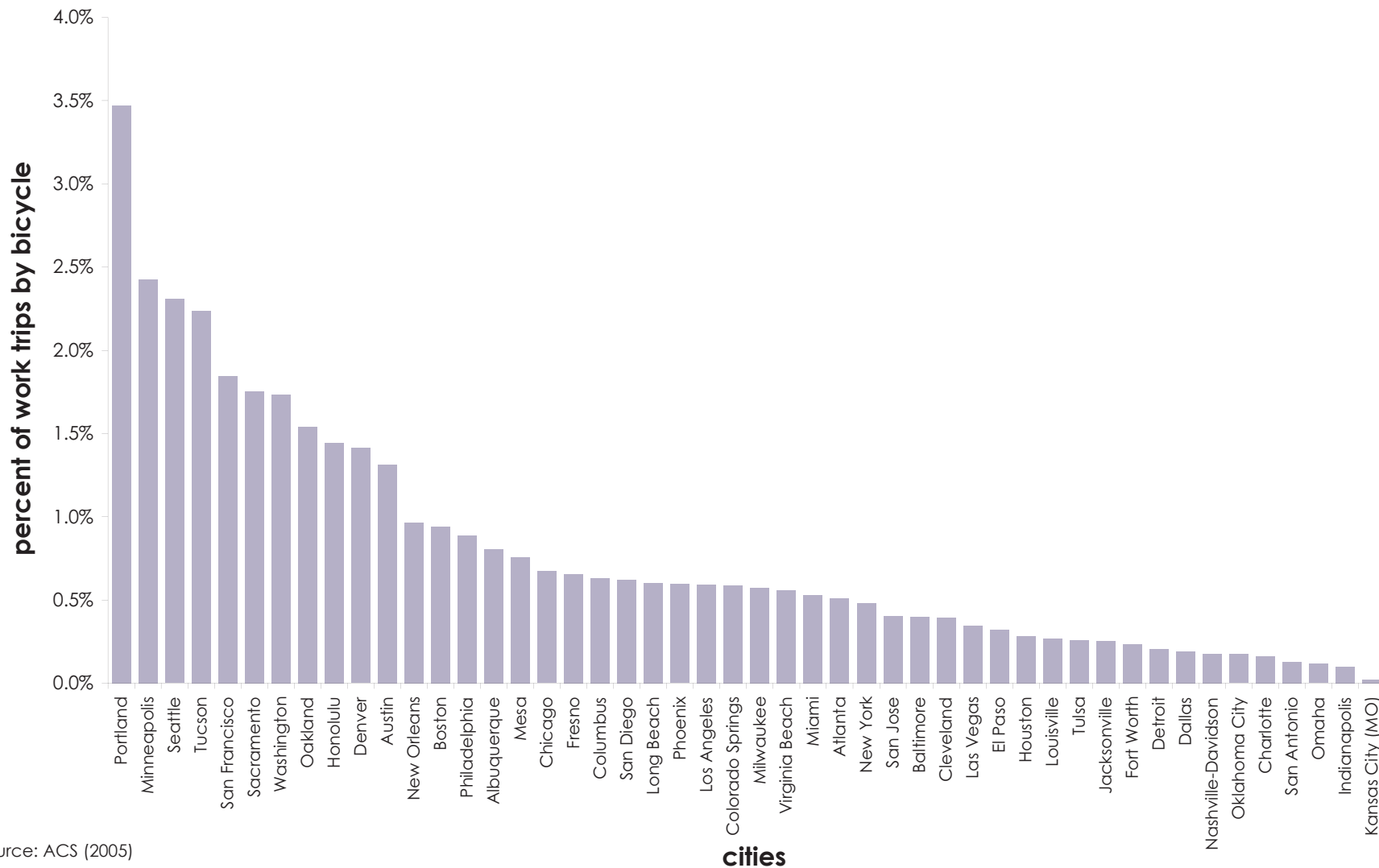


Less than 1% of work trips in the U.S. are by bicycle.

AS THIS VIEW OF ALL 50 STATES SHOWS, bicycle trips make up less than 1% of all work trips in the U.S. On the lower end, in West Virginia, bicycle trips make up less than a tenth of one percent of all trips to work. Montana has the highest bicycle commuter mode share with approximately 1.6 percent of work trips made by bike. Oregon has the second highest rate of bike trips to work, with Idaho coming in third.



# Percent of Trips to Work by Bike in Largest U.S. Cities



Source: ACS (2005)

CYCLING RATES ARE HIGHER IN CITIES THAN THROUGHOUT STATES according to U.S. Census Trips to Work data. Workers in major U.S. cities are 1.7 times more likely to bike to work than those in the states surveyed. Portland has the highest bicycle mode share of all cities studied, boasting 3.47% of all trips to work by bicycle. Minneapolis and Seattle rank second and third with 2.42% and 2.31% of trips to work by bicycle respectively. Kansas City has the lowest bike share of work trips of all major cities with only 0.02% of work trips by bike.

Portland ranks top for bicycle mode share.

# Bicycling & Bicycle Safety Status by State

State	Trips to work by bike			Estimated mode share for all trips	Annual reported bike fatalities (2)	Bike fatality rate (2,3)	% of all traffic fatalities that are bicyclists (2)	% of bike fatalities (2)	
	% of work trips	% women	% men					under age 16	over age 60
Alabama	0.1	16%	84%	0.6	10.3	0.00041	0.9%	16%	13%
Alaska	0.9	24%	76%	1.4	2.3	0.00026	2.3%	57%	0%
Arizona	0.8	22%	78%	1.3	26.0	0.00040	2.3%	10%	13%
Arkansas	0.2	21%	79%	0.2	2.3	0.00058	0.3%	0%	14%
California	0.7	18%	82%	1.1	110.3	0.00029	2.7%	14%	12%
Colorado	0.9	25%	75%	0.7	7.3	0.00025	1.1%	14%	9%
Connecticut	0.3	15%	85%	0.4	3.3	0.00022	1.1%	30%	0%
Delaware	0.3	13%	87%	0.7	2.0	0.00039	1.5%	0%	0%
Florida	0.4	18%	82%	1.3	115.7	0.00054	3.6%	8%	13%
Georgia	0.2	20%	80%	0.8	20.3	0.00031	1.2%	28%	10%
Hawaii	0.7	26%	74%	1.2	5.7	0.00040	4.0%	18%	18%
Idaho	1.0	22%	78%	1.0	2.7	0.00021	1.0%	37%	12%
Illinois	0.4	24%	76%	1.2	21.3	0.00015	1.6%	27%	13%
Indiana	0.4	24%	76%	0.6	11.0	0.00032	1.2%	9%	6%
Iowa	0.5	19%	81%	0.8	7.0	0.00031	1.8%	43%	10%
Kansas	0.3	28%	72%	0.6	4.0	0.00023	0.9%	42%	8%
Kentucky	0.1	32%	68%	1.0	8.0	0.00020	0.8%	33%	13%
Louisiana	0.3	20%	80%	0.6	15.7	0.00055	1.7%	26%	0%
Maine	0.3	18%	82%	0.9	1.7	0.00015	0.9%	40%	0%
Maryland	0.2	15%	85%	0.3	8.7	0.00051	1.3%	35%	8%
Massachusetts	0.4	30%	70%	1.0	9.0	0.00015	1.9%	33%	0%
Michigan	0.3	22%	78%	1.0	26.0	0.00026	2.2%	30%	6%
Minnesota	0.5	20%	80%	1.3	7.7	0.00012	1.4%	52%	9%
Mississippi	0.1	22%	78%	0.5	5.7	0.00038	0.6%	29%	0%
Missouri	0.2	21%	79%	0.4	6.7	0.00031	0.6%	55%	10%
Montana	1.6	36%	64%	0.9	2.7	0.00032	1.2%	37%	0%
Nebraska	0.4	23%	77%	0.7	2.0	0.00017	0.8%	50%	17%
Nevada	0.4	25%	75%	0.9	11.3	0.00065	2.9%	12%	12%

## CURRENT STATUS OF BICYCLING

State	Trips to work by bike			Estimated mode share for all trips	Annual reported bike fatalities (2)	Bike fatality rate (2,3)	% of all traffic fatalities that are bicyclists (2)	% of bike fatalities (2)	
	% of work trips	% women	% men					under age 16	over age 60
New Hampshire	0.2	16%	84%	0.4	2.0	0.00043	1.2%	17%	17%
New Jersey	0.3	13%	87%	1	14.7	0.00017	2.0%	25%	11%
New Mexico	0.5	40%	60%	0.7	4.0	0.00032	0.8%	25%	17%
New York	0.3	22%	78%	0.7	41.3	0.00030	2.8%	24%	14%
North Carolina	0.2	18%	82%	0.4	27.0	0.00078	1.7%	21%	6%
North Dakota	0.4	35%	65%	*	1.3	**	1.3%	50%	25%
Ohio	0.2	17%	83%	0.6	13.3	0.00019	1.0%	25%	5%
Oklahoma	0.2	13%	87%	1.5	5.3	0.00011	0.7%	31%	0%
Oregon	1.5	29%	71%	2.4	9.3	0.00012	2.0%	11%	7%
Pennsylvania	0.3	25%	75%	0.7	17.3	0.00022	1.2%	33%	6%
Rhode Island	0.2	26%	74%	0.9	0.7	0.00007	0.8%	0%	49%
South Carolina	0.2	18%	82%	0.5	16.7	0.00078	1.6%	12%	8%
South Dakota	0.4	36%	64%	1.0	0.7	0.00009	0.3%	100%	0%
Tennessee	0.1	20%	80%	0.4	7.0	0.00031	0.5%	24%	10%
Texas	0.2	15%	85%	0.8	49.7	0.00031	1.4%	26%	12%
Utah	0.6	20%	80%	0.6	3.7	0.00029	1.2%	27%	9%
Vermont	0.5	28%	72%	*	0.7	**	0.7%	0%	100%
Virginia	0.2	22%	78%	0.9	13.3	0.00020	1.4%	17%	8%
Washington	0.7	30%	70%	0.4	10.0	0.00039	1.8%	27%	7%
West Virginia	0.1	**	**	0.3	2.3	0.00039	0.6%	29%	0%
Wisconsin	0.6	26%	74%	1.4	13.3	0.00018	1.7%	25%	10%
Wyoming	0.7	31%	69%	*	1.0	**	0.6%	67%	0%
Mean/Average (4)	0.4	22%	78%	0.90 (1)	14.2*	0.00031	1.7%	21%	10%
Median	0.3	22%	78%	0.8	7.3	0.00030	1.2%	26%	9%
High	1.6	40%	87%	2.4	115.7	0.00078	4.0%	100%	100%
Low	0.1	13%	60%	0.2	0.7	0.00007	0.3%	0%	0%

Sources: ACS (2005), NHTS (2001-2002) , FARS (2003-2005)

(1) Mean value reported is from NHTS nationwide data;

(2) All fatality data is based on the 3-year average number of fatalities from 2003-2005;

(3) Bike fatality rate was calculated by dividing the total number of cycling trips (using NHTS estimates) by the 3-year average number of bicycle fatalities;

(4) All averages are weighted by population or take into account the sums from all states except for those noted with a \*.

**Legend:**

\* = Too few observations

\*\* = Data Unavailable or Thunderhead could not access data

■ = High Value    ■ = Low Value



# Bicycling & Bicycle Safety Status by City

City	Trips to work by bike			Estimated mode share for all trips (1)	Annual reported bike fatalities (2)	Bike fatality rate (2,3)	% of all traffic fatalities that are bicyclists (2)	% of bike fatalities (2)	
	% of work trips	% women	% men					under age 16	over age 60
Albuquerque	0.8	25%	75%	**	1.0	**	*	0%	0%
Amarillo	0.1	**	**	**	0.0	**	0.0%	**	**
Arlington (TX)	**	**	**	**	**	**	**	**	**
Atlanta	0.5	10%	90%	0.6	*	*	*	*	*
Austin	1.3	22%	78%	1.2	*	*	*	*	*
Baltimore	0.4	19%	81%	0.7	*	*	*	*	*
Boston	0.9	34%	66%	0.8	*	*	*	*	*
Charlotte	0.2	21%	79%	0.8	1.7	0.00036	3.3%	0%	0%
Chicago	0.7	30%	70%	1.2	5.7	0.00018	*	*	*
Cleveland	0.4	**	**	0.3	0.3	0.00023	0.8%	100%	0%
Colorado Springs	0.6	16%	84%	**	0.0	**	0.0%	**	**
Columbus	0.6	27%	73%	0.3	1.0	0.00058	2.0%	33%	0%
Dallas	0.2	**	**	0.7	*	*	*	*	*
Denver	1.4	18%	82%	0.7	1.3	0.00033	0.8%	*	*
Detroit	0.2	52%	48%	0.8	5.3	0.00077	4.2%	13%	0%
El Paso	0.3	**	**	**	*	*	*	*	*
Fort Worth	0.2	7%	93%	0.7	*	*	*	*	*
Fresno	0.7	21%	79%	**	3.0	**	8.3%	22%	22%
Honolulu	1.4	43%	57%	**	4.0	**	2.8%	25%	0%
Houston	0.3	27%	73%	0.8	2.7	0.00017	*	*	*
Indianapolis	0.1	10%	90%	0.5	2.3	0.00059	*	*	*
Jacksonville	0.3	**	**	1.4	3.3	0.00032	2.4%	*	*
Kansas City	0.0(4)	**	**	0.5	0.3	0.00015	0.5%	0%	0%
Las Vegas	0.3	45%	55%	1.0	11.0	0.00200	4.2%	12%	18%
Long Beach	0.6	6%	94%	1.0	0.3	0.00007	0.9%	*	*
Los Angeles	0.6	15%	85%	1.0	8.3	0.00023	0.3%	*	*
Louisville	0.3	10%	90%	1.0	*	*	*	*	*
Memphis	**	**	**	0.2	*	*	*	*	*

## CURRENT STATUS OF BICYCLING

City	Trips to work by bike			Estimated mode share for all trips (1)	Annual reported bike fatalities (2)	Bike fatality rate (2,3)	% of all traffic fatalities that are bicyclists (2)	% of bike fatalities (2)	
	% of work trips	% women	% men					under age 16	over age 60
Mesa	0.8	26%	74%	1.5	2.3	0.00036	5.6%	14%	14%
Miami	0.5	8%	92%	2.2	8.3	0.00105	0.3%	0%	8%
Milwaukee	0.6	23%	77%	1.6	0.3	0.00004	0.8%	0%	100%
Minneapolis	2.4	19%	81%	1.3	0.7	0.00015	3.4%	0%	0%
Nashville	0.2	13%	87%	0.4	2.3	0.00106	2.5%	14%	0%
New Orleans	1.0	34%	66%	0.6	1.3	0.00053	2.8%	*	*
New York	0.5	24%	76%	0.8	19.3	0.00031	6.1%	*	*
Oakland	1.5	14%	86%	0.9	0.7	0.00019	1.0%	149% (5)	0%
Oklahoma City	0.2	**	**	2.0	*	*	*	*	*
Omaha	0.1	24%	76%	**	2.0	**	5.8%	33%	17%
Philadelphia	0.9	27%	73%	0.8	3.7	0.00034	3.3%	*	*
Phoenix	0.6	6%	94%	1.5	6.7	0.00033	4.0%	15%	19%
Portland	3.5	32%	68%	2.8	4.0	0.00028	*	50%	*
Sacramento	1.8	19%	81%	1.6	*	*	*	*	*
San Antonio	0.1	42%	58%	0.5	*	*	*	*	*
San Diego	0.6	22%	78%	1.0	3.7	0.00030	3.8%	*	*
San Francisco	1.9	28%	72%	0.9	*	*	*	*	*
San Jose	0.4	22%	78%	0.9	2.7	0.00032	8.9%	11%	26%
Seattle	2.3	35%	65%	0.5	*	*	*	*	*
Tucson	2.2	32%	68%	**	8.0	**	*	*	*
Tulsa	0.3	**	**	**	1.0	**	2.4%	*	*
Virginia Beach	0.6	52%	48%	1.8	1.0	0.00013	4.0%	0%	0%
Washington	1.7	22%	78%	0.7	0.7	0.00016	1.2%	49%	49%
Mean/Average (5)	0.7	24%	76%	0.94	3.3*	0.00034	1.9%	9%	6%
Median	0.6	23%	78%	0.8	2.3	0.00031	2.9%	13%	0%
High	3.5	52%	94%	2.8	19.3	0.00200	0.0%	149%	100%
Low	0.0(4)	6%	48%	0.2	0.0	0.00004	8.9%	0%	0%

Sources: ACS (2005), NHTS (2001-2002), City Surveys

(1) Estimated mode share is from NHTS and represents metropolitan areas as opposed to cities;

(2) All fatality data is based on the 3-year average number of fatalities from 2003-2005;

(3) Bike fatality rate was calculated by dividing the total number of cycling trips (using NHTS estimates) by the 3-year average number of bicycle fatalities;

(4) This value is actually .02 which was rounded to zero;

(5) All averages are weighted by population except for those noted with a \*;

(6) Oakland reported two bicycle fatalities over three years, one of which was under age 16.

**Legend:**

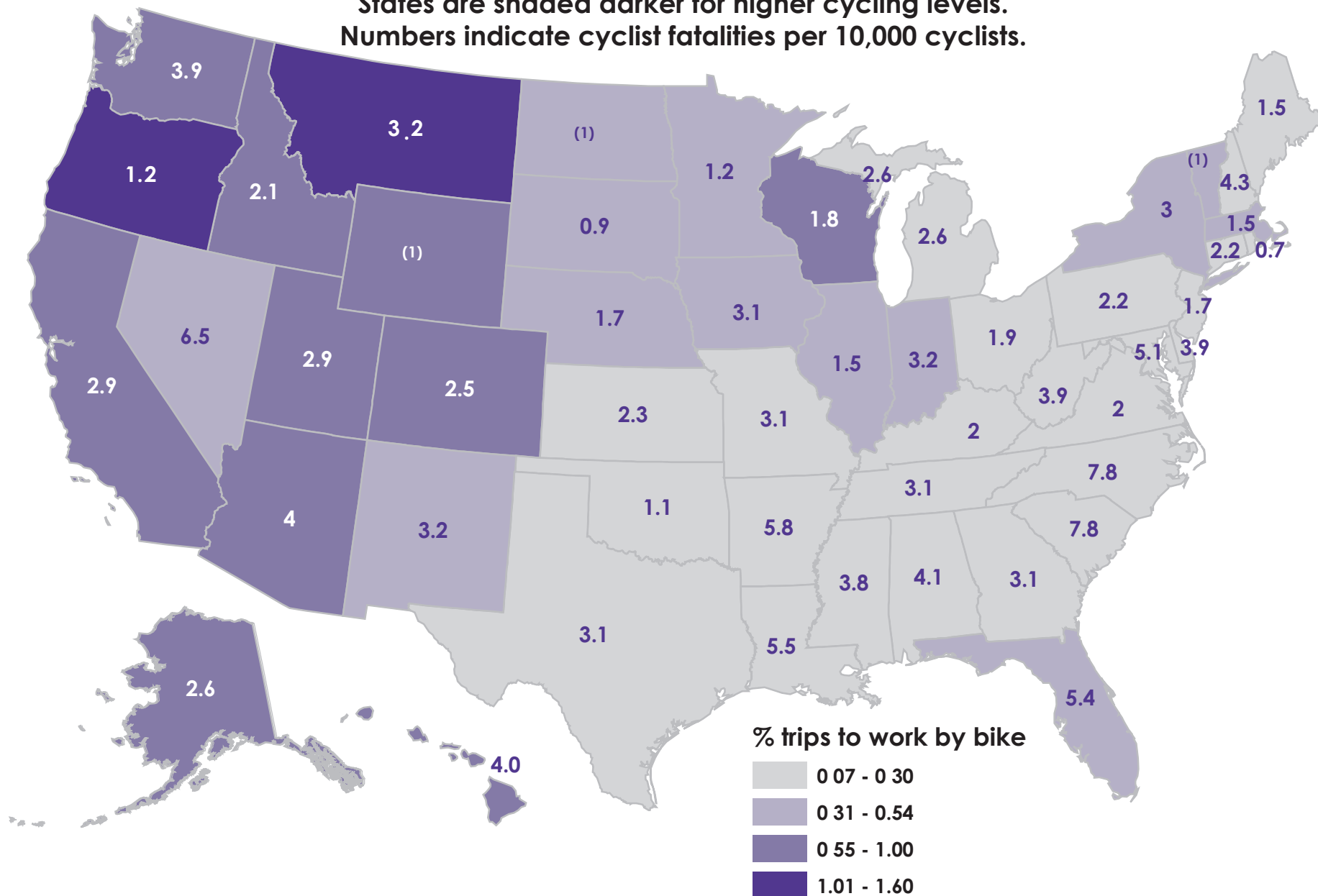
\* = Officials could not access data

\*\* = Data Unavailable or Thunderhead could not access data

■ = High Value    ■ = Low Value

# Levels of Cycling and Safety

States are shaded darker for higher cycling levels.  
Numbers indicate cyclist fatalities per 10,000 cyclists.



Sources: ACS (2005), NHTS (2001-2002), FARS (2003-2005)  
(1) Fatality data are unavailable for North Dakota, Vermont and Wyoming.





PHOTO COURTESY OF TRANSPORTATION ALTERNATIVES

(cont. from page 22)

## Looking at Sex and Ethnicity of Cyclists

The 2005 ACS provides demographic data including sex and ethnicity for cyclists. Men make up 78% of all bike commuters. The gaps between men and women cyclists differ from state to state. New Jersey, Delaware and Oklahoma have just 13% women cyclists. New Mexico has the smallest gap between men and women cyclists of any state with 40% of cyclists being female. The ACS reports ethnicity only as white and non-white. Data show that non-white workers have only a slightly higher bike share of work trips than the average worker.

## Cycling Safety

Cyclists are at a disproportionate risk for being a victim of a traffic fatality. The project team reviewed three sources of fatality data for this report: Fatality Analysis Reporting System (FARS), Web-based Injury Statistics Query & Reporting System (WISQARS), and State and City surveys. The team identified discrepancies between data from the two national data sources and what states reported. Although all three data sources differed (see Appendix 4 for details), the greatest similarities were

between the state surveys and FARS data. Thus the team relied on FARS data for analysis of bicycle safety for states. Because there is no national source for these data for cities, City Surveys were used to provide information on fatalities.

Though bicyclists account for fewer than 0.90% of all trips (according to NHTS estimates), they account for 1.7% of all traffic fatalities. In the most populous cities, where cycling mode share is estimated at 0.94%, cyclists represent 1.9% of all traffic fatalities. Hawaii ranks highest among states for percentage of traffic fatalities that are cyclists (4.0%) and San Jose, CA ranks highest among cities (8.9%).

## Bicycle Industry

The bicycle industry plays an integral role in cycling as they provide the vehicle, parts, and services that all cyclists need. The Benchmarking team collected data on the number of bike shops and retail sales of bike shops in cities. These data are organized by Designated Market Areas (DMAs) which are metropolitan areas and thus are larger than city boundaries. For example, San Francisco and Oakland are reported as a single DMA, as are Dallas and Fort Worth. For DMAs containing two major cities, the number of shops was multiplied by the percent of the combined population represented by each city. Because all DMAs are metropolitan areas, the comparison by city is only an approximation. The data are displayed as number of people per bicycle shop to show how the bicycling market differs among study areas. Data show that cities where the ratio of people to bike shops is lowest are also some of the larger urban areas including Boston, Oakland, Minneapolis and Seattle. Cities average one bike shop per 33,663 people. Boston has the highest rate of per capita bike shops with one bike shop for every 3,591 people. Charlotte has the lowest rate among cities with one shop for every 339,196 people.

Bike shops in the most-populous cities bring in \$57 per resident in retail sales. However, this number may be slightly inflated since data is reported by DMA. By dividing bike sales for a metropolitan area by the population of the major city in that area, results are likely to be slightly inflated for all cities.

## Bike Shop Sales by City Population

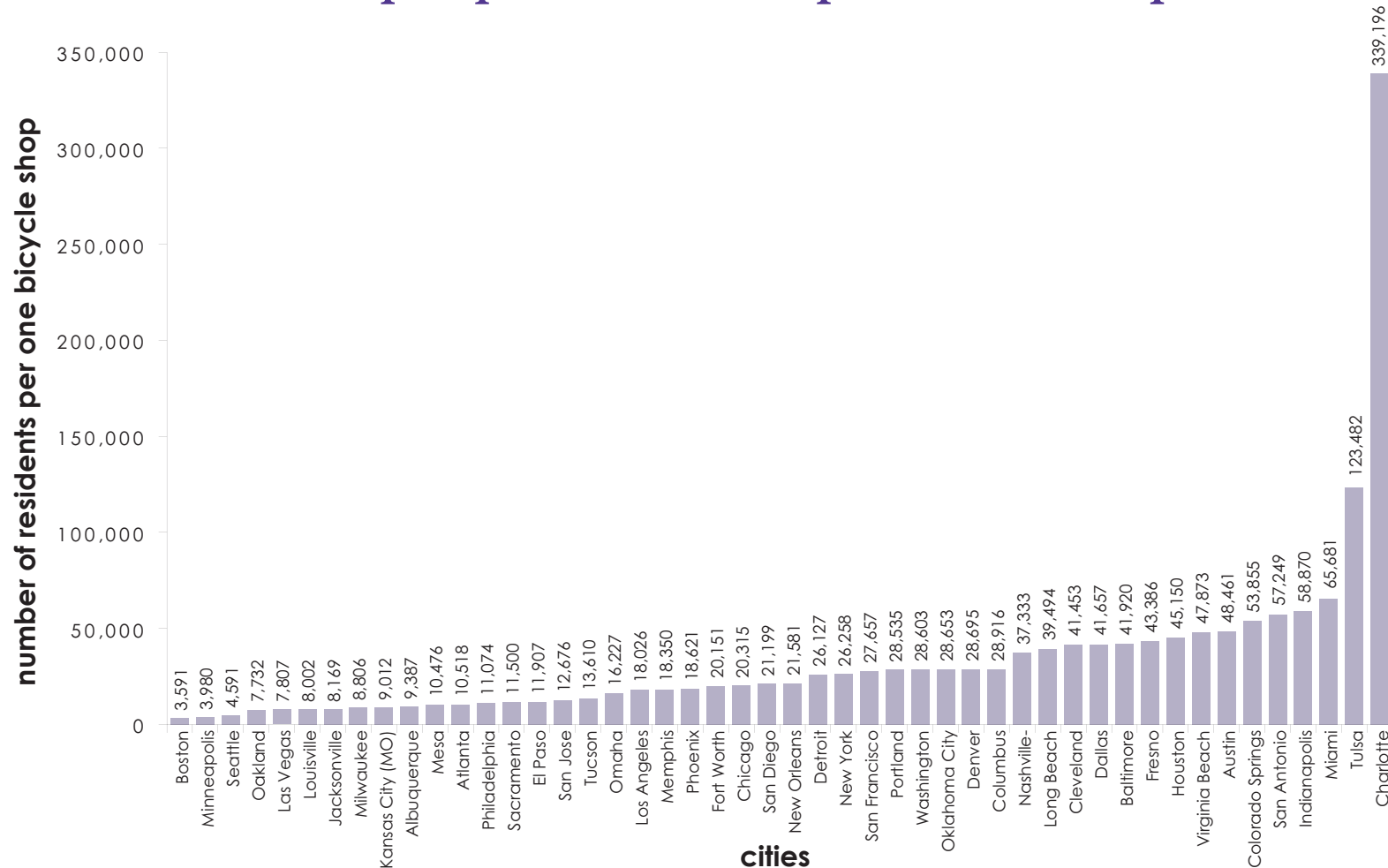


Sources: ACS (2005), Survey of Buying Power (2005), Lifestyle Market Analyst (2006), The Bike Shop List, Estimates by the Gluskin Townley Group, LLC

**Bike shops in big cities earn \$57 per capita in retail sales.**

PER CAPITA BIKE SHOP SALES ARE HIGHEST IN SOME OF THE MOST-POPULOUS URBAN areas including Atlanta, Boston, and Washington. On average, bike shops in major urban areas bring in \$57 per capita. However, this number may be slightly inflated since data on bike sales is by Designated Market Area (see page 29) which measures metropolitan areas rather than cities. By dividing bike sales for a metropolitan area by the population of the major city in that area, results are likely to be slightly inflated for all cities. Despite this limitation, the data reveal that areas with more-populous cities tend to have higher per capita bike sales. This is in line with results from the graph on page 31 showing bike shops by city population.

# Number of People per Bike Shop in Most-Populous Cities



Sources: ACS (2005), Survey of Buying Power (2005), Lifestyle Market Analyst (2006), The Bike Shop List, Estimates by the Gluskin Townley Group, LLC

MAJOR U.S. CITIES AVERAGE ONE BIKE SHOP PER 33,663 PEOPLE. Cities that have the smallest ratio of people to bike shops include Boston, Minneapolis, Seattle and Oakland. Boston has the most bicycle shops per capita with one bike shop for every 3,591 people. Charlotte has the fewest per capita bike shops with only one bike shop for every 339,196 people. Data for this illustration is an estimate only because marketing data is collected by DMA (Designated Market Area) and not by city boundary. For DMAs with more than one major city the number of shops was divided by the population of each city according to their relative populations. Because all DMAs include the metropolitan area around cities, the number of bike shops may be slightly exaggerated, but should provide a general comparison.

Major cities  
average one  
bike shop per  
33,663 people.

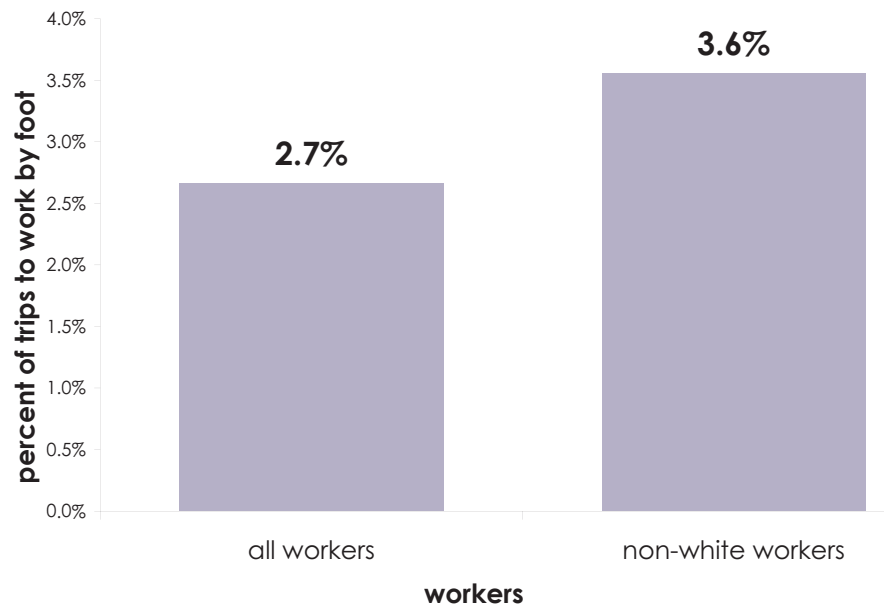


# 4: Current Status of Walking

## How Many People Walk?

The most reliable source of data for walking is also the ACS 2005 and it comes with many of the same limitations as the cycling data. The ACS only reports on walking trips to work. This leaves out all the other trips people take by foot including recreational trips, walking trips of people under 16, and those who are unemployed. Walking is also not counted when it is linked to a motorized trip. For example, if someone walks from the parking garage to their work, or from their home to the bus stop, these trips are counted only as car or transit. Because only the “primary” mode is counted, these walking trips are not represented in Census data.

### Pedestrian Mode Share of All Workers vs All Non-White Workers



Source: ACS (2005)

## All Walking Trips Data from NHTS

The National Household Travel Survey (NHTS) also collects data on walking and includes all trips. However, like limitations with cycle data, walking data are limited by sample size on the state and city level. Because the NHTS is a national survey, all analysis below the national level have problems with small sample sizes. It is also difficult to extract data for cities from this source, as it uses Metropolitan Statistical Areas (MSAs) which often stretch beyond city boundaries. Due to these limitations, NHTS data for cities and states should be considered as rough estimates for walking levels in these areas.

## Walking Trip Data for This Report

Although many of the same efforts to improve bicycle trip counts are also being applied to walking trips, ACS 2005 Journey to Work data is currently the most reliable source since few states and cities have used a standardized trip count method. NHTS estimates of walking mode share were also used for comparison to work trip data.

## The Numbers: Findings on Walking Mode Share

Although only 2.5% of trips to work are walking, NHTS data estimates that nationally 8.7% of all trips are by foot. Rates of walking in cities are the greatest. Walking represents 4.5% of trips to work in the 50 most-populous cities studied here, and NHTS estimates that 11.0% of all city trips are by foot. The NHTS estimate for total walking mode share is 2.4 times greater than Census worker mode share for cities and 3.5 times greater for states. Alaska ranks highest among states, with 6.6% of trips to work by foot and Alabama ranks lowest, with walking representing only 1.2% of commuter mode share. According to NHTS data for all trips by states, New York has the highest rate among states, with 18.2% of trips estimated to be by foot. Delaware

ranks lowest here with only 4.0% walking mode share. People in major cities are 1.8 times more likely to walk to work than their counterparts nationwide, according to ACS data. Using NHTS estimates for all trips by cities, New York City ranks highest with 19.2% of trips estimated to be by foot. Louisville and Houston rank lowest with an estimated 4.5% walking mode share.

## Who Walks?

Data on pedestrian demographics have the same limitations as with cyclists (outlined in Chapter 3). For this report, ACS and NHTS data provided demographic information including sex, ethnicity and income levels of pedestrians. There is significantly less difference in the male to female sex ratio among pedestrians compared to cyclists. Although on average, men are still more likely to walk than women (55% of walking trips are by men), the gap between the sexes is much smaller than with cycling.

The ethnicity gap, however, is much greater among pedestrians than cyclists. Among non-white workers, 3.6% walk to work. This makes non-whites 1.3 times more likely to walk to work than the average person. The differences in income levels of pedestrians are also more striking than among cyclists. In all states, at least 60% of pedestrians earn \$35,000 per year or less.

In 13 states, over 50% of pedestrians earn less than \$15,000 per year. New York state has the most even income distribution of walk trips to work.

## How Safe Is Walking in the U.S.?

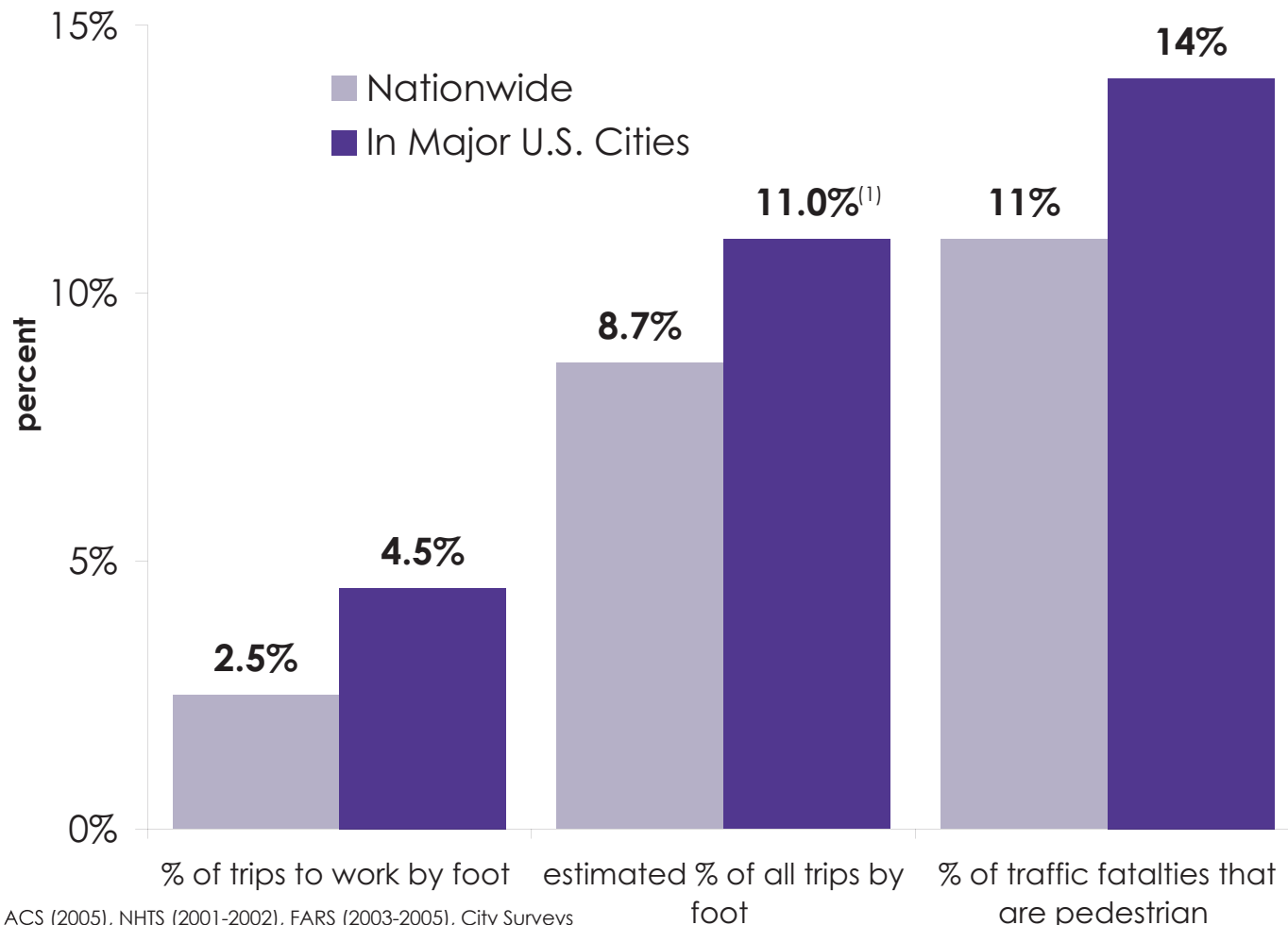
Pedestrians are at a disproportionate risk of fatality. Thunderhead collected data from two national sources and State and City surveys. For the same reasons outlined in the previous chapter on cycling, FARS data was used for all analysis of pedestrian fatalities for states. City Surveys provided all data on fatalities for cities.

Although it is estimated that 8.7% of all trips are walking (NHTS), 11% of traffic fatalities are pedestrians. The disparity is even higher in major U.S. cities where 11% of all trips are walking, yet 14% of all traffic fatalities are pedestrians. Although the trend varies among cities and states, some have an even greater risk. In New York City, where 19.2% of trips are walking, 53% of traffic fatalities are pedestrians. New York City reports an average of 167 pedestrians killed each year over the last three years. However, in urban areas, the last block or two of a transit or car trip may be walking, so these ratios may be slightly off. Better trip count methodologies are needed for a more accurate analysis of fatality data.

New York City pedestrians  
PHOTO COURTESY OF DAVIS CRESNEY



# Overview of Walking & Pedestrian Safety Nationwide and in the Most-Populous U.S. Cities



Sources: ACS (2005), NHTS (2001-2002), FARS (2003-2005), City Surveys

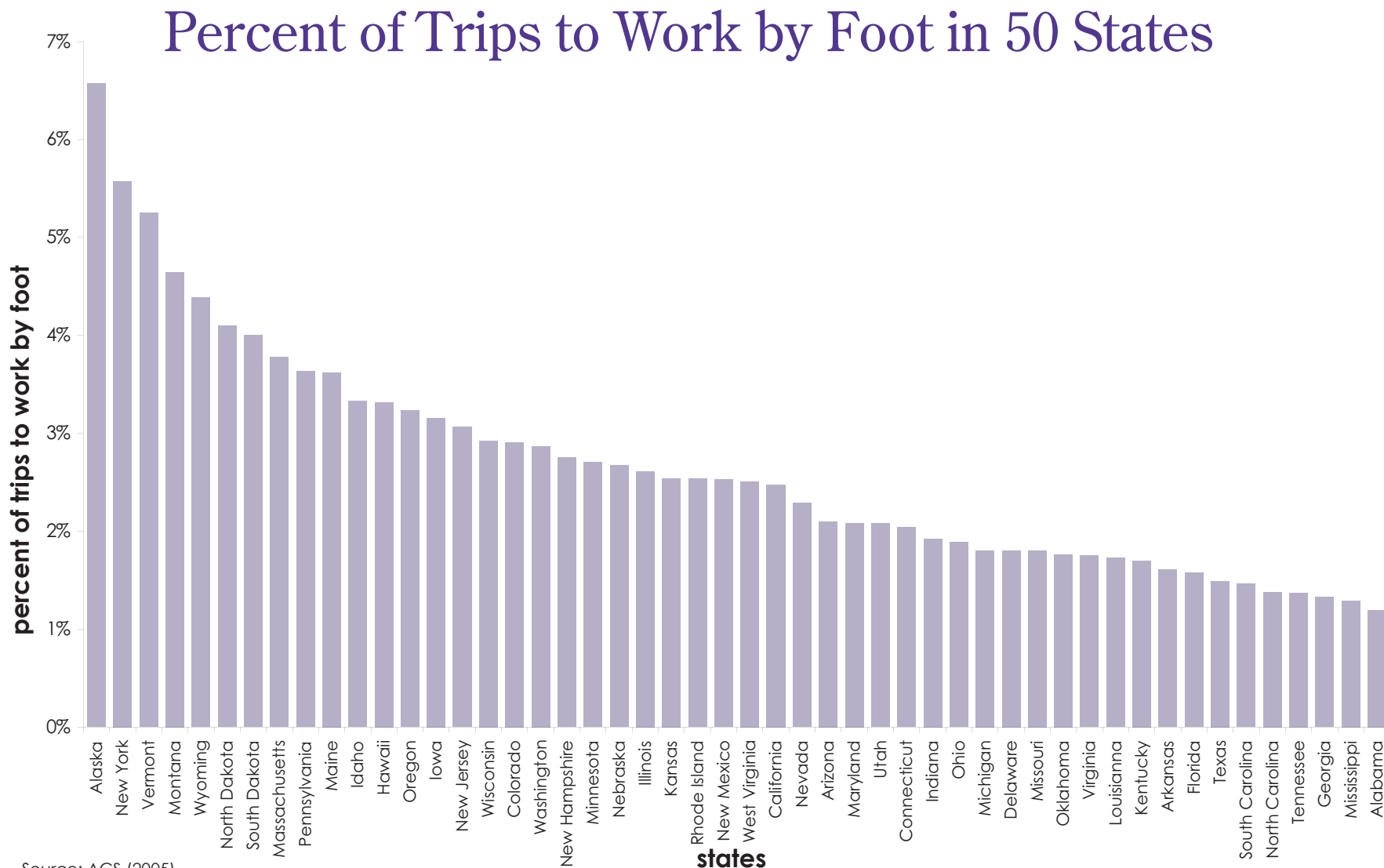
(1) Estimated percent of all trips by foot is from NHTS and represents metropolitan areas as opposed to cities.

**Pedestrians are at a disproportionate risk of being killed in traffic.**

**WALKING MAKES UP 8.7% OF ALL TRIPS IN THE U.S.** The rate of walking is 26% greater in major U.S. cities than nationwide. Pedestrians make up a disproportionate percent of traffic fatalities, especially in the most-populous cities where 11.0% of trips are estimated to be by foot, and 14% of traffic fatalities are pedestrians. New York City has the highest rate of pedestrian traffic fatalities with 53% of all traffic fatalities being pedestrians (19.2% of all trips in New York City are estimated to be by foot). Utah has the highest rate among the 50 states with pedestrians representing 23% of all traffic fatalities state-wide.



# CURRENT STATUS OF WALKING



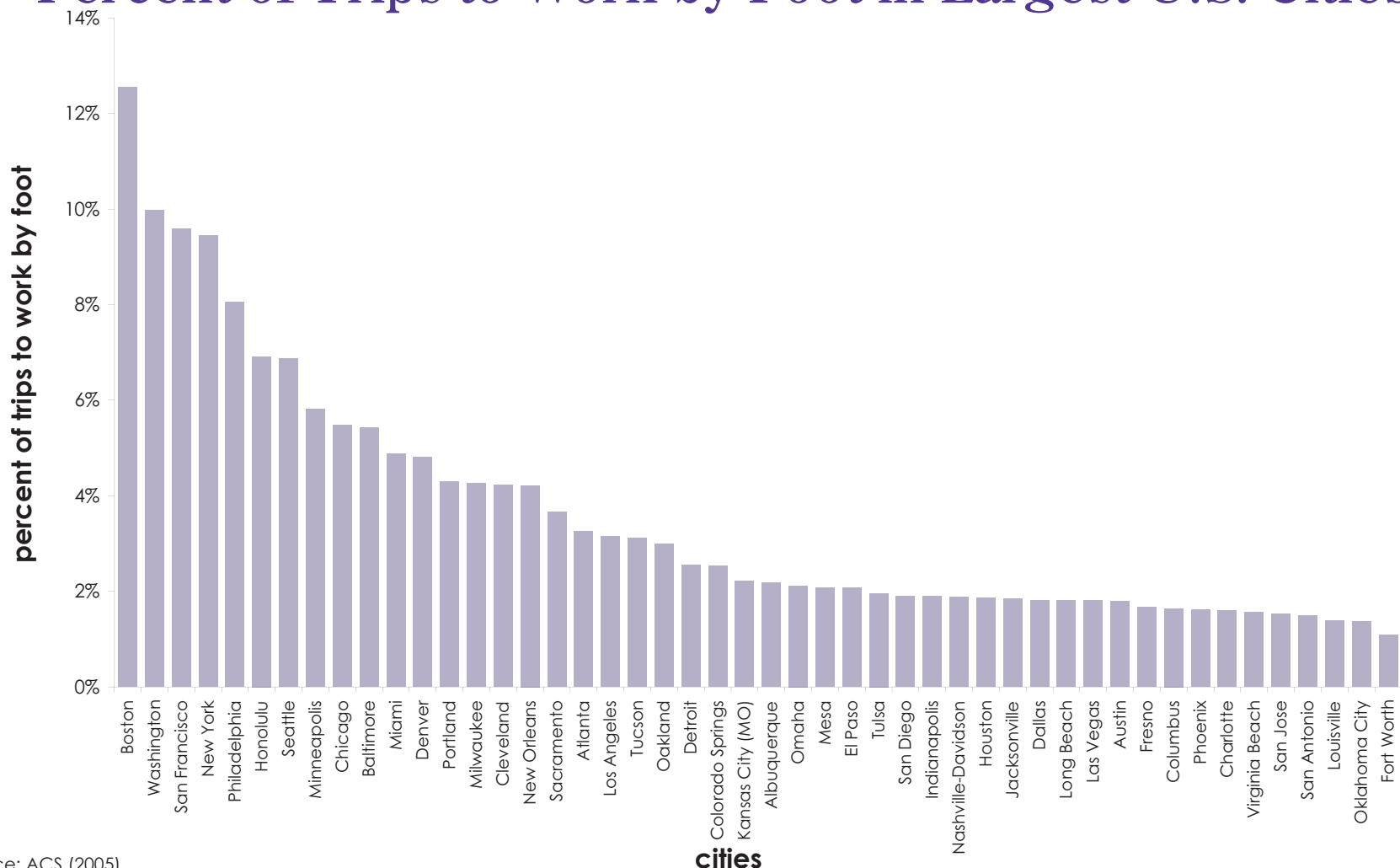
Source: ACS (2005)

**Note:** The Census reports on the main mode to work, therefore walk trips to and from transit or a parked car are not counted if the transit or car trip is the longest leg of the trip.

WALKING MAKES UP A GREATER PERCENT OF TRIPS TO WORK THAN CYCLING and the number of people who walk to work varies more from state to state than state variations in bicycle trips. Alaska has the highest pedestrian mode share for trips to work with 6.6% of all work trips by foot. Alabama ranks lowest with only 1.2% of all work trips by foot. New York and Vermont rank second and third after Alaska with 5.6% and 5.2% of trips to work by foot respectively.

Walking makes up 2.5% of all trips to work.

# Percent of Trips to Work by Foot in Largest U.S. Cities



Source: ACS (2005)

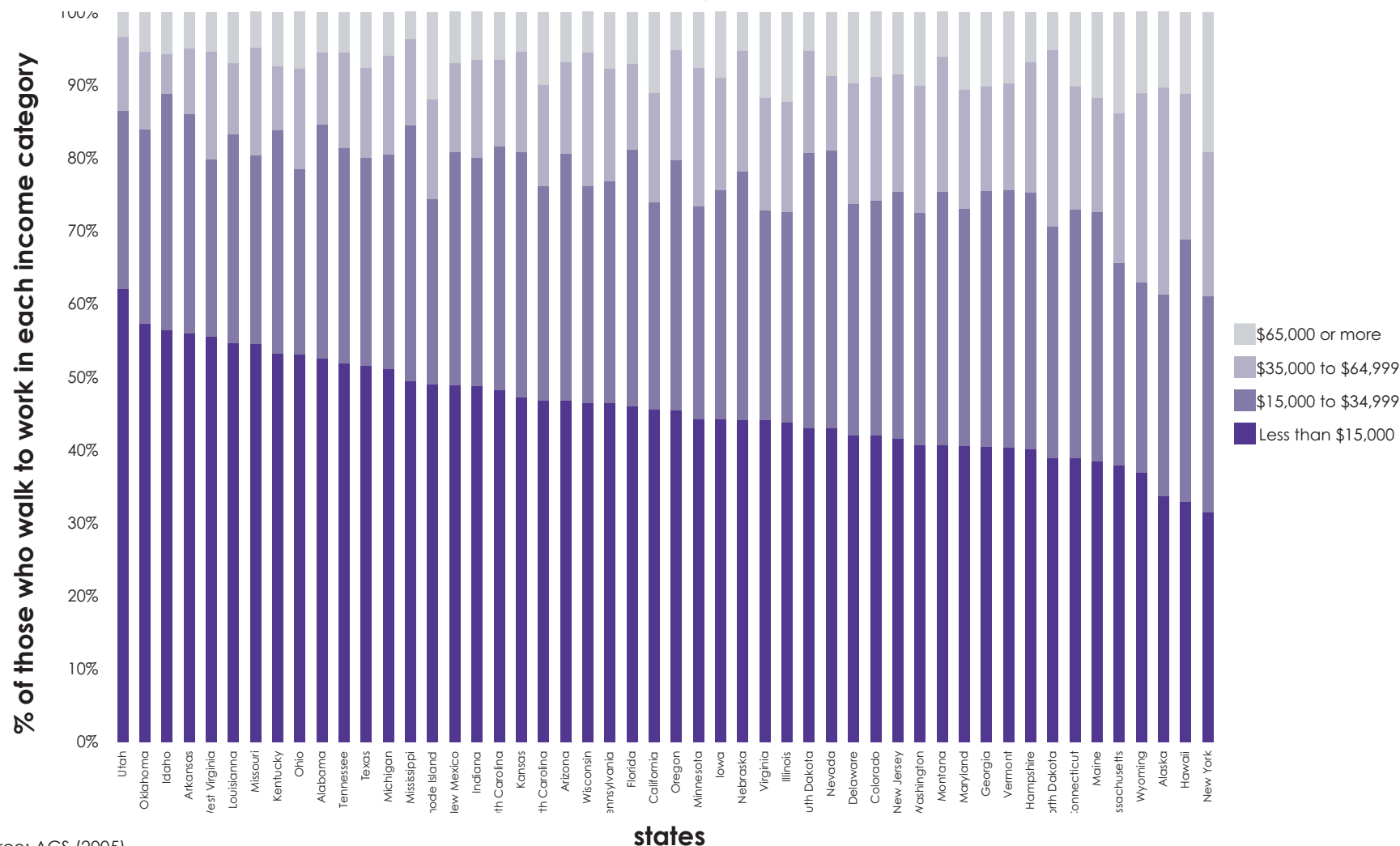
**Note:** The Census reports on the main mode to work, therefore walk trips to and from transit or a parked car are not counted if the transit or car trip is the longest leg of the trip.

Rate of walking  
is greater in  
largest cities  
than nation.

IN MAJOR U.S. CITIES, 4.5% OF TRIPS TO WORK ARE WALKING. WORKERS in the 50 most-populous U.S. cities are 1.3 times more likely to walk to work than their counterparts nationwide. Major urban centers like Boston, Washington, San Francisco, New York and Philadelphia top the charts for percent of the workforce who walk to work. In Boston 12.5% of all work commuters walk. Washington, San Francisco, and New York boast 10%, 9.6%, and 9.4% of trips to work by foot respectively. Fort Worth ranks lowest of all major cities with only 1.1% of workers who walk to work.

# CURRENT STATUS OF WALKING

## Walking Trips to Work by Income Classification



THE MAJORITY OF PEOPLE WHO WALK TO WORK EARN LESS THAN \$15K A YEAR. According to U.S. Census data, displayed in this graph, more than two-thirds of people who walk to work, on average, earn below \$35 thousand a year. New York has the most even income distribution of walk trips to work, with all income groups well represented, while Utah has the least equal distribution, with walking concentrated mostly among low-income groups. The difference in average median income among states could also account for some variation and should be considered with these data.

New York has the most even income distribution of walk trips to work.



# Walking & Pedestrian Safety Status by State

State	Trips to work			Estimated mode share for all trips	Reported pedestrian fatalities (2)	Ped. fatality rate per 10K people (2,3)	% of all traffic fatalities that are pedestrians (2)	% of ped fatalities (2)	
	% of trips by foot	% women	% men					under age 16	over age 60
Alabama	1.2%	37%	63%	4.9	71.7	3.3	6%	9%	13%
Alaska	6.6%	44%	56%	8.0	8.7	1.7	9%	15%	8%
Arizona	2.1%	41%	59%	9.3	136.0	2.8	12%	7%	13%
Arkansas	1.6%	39%	61%	5.4	36.7	2.5	5%	11%	16%
California	2.5%	47%	53%	10.6	710.0	2.0	17%	9%	24%
Colorado	2.9%	45%	55%	9.5	58.0	1.4	9%	6%	17%
Connecticut	2.0%	46%	54%	11.1	32.0	0.9	11%	5%	27%
Delaware	1.8%	41%	59%	4.1	15.3	4.7	11%	2%	17%
Florida	1.6%	44%	56%	6.9	523.0	4.8	16%	6%	21%
Georgia	1.3%	35%	65%	5.5	153.0	3.4	9%	9%	11%
Hawaii	3.3%	52%	48%	7.0	29.3	3.5	21%	5%	40%
Idaho	3.3%	42%	58%	6.1	13.0	1.6	5%	10%	28%
Illinois	2.6%	48%	52%	9.7	169.7	1.4	13%	10%	21%
Indiana	1.9%	42%	58%	5.8	66.0	1.9	7%	13%	21%
Iowa	3.2%	45%	55%	7.5	22.0	1.0	6%	15%	15%
Kansas	2.5%	42%	58%	5.0	23.3	1.7	5%	14%	26%
Kentucky	1.7%	39%	61%	5.4	54.3	2.5	6%	12%	21%
Louisiana	1.7%	45%	55%	7.1	101.7	3.2	11%	10%	12%
Maine	3.6%	43%	57%	10.3	10.7	0.8	6%	9%	41%
Maryland	2.1%	45%	55%	10.5	104.3	1.9	16%	11%	16%
Massachusetts	3.8%	51%	49%	9.9	81.0	1.3	17%	4%	40%
Michigan	1.8%	44%	56%	7.4	146.7	2.0	13%	10%	18%
Minnesota	2.7%	40%	60%	7.3	44.7	1.3	8%	9%	25%
Mississippi	1.3%	37%	63%	4.9	52.0	3.7	6%	9%	9%
Missouri	1.8%	39%	61%	6.2	82.3	2.4	7%	9%	14%
Montana	4.6%	38%	62%	10.2	10.0	1.1	4%	3%	30%
Nebraska	2.7%	47%	53%	7.4	9.7	0.8	4%	17%	14%
Nevada	2.3%	48%	52%	9.2	62.7	3.4	16%	8%	16%

## CURRENT STATUS OF WALKING

State	Trips to work			Estimated mode share for all trips	Reported pedestrian fatalities (2)	Ped. fatality rate per 10K people (2,3)	% of all traffic fatalities that are pedestrians (2)	% of ped fatalities (2)	
	% of trips by foot	% women	% men					under age 16	over age 60
New Hampshire	2.8%	44%	56%	7.4	13.0	1.4	8%	10%	28%
New Jersey	3.1%	48%	52%	10.7	147.7	1.6	20%	6%	25%
New Mexico	2.5%	40%	60%	5.7	56.0	5.4	11%	4%	8%
New York	5.6%	48%	52%	18.2	324.0	0.9	22%	7%	31%
North Carolina	1.4%	42%	58%	6.0	159.3	3.3	10%	10%	12%
North Dakota	4.1%	46%	54%	4.4	7.0	2.5	7%	5%	48%
Ohio	1.9%	40%	60%	7.4	96.0	1.1	7%	14%	20%
Oklahoma	1.8%	39%	61%	6.0	45.7	2.2	6%	9%	15%
Oregon	3.2%	43%	57%	8.5	45.7	1.6	10%	18%	18%
Pennsylvania	3.6%	46%	54%	10.9	159.7	1.2	11%	10%	31%
Rhode Island	2.5%	51%	49%	7.2	11.3	1.5	14%	6%	21%
South Carolina	1.5%	38%	62%	4.2	88.0	5.2	8%	6%	13%
South Dakota	4.0%	46%	54%	6.4	11.0	2.3	6%	12%	9%
Tennessee	1.4%	40%	60%	5.2	83.0	2.8	6%	10%	16%
Texas	1.5%	44%	56%	5.6	422.3	3.6	12%	9%	12%
Utah	2.1%	48%	52%	9.2	24.3	1.2	8%	23%	29%
Vermont	5.2%	44%	56%	9.4	5.7	1.0	6%	18%	41%
Virginia	1.8%	42%	58%	7.8	86.3	1.6	9%	10%	20%
Washington	2.9%	43%	57%	10.0	68.7	1.2	12%	7%	31%
West Virginia	2.5%	47%	53%	7.2	23.7	1.8	6%	8%	20%
Wisconsin	2.9%	46%	54%	7.3	50.7	1.3	6%	10%	30%
Wyoming	4.4%	44%	56%	4.4	5.7	2.6	3%	0%	0%
Mean /Average (4)	2.7%	45%	55%	8.7(1)	95.3*	2.2	11%	9%	20%
Median	2.5%	44%	56%	7.3	54.3	1.8	9%	8%	20%
High	6.6%	52%	65%	18.2	710	5.4	22%	23%	48%
Low	1.2%	35%	48%	4.1	5.7	0.8	3%	0%	0%

Sources: ACS (2005), NHTS (2001-2002), FARS (2003-2005)

(1) Mean value reported is from NHTS nationwide data;

(2) All fatality data is based on the 3-year average number of fatalities from 2003-2005;

(3) Pedestrian fatality rate was calculated by dividing the total number of walking trips (using NHTS estimates) by the 3-year average number of pedestrian fatalities, this value was multiplied by 10,000 to represent fatalities per 10,000 people;

(4) All averages are weighted by population or take into account the sums from all states except for those noted with a \*.

**Legend:**

 = High Value

 = Low Value

# Walking & Pedestrian Safety Status by City

City	Trips to Work			Estimated mode share for all trips (1)	Reported pedestrian fatalities (2)	Ped. fatality rate per 10K people (3)	% of all traffic fatalities that are pedestrians	% of ped fatalities	
	% of Trips by Foot	% women	% men					under age 16	over age 60
Albuquerque	2.2%	29%	71%	**	*	**	*	*	*
Amarillo	0.8%	**	**	**	5	**	21%	*	*
Arlington (TX)	**	**	**	**	**	**	**	**	**
Atlanta	3.3%	45%	55%	5.8	*	**	*	*	*
Austin	1.8%	47%	53%	6.7	*	**	*	*	*
Baltimore	5.4%	51%	49%	11.4	*	**	*	*	*
Boston	12.5%	53%	47%	9.7	*	**	*	*	*
Charlotte	1.6%	35%	65%	7.6	3	0.7	6%	22%	22%
Chicago	5.5%	50%	50%	10.9	64	2.2	*	*	*
Cleveland	4.2%	39%	61%	7.8	10	3.0	24%	7%	31%
Colorado Springs	2.5%	46%	54%	**	1	**	5%	75%	0%
Columbus	1.6%	43%	57%	8.2	10	1.8	20%	17%	10%
Dallas	1.8%	48%	52%	6.2	*	**	*	*	*
Denver	4.8%	47%	53%	9.3	19	3.7	12%	*	*
Detroit	2.5%	46%	54%	9	54	7.2	43%	6%	12%
El Paso	2.1%	56%	44%	**	*	**	*	*	*
Fort Worth	1.1%	53%	47%	6.2	*	**	*	*	*
Fresno	1.7%	54%	46%	**	11	**	31%	29%	23%
Honolulu	6.9%	50%	50%	**	23	**	16%	20%	43%
Houston	1.9%	40%	60%	4.5	34	3.9	*	*	*
Indianapolis	1.9%	34%	66%	5.5	11	2.6	*	*	*
Jacksonville	1.8%	24%	76%	6	27	5.8	20%	*	*
Kansas City (MO)	2.2%	45%	55%	5.8	11	4.4	17%	9%	12%
Las Vegas	1.8%	50%	50%	8.7	47	10.1	18%	6%	15%
Long Beach	1.8%	33%	67%	11.1	7.7	1.5	22%	*	*
Los Angeles	3.2%	47%	53%	11.1	97	2.3	34%	*	*
Louisville	1.4%	38%	62%	4.5	*	**	*	*	*
Memphis	**	**	**	6.7	*	**	*	*	*



## CURRENT STATUS OF WALKING

City	Trips to Work			Estimated mode share for all trips (1)	Reported pedestrian fatalities (2)	Ped. fatality rate per 10K people (2)	% of all traffic fatalities that are pedestrians	% of ped fatalities	
	% of Trips by Foot	% women	% men					under age 16	over age 60
Mesa	2.1%	50%	50%	9.8	3	2.1	22%	40%	70%
Miami	4.9%	52%	48%	5.8	73	34.6	2%	5%	44%
Milwaukee	4.3%	52%	48%	9.4	15	2.9	37%	*	*
Minneapolis	5.8%	48%	52%	7.6	2	0.6	8%	*	*
Nashville	1.9%	34%	66%	8.1	5	1.1	5%	43%	21%
New Orleans	4.2%	40%	60%	8	9	2.6	19%	*	*
New York	9.4%	49%	51%	19.2	167	1.1	53%	*	*
Oakland	3.0%	50%	50%	10.8	8	2.0	12%	63%	38%
Oklahoma City	1.4%	33%	67%	7.5	*	**	*	*	*
Omaha	2.1%	49%	51%	**	9	**	27%	11%	18%
Philadelphia	8.1%	50%	50%	12.1	34	2.0	30%	*	*
Phoenix	1.6%	37%	63%	9.8	47	3.5	28%	5%	16%
Portland	4.3%	50%	50%	8.5	*	**	*	*	*
Sacramento	3.7%	37%	63%	10.1	*	**	*	*	*
San Antonio	1.5%	42%	58%	**	*	**	*	*	*
San Diego	1.9%	54%	46%	10.2	32	2.6	33%	*	*
San Francisco	9.6%	46%	54%	10.8	*	**	*	*	*
San Jose	1.5%	43%	57%	10.8	14	1.5	47%	7%	31%
Seattle	6.9%	40%	60%	10.2	*	**	*	*	*
Tucson	3.1%	50%	50%	**	*	**	*	*	*
Tulsa	2.0%	58%	42%	**	10	**	23%	*	*
Virginia Beach	1.6%	33%	67%	7.3	5.0	1.6	20%	20%	20%
Washington	10.0%	48%	52%	11.4	5	0.8	9%	40%	40%
Mean/Average (4)	4.48%	45%	55%	11.0%	24*	2.8	14%	18%	21%
Median	2.2%	47%	53%	8.5%	11	2.3	20%	20%	22%
High	12.5%	58%	76%	19.2%	167	34.6	53%	75%	70%
Low	0.8%	24%	42%	4.5%	1	0.6	2%	5%	0%

Sources: ACS (2005), NHTS (2001-2002), City Surveys

(1) Estimated mode share is from NHTS and represents metropolitan areas as opposed to cities;

(2) All fatality data is based on the 3-year average number of fatalities from 2003-2005;

(3) Pedestrian fatality rate was calculated by dividing the total number of walking trips (using NHTS estimates) by the 3-year average number of pedestrian fatalities, this value was multiplied by 10,000;

(4) All averages are weighted by population or take into account the sums from all cities except for those noted with a \*.

**Legend:**

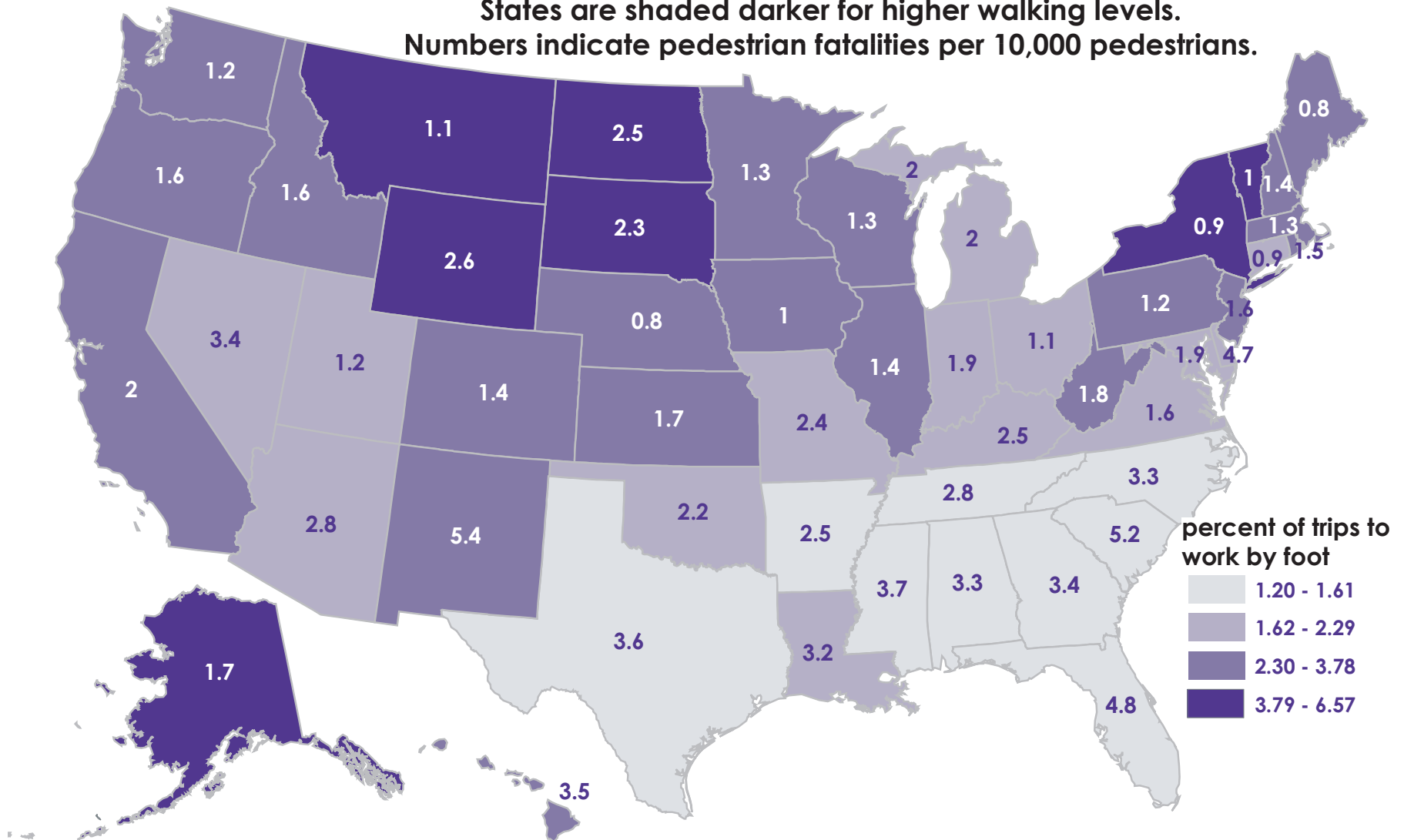
\* = Officials could not access data

\*\* = Data Unavailable or Thunderhead could not access data

■ = High Value    ■ = Low Value

# Pedestrian Mode Share & Safety in 50 States

States are shaded darker for higher walking levels.  
Numbers indicate pedestrian fatalities per 10,000 pedestrians.

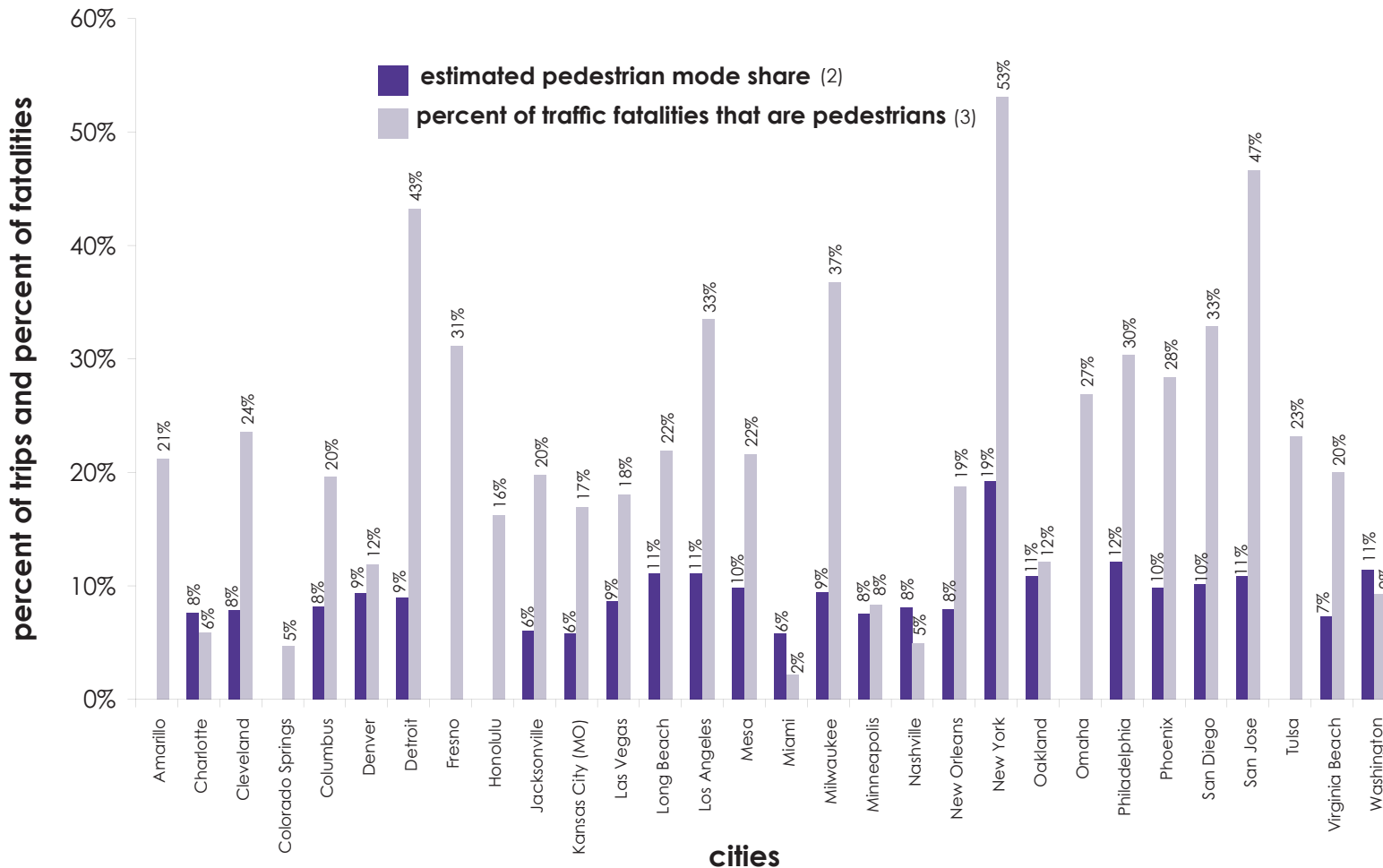


Sources: NHTS (2001-2002), ACS (2005), FARS (2003-2005)

**Southern states rank highest for pedestrian fatalities.**

FOR THIS ILLUSTRATION THE THREE YEAR AVERAGE NUMBER OF pedestrians killed was divided by the total number of pedestrians to find the pedestrian fatality rate (number in red). States are shaded based on the percent of trips to work by foot in increasing darkness. In general, southern U.S. states have the lowest rates of walking and the highest rates of pedestrian fatalities.

# Pedestrian Mode Share & Safety in Cities<sup>(1,3)</sup>



Sources: NHTS (2001-2002), City Surveys

- (1) Estimated mode share is from NHTS and represents metropolitan areas as opposed to cities. Because of this and the nature of NHTS as a national survey, NHTS should be taken as an estimate of walking levels only (see further explanation on page 32);
- (2) Mode share estimates are absent from cities where insufficient data is available from NHTS. Cities who could not access fatality data for pedestrians are not included;
- (3) Bars represent exact percentages and so bars labeled with the same rounded percentage may be slightly uneven;
- (4) Fatality data was reported by cities and is based on the 3-year average number of pedestrian fatalities.

ALMOST ALL CITIES SHOW A HIGHER PERCENTAGE OF traffic fatalities represented by pedestrians than percentage of pedestrian mode share. A few cities such as Charlotte, Miami, Nashville and Washington, D.C. appear to have the highest safety rates for pedestrians (where pedestrian fatalities represent a lower percent of fatalities than the estimated pedestrian mode share).

Pedestrians are at a disproportionate risk of being killed in major cities.



# 5: Bicycling & Walking Policies & Provisions

## Policies vs Provisions

Many believe that better policies and increased provisions for cycling and walking would lead to an increased population who bikes and walks. Many people think of provisions as a type of policy. However, this report differentiates because in some cases where there are good policies on paper there is nothing to show for them on the ground. In other cases, there may be no official policy, but there is an informal policy to accommodate bicycling and walking. Thunderhead made this distinction because it is not enough for states and cities to have policies that look good, if they do not translate into provisions on the ground. On the other hand, unofficial policies can provide provisions one day and vanish with changes in administration. By distinguishing the two and measuring them separately and against each other, policies that are truly effective, versus those that are artificial attempts to appease biking and walking advocates, can be distinguished.

## Policies Promoting Cycling & Walking

Strong policies to provide provisions for and promote cycling and walking can help transform communities into healthier and more livable places. This report considered a number of policies such as complete streets policies, bicycle parking policies, annual spending targets for bicycle and pedestrian projects, published goals to increase bicycling and walking, and published goals to decrease bicycle and pedestrian fatalities. Thunderhead relied on State and City Surveys and its tracking of complete streets policies for these data. Findings indicate that most states and cities rank poorly overall on strong policies for cycling and walking. States ranked poorer than cities on

policies surveyed. Most cities surveyed have goals for increasing cycling and walking and for increasing bicycle and pedestrian facilities. However, the majority of both cities and states have not adopted spending targets for bicycle and pedestrian provisions and have not adopted a complete streets policy.

## Complete Streets Policies

The bicycle and pedestrian advocacy movement and its partners for transit and disabled-rights have adopted the term “complete streets” because it accurately frames the discussion to show that a street is not complete unless all modes of transport are provided for. A complete street provides safe access for pedestrians, cyclists, children, the elderly, disabled people, transit-users, and motorists. Complete streets policies require that all streets are designed and built to provide safe access for all potential users. These policies ensure that provisions such as sidewalks, curb cuts, bike lanes, traffic calming, and inviting crossings are included in all road projects and not as an optional add-on. Thunderhead Alliance tracks complete streets policies across the country through its National Complete the Streets Campaign, and many member organizations are working to pass and implement complete streets policies in their communities. As of this report, ten state and 25 local policies have been adopted. (For a map of existing policies and excerpts from model policies see pages 60-61)

## Provisions for Cycling and Walking

“Provisions” for cycling and walking are defined here as anything that provides for cyclists and pedestrians. This

includes funding for biking and walking facilities and programs, bicycle parking, bike/transit integration, bicycle and pedestrian infrastructure (such as sidewalks, paths, and bike lanes), and staffing levels. Each of these is a concrete way in which cities and states show effort towards improving their communities for cyclists and pedestrians. In many cases, these provisions are the result of good written policies. In other cases they are the result of the culture of cities and states.

## Data on Provisions

The data for this section of the report come primarily from City and State Surveys, with data on funding from the National Transportation Enhancements Clearinghouse and the Federal Highway Administration's (FHWA) Fiscal Management Information System (FMIS). Since most of the data in this chapter are self-reported by state and city agencies, there may be a concern among advocates that data would be exaggerated so that agencies appear to be doing better than they actually are. Although there is no control over accuracy of answers, responses are expected to be, for the most part, accurate. Peer review by local advocates and officials will help make any necessary corrections for future reports, and will help refine survey methods to ensure the highest potential for accuracy. Also, because data collected in this section are compared to cycling and walking mode share and other variables, it is in the best interests of advocates and officials to provide honest responses so that they can best evaluate the progress and needs of their communities.

This chapter of the report focuses more heavily on cities since they are where provisions can best be measured. However, not all cities were able to report on cycling and walking provisions because their agencies have not implemented methods to collect these data, and thus, have no data available. The tables on page 62-65 give an overview of the data collected.

## Funding for Biking and Walking

Data on funding was the most difficult to access. States and cities were asked to report on the amount of funding going to bicycle and pedestrian projects from a number of federal fund-

ing sources including: Surface Transportation Program (STP), Transportation Enhancements (TE), Congestion Mitigation and Air Quality Improvement Program (CMAQ), Safe Routes to School, and Section 402 Highway Safety Funds. States and cities were also questioned about any additional state or local funds allocated to bicycle and pedestrian projects. Responses were too sparse to make any reasonable comparison, so Thunderhead relied on the FHWA for all data in this section. FHWA data in this report represents a six-year average (2000-2006) <sup>(1)</sup> of federal funds obligated to projects, and are not necessarily the actual amount spent in these years. These data include the total amount of federal funds obligated to a project and the total cost of the project. Tables on page 62-65 show both the federal dollars per capita for each state and city, and the total per capita amount which includes the federal funds and state, local and other funds obligated to these projects.

The variation in federal funding sources to bicycle and pedestrian projects is relatively small, with TE funding making up 73% of all bike/ped obligations. More than 50 additional federal funding programs have been allocated for bicycle and pedestrian projects, most at relatively small amounts. On average, states spend just 1.54% of their federal transportation dollars on bike/ped projects (based on the 3-year funding period from 2004-2006). This amounts to just \$2.50 per capita for bicycling and walking each year. The variation in per capita funding and the percentage of transportation dollars spent on bicycle and pedestrian projects is great among both cities and states. This fact, along with the number of diverse funding sources, indicates that states and local jurisdictions play a determining role in how their federal transportation dollars are spent.

## Transportation Enhancements

The Transportation Enhancements (TE) program is the best known funding source for bicycle and pedestrian infrastructure improvements. The program provides federal funds to metropolitan areas to distribute to community-based projects that expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic, and envi-

(1) Data on the percent of transportation funds to bike/ped projects and per capita funding for states are based on a 3-year average from 2004-2006.

ronmental aspects of transportation infrastructure. TE projects must fit one of 12 eligible categories and must relate to surface transportation. The National Transportation Enhancements Clearinghouse collects data on TE-funded projects and provided data on TE-funded projects for the 50 states and cities studied here from 2003-2005. Data show that slightly less than 50% of TE funds go towards bicycle and pedestrian facilities. States and cities vary greatly on their use of TE funds. For some cities, bicycle and pedestrian projects comprise 100% of their TE-funded projects. For other cities, the three year average is zero.

### Safe Routes to School

Safe Routes to School (SRTS) is the newest federally-funded program and the only one that is 100% dedicated to funding bicycle and pedestrian capital and education projects. The National SRTS program was signed into law in 2005, making data on the program sparse at this early stage. States were asked to report on the level of funding, allocation of funds between capital and education, and levels of staffing. Though variation in funding allocation is limited by legislation, responses show variation spanning the entire allowable range among states. Because SRTS programs can and have been funded with other DOT funding, Thunderhead's State Surveys encouraged officials to include these other funds. Because of this, reported SRTS spending may reflect values slightly greater than federal funds alone.

### Staffing

To determine how bicycle and pedestrian staffing differs among states and cities, surveys asked them to report the number of full-time-equivalent (FTE) staff dedicated to bicycle and pedestrian programs. On average, state Departments of Transportation (DOTs) employ 0.34 FTE staff per one million people. The rate is higher among the major cities surveyed, which average 2.8 FTE bicycle and pedestrian staff per million people. State DOTs were also surveyed on levels of Safe Routes to School staffing. While most states average just one full-time-equivalent staff person dedicated to Safe Routes to School, some have more than one, and a few report none at present.

## Infrastructure

To see how cities compared to one another on infrastructure for biking and walking, they were asked to report on miles of existing and planned facilities including sidewalks, on-street striped bike lanes, multi-use paths, and signed bike routes. Cities averaged 1.2 miles of bicycling facilities (bike lanes, multi-use paths, and signed bike routes combined) per square mile. On the high end of the range is Miami, with 4.0 miles of cycling facilities per square mile. Tucson and San Francisco rank second and third, with 3.2 miles of facilities per square mile. Oklahoma City, Indianapolis, New Orleans and Detroit are on the low end, having only 0.1 miles of cycling facilities per square mile.

Cities were also asked to report on miles of planned bicycle and pedestrian facilities. Data show cities plan for twice as many bicycle and pedestrian facilities as the amount they currently have. Las Vegas has more planned facilities than any other city, with 16.2 miles of facilities planned per square mile.

As part of their infrastructure for cycling, cities were asked to report the number of existing bike racks and average number of spaces per rack in their city. Cities averaged 24 bike parking spaces per 10,000 people. Minneapolis has the highest amount of bicycle parking per capita with 453 bicycle parking spaces per 10,000 people. A few cities reported no bicycle parking. This report took a closer look at the success of Minneapolis (page 69) and found that strong policies and an innovative funding mechanism have contributed to their success in this area.

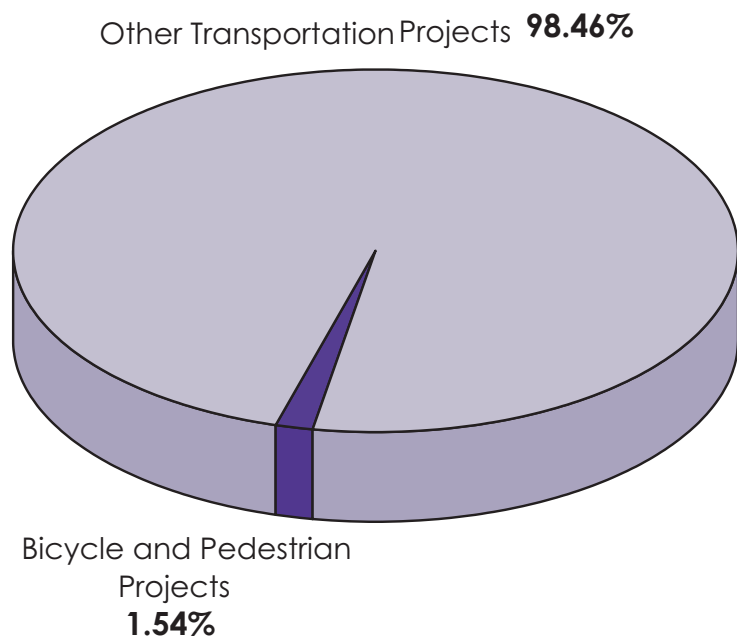
### Bike-Transit Integration

The last cycling provision measured was bike-transit integration. This report sought to measure how well cities provide for cyclists on transit. While most cities are successfully integrating bicycles with buses, many fall behind in regards to providing parking for cyclists at transit. The San Francisco Bay Area is a model for bike-transit connectivity. All buses in Oakland and San Francisco are equipped with bike racks and Oakland has more per capita bicycle parking at transit than any other city studied.



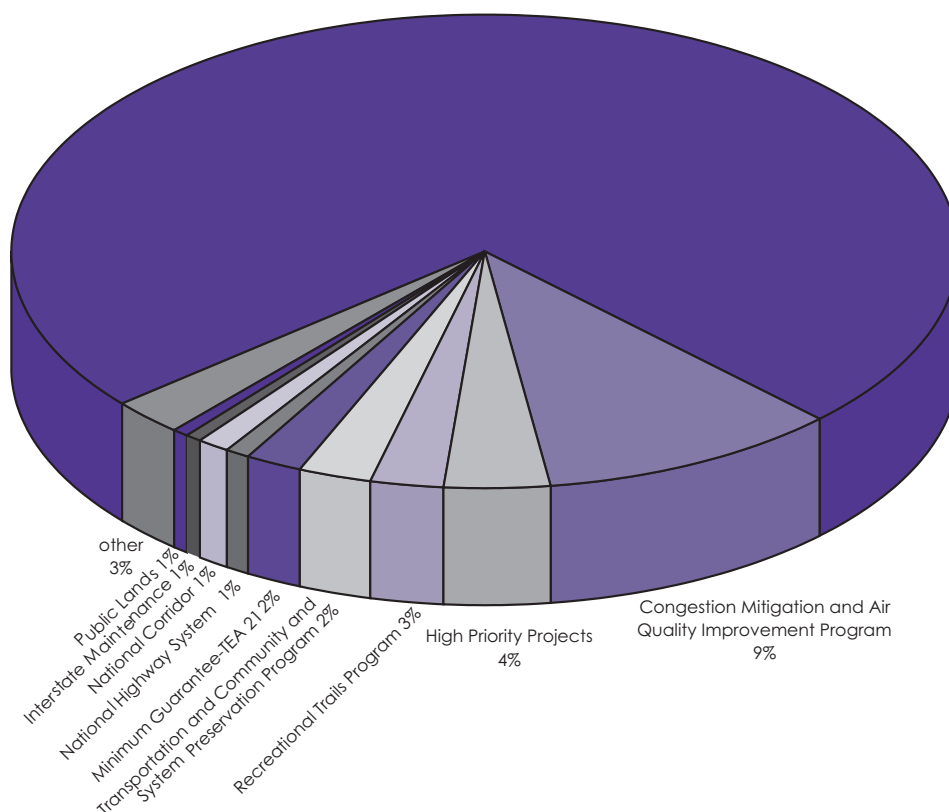
# Federal Funding for Cycling & Walking

Percent of Federal Transportation Dollars to  
Bicycling and Walking



Bicycle and Pedestrian Dollars by Funding Program

Surface Transportation Program/Transportation Enhancements 73%

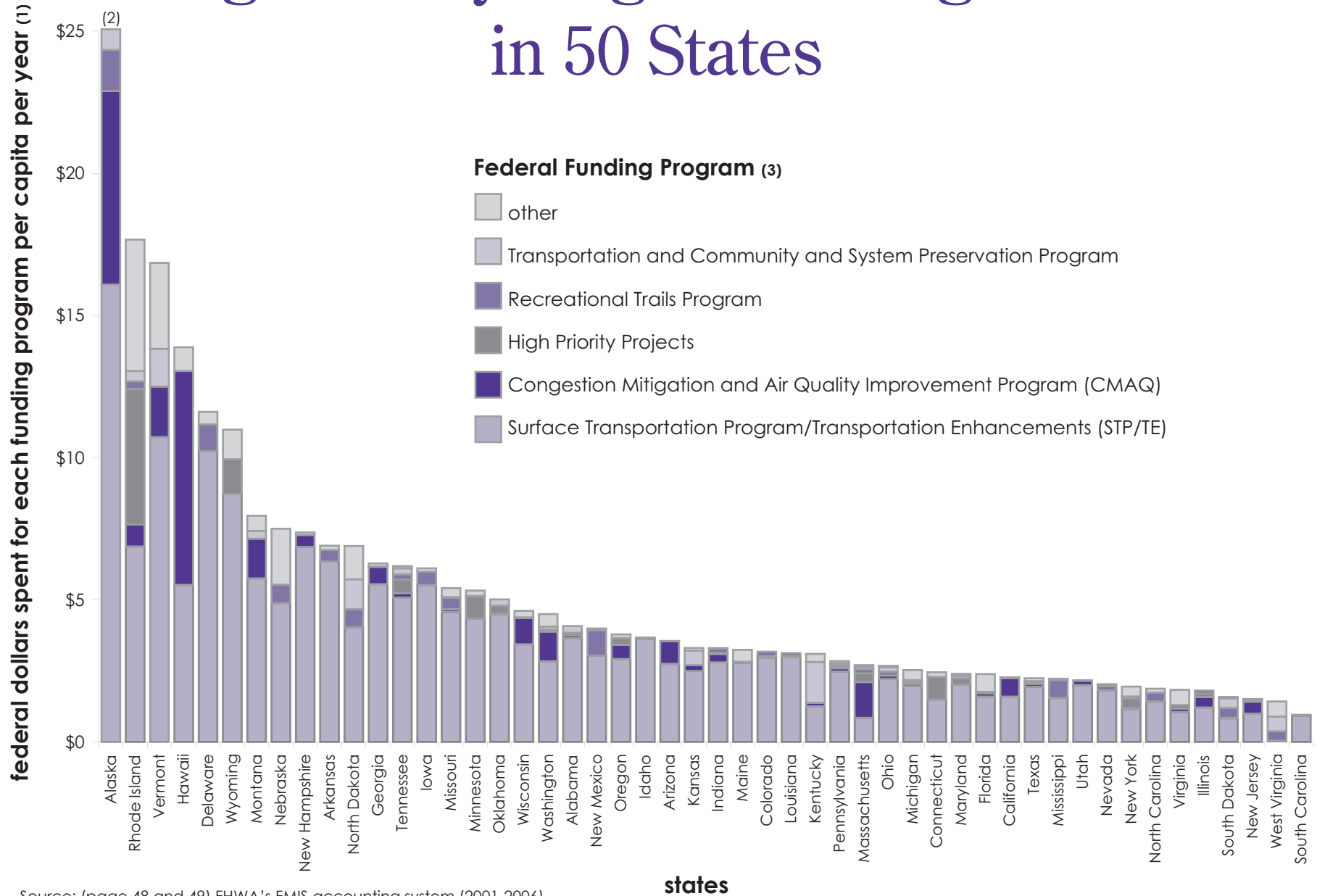


Source: FHWA (2001-2006)

Transportation Enhancements is largest spending program for bike/ped projects.

THIS PIE CHART ILLUSTRATES THE RELATIVE AMOUNTS OF FEDERAL FUNDING for bicycle and pedestrian projects from various funding sources. Federal funding sources that only occasionally went to bicycle and pedestrian projects were placed in the “other” category. These data from the Federal Highway Administration’s Fiscal Management Accounting System reveal that the Transportation Enhancement (TE) program makes up almost three quarters of all funding to bicycle and pedestrian projects. The Congestion Mitigation and Air Quality Improvement (CMAQ) Program is the second greatest funder of bike/ped projects. Funding for these projects came from more than 50 federal funding categories which emphasizes the range of possible funding sources available for bicycling and walking. For the most part, the decision for how to use federal transportation dollars is up to state Departments of Transportation and local Metropolitan Planning Organizations.

# Funding for Bicycling & Walking Provisions in 50 States

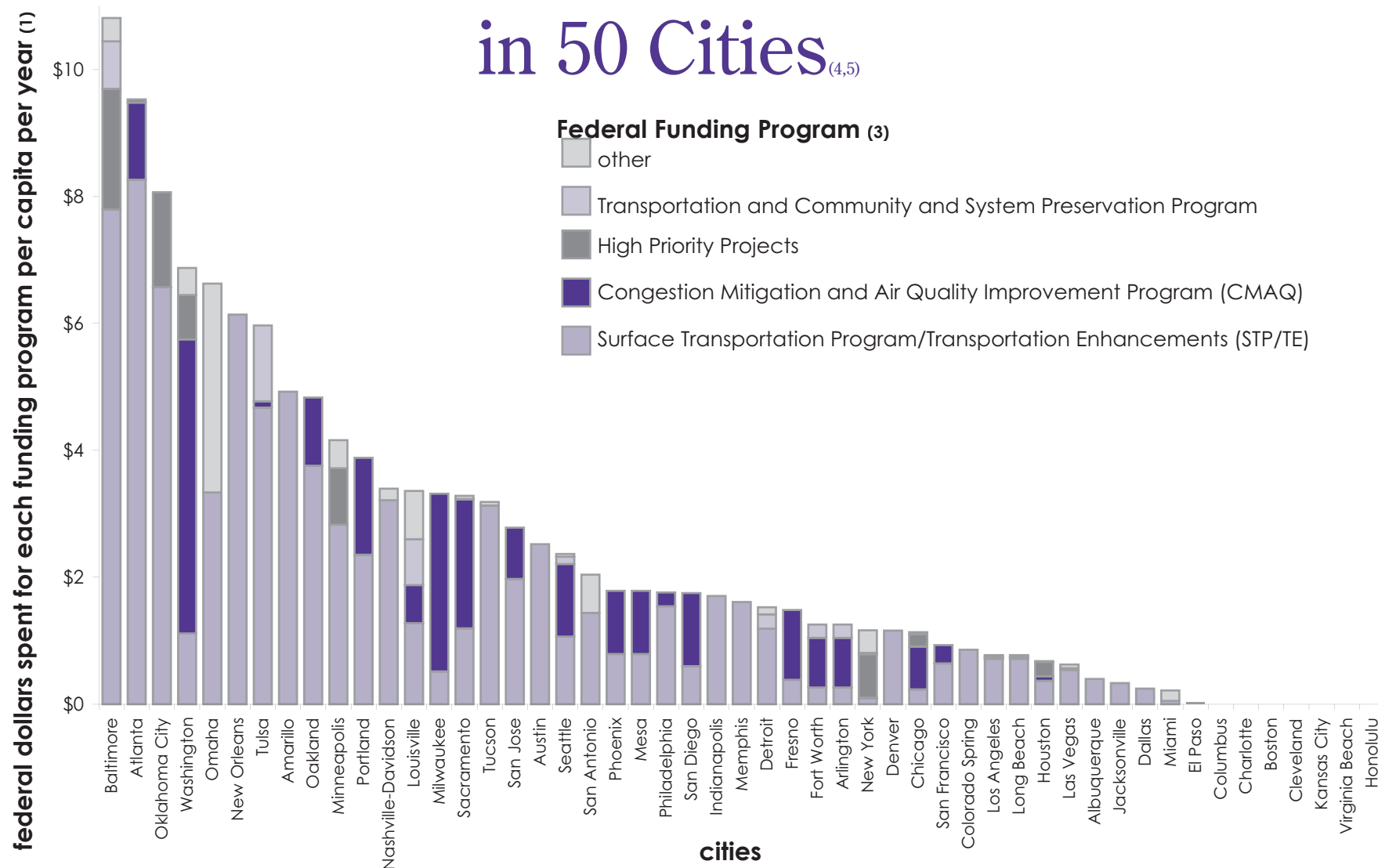


Source: (page 48 and 49) FHWA's FMIS accounting system (2001-2006)

(1) Data here is from a six year average of authorized funding and thus represent all federal funds obligated to projects in the 6-year period and are not necessarily the actual amount spent in these years; The "other" category represents approximately 50 additional federal funding programs for which relatively small amounts were spent on bicycle and pedestrian projects;

(2) Alaska was cropped in this illustration to allow funding sources from other states to be viewed; Alaska had an additional \$20.51 per capita in the "other category" for a total of \$45.58 per capita each year in federal funds obligated to bicycling and walking projects in the 6-year period;

# Funding for Bicycling & Walking Provisions in 50 Cities<sup>(4,5)</sup>



(3) Funding programs that comprised a large share of all bike/ped spending (pie chart page 47) may not be a top funding program for comparing all states and cities. The Minimum Guarantee, National Highway System, National Corridor, Interstate Maintenance, Public Lands, and Recreational Trails Program (for cities) may have contributed enough funds to a project to qualify it as a top bike/ped spending program in terms of dollars spent. However, when we divided funds by the population of cities and states, these spending programs do not qualify as a top bike/ped spending program and thus are not included in these illustrations;

(4) Funding data for cities was gleaned from the FHWA which reports projects by "Urbanized Areas" and counties. Projects were sorted by urbanized area first, then by county, in order to more closely capture a particular city's funding amount. Dollar amounts here represent per capita spending per year for the part of the Urbanized Area that lies within the Benchmarking city's county. The majority should lie within the city's boundary, though it likely that a small portion of funding going to other cities is captured here;

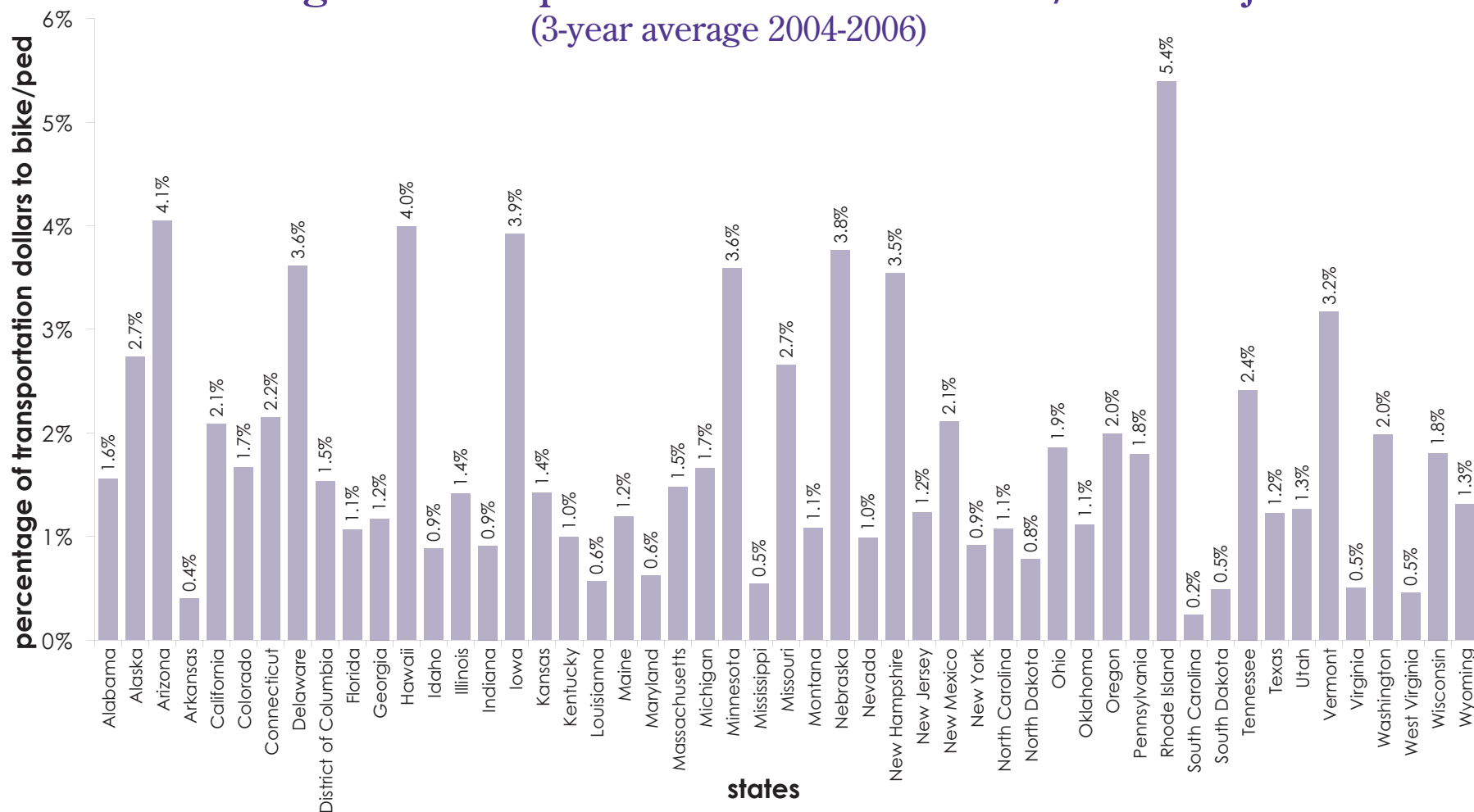
(5) Discrepancies exist between FHWA funding data for cities, data reported by cities, and data from the National Transportation Enhancements Clearinghouse.



Less than 2% of federal transportation dollars go to bicycling and walking.

STATES SPEND 1.54% OF THEIR FEDERAL TRANSPORTATION DOLLARS for bicycle and pedestrian projects on average. This amounts to \$2.52 per capita each year on average. Rhode Island spends 5.4% of its federal transportation funds on biking and walking, the highest of all states. South Carolina ranks lowest among states spending just 0.2% of its federal transportation funds for bicycle and pedestrian projects.

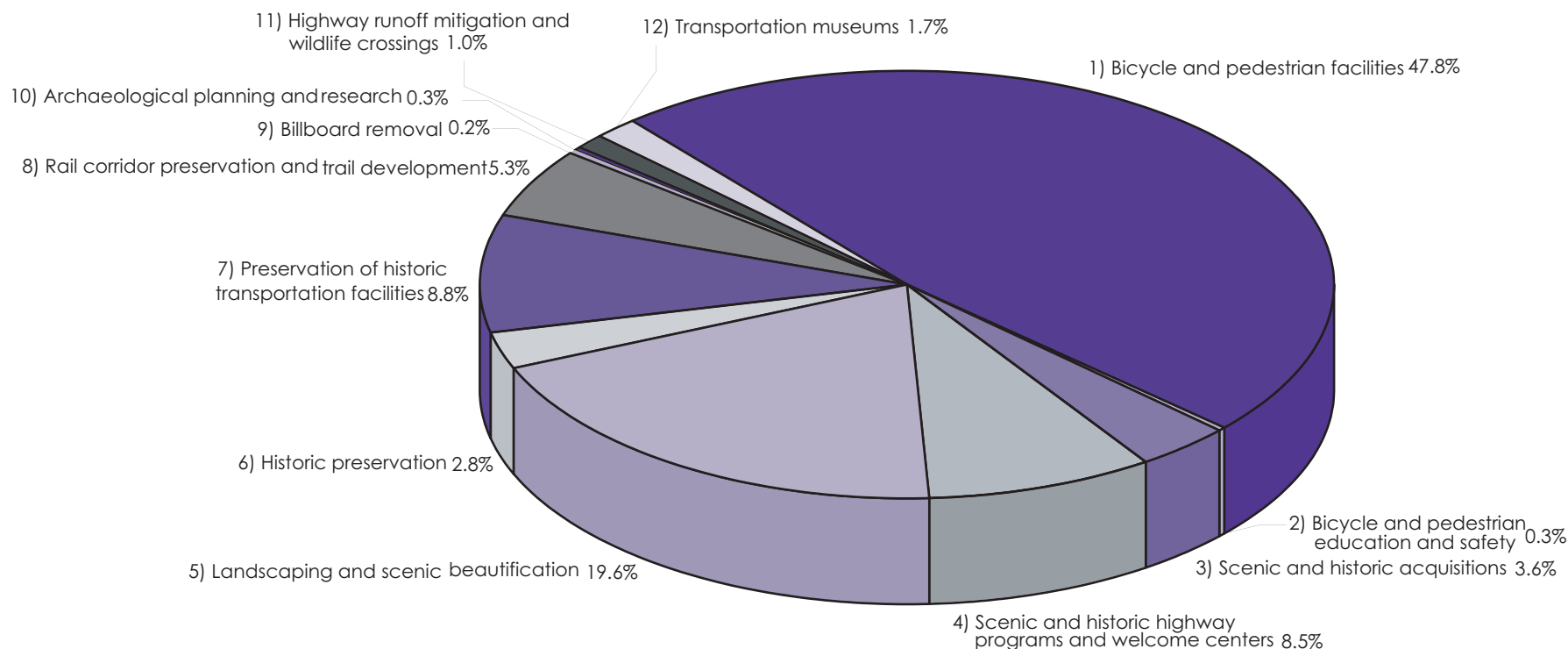
## Percentage of Transportation Dollars to Bike/Ped Projects (3-year average 2004-2006)



Source: FHWA's FMIS accounting system (2004-2006)

**Note:** The District of Columbia is included in this illustration for comparison, although it is not compared to states in other areas of the report; data here is from a three year average of authorized funding and thus represent all federal funds obligated to projects in the 3-year period and are not necessarily the actual amount spent in these years.

# Distribution of Transportation Enhancements Funding by Category (3-year average 2003-2005)



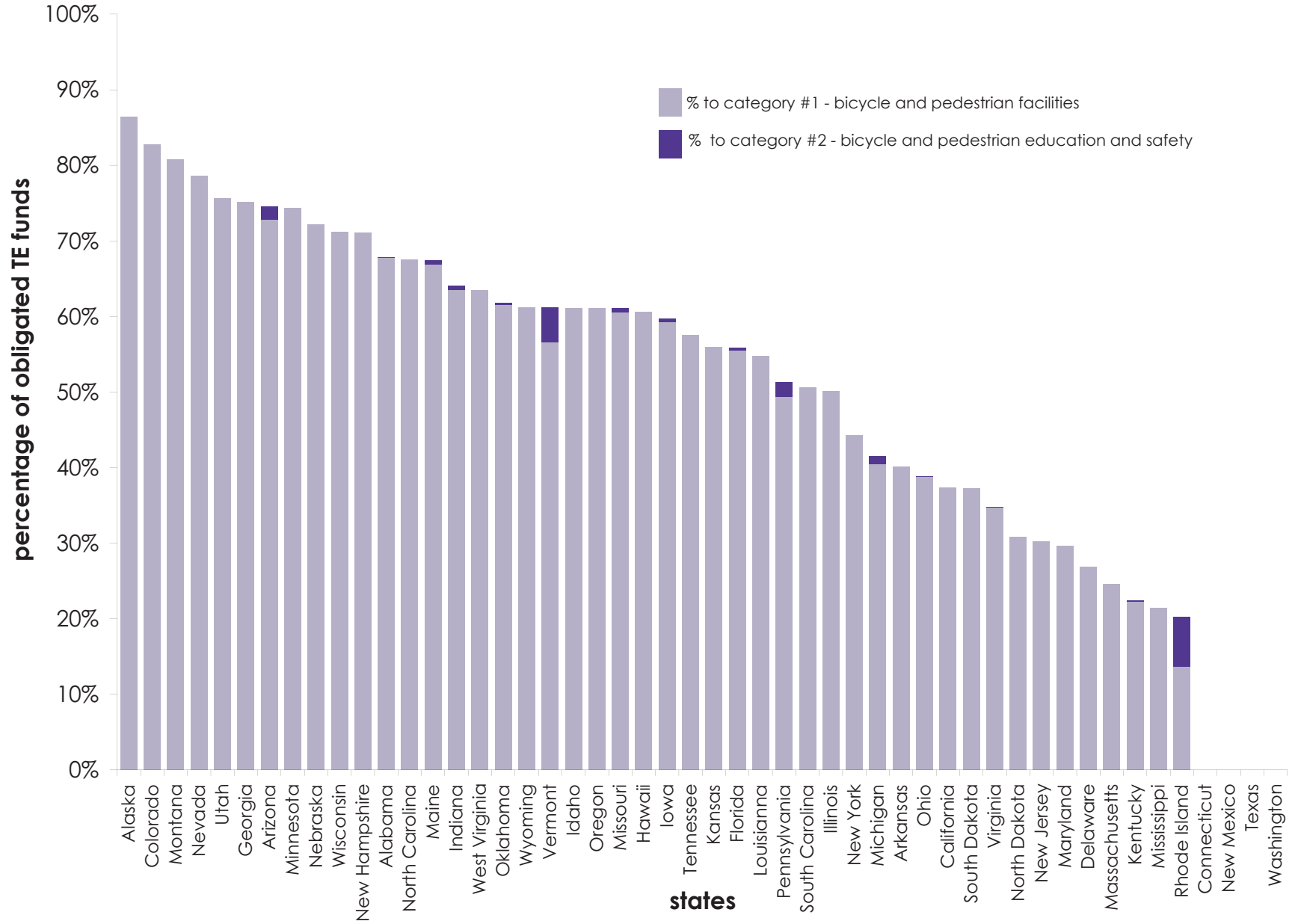
Source: National Transportation Enhancements Clearinghouse (2003-2005)

TRANSPORTATION ENHANCEMENTS (TE) ARE A MAJOR SOURCE OF FUNDING FOR bicycle and pedestrian projects, yet less than half of all TE funds are spent on biking and walking nationwide. Bicycle and pedestrian facilities do make up the largest funding category, with 47.8% of funds going to projects in this category. Landscaping and scenic beautification projects are the second most-funded category, accounting for 19.6% of TE funds. Scenic and historic highway programs and welcome centers and preservation of historic transportation facilities are the third and fourth most-funded categories.

Some states such as Alaska, Colorado, Montana and Nevada spend the majority of their TE funds on bicycle and pedestrian projects. In the three years averaged for this study, Texas spent 100% of their TE funds on scenic and historic highway programs and welcome centers, translating into \$0 for biking and walking. Washington, New Mexico, and Connecticut reported no TE projects in the 3-year period of 2003-2005 surveyed here.

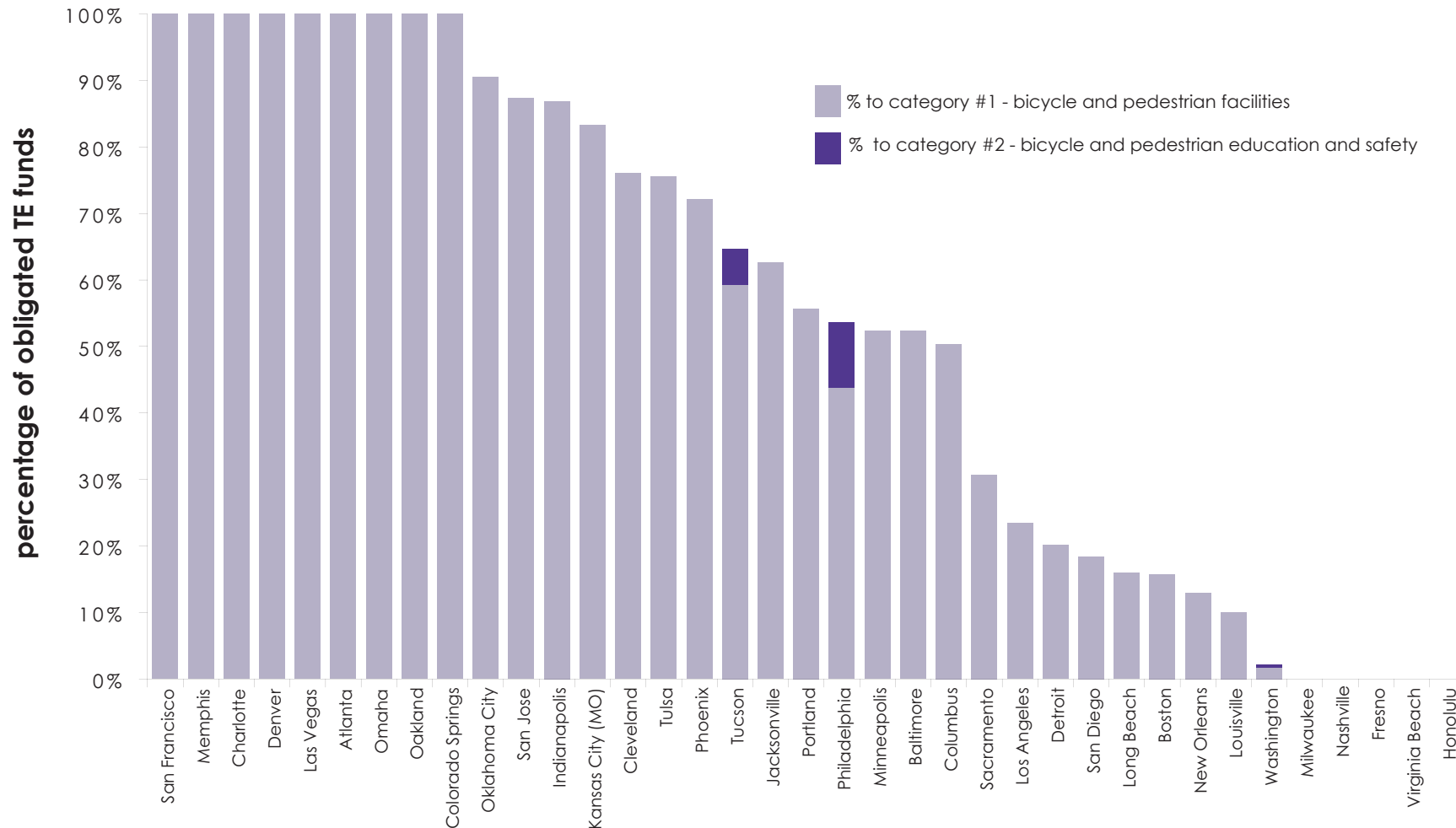
Less than half of  
Transportation  
Enhancement  
funds go to  
bicycling and  
walking.

# Percent of TE Funds to Bicycle and Pedestrian Projects in 50 States (3-year average)



Source: National Transportation Enhancements Clearinghouse (2003-2005)

## Percent of TE Funds to Bicycle & Pedestrian Projects in Most-Populous Cities (3-year average)



Source: National Transportation Enhancements Clearinghouse (2003-2005)

**Note:** No TE funds were programmed during this period in New York, Chicago, Houston, San Antonio, Dallas, Austin, Fort Worth, El Paso, Seattle, Albuquerque, Mesa, Miami, or Arlington.

WHILE CITIES SUCH AS SAN FRANCISCO, MEMPHIS, Charlotte, Denver, Las Vegas, Atlanta, Omaha, Oakland, and Colorado Springs have spent approximately 100% of TE funds for bicycle and pedestrian projects, Boston, New Orleans, Louisville, and Washington spend the lowest percentage of their TE dollars for bicycle and pedestrian improvements.

The amount of TE funding to bicycle and pedestrian projects varies among major cities.





PHOTO COURTESY OF HO JOHN LEE

## Safe Routes to School: A Look at the Newest Funding Source

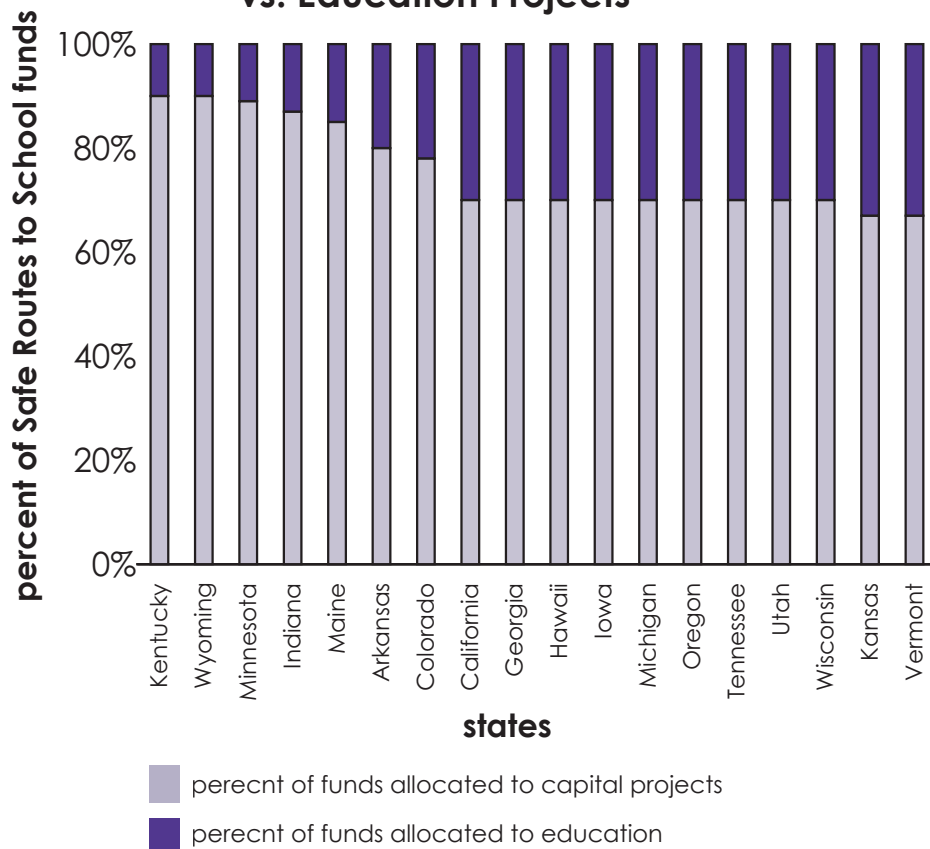
### Winning Safe Routes to School in the U.S.

The term “Safe Routes to School” (SRTS) was coined in the 1970s in Denmark as part of an initiative to reduce the number of children killed while biking and walking to school. The term spread internationally reaching Bronx, NY in 1997 when the first Safe Routes to School program began in the U.S. In 1998 Congress funded pilot Safe Routes to School programs in Arlington, Massachusetts and Marin County, California. The Safe Routes to School buzz continued to spread to communities developing their own grassroots programs throughout the U.S.. Thunderhead Alliance member organizations lobbied Congress from 2002-2005 for a federally-funded Safe Routes to School program. Some already had local programs underway which would later become model programs. In 2005, Congress voted to include a federally-funded National Safe Routes to School Program as part of SAFETEA-LU, the reauthorization bill for the federal transportation law. This victory for Thunderhead’s coalition is now being celebrated nationwide as states have begun to coordinate their programs, in many cases with the help of Thunderhead organizations providing their expertise and resources.

### An Early Look at SRTS Programing

The National Safe Routes to School program will be about two-years old when this report is released. At the time of this project’s data collection it was just over one year old. Although it is important to begin collecting data on the program in 50 states, there is a limited amount of information available at this time since many states are still organizing their programs and some have yet to spend any of their Safe Routes to School funding. For this report, states were asked about levels of funding, allocation of funds between capital projects and education programs, and staffing levels. They were also encouraged to include other DOT funding spent on the program. Findings indicate that states are varied among their approaches to the programming of Safe Routes to School funding. While states average one full-time-equivalent staff person dedicated to the program, some states are taking creative approaches to increasing their staff capacity, such as using Americorps volunteers to help with messaging and promotion, or relying on field coordinators in each school district for outreach to schools. States also vary in their allocation of funds to capital projects vs education projects, although variation is restricted by legislation.

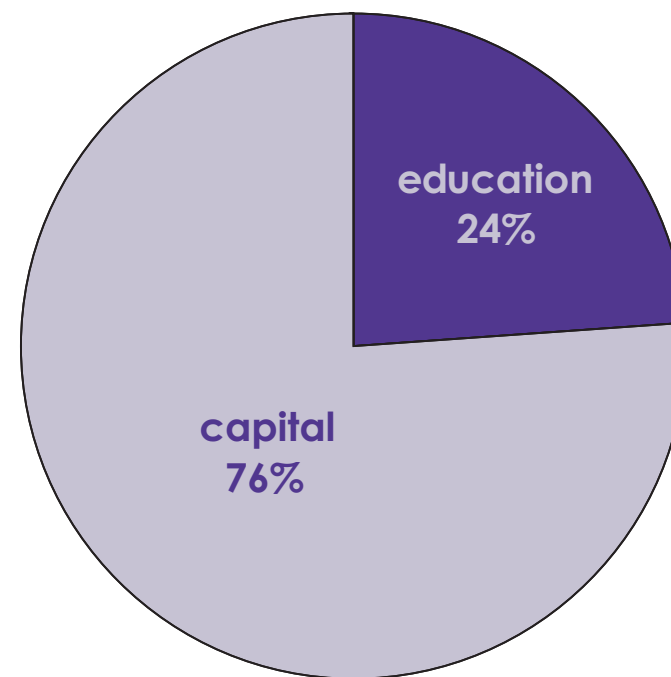
**Ratio of Safe Routes to School Funds to Capital vs. Education Projects**



Source: State surveys

**Note:** The following states report that no Safe Routes to School funding had been spent at the time of this survey and thus could not respond to the question on ratio of funds to capital vs. education projects: Alabama, Louisiana, Massachusetts, Mississippi, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota; All other states were unable to provide data on Safe Routes to School funding ratios.

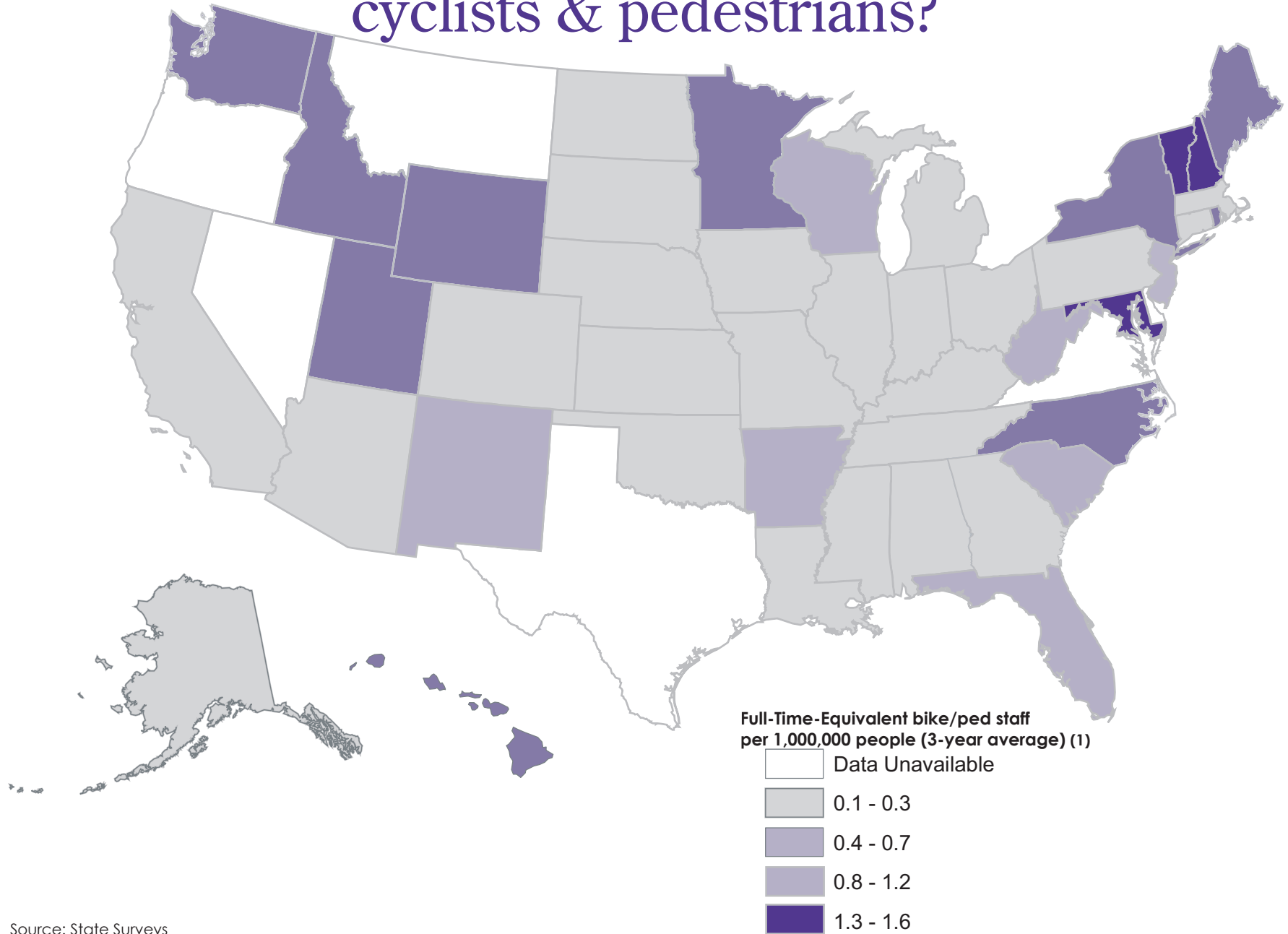
**Nationwide Average of Safe Routes to School Funding Allocation: Capital vs. Education**



THE FEDERAL SRTS LEGISLATION RESTRICTS VARIATION IN THE WAY states spend federal Safe Routes to School funds, due to a requirement that no more than 30% and no less than 10% of funds can be spent on educational activities. States exercise discretion within this 20% window. The 18 states who responded to a question on the ratio they've set for spending these funds run the entire allowable range. Nine states could not answer because they haven't yet spent any Safe Routes to School funds. Fifteen states were unable to provide these data for unspecified reasons.

**Federal Safe Routes to School legislation: 10-30% of funds to be spent on education activities.**

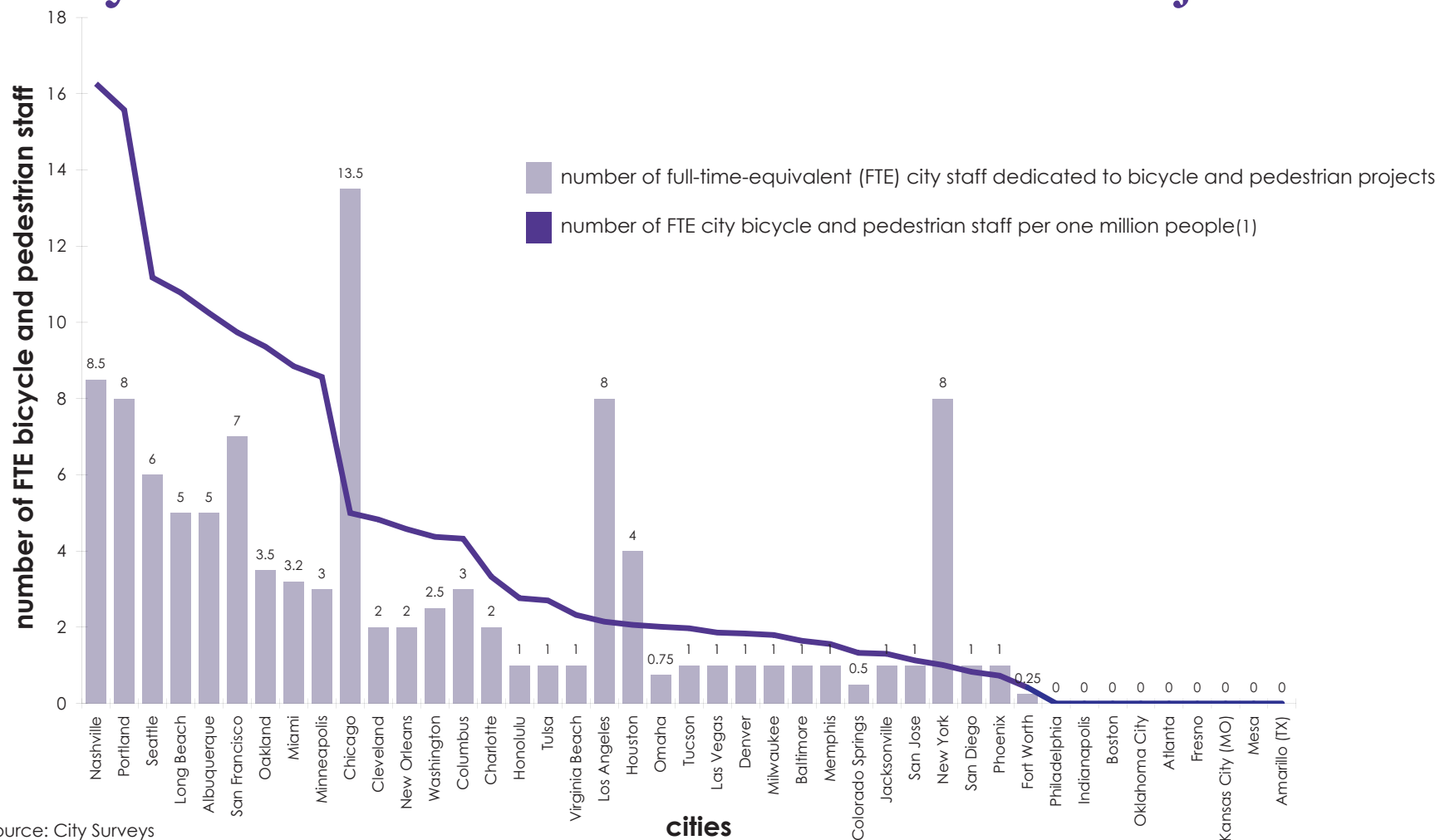
# How many people are working on behalf of cyclists & pedestrians?



Source: State Surveys

(1) For states where the population is less than one million, standardized values will be larger than the actual number of staff.

# Bicycle & Pedestrian Staff Levels in Major Cities



Source: City Surveys

(1) For cities where the population is less than one million, standardized values will be larger than the actual number of staff.

**Note:** Data are unavailable for San Antonio, Dallas, Detroit, Austin, El Paso, Louisville, Sacramento and Arlington.

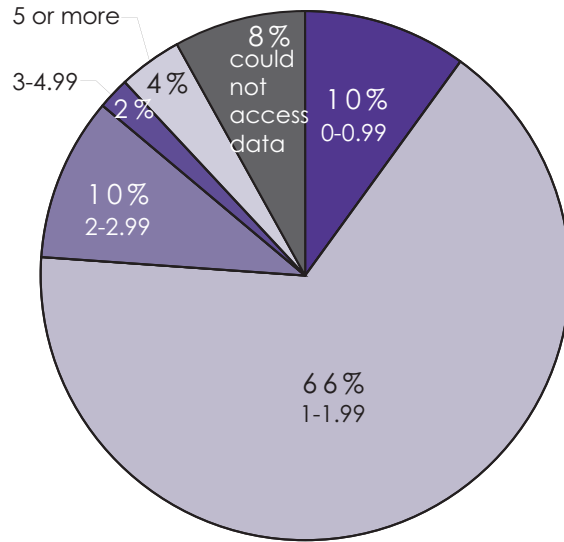
MAJOR U.S. CITIES AVERAGE 2.8 BICYCLE AND PEDESTRIAN STAFF PER one million residents. Chicago has the most bicycle and pedestrian staff of any city surveyed with 13.5 full-time-equivalent (FTE) staff. Nashville's highest in per capita bicycle and pedestrian staffing, with an equivalent of 16.3 full-time-equivalent staff for every one million residents. Cities reporting no dedicated bicycle and pedestrian staff are Indianapolis, Boston, Oklahoma City, Atlanta, Fresno, Kansas City, Mesa, and Amarillo.

Nashville and Portland  
rank highest for level  
of bicycle and  
pedestrian staffing.



# Staffing SRTS

## Overview of Number of FTE Staff Employed by States for Safe Routes to School



Legislation requires each state to have one full-time Safe Routes to School Coordinator to serve as a point of contact for the state.

Most states have just one full-time-equivalent (FTE) staff person for their Safe Routes to School program, though staffing levels vary. Some states report no Safe Routes to School staff at this time and Michigan and Texas report 5.5 and 14 FTE staff, respectively. The staffing structure also varies from state to state. Alaska reports only one FTE Safe Routes to School staff but notes they have three Americorps volunteers assisting with messaging and promotion to schools. Texas reports 1.5 FTE staff in Austin, but also has a Safe Routes to School Coordinator in each of their 25 field districts. It was noted that these positions are not dedicated exclusively to the Safe Routes to School program and so this was estimated to be an additional 12.5 FTE staff (25 Coordinator positions at 50% of their time). Hawaii reported “less than one” FTE staff and Alabama, North Carolina, Oklahoma and South Dakota reported zero Safe Routes to School staff at the time of this survey.

## Number of Full-Time Equivalent Safe Routes to School Staff Employed by State Departments of Transportation

Could not access data	0-0.99	1.00-1.99			2.00-2.99	3.00-4.99	5 or more
Montana Nevada Virginia Delaware	Alabama Hawaii North Carolina Oklahoma South Dakota	Alaska Arizona Arkansas California Colorado Connecticut Georgia Idaho Illinois Indiana Iowa	Kansas Kentucky Maine Maryland Minnesota Mississippi Missouri Nebraska New Hampshire New Jersey New York	North Dakota Ohio Oregon Pennsylvania Rhode Island Tennessee Utah Vermont Washington West Virginia Wyoming	Louisiana Massachusetts New Mexico South Carolina Wisconsin	Florida	Michigan Texas

Source: State Surveys



Members of LAPD Bicycle Police Team  
PHOTO COURTESY OF THE LAPD BICYCLE COORDINATION UNIT

# Police and Medics on Bikes

Most major cities have some of their police force trained to ride bikes.

## Police Bike Teams

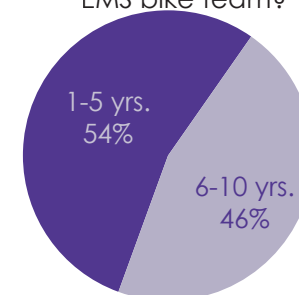
Out of 26 major U.S. cities who responded regarding the amount of FTE bicycle police, 88% have at least some of their force trained as bicycle police. Out of the 25 cities that could not provide data, some say there are bicycle police in their city but they are unsure of how many. Los Angeles reported the highest number of bicycle police with 210 full-time-equivalent officers. According to Sgt. Eric Lee of the LAPD, Los Angeles intends to continue increasing the number of officers on bikes, recognizing the advantage to the environment, cost savings, and in many cases the speed advantage that bicycles have over cars (in rush hour traffic, for example).

## EMS Bike Teams

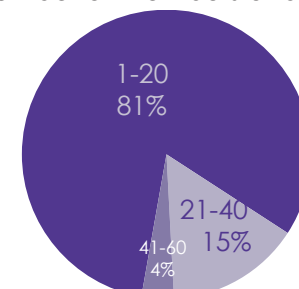
The International Police Mountain Biking Association (IPMBA), an association of bicycle police officers that establishes training and equipment standards and facilitates information sharing, conducted a survey of Emergency Medical Services (EMS) bicycle teams in 2002. Twenty-Seven EMS teams responded, and selected results are displayed in the graphs to the right. Survey responses indicate that 54% of agencies have had an EMS bike team for one to five years, while 46% of EMS bike teams are six to 10 years old. Eighty-one percent report their EMS team has one to 20 members, 15% have 21-40 members, and 4% have 41-60 members. Fifty-eight percent of units reported that they participate in bike rodeos or other bike safety education.

## EMS Bike Teams:

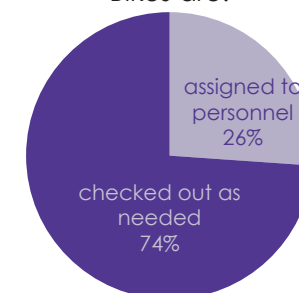
How long has agency had an EMS bike team?



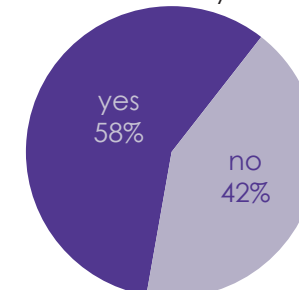
Number of members of bike team:



Bikes are:

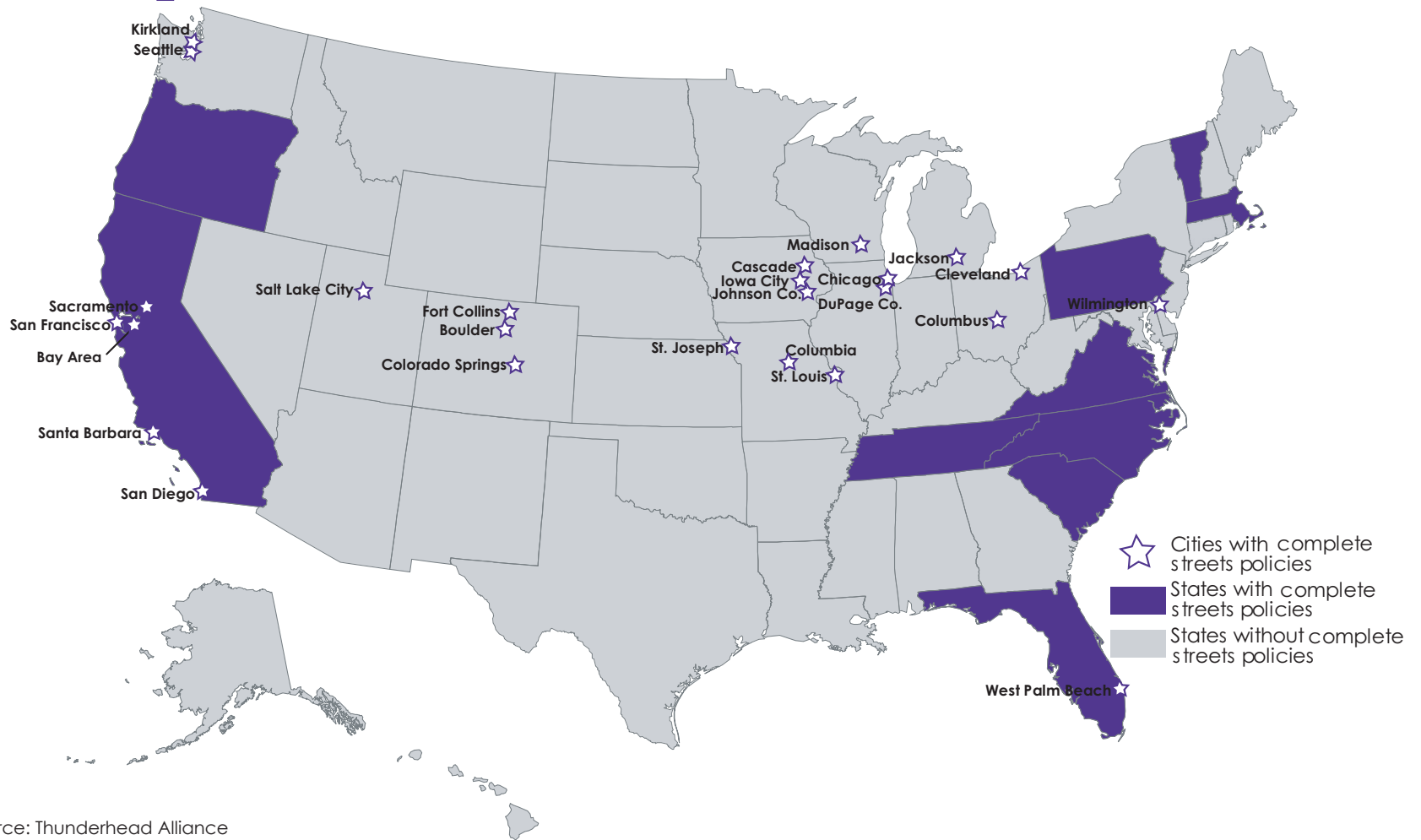


Unit participates in bike rodeos or other bike safety education?



Source: 2002 IPMBA Survey

# Complete Streets Policies Across the U.S.<sup>(1)</sup>



Ten state and 25 local complete streets policies have passed as of June 2007.

COMPLETE STREETS POLICIES REQUIRE THAT ROAD PROJECTS INCLUDE SAFE access for all users. A complete street provides for pedestrians, bicyclists, transit-users, and car drivers using elements such as traffic calming, sidewalks, bike lanes, curb cuts, transit stops and inviting crossings. Thunderhead member organizations have endorsed all of these policies as resulting in complete streets. The following page contains sample language from model policies.



# Excerpts from Model Policies:

## Chicago's Complete Streets Policy

“The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable – children, elderly, and persons with disabilities – can travel safely within the public right of way.”

## Oregon's Bike Bill

“Out of the funds received by the department or by any county or city from the State Highway Fund reasonable amounts shall be expended as necessary to provide footpaths and bicycle trails, including curb cuts and ramps as part of the project. Footpaths and bicycle trails, including curb cuts and ramps as part of the project, shall be provided wherever a highway, road or street is being constructed, reconstructed or relocated... The amount expended by the department or by a city or county as required or permitted by this section shall never in any one fiscal year be less than one percent of the total amount of the funds received from the highway fund.”

## San Francisco's Transit First Policy

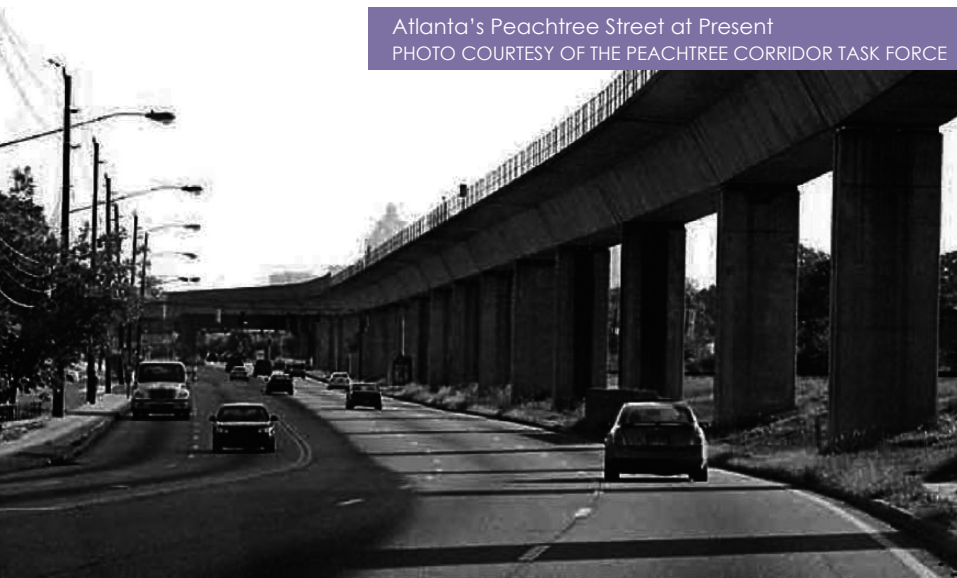
“Decisions regarding the use of limited public street and sidewalk space shall encourage the use of public rights of way by pedestrians, bicyclists, and public transit, and shall strive to reduce traffic and improve public health and safety.” (City Charter, Section 16.102)

## Florida Bicycle and Pedestrian Ways Statute

“Bicycle and pedestrian ways shall be established in conjunction with the construction, reconstruction, or other change of any state transportation facility, and special emphasis shall be given to projects in or within one mile of an urban area.”

Source: [www.completestreets.org](http://www.completestreets.org), ODOT

Atlanta's Peachtree Street at Present  
PHOTO COURTESY OF THE PEACHTREE CORRIDOR TASK FORCE



Re-Envisioned as a Complete Street  
PHOTO COURTESY OF THE PEACHTREE CORRIDOR TASK FORCE





# Policies & Provisions in 50 States

State	% of transportation \$ to bike/ped (1)	Per capita spending on bicycle & pedestrian projects (1)		Spending target for bike/ped projects?	State bike/ped staff		Miles of converted rail to trails	Hrs./wk. bikes allowed on state-operated trains (out of 168)	Published goals		Specified state funding:		Complete streets policy? (2)
		Federal	Total		number of full-time equivalent	staff/ 1 million people (4)			to increase bicycling & walking?	to reduce bike/ped fatalities?	for bike safety programs?	for ped safety programs?	
Alabama	1.55%	\$4.03	\$5.01	No	0.5	0.11	58	**	No	No	No	No	No
Alaska	2.73%	\$29.35	\$38.16	No	0.1	0.16	20	**	Yes	Yes	No	No	No
Arizona	4.05%	\$5.22	\$7.21	No	1.0	0.20	73	**	Yes	Yes	No	No	No
Arkansas	0.40%	\$1.18	\$1.59	No	1.0	0.37	24	**	No	No	No	No	No
California	2.09%	\$1.96	\$3.10	No	6.0	0.18	293	168	Yes	Yes	No	No	Yes
Colorado	1.66%	\$2.55	\$3.71	No	1.0	0.23	162	**	Yes	Yes	*	*	No
Connecticut	2.15%	\$2.55	\$3.42	No	0.5	0.15	140	**	No	Yes	No	No	No
Delaware	3.61%	\$11.21	\$22.08	*	*	*	5	*	*	*	*	*	No
Florida	1.06%	\$1.05	\$1.89	No	8.5	0.53	328	**	No	No	*	*	Yes
Georgia	1.17%	\$3.00	\$4.28	No	1.3	0.16	107	133	No	No	Yes	Yes	No
Hawaii	3.99%	\$11.68	\$14.66	No	1.0	0.83	12	**	Yes	No	Yes	Yes	No
Idaho	0.89%	\$2.95	\$4.18	No	1.0	0.77	234	**	Yes	Yes	No	No	No
Illinois	1.41%	\$1.79	\$2.86	No	1.2	0.10	549	168	No	No	No	No	No
Indiana	0.91%	\$1.86	\$2.44	No	0.9	0.15	122	**	No	No	Yes	No	No
Iowa	3.92%	\$5.99	\$10.45	No	1.0	0.34	557	**	No	No	Yes	No	No
Kansas	1.42%	\$2.36	\$3.54	No	0.5	0.19	55	**	No	No	Yes	Yes	No
Kentucky	0.99%	\$2.34	\$2.78	No	1.0	0.25	12	**	No	No	No	No	No
Louisiana	0.57%	\$1.38	\$1.56	No	1.0	0.22	27	**	No	Yes	No	No	No
Maine	1.19%	\$2.19	\$12.14	No	1.0	0.78	155	*	Yes	No	Yes	No	No
Maryland	0.62%	\$0.78	\$1.61	No	5.0	0.94	115	168	Yes	Yes	*	*	No
Massachusetts	1.47%	\$1.52	\$1.96	No	1.0	0.16	155	103	No	No	No	No	Yes
Michigan	1.66%	\$2.58	\$3.68	No	1.0	0.10	1398	**	No	Yes	No	No	No
Minnesota	3.59%	\$3.78	\$7.92	No	6.0	1.22	1327	147	Yes	Yes	*	*	No
Mississippi	0.54%	\$1.73	\$2.14	No	0.5	0.18	52	0	No	No	No	No	No
Missouri	2.65%	\$3.42	\$6.46	No	1.3	0.24	283	168	Yes	Yes	Yes	Yes	No
Montana	1.08%	\$5.89	\$9.12	*	*	*	58	*	*	*	*	*	No
Nebraska	0.78%	\$6.84	\$10.83	No	0.5	0.29	264	**	No	No	No	No	No
Nevada	0.98%	\$1.91	\$2.05	*	*	*	6	*	*	*	*	*	No

State	% of transportation \$ to bike/ped (1)	Per capita spending on bicycle & pedestrian projects (1)		Spending target for bike/ped projects?	State bike/ped staff		Miles of converted rail to trails	Hrs./wk. bikes allowed on state-operated trains (out of 168)	Published goals		Specified state funding:		Complete streets policy? (2)
		Federal	Total		number of full-time equivalent	staff/ 1 million people (4)			to increase bicycling & walking?	to reduce bike/ped fatalities?	for bike safety programs?	for ped safety programs?	
New Hampshire	3.54%	\$7.20	\$9.05	No	2.0	1.62	306	**	Yes	Yes	No	No	No
New Jersey	1.23%	\$1.41	\$1.93	Yes	4.0	0.48	211	144	No	No	*	*	No
New Mexico	2.11%	\$3.73	\$5.14	No	1.3	0.73	17	75	No	No	Yes	Yes	No
New York	0.91%	\$1.06	\$2.38	No	15.0	0.79	805	140	No	No	No	No	No
North Carolina	1.08%	\$1.02	\$1.61	Yes	8.0	0.99	51	168	Yes	Yes	No	No	Yes
North Dakota	0.78%	\$5.18	\$6.66	No	0.1	0.16	17	**	No	No	No	No	No
Ohio	1.86%	\$2.83	\$4.37	No	2.0	0.18	744	**	No	No	No	No	No
Oklahoma	1.11%	\$3.47	\$4.31	No	1.0	0.29	51	*	Yes	Yes	No	No	No
Oregon	1.99%	\$3.71	\$4.58	Yes	*	*	209	168	No	No	No	No	Yes
Pennsylvania	1.79%	\$3.23	\$3.59	No	1.5	0.12	1130	146	No	No	No	No	Yes
Rhode Island	5.40%	\$11.13	\$15.92	Yes	1.0	0.95	36	**	No	No	Yes	Yes	No
South Carolina	0.24%	\$0.49	\$1.02	No	2.0	0.50	44	**	No	No	No	No	Yes
South Dakota	0.49%	\$2.07	\$5.21	No	0.3	0.33	110	**	No	No	No	No	No
Tennessee	2.41%	\$4.79	\$5.72	Yes	1.0	0.18	58	**	Yes	No	Yes	Yes	Yes
Texas	1.22%	\$1.87	\$3.70	*	*	*	174	*	No	Yes	Yes	Yes	No
Utah	1.26%	\$2.39	\$3.50	*	2.0	0.90	58	168	Yes	Yes	Yes	Yes	No
Vermont	3.17%	\$11.14	\$12.83	*	1.0	1.64	147	**	No	No	*	*	Yes
Virginia	0.50%	\$0.74	\$1.37	***	***	***	198	***	***	***	***	***	Yes
Washington	1.98%	\$3.45	\$4.86	Yes	4.8	0.81	634	*	Yes	Yes	*	*	No
West Virginia	0.46%	\$1.82	\$1.99	No	1.0	0.55	475	**	No	No	No	No	No
Wisconsin	1.81%	\$3.78	\$4.79	No	3.0	0.56	1533	**	No	Yes	Yes	Yes	No
Wyoming	1.31%	\$8.97	\$11.59	No	0.5	1.01	22	**	No	No	Yes	Yes	No
Mean /Average (3)	1.54%	\$2.50	\$3.80	No*	2.2*	0.34	400*	138*	No*	No*	No*	No*	No*
Median	1.41%	\$2.58	\$4.18	No	0.1	0.33	122	158	No	No	No	No	No
High	5.40%	\$29.35	\$38.16	**	15	1.64	1533	168	**	**	**	**	**
Low	0.24%	\$0.49	\$1.02	**	0.1	0.1	5	0	**	**	**	**	**

Source: FHWA FMIS accounting system (2004-2006), State Surveys, ACS (2005), Rails to Trails Conservancy, Thunderhead Alliance

(1) Funding data here is from a three year average of authorized funding and thus represent all federal funds obligated to projects in the 3-year period and are not necessarily the actual amount spent in these years;

(2) Only policies endorsed as "complete streets policies" by Thunderhead member organizations are included;

(3) All averages are weighted by population or take into account the sums from all cities except for those noted with a \*;

(4) For states where the population is less than one million, standardized values will be larger than the value of the variable.

#### Legend:

\* = Officials could not access data

\*\* = Not applicable

\*\*\* = Data Unavailable or Thunderhead could not access data

■ = High Value    ■ = Low Value

# Policies & Provisions in Major Cities

City	Per capita spending on bicycle & pedestrian projects (2,6)		Spending target	City bike/ped staff		Number of FTE police on Bikes	Facilities: miles/sq. mile (3)		Published goals:			Complete streets policy? (4)
	Federal	Total		number of full-time equivalent	staff/ 1 million people (7)		current bicycle facilities	planned bike/ ped facilities	to increase bicycling & walking?	to reduce bike & ped fatalities?	to increase bike & ped facilities?	
<b>Albuquerque</b>	\$0.40	\$0.51	No	5	10.2	45	1.6	2.6	*	Yes	Yes	No
<b>Amarillo</b>	\$4.92	\$6.16	No	0	0.0	8	1.0	*	Yes	Yes	No	No
<b>Arlington (TX)</b>	\$1.26	\$1.54	***	***	***	***	***	***	***	***	***	No
<b>Atlanta</b>	\$9.53	\$11.69	No	0	0.0	*	0.2	4.5	Yes	Yes	Yes	No
<b>Austin</b>	\$2.52	\$3.62	*	*	*	*	*	*	*	*	*	No
<b>Baltimore</b>	\$10.81	\$17.05	No	1	1.6	*	0.3	5.2	Yes	Yes	Yes	No
<b>Boston</b>	\$0.00	\$0.00	No	0	0.0	*	0.5	*	No	No	*	No
<b>Charlotte</b>	\$0.00	\$0.00	No	2	3.3	60	0.3	1.3	Yes	No	Yes	No
<b>Chicago</b>	\$1.13	\$1.73	No	13.5	5.0	*	1.5	0.7	Yes	Yes	Yes	Yes
<b>Cleveland</b>	\$0.00	\$0.00	Yes	2	4.8	0	0.5	2.3	Yes	No	No	Yes
<b>Colorado Springs</b>	\$0.86	\$1.06	Yes	0.5	1.3	40	0.8	*	No	No	No	Yes
<b>Columbus</b>	\$0.00	\$0.00	No	3	4.3	70	0.4	0.2	No	No	Yes	Yes
<b>Dallas</b>	\$0.25	\$1.07	*	*	*	*	*	*	*	*	*	No
<b>Denver</b>	\$1.16	\$3.04	No	1	1.8	20	2.4	1.6	Yes	Yes	Yes	No
<b>Detroit</b>	\$1.53	\$2.07	No	*	*	*	0.1	0	No	No	No	No
<b>El Paso</b>	\$0.03	\$0.04	*	*	*	*	*	*	*	*	*	No
<b>Fort Worth</b>	\$1.26	\$1.54	*	0.25	0.4	*	0.3	0.8	*	*	No	No
<b>Fresno</b>	\$1.49	\$1.86	No	0	0.0	0	1.1	0.9	Yes	Yes	Yes	No
<b>Honolulu</b>	\$0.00	\$0.00	Yes	1	2.8	40	1.2	3	Yes	Yes	Yes	No
<b>Houston</b>	\$0.68	\$1.03	Yes	4	2.1	*	0.5	0.1	No	No	Yes	No
<b>Indianapolis</b>	\$1.71	\$2.00	No	0	0.0	4	0.1	0.7	No	No	Yes	No
<b>Jacksonville</b>	\$0.33	\$1.01	No	1	1.3	*	*	*	Yes	*	Yes	No
<b>Kansas City (MO)</b>	\$0.00	\$0.00	No	0	0.0	*	0.2	*	No	No	No	No
<b>Las Vegas</b>	\$0.62	\$0.65	Yes	1	1.9	*	2.7	16.2	Yes	Yes	Yes	No
<b>Long Beach</b>	\$0.77	\$1.41	*	5	10.8	9	1.5	1.8	Yes	Yes	No	No
<b>Los Angeles</b>	\$0.77	\$1.41	No	8	2.1	210	0.8	0.7	Yes	No	No	No
<b>Louisville</b>	\$3.36	\$3.79	No	*	*	*	*	0.5	*	*	*	No
<b>Mesa</b>	\$1.79	\$2.97	No	0	0.0	2	1.5	0.1	Yes	Yes	Yes	No

City	Per capita spending on bicycle & pedestrian projects (2,6)		Spending target	City bike/ped staff		Number of FTE police on Bikes	Facilities: miles/sq. mile (3)		Published goals:			Complete streets policy? (4)
	Federal	Total		number of full-time equivalent	staff/ 1 million people (7)		current bicycle facilities	planned bike/ped facilities	to increase bicycling & walking?	to reduce bike & ped fatalities?	to increase bike & ped facilities?	
<b>Miami</b>	\$0.22	\$0.26	*	3.2	8.8	*	4.0	14	No	Yes	Yes	No
<b>Milwaukee</b>	\$3.32	\$4.14	No	1	1.8	65	1.4	0.3	Yes	No	Yes	No
<b>Minneapolis</b>	\$4.16	\$7.21	Yes	3	8.6	*	2.1	0.8	Yes	Yes	Yes	No
<b>Nashville</b>	\$3.40	\$4.02	Yes	8.5	16.3	22	0.2	0.2	Yes	Yes	Yes	No
<b>New Orleans</b>	\$6.14	\$8.19	Yes	2	4.6	*	0.1	0.7	No	Yes	No	No
<b>New York</b>	\$1.16	\$4.09	No	8	1.0	200	0.9	5.9	No	No	Yes	No
<b>Oakland</b>	\$4.83	\$7.37	No	3.5	9.4	15	1.4	2.4	Yes	Yes	No	No
<b>Oklahoma City</b>	\$8.06	\$9.78	No	0	0.0	18	0.1	0.2	No	No	No	No
<b>Omaha</b>	\$6.63	\$12.69	Yes	0.75	2.0	12	1.0	1.2	Yes	Yes	Yes	No
<b>Philadelphia</b>	\$1.76	\$3.16	No	0	0.0	200	2.2	2.2	No	No	No	No
<b>Phoenix</b>	\$1.79	\$2.97	Yes	1	0.7	*	1.5	*	No	No	Yes	No
<b>Portland</b>	\$3.88	\$4.78	No	8	15.6	4	1.9	3.2	*	No	Yes	No
<b>Sacramento</b>	\$3.28	\$4.50	*	*	*	15	2.8	3.1	No	No	No	Yes
<b>San Antonio</b>	\$2.04	\$4.19	*	*	*	*	*	*	*	*	*	No
<b>San Diego</b>	\$1.75	\$2.64	No	1	0.8	*	2.4	6.2	No	No	No	Yes
<b>San Francisco</b>	\$0.93	\$1.31	Yes	7	9.7	89	3.2	*	Yes	No	No	Yes
<b>San Jose</b>	\$2.78	\$5.07	No	1	1.1	20	1.2	1.1	Yes	Yes	Yes	No
<b>Seattle</b>	\$2.47	\$3.90	No	6	11.2	*	0.8	4.5	Yes	Yes	Yes	Yes
<b>Tucson</b>	\$3.19	\$3.78	Yes	1	2.0	42	3.2	0.5	Yes	*	Yes	No
<b>Tulsa</b>	\$5.97	\$7.38	No	1	2.7	0	0.5	1.4	No	No	Yes	No
<b>Virginia Beach</b>	\$0.00	\$0.00	No	1	2.3	80	1.0	0.6	Yes	No	No	No
<b>Washington</b>	\$6.87	\$10.50	No	2.5	4.4	*	2.4	4.9	Yes	Yes	Yes	No
<b>Mean/Average (5)</b>	\$1.83	\$3.17	No*	4.6*	2.8	131*	1.2*	2.49*	Yes*	(1)	Yes*	No*
<b>Median</b>	\$1.75	\$2.07	No	1	2.0	22	1.0	1.25	Yes	**	Yes	No
<b>High</b>	\$10.81	\$17.05	**	13.5	16.3	210	4.0	16.2	**	**	**	**
<b>Low</b>	\$0.00	\$0.00	**	0	0.0	0	0.1	0.0	**	**	**	**

Source: FHWA (2001-2006), City Surveys, Census (2000), ACS (2005), and Thunderhead Alliance

(1) 21 cities responded "yes" and 21 cities responded "no" to this question

(2) Funding data here is from a three year average of authorized funding and thus represent all federal funds obligated to projects in the 3-year period and are not necessarily the actual amount spent in these years;

(3) Bicycle facilities include on-street striped bike lanes, signed bike routes, and multi-use paths; planned bike/ped facilities include the aforementioned plus sidewalks

(4) Only policies endorsed as "complete streets policies" by Thunderhead member organizations are included;

(5) All averages are weighted by population or take into account the sums from all cities except for those noted with a \*;

(6) See note (4) and (5) on page 49 regarding sorting of funding data and discrepancies in funding data;

(7) For cities where the population is less than one million, standardized values will be larger than the value of the variable.

#### Legend:

\* = Officials could not access data

\*\* = Not applicable

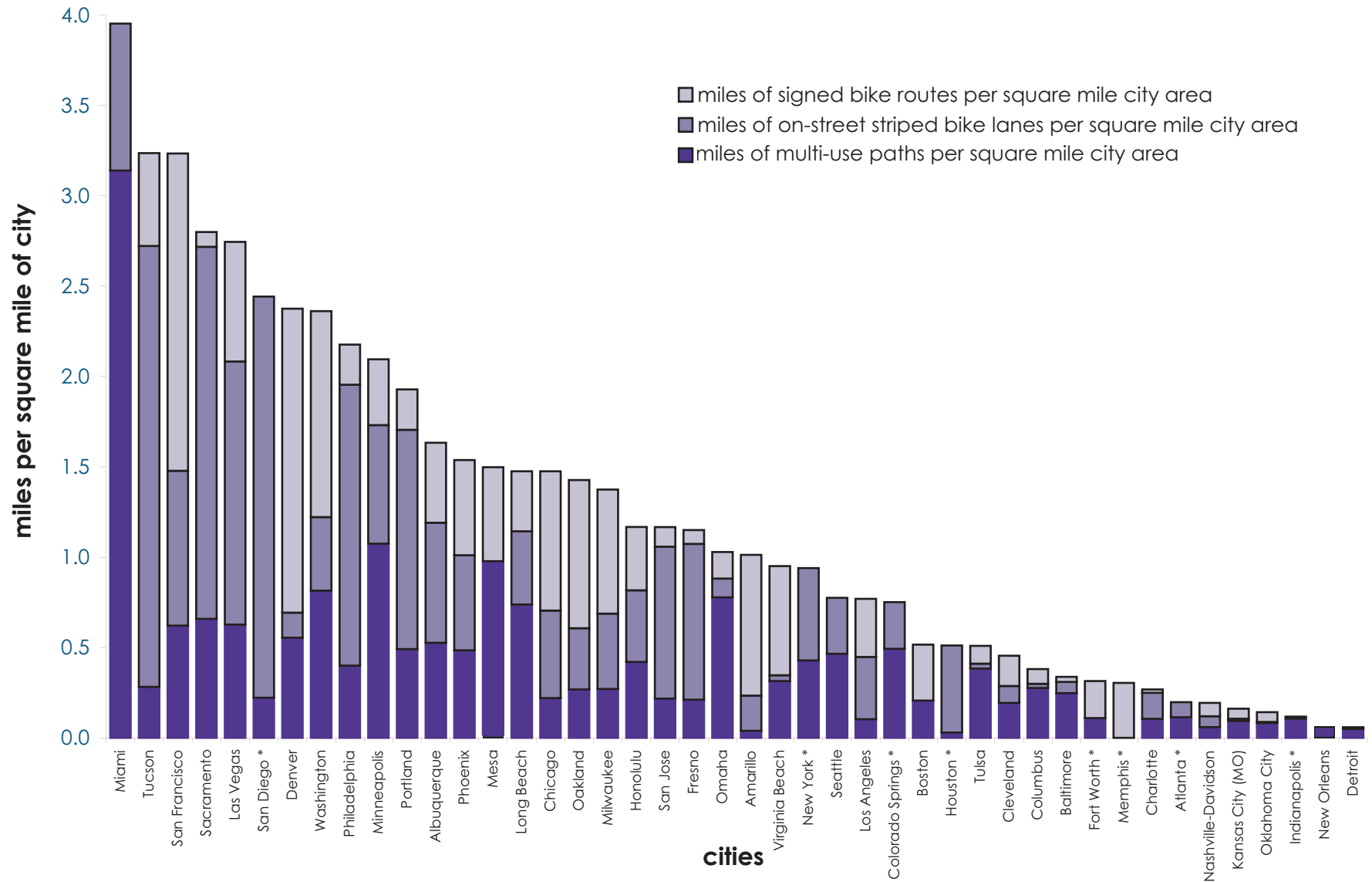
\*\*\* = Data Unavailable or Thunderhead could not access data

■ = High Value    ■ = Low Value



# Building for Bicycling & Walking

## Existing Bicycle and Pedestrian Facilities in 50 Cities

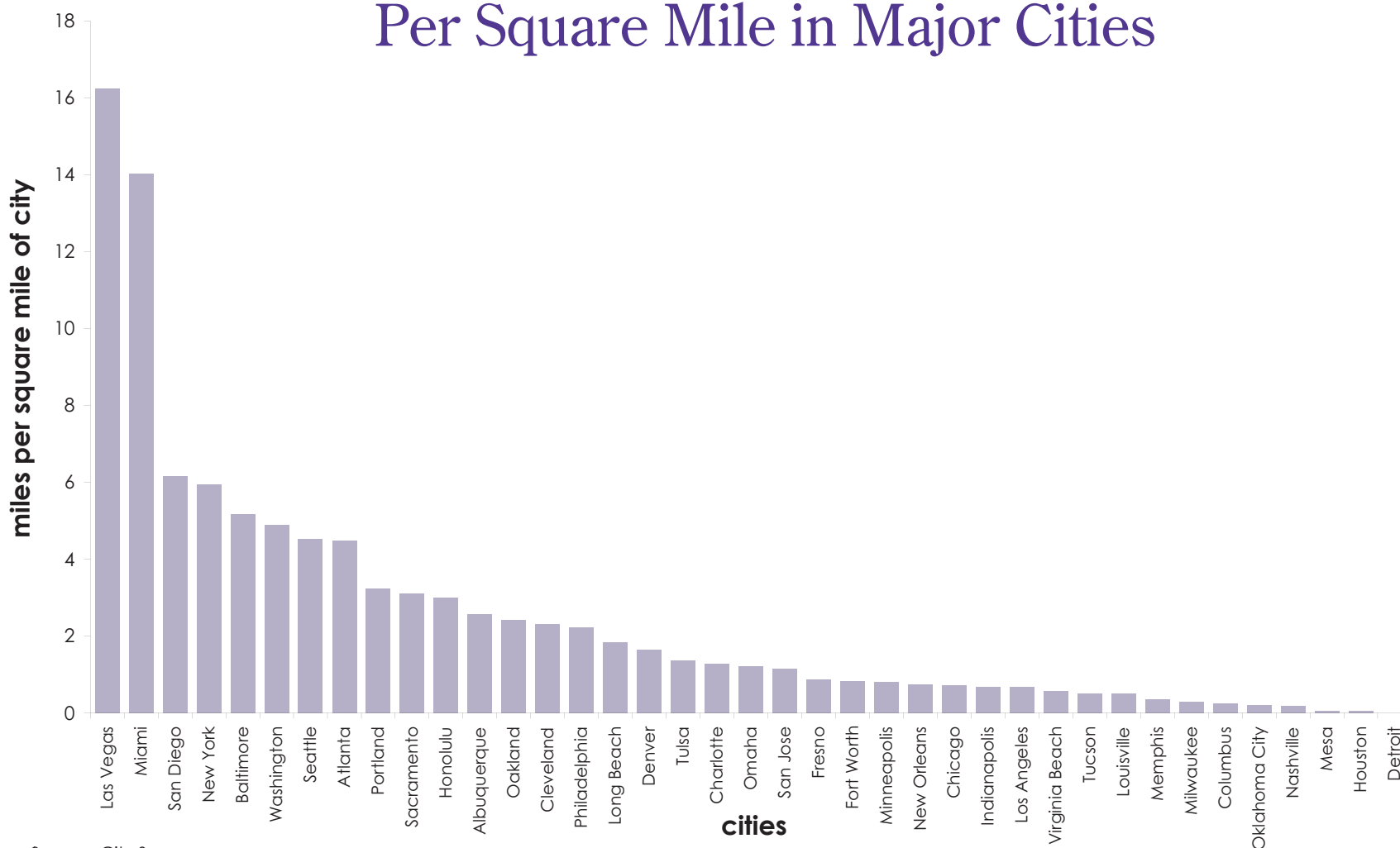


Source: City Surveys

\* = one or more data components not available; no data available for Arlington, Austin, Dallas, El Paso, Jacksonville, Louisville or San Antonio

**Note:** Data are unavailable for Arlington, Austin, Dallas, El Paso, Jacksonville, Louisville, and San Antonio.

## Miles of Planned Bicycle and Pedestrian Facilities Per Square Mile in Major Cities



Source: City Surveys

ON AVERAGE, CITIES REPORT 1.23 EXISTING MILES OF BICYCLE FACILITIES PER square mile. The average of planned bicycle and pedestrian facilities is 2.49 miles per square mile (roughly double the miles of existing facilities). For existing bicycle facilities, cities were asked to report on miles of multi-use paths, on-street striped bike lanes, and signed bike routes. Miami reported more miles of combined cycling facilities than any other city with 3.95 miles of facilities per square mile. Las Vegas ranked highest for planned facilities with 16.2 miles of bicycle and pedestrian facilities planned per square mile.

Cities are planning for twice as many facilities as they have at present.

# The State of Bike Parking in Cities

City	Number of racks	Avg. number spaces/rack	Bike parking spaces per 10,000 people	Bike parking requirements for buildings?
Albuquerque	*	*	*	Yes
Amarillo	0	0	0	No
Arlington (TX)	**	**	**	**
Atlanta	171	5.5	24	Yes
Austin	*	*	*	*
Baltimore	99	*	*	No
Boston	*	*	*	No
Charlotte	61	2	2	Yes
Chicago	10,500	2	77	Yes
Cleveland	600	2	29	No
Colorado Springs	*	*	*	No
Columbus	50	*	*	No
Dallas	*	*	*	*
Denver	*	2	*	Yes
Detroit	*	*	*	No
El Paso	*	*	*	*
Fort Worth	*	*	*	*
Fresno	*	*	*	Yes
Honolulu	400	4	44	No
Houston	194	2	0.2	Yes
Indianapolis	101	2	3	No
Jacksonville	*	*	*	*
Kansas City (MO)	0	0	0	No
Las Vegas	345	2	13	No
Long Beach	*	*	*	Yes
Los Angeles	2.45	2	13	Yes
Louisville	*	*	*	*
Memphis	2	10	0.3	No

City	Number of racks	Avg. number spaces/rack	Bike parking spaces per 10,000 people	Bike parking requirements for buildings?
Mesa	*	*	*	No
Miami	0	0	0	Yes
Milwaukee	2,000	*	*	Yes
Minneapolis	3,964	4	453	Yes
Nashville	*	*	*	No
New Orleans	*	*	*	Yes
New York	3,214	3	12	Yes
Oakland	814	2	44	No
Oklahoma City	*	*	*	No
Omaha	200	10	54	No
Philadelphia	1,100	2	16	No
Phoenix	0	0	0	No
Portland	*	*	*	Yes
Sacramento	*	*	*	No
San Antonio	*	*	*	*
San Diego	*	*	*	Yes
San Francisco	1,550	2	40	Yes
San Jose	400	2	9	Yes
Seattle	3,000	2	112	Yes
Tucson	4,500	*	*	Yes
Tulsa	*	*	*	No
Virginia Beach	*	*	*	Yes
Washington	480	2	17	Yes
Mean /Average	1,341	3	24 (1)	Yes
Median	400	2	14	Yes
High	10,500	10	453	**
Low	0	0	0	**

Source: City Surveys and ACS (2005)  
 (1) The average is weighted by the population of responding cities.



## Minneapolis Top for Bike Parking

Minneapolis ranks highest among cities surveyed for per capita bicycle parking. With 3,964 racks, averaging four spaces per rack, Minneapolis boasts 453 bicycle parking spaces per 10,000 residents. A number of policy decisions have contributed to Minneapolis's success. The city parking budget includes \$40,000 a year for bicycle parking and has a unique 50/50 cost share program with local businesses who are interested in bike racks. The city also has ordinances that support bicycle parking and will pay 100% of the cost for bike racks at schools and public parks. Minneapolis doesn't plan on slowing down its provision of bike parking anytime soon. As one of five pilot communities in the U.S. to receive hefty federal support for bicycle and pedestrian provisions under SAFETEA-LU (the most recent federal

transportation bill), they have just received a federal grant that will allow them to install bike

racks at 100% of Minneapolis schools, public parks and post offices.

## The Importance of Bicycle Parking

The choice to bicycle is often linked to the ease of the bicycling experience. The ability to securely and conveniently park one's bicycle is an important factor. While Minneapolis, Seattle, and Chicago all show a significant investment in bicycle parking, some cities answered "NA" to questions on bicycle parking, which was translated to mean there is no city-funded bike parking program. Other cities such as Memphis, Houston and Charlotte report bicycle parking spaces for only 0.02% of the population. Minneapolis has bike parking for 4.53% of the population and reports they are just keeping up with the demand for bicycling. Cyclists make up 2.42% of all trips to work in Minneapolis and they estimate a total bike mode share of roughly three percent.

**Legend:** (table opposite page)

\* = Officials could not access data

\*\* = Thunderhead could not access data

**Note:** A survey response of "NA" to question of bike parking was taken to mean 0 and a response of "Less than 100" for Baltimore was taken to mean 99.

One of Minneapolis's roughly 4,000 bike racks overflows outside of Fairview Medical Center.  
PHOTO COURTESY OF DONALD PFLAUM, CITY OF MINNEAPOLIS







A cyclist aboard BART.  
PHOTO COURTESY OF GREG ZHOVREBOFF

## The Bay Area Model for Transit Connectivity

Oakland and San Francisco are two Bay Area cities that provide models for bike-transit connectivity. Both cities have equipped 100% of their buses with bike racks. Bikes are allowed on trains except during peak morning and evening commute times. BART (Bay Area Rapid Transit) provides bicycle parking at all of its stations and has recently installed a prototype bicycle stair ramp at two stations to allow cyclists to easily roll their bike up to street level. Caltrain, a commuter rail serving the Peninsula area of San Francisco, allows bikes on all trains.

# Integrating Bikes and Transit

## Bikes on Buses

Of the 45 cities who responded to questions regarding bike racks on buses, 73%, or 33 respondents, reported racks on 100% of city buses. Only four cities: (Amarillo, Milwaukee, New York, and Omaha) reported that none of their buses were equipped with bike racks. Cities ranked well in this area overall, with 69% of city buses reported to be equipped with bike racks. These cities are providing increased mobility options through bike-transit integration.

## Bikes on Trains

Data for bicycle access on trains is sparse, in part because many cities surveyed do not have trains and thus responded “not applicable.” For those that did respond, 30% reported bikes are allowed on trains 24 hours a day, seven days a week (for a total of 168 hours a week). Only Memphis answered that bicycles are never allowed on trains. Other responses ranged from 98 hours to 161 hours a week allowing bicycles on trains.

## Bicycle Parking at Transit

City Surveys also asked about bike parking spaces at transit stops. Oakland ranked highest with 948 bike parking spaces at transit stops equalling 25.4 spaces per 10,000 residents. The average among the 32 responding cities is 1.7 bike parking spaces per 10,000 residents. Thunderhead assumed that cities responding “NA” to this question had no program for bike parking at transit, and were therefore entered as “0.” While cities such as Oakland, Washington, Miami, San Jose, Mesa, and Sacramento all show top efforts to provide transit access for bicyclists, many cities have unsatisfactory levels of bike parking at transit.

**Legend:** (table opposite page)  
 \* = Officials could not access data  
 \*\* = Not applicable  
 \*\*\* = Data unavailable or Thunderhead could not access data  
 ■ = High Value    ■ = Low Value

# Transit Integration with Bicycling in Major Cities

City	% of buses with bike racks	Hrs./wk. bikes allowed on trains (of 168 hrs)	Total number of bike parking spaces at transit stops	Number of bike parking spaces at transit stops/10,000 people
Albuquerque	100%	168	20	0.4
Amarillo (TX)	0%	**	0	0.0
Arlington	***	***	***	***
Atlanta	*	140	*	*
Austin	*	*	*	*
Baltimore	5%	*	*	*
Boston	35%	*	*	*
Charlotte	100%	**	60	1.0
Chicago	100%	148	251	0.9
Cleveland	100%	154	54	1.3
Colorado Springs	100%	**	8	0.2
Columbus	100%	**	0	0.0
Dallas	*	*	*	*
Denver	100%	*	111	2.0
Detroit	39%	118.5	*	*
El Paso	*	*	*	*
Fort Worth	*	*	*	*
Fresno	100%	168	0	0.0
Honolulu	100%	**	0	0.0
Houston	**	98	*	*
Indianapolis	100%	**	0	0.0
Jacksonville	100%	*	80	1.0
Kansas City (MO)	100%	**	*	*
Las Vegas	100%	**	20	0.4
Long Beach	100%	158	132	2.8
Los Angeles	90%	161	734	2.0
Louisville	100%	**	*	*
Memphis	20%	0	90	1.4

City	% of buses with bike racks	Hrs./wk. bikes allowed on trains (of 168 hrs)	Total number of bike parking spaces at transit stops	Number of bike parking spaces at transit stops/10,000 people
Mesa	100%	**	290	6.6
Miami	100%	168	330	9.1
Milwaukee	0%	**	0	0.0
Minneapolis	80%	168	*	*
Nashville	100%	*	*	*
New Orleans	*	**	0	0.0
New York	0%	168	0	0.0
Oakland	100%	140	948	25.4
Oklahoma City	100%	*	0	0.0
Omaha	0%	**	0	0.0
Philadelphia	95%	138	96	0.7
Phoenix	100%	**	0	0.0
Portland	100%	*	*	*
Sacramento	100%	133	259	5.8
San Antonio	*	*	*	*
San Diego	99%	*	*	*
San Francisco	100%	100	100	1.4
San Jose	100%	133	800	9.0
Seattle	100%	168	*	*
Tucson	100%	**	*	*
Tulsa	100%	**	40	1.1
Virginia Beach	100%	**	25	0.6
Washington	100%	110	675	11.8
Mean /Average	69% (1)	137	160	1.7 (1)
Median	100%	148	40	0.7
High	100%	168	948	25.4
Low	0%	0	0	0.0

Sources: City Surveys and ACS (2005)

(1) The average is weighted by the population of responding cities.

**Note:** A survey response of "NA" to question of bike parking at transit stops was taken to mean 0.

# 6: Thunderhead Alliance Bicycle & Pedestrian Advocacy

## Growing the Movement

There is no doubt that bicycle and pedestrian advocacy is on the rise. When Thunderhead Alliance was formed in 1996 as the North American coalition of state and local bicycle and pedestrian advocacy organizations, there were just 12 members organizations. Today Thunderhead boasts 128 organizations representing 49 states and two Canadian provinces. The number of bicycle and pedestrian advocacy organizations has steadily increased through Thunderhead's comprehensive organizational development efforts and in response to increasing traffic congestion, safety risks, a growing obesity epidemic, and a warming planet. This upward trend in bicycle and pedestrian advocacy doesn't seem to be waning anytime soon. As these issues become more prevalent in mainstream public discourse, Thunderhead is coaching more new leaders of emerging organizations and connecting them with peers around the country as they embark to transform their communities into more vibrant, healthy and livable places.

## Advocacy as an Indicator

The presence and strength of advocacy organizations in states and cities has been used as an indicator to measure the state of bicycling and walking. Strong advocacy organizations are often necessary to local jurisdictions with hopes of passing and implementing progressive policies for bicycling and walking. Government officials who are passionate about these issues often promote emerging advocates, recognizing the need for increased citizen involvement in the public policy discourse. The presence and capacity of advocacy organizations are indicators of the prominence of bicycling and walking in communities, and

are worth comparing to other bicycling and walking indicators. For this report, Thunderhead Alliance only collected data from Thunderhead organizations.

## Proving Effectiveness

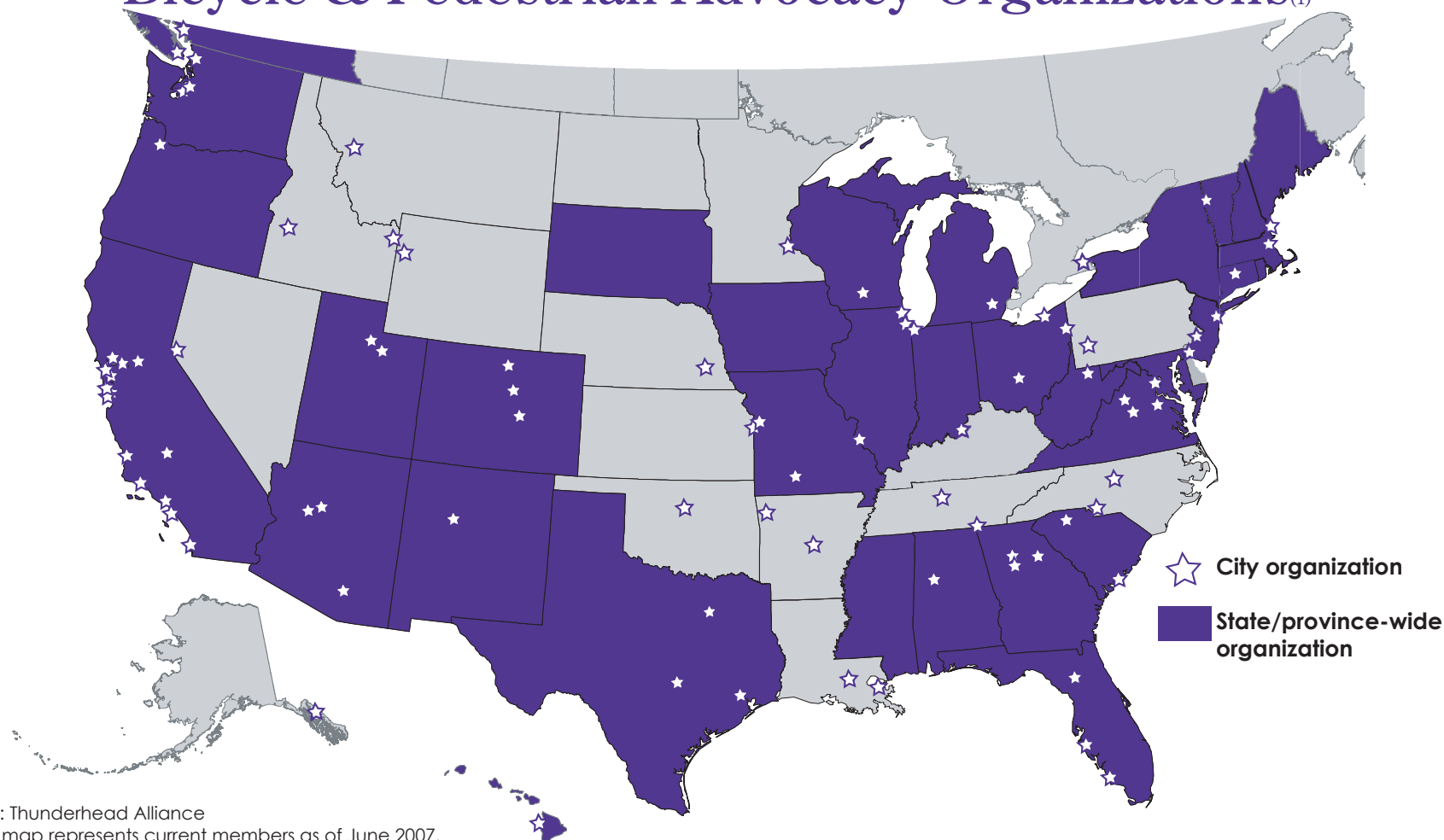
Thunderhead's coalition of state and local advocacy organizations is constantly influencing public policy and helping to create more bikeable and walkable communities. But can this be proven? Proving the impact of advocacy is one of the objectives of this study. Thunderhead hopes to show a connection between the capacity of its members and bicycling and walking levels. Thunderhead leaders can also learn where they are successful and which areas need greater attention, thus refocusing limited resources for the greatest impact.

## Capacity of Thunderhead Organizations

Measuring the capacity of an advocacy organizations is not an easy thing. In this attempt, Thunderhead distributed a survey to Thunderhead Alliance member organizations representing one of the 50 states or 50 cities in this report. Variables measured include revenue and revenue sources, membership, staffing, and media impressions. While these variables are telling in some cases, they will not accurately reflect the full capacity of these organizations. Some organizations with strong leaders and a dedicated base, can and do win great victories for bicycling and walking with virtually no budget. However, in Thunderhead's experience, organizations with sustainable revenue sources and budgets to employ full-time staff are the most self-sustaining and are able to accomplish more in the long term.

(cont. page 74)

# Thunderhead Alliance Bicycle & Pedestrian Advocacy Organizations<sup>(1)</sup>



Source: Thunderhead Alliance

(1) This map represents current members as of June 2007.

THUNDERHEAD ALLIANCE MEMBER ORGANIZATIONS ARE SHOWN ON THIS map. States with state-wide organizations are colored and cities or counties with organizations are starred. Thunderhead Alliance was founded in 1996 with 12 advocacy organizations. That number has steadily increased to 128 organizations representing 49 states and two Canadian provinces. Although most bicycle and pedestrian advocacy organizations are Thunderhead members, some, including new emerging organizations, are not. This map is not “all-inclusive” of state and local bicycle and pedestrian advocacy organizations. For a complete listing of organizations on this map by state see Appendix 3.

128 Advocacy  
Organizations in 49  
states, two provinces,  
and growing.



(cont. from page 72)

Membership numbers and media impressions were included because they increase the political influence of an organization. Organizations are represented in this section by the state or city they serve. In the cases where more than one advocacy organization serves a particular state or city, their combined data (such as number of members or annual revenue) were added together. Appendix 2 contains the list of 50 states and 50 cities studied in this report and identifies the advocacy organization(s) representing each city or state. To see which organization(s) are represented by these data you can cross-reference the city or state with Appendix 2.

The data in this chapter measure the capacity of Thunderhead Alliance member organizations only. Although most state and local bicycle and pedestrian advocacy organizations are Thunderhead members, there are some organizations, including new and emerging organizations, that are not. Also, many other organizations, individuals and government officials advocate for bicycling and walking. This section is by no means an all-inclusive or definitive measurement of advocacy capacity across the U.S. In the scope of this report, measurements are limited to the capacity of Thunderhead member state and local bicycle and pedestrian advocacy organizations.

## Revenue of Thunderhead Organizations

Thunderhead asked its member organizations for their revenue sources from the most recent budget year. Data indicate that on average, state-wide advocacy organizations operate on three cents per capita. The state with the highest per capita income for an advocacy organization is Maine, with a budget of 34 cents per capita. Organizations that represent cities have significantly higher incomes per capita. On average, organizations representing cities earn 11 cents per capita. Jackson, Wyoming ranks highest in per capita earnings of all cities surveyed at \$10.25 per capita. The range is wide among states and cities in part because some advocacy organizations are new and being compared to longer-established organizations. Also, some organizations have full-time staff for fundraising while others are volunteer-run. Both city and state organiza-

tions have diversified revenue, mainly divided between memberships and donations, program fees and events, and government grants and contracts. Memberships and donations make up slightly more than a quarter of organization's budgets on average, though this category is the primary revenue source for many smaller organizations with budgets under \$100,000 a year.

## Membership of Thunderhead Organizations

Membership of advocacy organizations was another capacity factor surveyed. State-wide organizations averaged one member per 56,579 people. Maine has the highest rate of members to population with one member for every 212 Maine residents. Organizations serving cities have higher membership rates, averaging one member per 11,110 residents. Jackson, Wyoming has the highest membership rate with one member for every 18 residents. San Francisco has the highest membership rate of all major cities surveyed with one member per 110 residents. Salt Lake City ranks third with one member for every 363 people.

The San Francisco Bicycle Coalition signs up new members at one of its Bike to Work Day energizer stations. San Francisco has the highest membership rates of all big cities with one member for every 110 residents.

PHOTO COURTESY OF THE SAN FRANCISCO BICYCLE COALITION



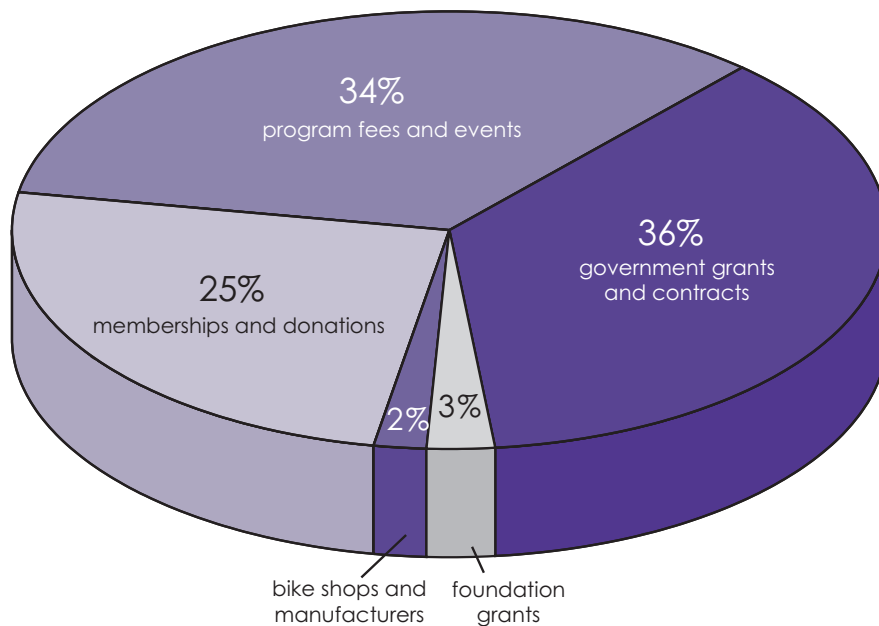
# Budgets of Thunderhead Organizations

Diverse and balanced revenue sources make up budgets of Thunderhead organizations.

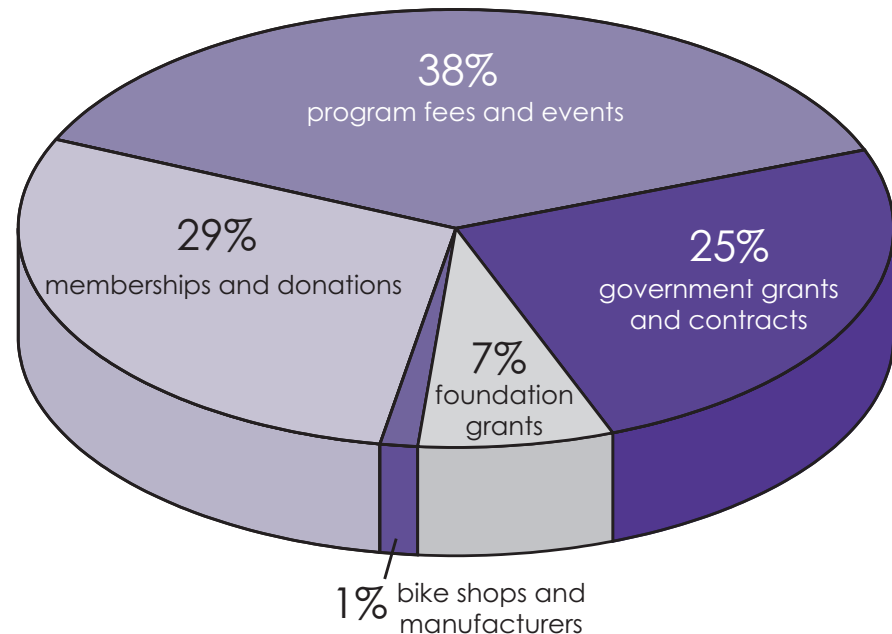
COMPARING THE BUDGETS OF THUNDERHEAD ORGANIZATIONS REPRESENTING 35 major U.S. cities and 32 states, program fees and events, memberships and donations, and government funding make up the largest share of their combined revenues. Although many Thunderhead organizations are focused on cycling advocacy, and bike shops and manufacturers are a common target for fundraising appeals, the bicycle industry accounts for only 2% of the revenue of state-wide organizations and an even slimmer 1% for organizations serving cities. Foundation grants also make up just a tiny sliver of the income pie, accounting for three percent of revenue for state-wide organizations and seven percent for organizations serving cities.

Data for this comparison was reported by Thunderhead Alliance member organizations. Organizations that did not specify revenue sources are not included in these figures.

**Revenue Sources of State-Wide Thunderhead Organizations**

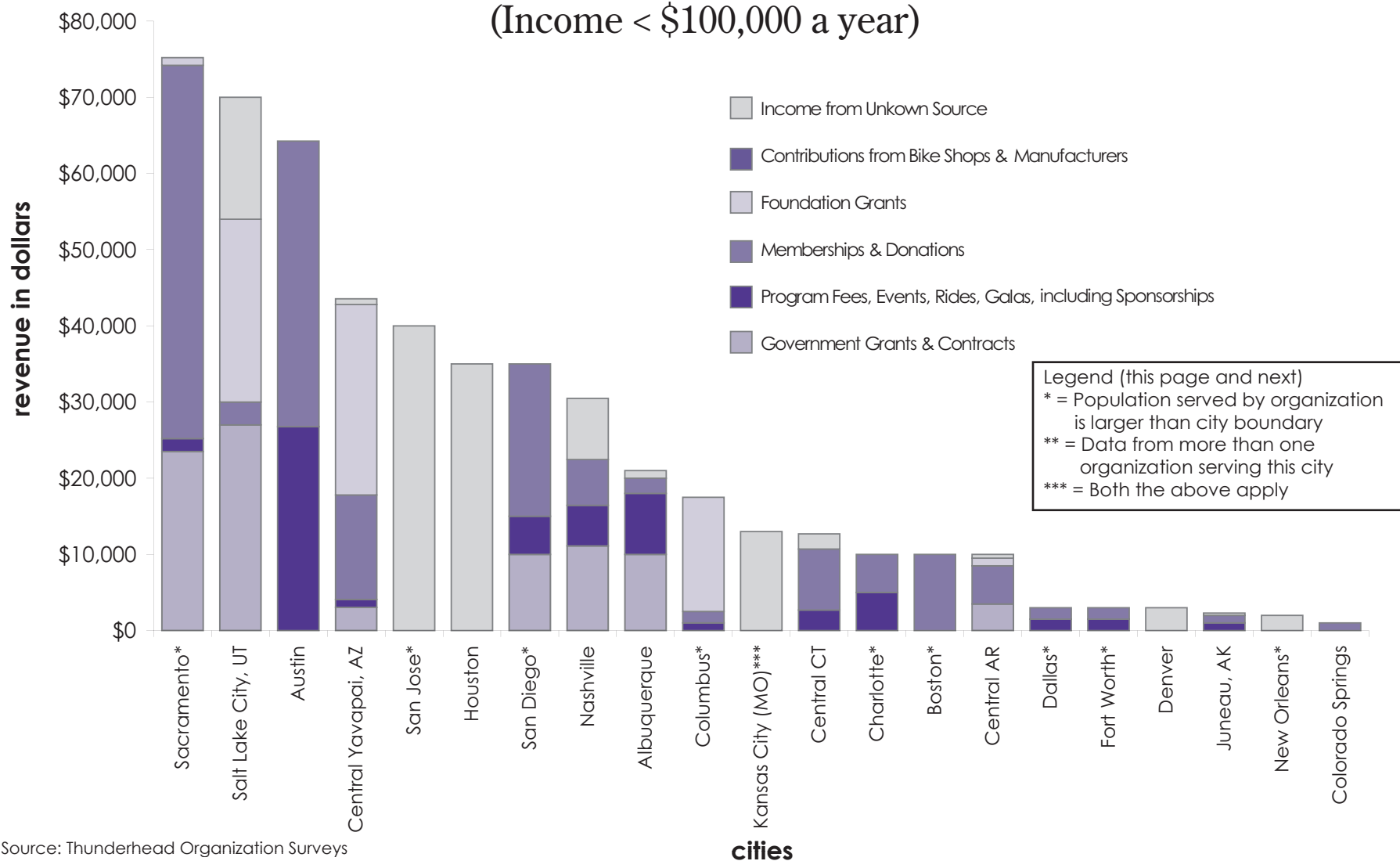


**Revenue Sources of Thunderhead Organizations Representing Cities**



Source: Thunderhead Organization Surveys

## Revenue Sources of Local Thunderhead Organizations (Income < \$100,000 a year)

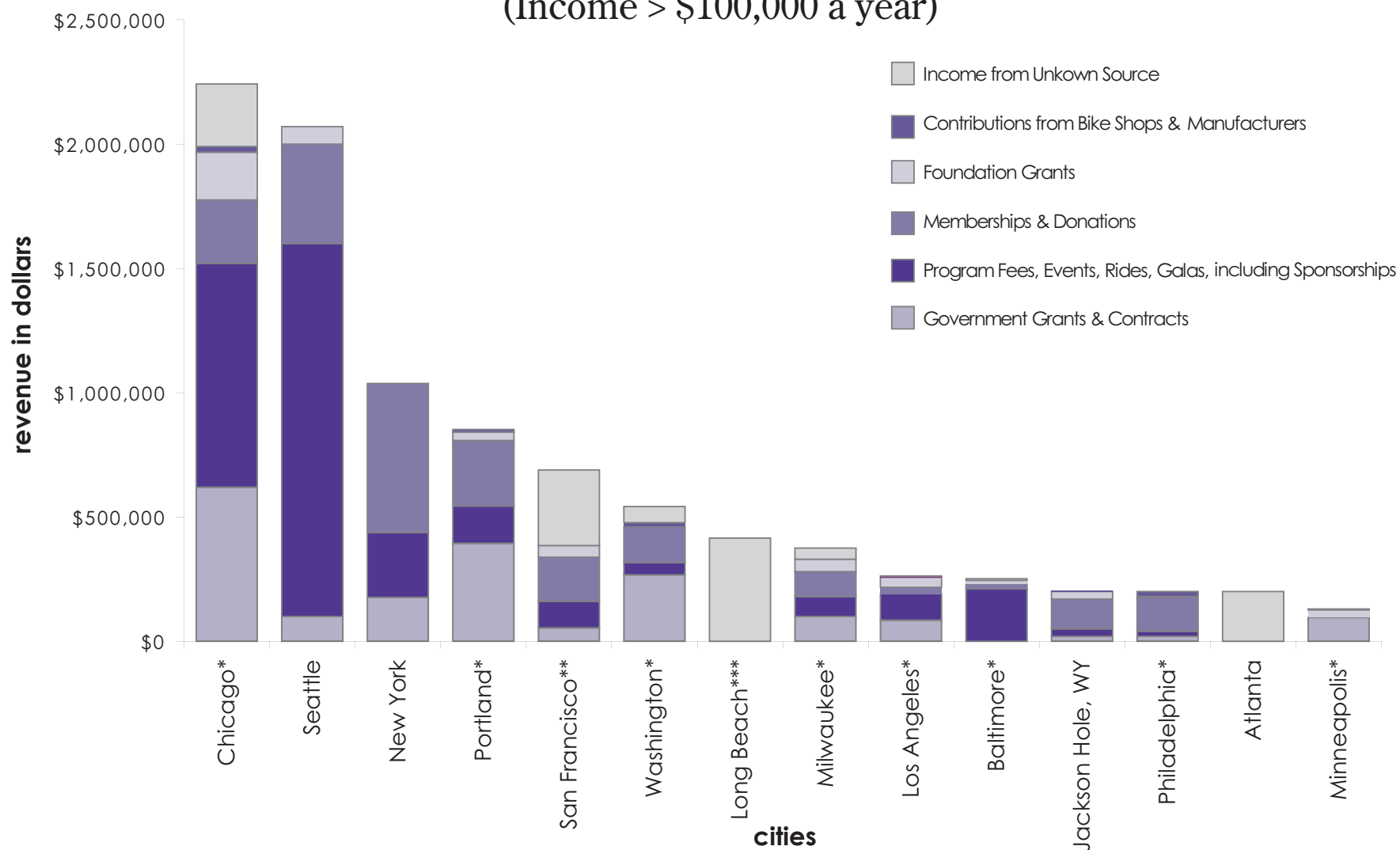


Source: Thunderhead Organization Surveys

Individual giving accounts for majority of income for smaller organizations.

FOR THUNDERHEAD ORGANIZATIONS REPRESENTING CITIES WITH BUDGETS OF less than \$100,000 a year, memberships and donations make up the majority of revenue. Government grants and contracts are the second largest slice of the revenue pie for these organization. Foundation grants make up a relatively small portion of budgets for most organizations surveyed. However, for a few organizations, foundation grants comprise a large portion of their budget.

## Revenue Sources of Local Thunderhead Organizations (Income > \$100,000 a year)



CHICAGO AND SEATTLE HAVE THE LARGEST INCOMES FOR Thunderhead organizations serving cities. Program and event fees make up the largest portion of their budgets. Almost all organizations surveyed in this category depend on program and event fees for some portion of their income. Memberships and donations, and government grants and contracts are the other main revenue sources for these organizations.

Larger organizations  
depend heavily on  
program and event fees.



# Capacity of Thunderhead Organizations by State

State	Total population-served by org.	Income per capita	Full-time-equivalent staff	Staff per one million people (3)	Number of members	One member per how many people?	Media hits (1)	Media hits per one million people (3)
<b>Alabama</b>	4,447,100	\$0.002	0.5	0.11	150	29,647	5	1.1
<b>Arizona</b>	5,130,632	\$0.001	0	0.00	140	36,647	2	0.4
<b>California<sup>o</sup></b>	33,871,648	\$0.007	3	0.09	2,525	13,415	*	*
<b>Colorado</b>	4,301,261	\$0.070	3.5	0.81	6,000	717	*	*
<b>Florida</b>	15,982,378	\$0.009	1	0.06	1,400	11,416	*	*
<b>Georgia</b>	8,186,453	\$0.001	0	0.00	120	68,220	*	*
<b>Hawaii</b>	1,211,537	\$0.340	6	4.95	787	1,539	*	*
<b>Illinois</b>	12,419,293	\$0.013	2	0.16	1,100	11,290	30	2.4
<b>Indiana</b>	6,080,485	\$0.030	1.5	0.25	600	10,134	*	*
<b>Iowa</b>	2,926,324	\$0.044	1	0.34	375	7,804	20	6.8
<b>Maine</b>	1,274,923	\$0.342	5	3.92	6,000	212	300	235.3
<b>Maryland</b>	5,296,486	\$0.048	1.5	0.28	1,000	5,296	*	*
<b>Massachusetts</b>	6,349,097	\$0.025	2.5	0.39	2,836	2,239	50	7.9
<b>Michigan</b>	9,938,444	\$0.029	2	0.20	1,200	8,282	*	*
<b>Mississippi</b>	2,844,658	\$0.001	0	0.00	125	22,757	12	4.2
<b>Missouri</b>	5,595,211	\$0.008	0.5	0.09	395	14,165	55	9.8
<b>New Hampshire</b>	1,235,786	\$0.001	0	0.00	28	44,135	30	24.3
<b>New Jersey</b>	8,414,350	\$0.000	0	0.00	10	841,435	1	0.1
<b>New Mexico</b>	1,819,046	\$0.003	0	0.00	50	36,381	5	2.7
<b>New York</b>	18,976,457	\$0.004	1	0.05	250	75,906	25	1.3
<b>Ohio</b>	11,353,140	\$0.000	0	0.00	200	56,766	100	8.8
<b>Oregon</b>	4,000,000	\$0.205	16	4.00	4,393	911	190	47.5
<b>Rhode Island</b>	1,048,319	\$0.002	0	0.00	100	10,483	*	*
<b>South Carolina</b>	4,012,012	\$0.016	1	0.25	675	5,944	150	37.4
<b>South Dakota</b>	754,844	\$0.003	0	0.00	1	754,844	0	0.0
<b>Texas</b>	20,851,820	\$0.057	17	0.82	1,000	20,852	120	5.8
<b>Utah</b>	2,233,169	\$0.009	0	0.00	0	**	10	4.5
<b>Vermont</b>	608,827	\$0.156	1.5	2.46	525	1,160	*	*
<b>Virginia<sup>o</sup></b>	7,078,515	\$0.116	5.5	0.78	485	14,595	68	9.6

State	Total population-served by org.	Income per capita	Full-time-equivalent staff	Staff per one million people (3)	Number of members	One member per how many people?	Media hits (1)	Media hits per one million people (3)
<b>Washington</b>	5,894,121	\$0.102	5.5	0.93	2,837	2,078	35	5.9
<b>West Virginia</b>	1,808,344	\$0.003	0	0.00	160	11,302	10	5.5
<b>Wisconsin</b>	5,556,506	\$0.067	6.5	1.17	3,000	1,852	120	21.6
<b>Mean /Average</b>	6,712,157	\$0.030 (2)	2.6	0.37 (2)	1,202	56,579 (2)	61	5.9 (2)
<b>Median</b>	5,130,632	\$0.013	1	0.16	525	11,359	30	5.9
<b>High</b>	33,871,648	\$0.342	17	4.95	6,000	841,435	300	253.3
<b>Low</b>	608,827	\$0.000	0	0.00	0	212	0	0

Sources: Thunderhead Organization Surveys, Thunderhead Alliance

(1) Media hits are defined here as any time an organization's name appeared in the media in the previous 12 months, including television, radio, newspapers and other public media sources;

(2) Average is weighted by population or takes into account the sums from all states;

(3) For states where the population is less than one million, standardized values will be larger than the value of the variable.

**Legend:**

\* = Thunderhead could not access data

\*\* = Not applicable

° = Data from more than one organization representing state

■ = High Value

■ = Low Value

## Maine tops the charts for state-wide advocacy capacity.

THUNDERHEAD ORGANIZATIONS THAT work state-wide operate on an average of three cents per capita. Maine has the highest per capita revenue of advocacy organizations in all states earning approximately 34 cents per resident. On average, states have 0.37 full-time-equivalent (FTE) bicycle and pedestrian advocacy staff person per one million people. Texas has the most advocacy staff of any state with 17 FTEs. Hawaii has six FTE which translates into 4.95 FTE staff per million people: the highest number of staff per capita in the country.

In terms of membership, Maine also ranks highest with one member for every 212 residents (a total of 6,000 members). Colorado also has 6,000 members, coming in second with one member for every 717 residents. Jeff Miller, Executive Director of the Bicycle Coalition of Maine attributes his success to being a relentless advocate. He also noted the most important thing about earning and keeping members is to ask.

Maine's governor, attorney general, Senate president and more than a dozen state representatives and senators participated in the annual Maine Legislative Bike Tour and Walk organized by the Bicycle Coalition of Maine. PHOTO COURTESY OF NANCY P. MCGINNIS, WWW.COMMUNICADO.US



# Capacity of Thunderhead Organizations by City

City	Population served larger than city boundary?	Total pop. served by org.	Income per capita	Full-time equivalent staff	Staff per one million people (4)	Number of members	One member per how many people?	Media hits per one million people (2,4)
<b>Albuquerque</b>	No	490,000	\$0.04	0	0.0	150	3,267	20.4
<b>Atlanta</b>	No	394,929	\$0.51	3	7.6	800	494	*
<b>Austin</b>	No	678,457	\$0.10	0.5	0.7	1,446	469	110.5
<b>Baltimore</b>	Yes	5,296,486	\$0.05	1.5	0.3	1,000	5,296	*
<b>Boston</b>	Yes	520,702	\$0.02	0	0.0	0	*	44.2
<b>Central AR</b>	No	361,474	\$0.03	0	0.0	400	904	96.8
<b>Central CT</b>	No	1,100,000	\$0.01	0	0.0	125	8,800	13.6
<b>Central Yavapai, AZ</b>	No	100,000	\$0.44	1	10.0	180	556	100.0
<b>Charlotte</b>	Yes	850,000	\$0.01	1	1.2	100	8,500	*
<b>Chicago</b>	Yes	9,100,000	\$0.25	40	4.4	5,752	1,582	12.1
<b>Colorado Springs</b>	No	500,000	\$0.002	0	0.0	20	25,000	20
<b>Columbus</b>	Yes	1,691,041	\$0.01	0	0.0	84	20,131	16.6
<b>Dallas</b>	Yes	1,749,484	\$0.002	0	0.0	14	124,963	5.7
<b>Denver</b>	No	545,198	\$0.01	0	0.0	150	3,635	*
<b>Fort Worth</b>	Yes	1,749,484	\$0.002	0	0.0	14	124,963	5.7
<b>Houston</b>	No	1,941,430	\$0.02	0	0.0	50	38,829	*
<b>Jackson, WY</b>	Yes	20,000	\$10.25	2	100.0	1,100	18	*
<b>Juneau, AK</b>	No	40,000	\$0.06	0	0.0	60	667	1250
<b>Kansas City*</b>	Yes	1,134,166	\$0.01	0	0.0	125	9,073	*
<b>Long Beach*</b>	Yes	9,758,886	\$0.04	7	0.7	1,389	7,026	*
<b>Los Angeles</b>	Yes	9,758,886	\$0.03	3	0.3	700	13,941	3.1
<b>Midway, MN (1)</b>	No	80,000	\$1.63	2	25	0	*	*
<b>Milwaukee</b>	Yes	5,556,506	\$0.07	6.5	1.2	3,000	1,852	21.6
<b>Nashville</b>	No	1,200,000	\$0.03	0.5	0.4	30	40,000	29.2
<b>New Orleans</b>	Yes	914,745	\$0.002	0	0.0	100	9,147	*
<b>New York</b>	No	7,956,113	\$0.13	15	1.9	5,500	1,447	52.8
<b>Philadelphia</b>	Yes	4,500,000	\$0.04	2.5	0.6	1,500	3,000	5.6
<b>Portland</b>	Yes	4,000,000	\$0.21	16	4.0	4,393	911	47.5
<b>Sacramento</b>	Yes	2,151,479	\$0.04	1.5	0.7	1,430	1,505	5.6



City	Population served larger than city boundary?	Total pop. served by org.	Income per capita	Full-time equivalent staff	Staff per one million people (4)	Number of members	One member per how many people?	Media hits per one million people (2,4)
<b>Salt Lake City, UT</b>	No	181,743	\$0.39	1	5.5	500	363	1,650.7
<b>San Diego</b>	Yes	3,000,000	\$0.01	1	0.3	1,067	2,812	16.7
<b>San Francisco*</b>	No	740,000	\$0.93	8	10.8	6,700	110	473
<b>San Jose</b>	Yes	2,300,000	\$0.02	1	0.4	457	5,033	*
<b>Seattle</b>	Yes	3,000,000	\$0.67	18	6	7,200	417	106.7
<b>Washington</b>	Yes	3,759,000	\$0.14	6	1.6	4,183	899	8
<b>Mean/Average</b>	**	2,489,149	\$0.11 (3)	3.9	1.6 (3)	1,421	11,110 (3)	35.5 (3)
<b>Median</b>	**	1,445,521	\$0.04	1	0.5	479	2,906	21.6
<b>High</b>	**	9,758,886	\$10.25	40	100.0	7,200	124,963	1,650.7
<b>Low</b>	**	20,000	\$0.002	0	0.0	0	18	3.1

Source: Thunderhead Organization Surveys, Thunderhead Alliance

(1) Midway, MN refers to the area between Minneapolis and St. Paul;

(2) Media hits are defined here as any time an organization's name appeared in the media in the previous 12 months, including television, radio, newspapers and other public media sources;

(3) Average is weighted by population or takes into account the sums from all cities;

(4) For cities where the population is less than one million, standardized values will be larger than the value of the variable.

**Legend:**

\* = Thunderhead could not access data

\* = Data from more than one organization representing city

■ = High Value    ■ = Low Value

Friends of Pathways outreach booth on Bike to Work Day 2007  
PHOTO COURTESY OF FRIENDS OF PATHWAYS



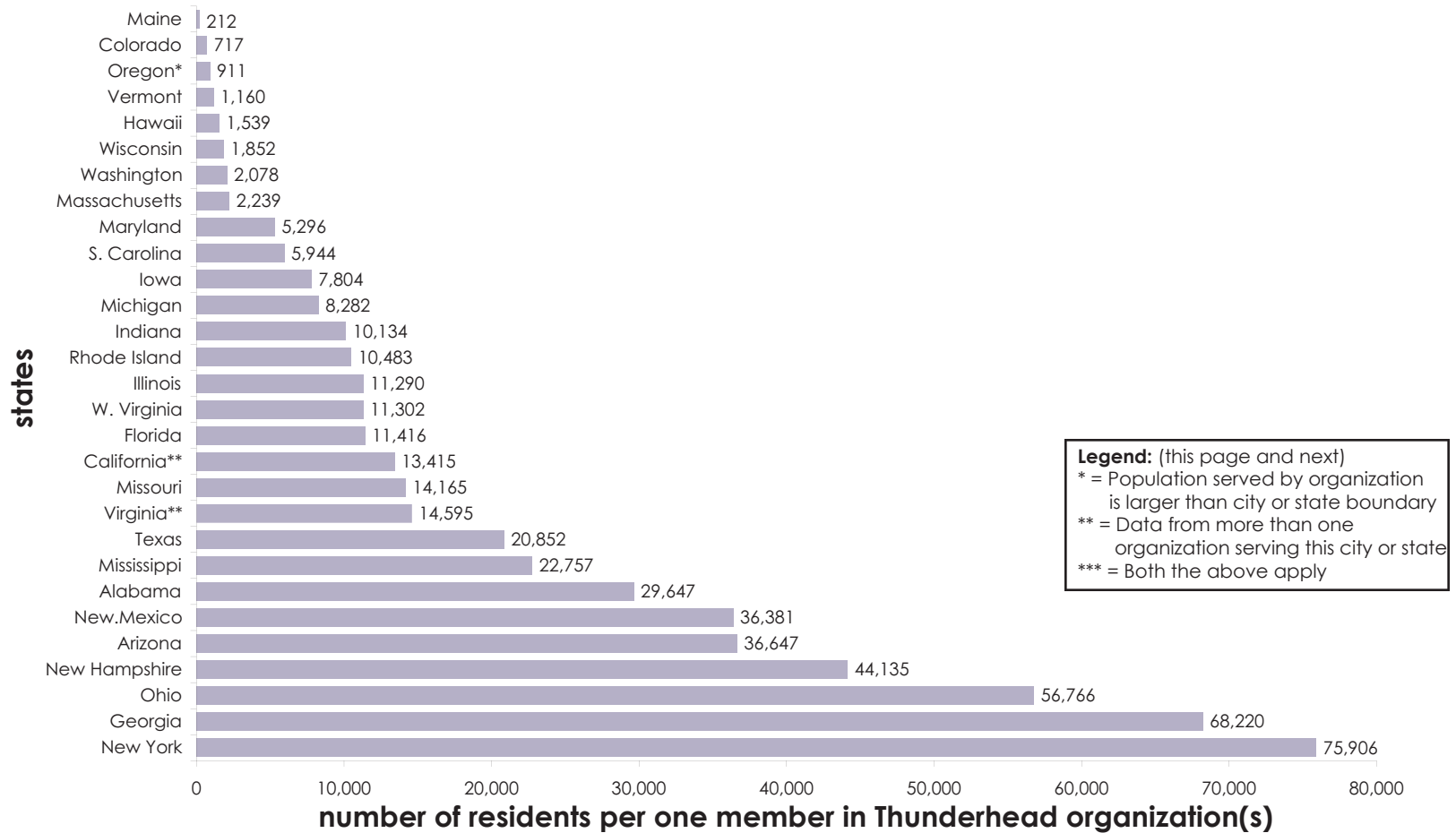
## Jackson, WY tops cities for bike/ped advocacy capacity.

THUNDERHEAD ORGANIZATIONS THAT REPRESENT cities earn 3.7 times more per capita than their state-wide counterparts, operating on 11 cents per capita on average. Jackson, Wyoming has the highest earnings with \$10.25 per resident. They also have the lowest ratio of members to population, with one member for every 18 residents. On average, organizations representing cities have one member for every 11,110 people. Jackson also has the highest staffing levels, with an equivalent of 100 staff per million people. The average for organizations surveyed is 1.6 staff per million people. Chicago has the highest number of staff with 40 FTEs.

According to Friends of Pathways, the bicycle and pedestrian advocacy organization for Jackson, their success in membership has come through constant work, including member mailings to retain current members, high profile public events, and a regular communications program to members and the public.



# Membership in State-Wide Thunderhead Organizations



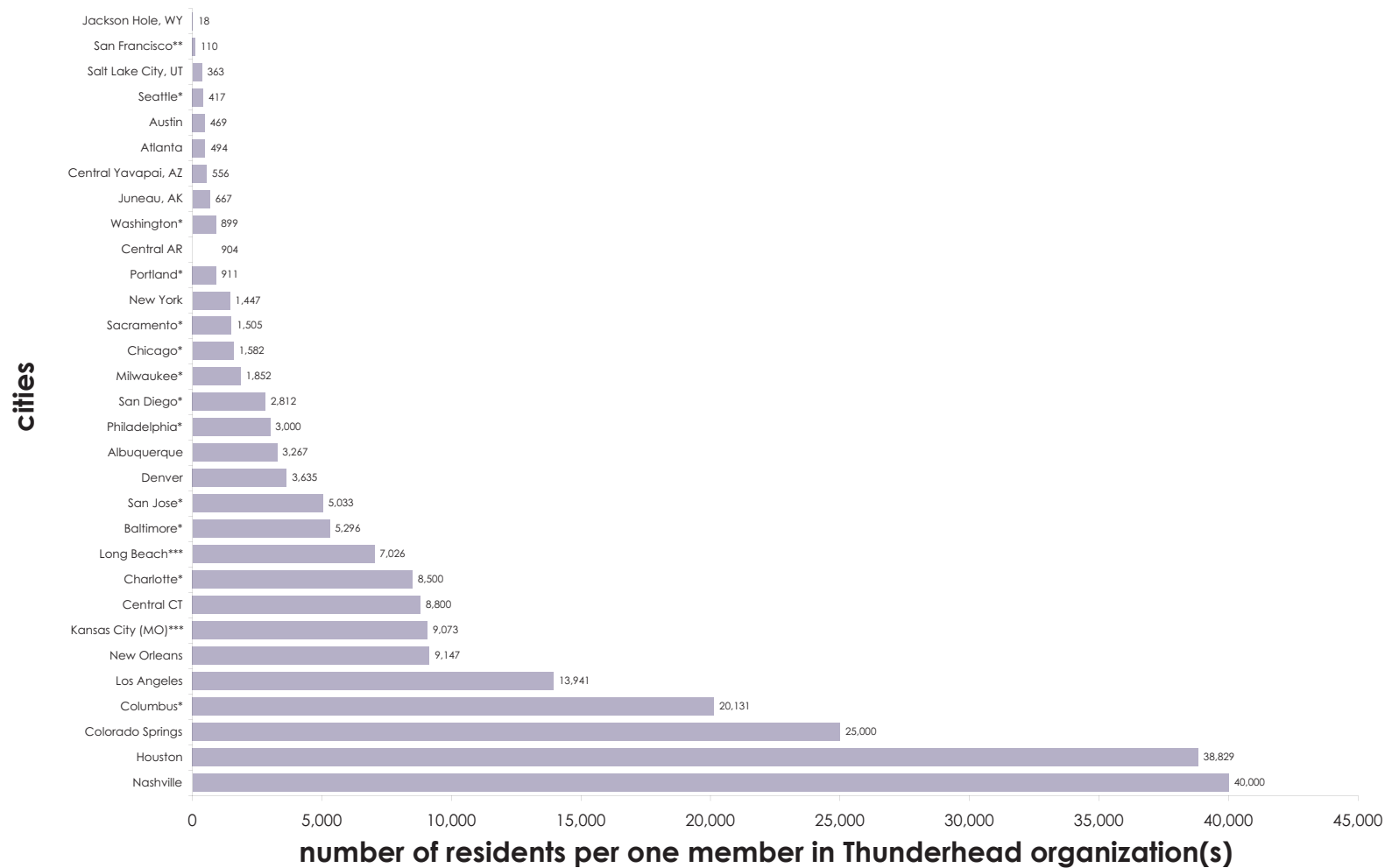
Source (this page and next): Thunderhead Organization Surveys, Thunderhead Alliance

**Note:** South Dakota and New Jersey were left out of this graph because their representative organizations are brand new.

State-wide  
Thunderhead  
organizations  
average one member  
per 56,579 residents.

MAINE HAS THE HIGHEST PER CAPITA MEMBERSHIP WITH ONE MEMBER for every 212 residents and Georgia and New York have the lowest with one member per 68 and 76 thousand residents respectively. Colorado has as many members as Maine, but a larger population makes them second in per capita membership, with one member for every 717 residents. Oregon, Vermont, Hawaii and Wisconsin also rank among the top in population based membership. The wide variation in membership rates among states may be due to the fact that some organizations are new and just developing membership programs. Also, some organizations invest more resources into membership solicitation than others.

# Membership in Thunderhead Organizations Serving Cities



THUNDERHEAD ORGANIZATIONS REPRESENTING CITIES AVERAGE ONE MEMBER for every 11,110 residents. Compared to organizations that operate state-wide, organizations serving cities are five times more likely to attract an individual as a member. As with states, the membership range is greatly varied among organizations, from a high rate of one member per 18 residents in the Jackson Hole, WY region to a low of one member per 40,000 residents in Nashville. Dallas and Fort Worth were left out of this graph because the organization representing these cities is brand new.

Thunderhead  
organizations representing  
cities average higher  
membership rates.

# 7: Factors Influencing Cycling, Walking, & Safety

Studies show that a number of factors contribute to the choice to bike or walk. These include environmental influences such as weather, density, mix of uses, and infrastructure; demographics such as income and car ownership; and other factors including education and existing levels of cycling and walking. This chapter looks at a few of these potential relationships.

## Environmental Influences

### Weather

Does the weather impact the choice to bicycle? The Benchmarking Project team compared average summer and winter temperatures to bike share of work trips in 50 states and did not find any compelling evidence that weather is a major influence. Montana and Alaska, for example, are among states with the coldest temperatures, yet are also among the states with the highest levels of cycling. The lack of statistically significant evidence of weather impacts on cycling levels has been noted in other studies (Pucher, Buehler 2006) pointing out much higher rates of cycling in countries such as Canada, with lower average year-round temperatures than in the U.S.. It seems likely that excessive cold, heat, and rainfall do indeed deter cycling to some unknown extent, especially among less dedicated cyclists. According to a poll by the San Francisco Bicycle Coalition for their Report Card on Bicycling, the number one reported reason for not cycling more was weather. However, it should be noted that this response came from only 15% of respondents and other reasons such as bike theft, safety, and carrying capacity ranked almost as high.

### Density

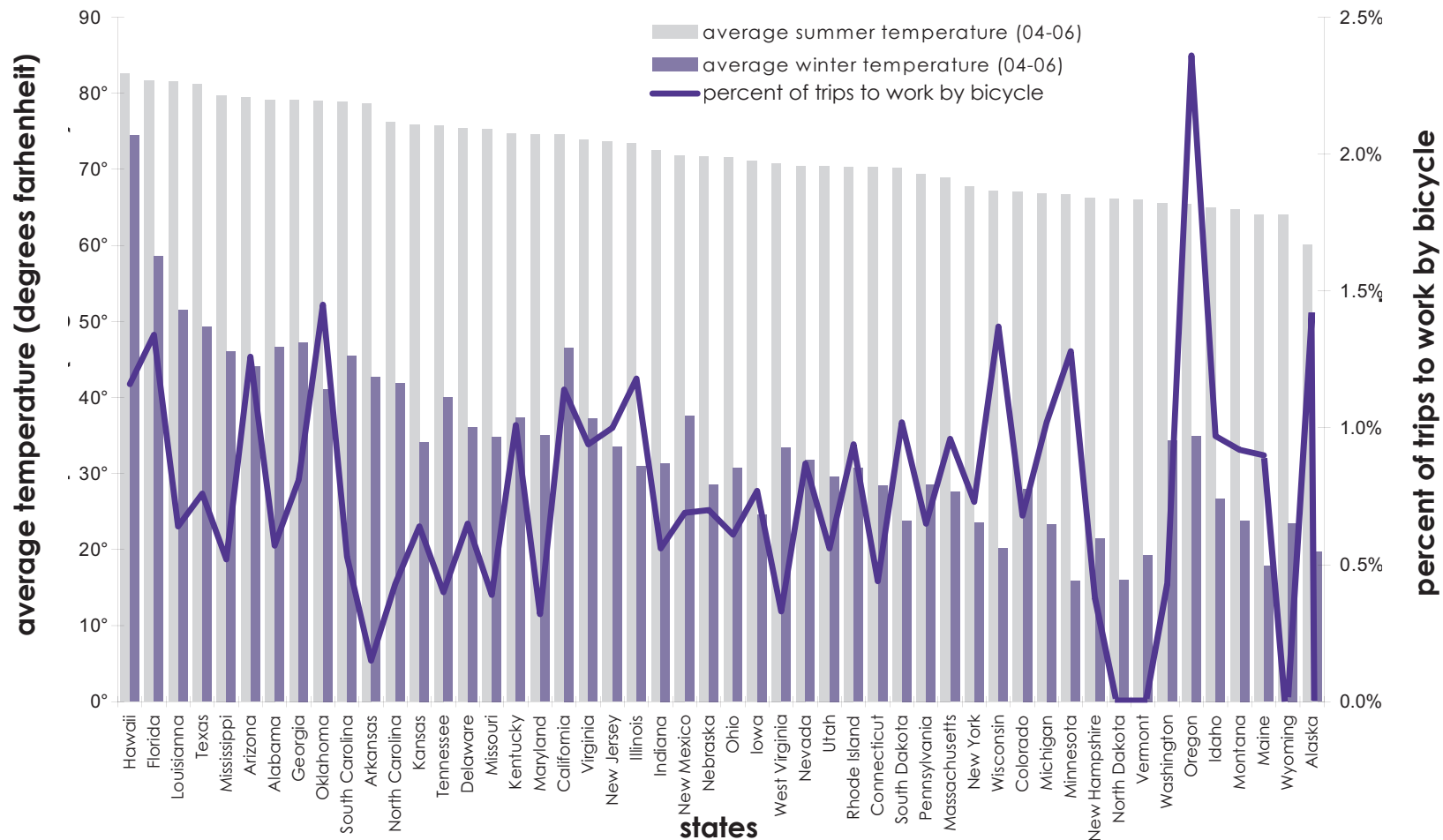
To examine the role of density in the choice to bike or walk in the U.S., the Benchmarking Project team compared residential density (persons/square mile) to the combined bicycling and walking to work mode share in major cities. Data indicates that denser cities have higher levels of cycling and walking on average than less dense cities. The five cities with the highest combined levels of cycling and walking are also among the top seven densest cities. This finding is in line with other studies (Pucher, Buehler 2006) that suggest a correlation between density and biking and walking. Dense communities have shorter trip distances, which can thus be more easily covered by walking or cycling.

### Walking and Cycling Facilities

The extent and quality of cycling and walking facilities almost certainly affect levels of cycling and walking, but the available data are so flawed that they do not always reveal the obvious relationships. U.S. bike advocates commonly look to places like the Netherlands, where cities have invested heavily in infrastructure for cycling. These investments (including bike lanes, separated paths, and specialized signals and traffic signs for cyclists) may contribute to a cycling mode share that reaches between 30-50% in most Dutch cities. This report compared miles of cycling facilities per square mile to levels of cycling in cities. Results suggest there may be a relationship between facilities and mode share. Although it is not true in every case, the general trend is that cities with higher levels of cycling have more bike facilities per square mile than cities with lower cycling levels. (cont. page 87)

# Weather's Influence:

## Do cold and hot temperatures keep cyclists away?



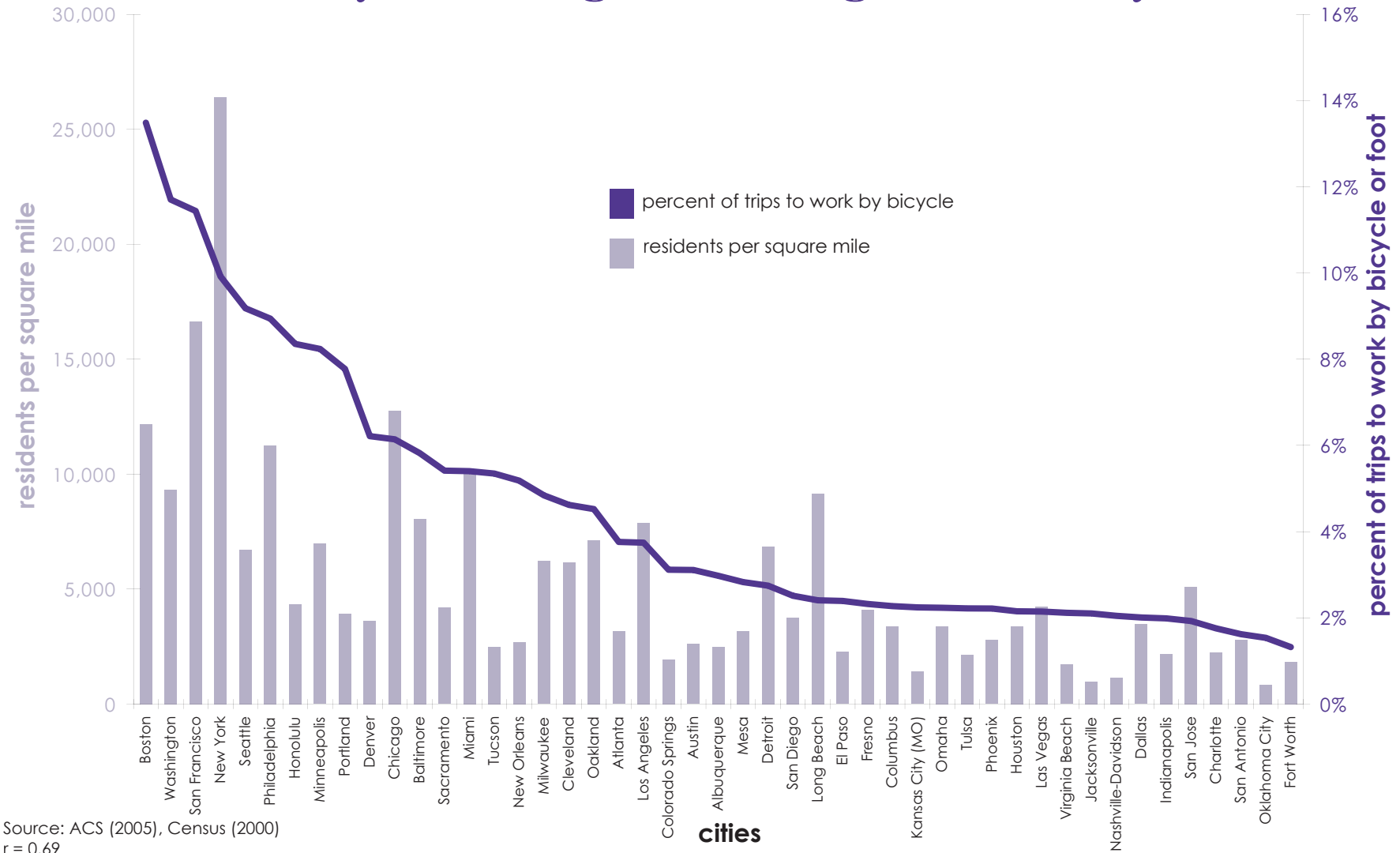
Source: ACS (2005), USHCN (2004-2006)

A REVIEW OF AVERAGE SUMMER AND WINTER TEMPERATURES and cycling levels in 50 states indicates no obvious correlation between the two. This finding is in line with other studies (Pucher, Buehler 2006) that point out much higher rates of cycling in countries such as Canada, that average lower year-round temperatures than in the U.S.

Weather is not a major factor influencing cycling levels.



# Residential Density and Biking and Walking Levels in Major U.S. Cities



**Denser cities have higher rates of cycling and walking.**

CITIES WITH THE MOST PEOPLE PER SQUARE MILE HAVE HIGHER levels of cycling and walking, on average, than less-dense cities. Boston, Washington, San Francisco, and New York, the cities with the highest combined rates of cycling and walking, are also among the top seven densest cities. The least dense cities, including Oklahoma City, Jacksonville, Nashville and Kansas City, are among the cities with the lowest levels of cycling and walking.

# Demographic Influences

## Income

Income could play a role in the decision to bike or walk. As graphs in Chapters 3 and 4 show, the majority of pedestrians and cyclists earn less than \$35,000 a year. However, income seems to play more of a role in the choice to walk to work. Among states, 30%-60% of people who walk to work earn less than \$15,000 year. More than 2/3 of people who walk to work nationwide earn less than \$35,000 a year. Although income may play a role in the decision to walk to work for some people, among states with higher levels of walking, such as New York, income levels are more evenly distributed among pedestrians. This suggests that income factors less into the decision to walk in dense transit-oriented cities.

## Car Ownership

Owning a car definitely influences levels of walking and cycling. According to the 2005 ACS, cities with the highest levels of biking and walking have the lowest car ownership rates. Although the statistical relationship is strong, the causation might run in both directions. Those who walk or cycle a lot are less likely to need or want a car. And those who do not own a car are more likely to need to walk or cycle for some trips. At any rate, it is clear that high levels of car ownership are strongly related to low levels of walking and cycling.

# Levels of Cycling and Walking

To see how levels of cycling and walking affect safety, the project team compared fatality data reported by cities to ACS 2005 bicycle and pedestrian mode share (trips to work). Results were consistent with previous research (Jacobsen, 2003) indicating a negative correlation between levels of cycling and walking and fatality rates. Cities with the highest levels of cycling generally have lower bicycle fatality rates. Cities with the highest rates of pedestrian fatalities are also among those with the lowest levels of walking. A possible explanation could be that in places where more cyclists and pedestrians

are present, drivers are more used to sharing the roadways with cyclists and are more aware of pedestrians at crossings. Environmental factors that contribute to increased bicycling and walking (such as signed routes, bike lanes and sidewalks) may also contribute to increased safety.

# Advocacy and Education

## Advocacy's Impact

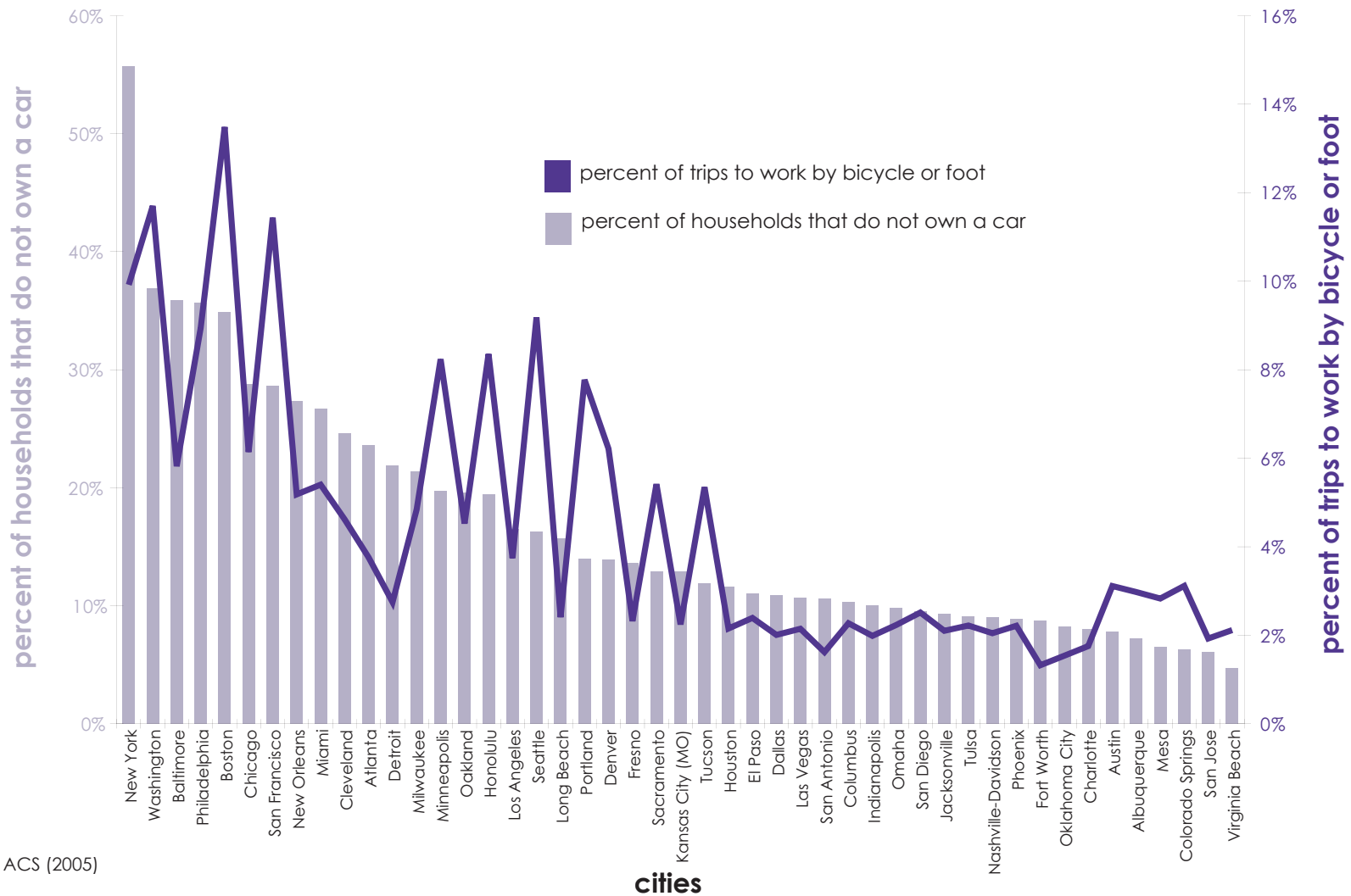
One of the objectives of Thunderhead's Benchmarking Project is to measure the effectiveness and evaluate results of advocacy efforts to increase cycling and walking. Chapter 6 discussed the difficulties presented by attempting to quantify advocacy. Every bicycle and pedestrian advocacy organization is different in structure and operations. A number of the organizations surveyed have been around for a decade or more, while others are only one to two years old. Some organizations are volunteer-run, while others have teams of full-time staff.

This report compared per capita income (organization revenue/city population) and staffing levels of organizations to levels of cycling and walking. Results indicate a positive correlation between levels of biking and walking to work and the standardized income ( $r = 0.58$ ) and staffing levels ( $r=0.55$ ) of Thunderhead organizations. Although one cannot assume that these are causally related, this at least suggests that the presence of a strong advocacy organization can be an indicator of a city's bicycling and walking levels.

## Education's Impact

Another potential factor contributing to biking, walking and safety is education. Many advocacy organizations and government agencies sponsor bicycle, pedestrian and driver safety courses and outreach efforts which may impact mode share and safety. No data on education efforts was collected for this report. There is a severe deficiency in evaluation of these efforts. Thunderhead plans to collect more data on educational efforts including levels of participation and promotion in future benchmarking efforts.

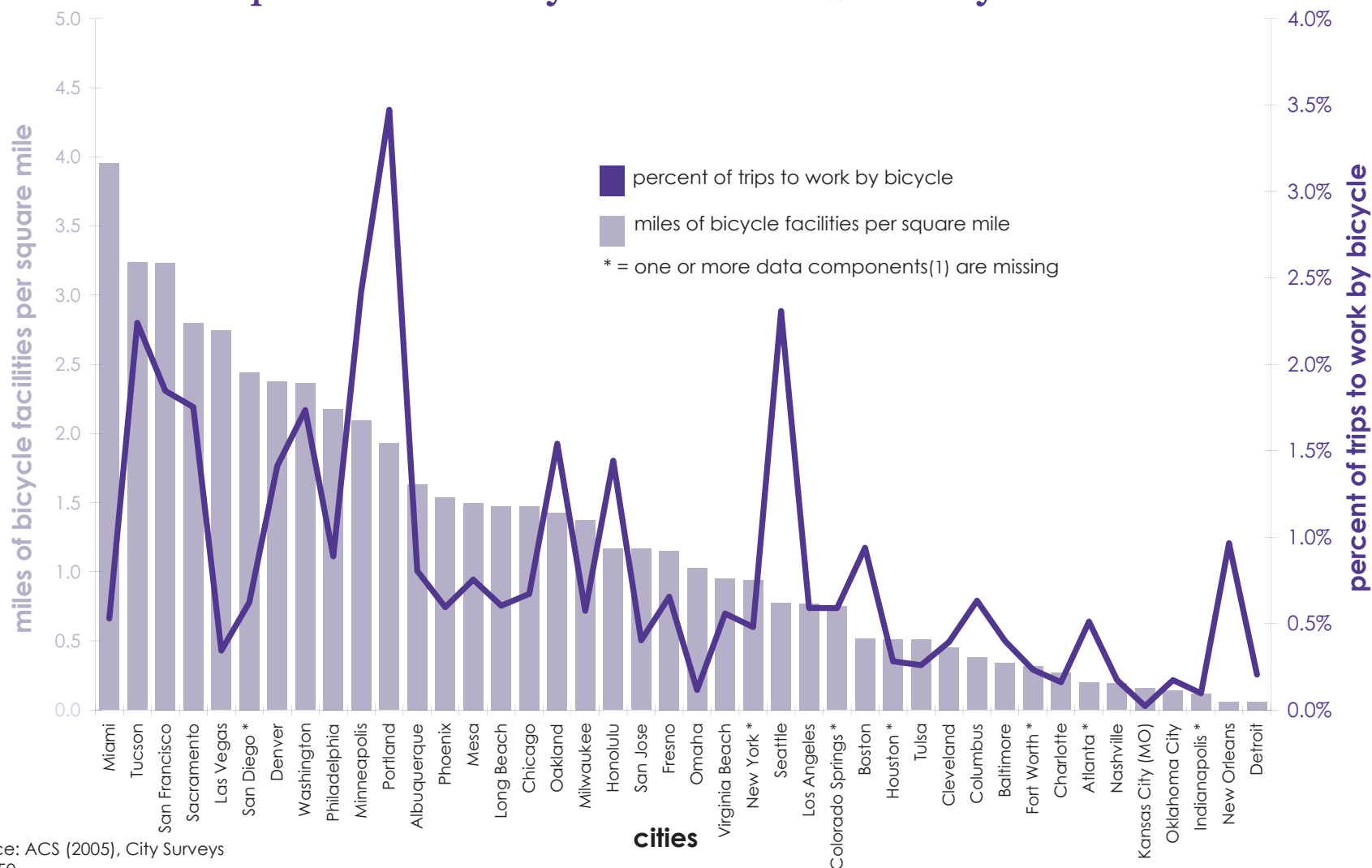
# Comparing Car Ownership to Cycling and Walking Levels



Cities with higher rates of cycling and walking have lower car ownership rates.

IN NEW YORK CITY, 56% OF ALL HOUSEHOLDS DO NOT OWN A CAR and New York has the fourth highest rate of combined cycling and walking mode share. Boston, San Francisco, and Washington have the three highest combined rates of cycling and walking of all major U.S. cities and are also among the top seven cities for households without a car. In cities where cycling and walking rates are lowest, the percentage of households without a cars is also very low.

## Relationship Between Bicycle Facilities<sup>(1)</sup> & Bicycle Mode Share



Source: ACS (2005), City Surveys

$r = 0.50$

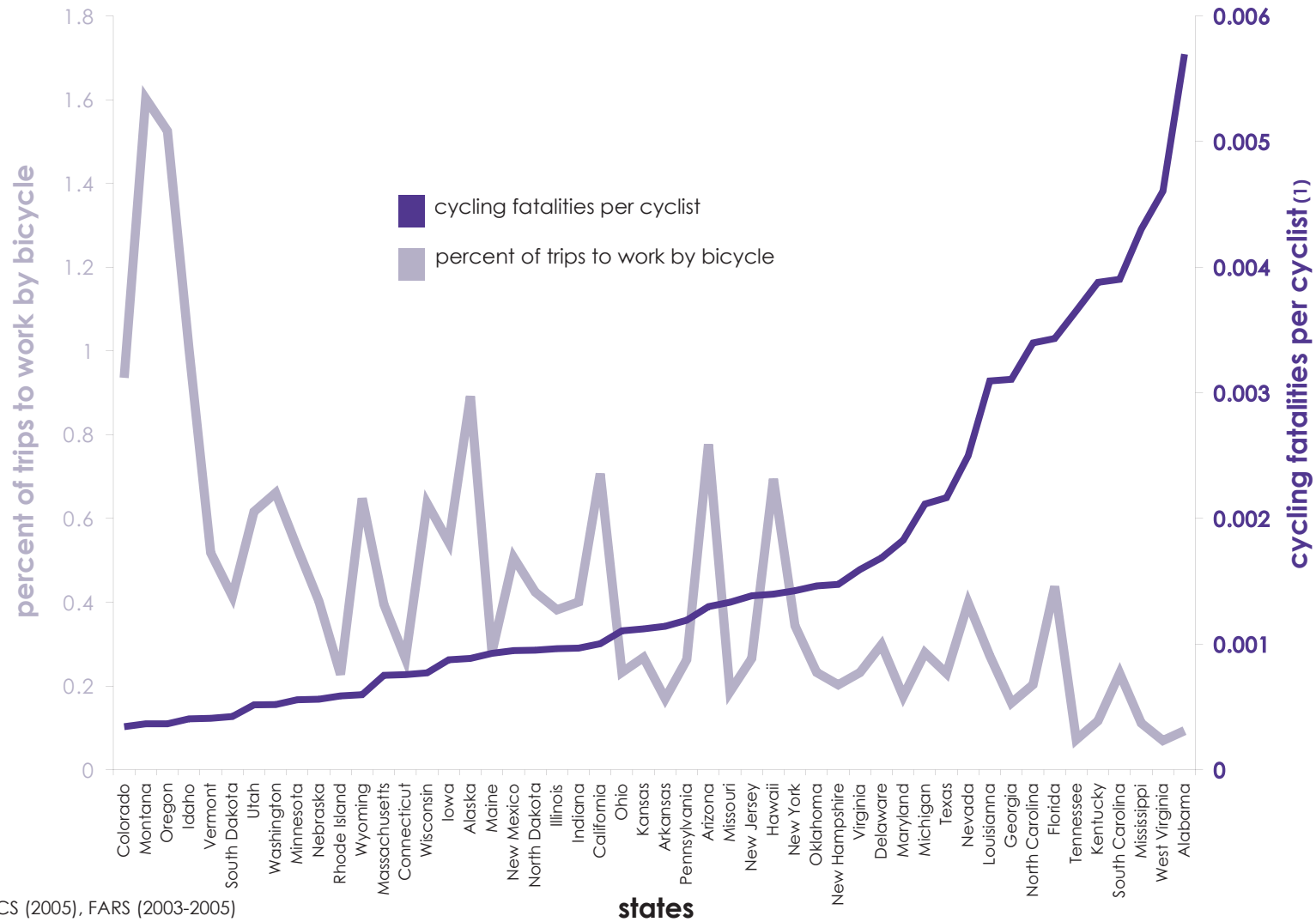
(1) Bicycle facilities include on-street striped bike lanes, multi-use paths and signed bike routes.

THIS REPORT COMPARED MILES OF BICYCLE FACILITIES PER SQUARE MILE to bike-to-work mode share in major cities. In general, there appears to be a connection between the supply of facilities and levels of cycling. It should be noted, though, that the cities with the highest levels of cycling are not the cities with the highest supply of facilities and vice versa. Also, this illustration does not include quality and connectivity of facilities and is limited by the inability of work trip data to convey accurate cycling levels.

Cities with more bike facilities have higher cycling levels.



## Relationship Between Bicycle Fatalities and Mode Share



Source: ACS (2005), FARS (2003-2005)

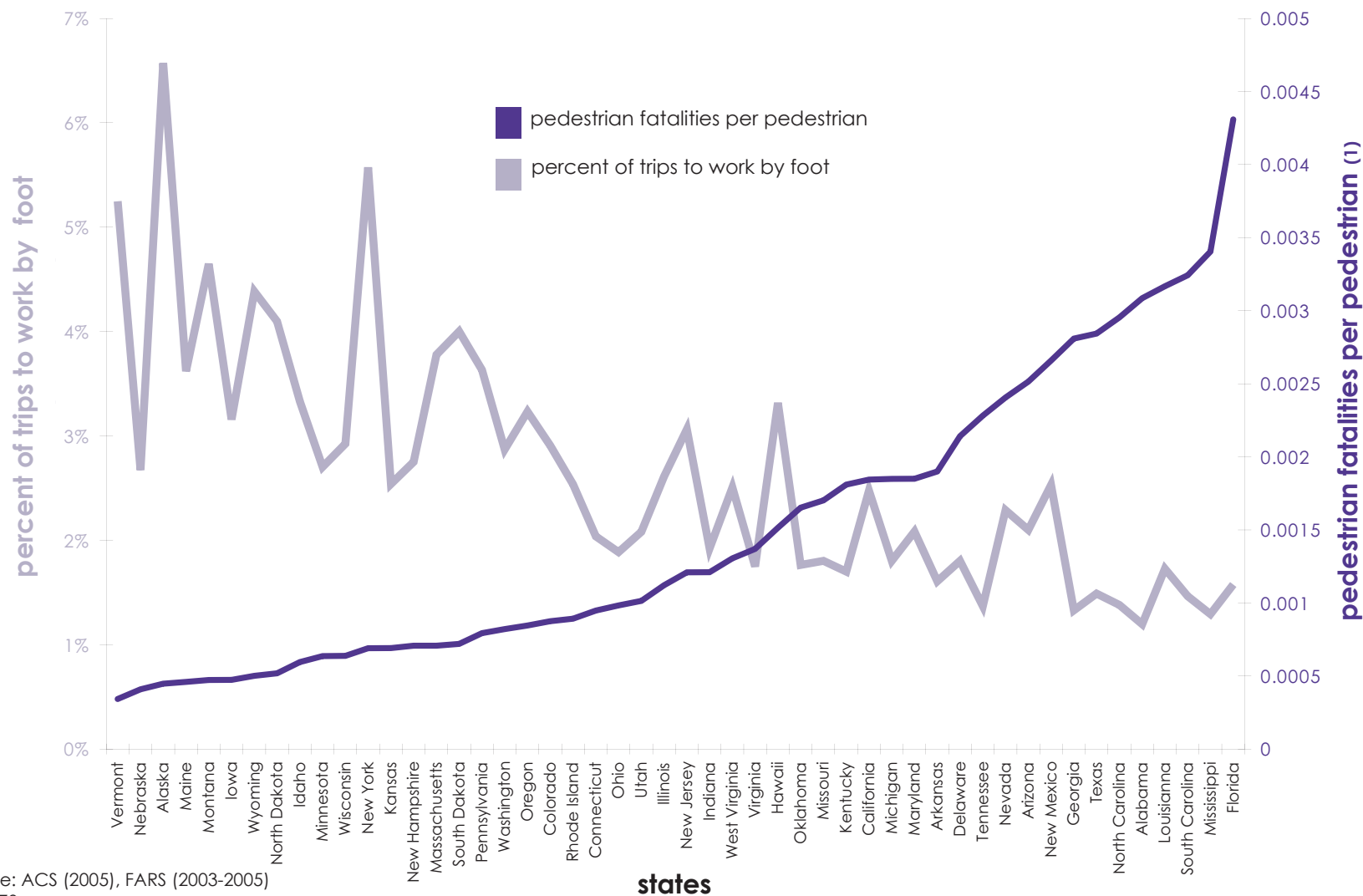
$r = -0.55$

(1) Cycling fatalities per cyclist = 3 yr. average number of cyclist fatalities / number of people who commute by bike.

**Bicyclists are safer in numbers.**

MANY STUDIES NOW SHOW THAT BICYCLING SAFETY INCREASES GREATLY AS cycling levels rise (Jacobsen, 2003). For this illustration, bike to work mode share from the ACS 2005 was compared to FARS bicycle fatality data. To figure the fatality rate, the project team divided the three-year average number of bicycle fatalities by the number of people who bike to work. The result is a negative correlation ( $r = -0.55$ ) that suggests greater cycling levels may mean increased safety for cyclists.

## Relationship Between Pedestrian Fatalities and Mode Share



Source: ACS (2005), FARS (2003-2005)

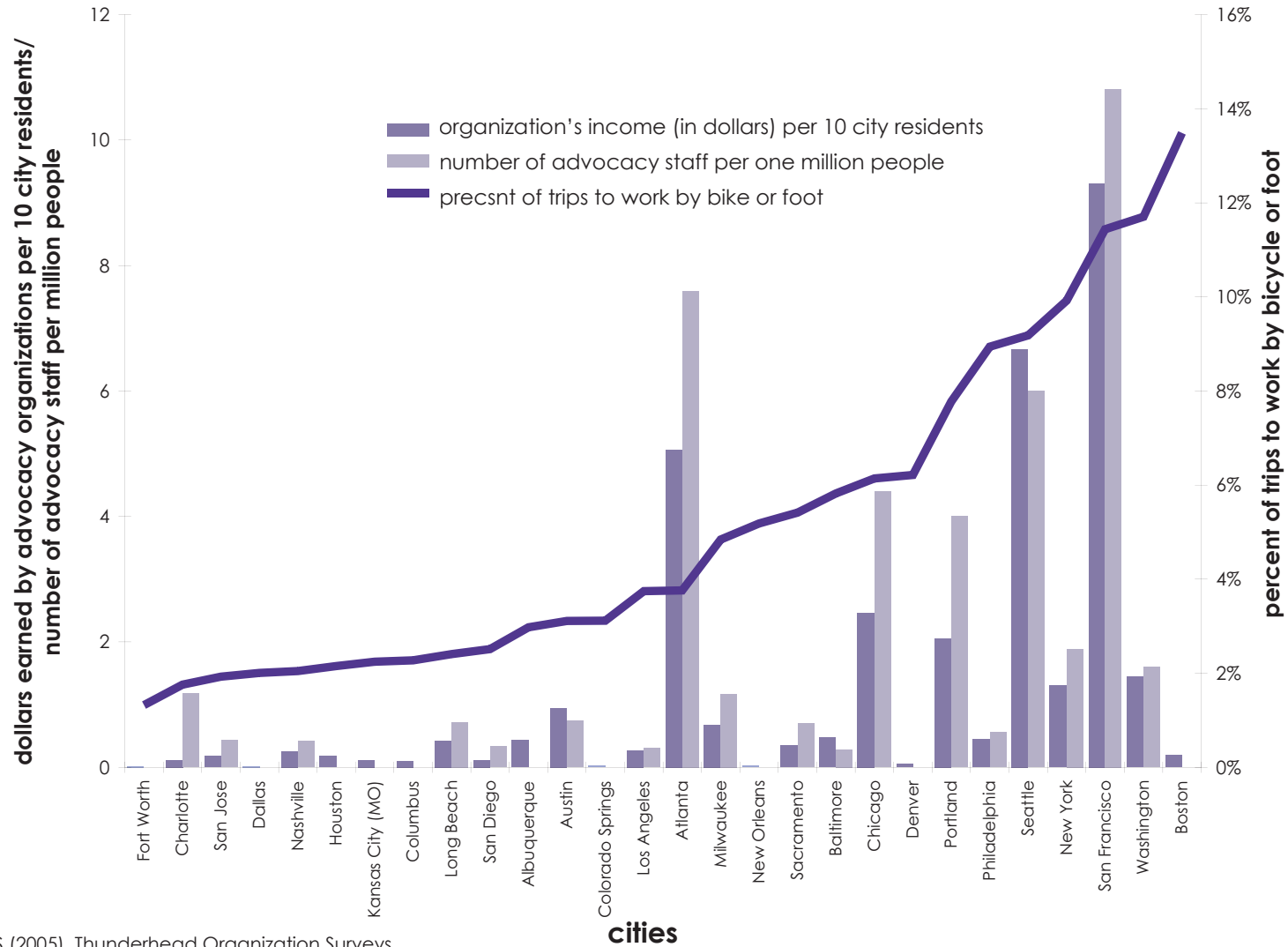
$r = -0.70$

(1) Pedestrian fatalities per pedestrian = 3 yr. average number of pedestrian fatalities/ number of people who commute by foot.

STATES WITH HIGHER LEVELS OF WALKING HAVE LOWER RATES OF pedestrian fatalities. For this illustration, pedestrian worker mode share from the ACS was compared to FARS data on pedestrian fatalities. To figure the fatality rate, the three-year average number of pedestrian fatalities was divided by the number of people who walk to work. The result is a negative correlation ( $r=-0.70$ ) that suggests higher levels of walking may increase safety.

Higher levels of walking contribute to pedestrian safety.

## Relationship Between Advocacy Capacity and Mode Share



Source: ACS (2005), Thunderhead Organization Surveys

$r = 0.58$  (organization income per 10 residents/bike + walk levels)  $r = 0.55$  (organization staffing per million residents/bike + walk levels)

Advocacy capacity and higher levels of cycling and walking may be linked.

THUNDERHEAD COMPARED THE COMBINED LEVELS OF BIKING and walking to work from the ACS 2005 to standardized income and staffing levels of Thunderhead member organizations representing these cities. Positive correlations ( $r=0.58$  and  $r = 0.55$ ) suggests a relationship may exist between advocacy capacity and levels of cycling and walking.

# 8: Impacts of Bicycling and Walking on Public Health

**P**ublic health and levels of physical activity are inextricably linked. This report analyzed data on a number of public health indicators compared to biking and walking levels. Indicators include obesity and overweight levels (current and over time), physical activity levels, high blood pressure, and diabetes.

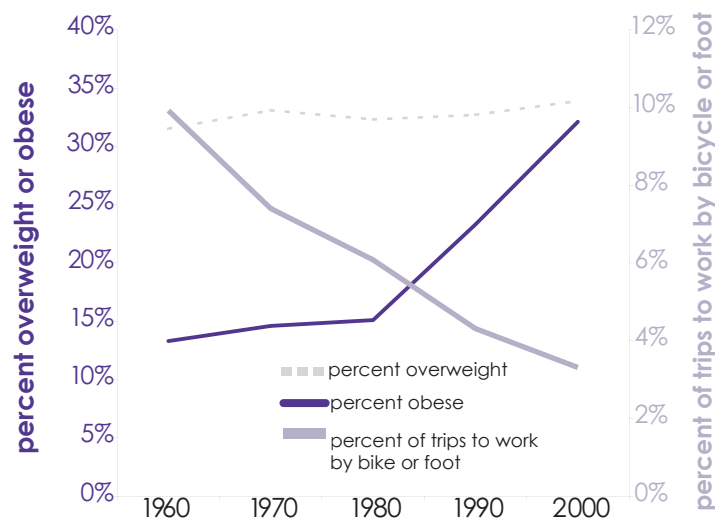
## Biking, Walking and Obesity Levels Trends Over Time

To compare rates of biking and walking with obesity trends, Census Journey to Work data for 1960 through 2000 were compared to overweight and obesity levels in the U.S. for the same time period. These data show that as biking and

walking levels have plummeted, overweight levels have steadily increased and obesity levels have soared. The decrease in bicycling and walking may be even greater since these data do not take into account any trips besides work trips (walking and biking to school, for example, would not be counted here). Also, bicycling was not separated out from “other” modes in early Census surveys, so 1960 and 1970 levels shown are for walking only. While bicycling and walking levels fell 67% between 1960 and 2000, obesity levels increased by 241%. Although these two trends are not the only factors involved, the correlation cannot be ignored.

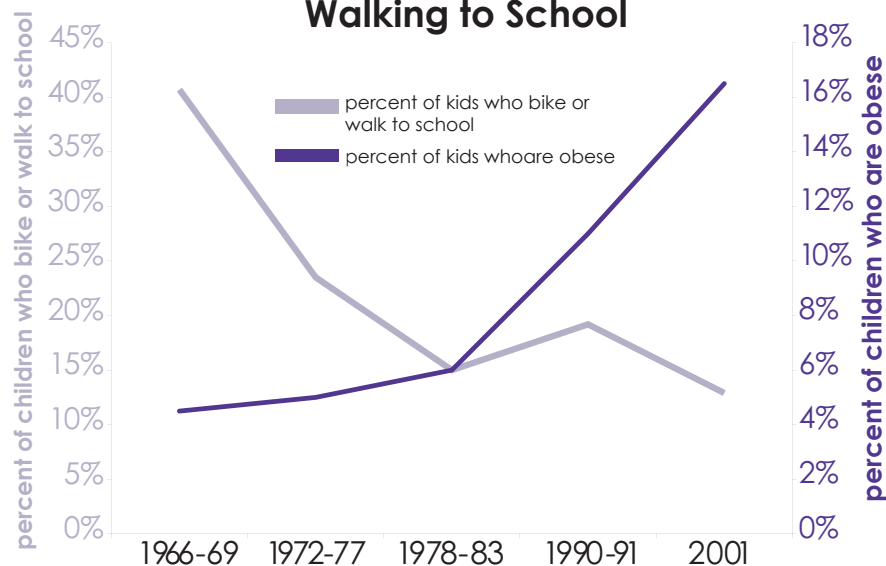
This report looked at data on childhood obesity prevalence from the CDC and the National Health and (cont. next page)

### Change in Bicycling and Walking Rates vs. Adult Overweight Rates over last 40 years



Sources: National Center for Health Statistics (2006), Census (1960,1970,1980,1990,2000);  
 $r = -0.86$  (bike+walk/overweight)  $r = -0.79$  (bike+walk/obesity)

### Trend in Obese Children vs. Rate of Biking and Walking to School



Sources: CDC, NHANES, McDonald, Noreen (2007);  $r = -0.63$



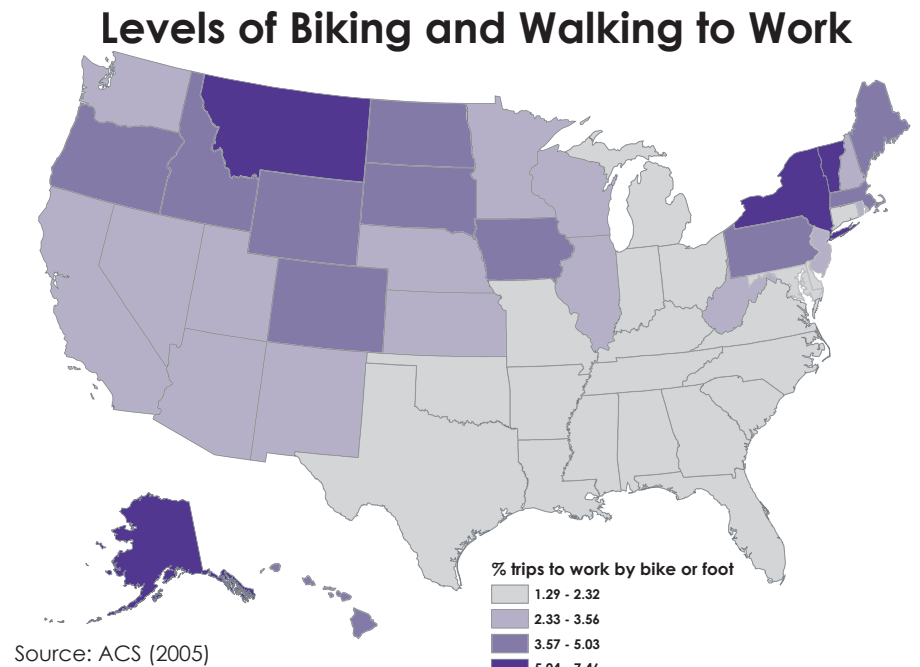
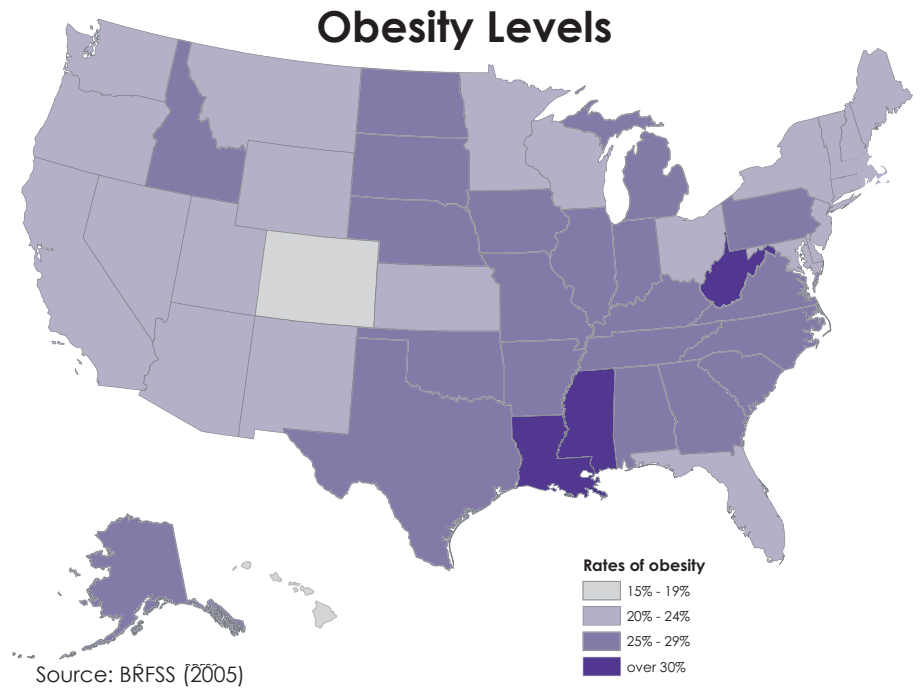
Nutrition Examination Survey (NHANES) data on levels of biking and walking to school (McDonald, Noreen, 2007) over a similar time period. The data demonstrate a parallel trend among school children in this time period. Levels of biking and walking to school declined sharply while childhood obesity levels sharply increased. During the period between 1966 and 2001, the number of children who biked or walked to school fell 68%, while the percentage of obese children rose 367%.

## Comparing Obesity Levels to Cycling and Walking

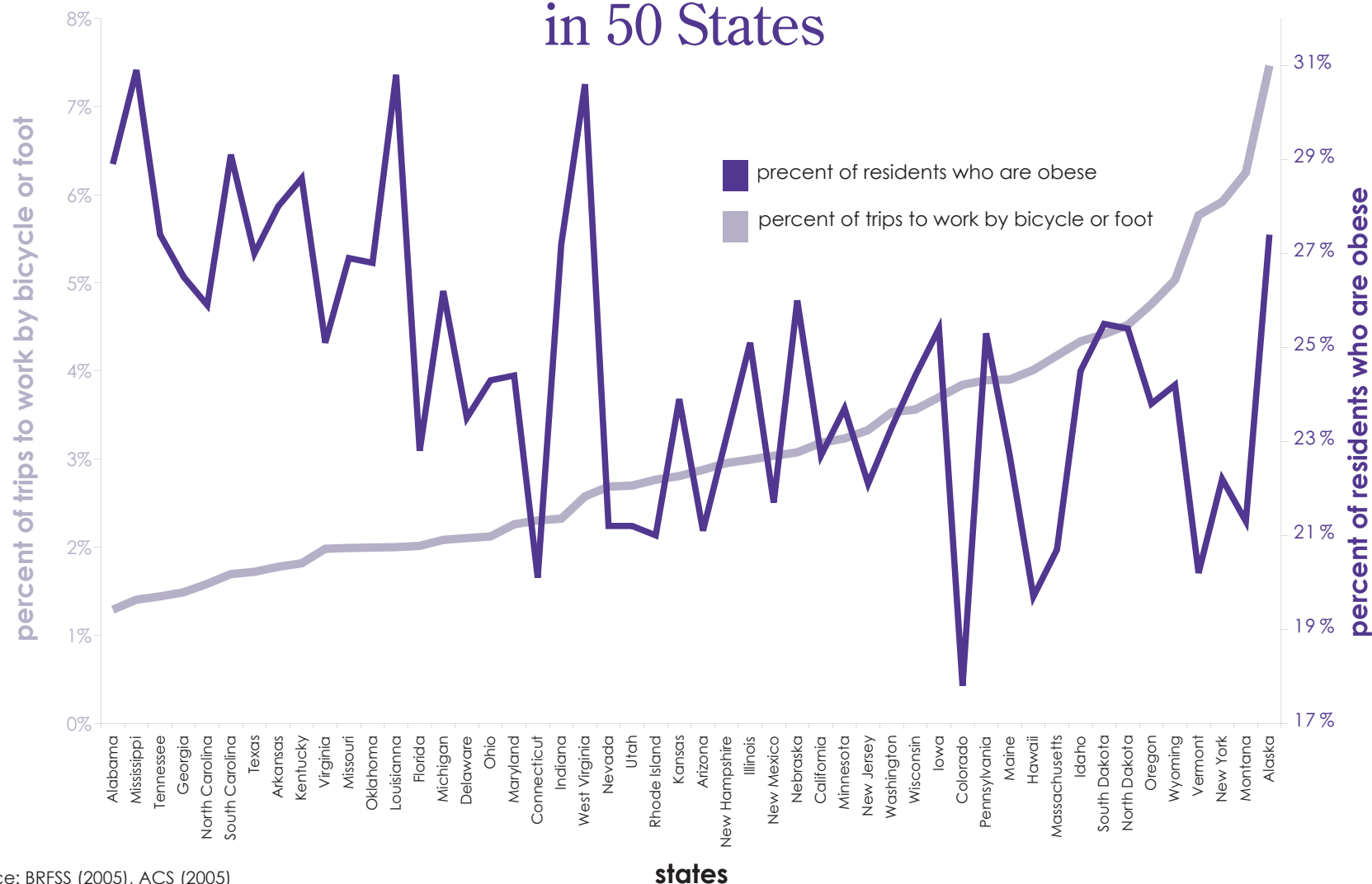
Thunderhead used ACS data on biking and walking to work, and Behavioral Risk Factor Surveillance System (BRFSS) data on obesity levels across states to compare current levels of obesity with cycling and walking. The data indicate that states with the highest levels of biking and walking to work have lower levels of obesity on average. Maps on this page illustrate this trend. States that are shaded lightest for the lowest rates of biking and walking are often shaded darkest for the highest rates of obesity. States in the Southern U.S. rank lowest overall for rates of cycling and walking while at the same time ranking highest for obesity levels.

## Other Health Indicators

This report also compared rates of biking and walking to work to other health indicators including levels for physical activity, rates of high blood pressure, and diabetes. Data suggest a strong positive correlation between rates of cycling and walking and levels of physical activity. States with the highest levels of cycling and walking have a greater percentage of the population meeting the recommended 30-plus minutes a day of physical activity. A negative correlation exists between rates of cycling and walking and high blood pressure and diabetes. States with higher levels of biking and walking have lower levels of both diabetes and high blood pressure on average.



# Comparing Bicycling & Walking to Obesity Levels in 50 States

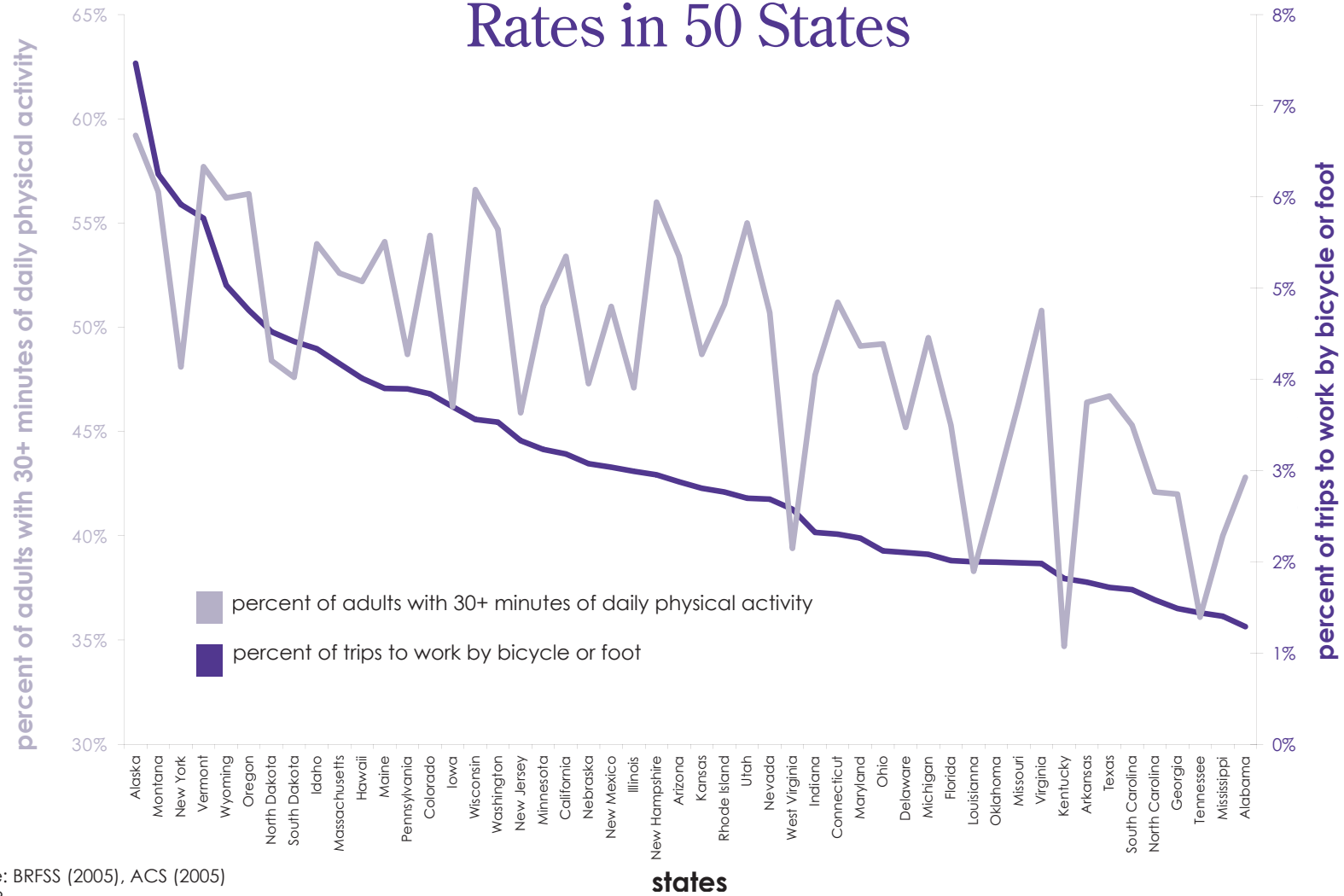


Source: BRFSS (2005), ACS (2005)  
r = -0.42

STATES WHERE BICYCLING AND WALKING LEVELS ARE lowest have the highest levels of obesity. Data are limited to biking and walking trips to work, but give an idea of the comparative rates of biking and walking in each state.

States with higher levels  
of biking and walking have  
lower levels of obesity.

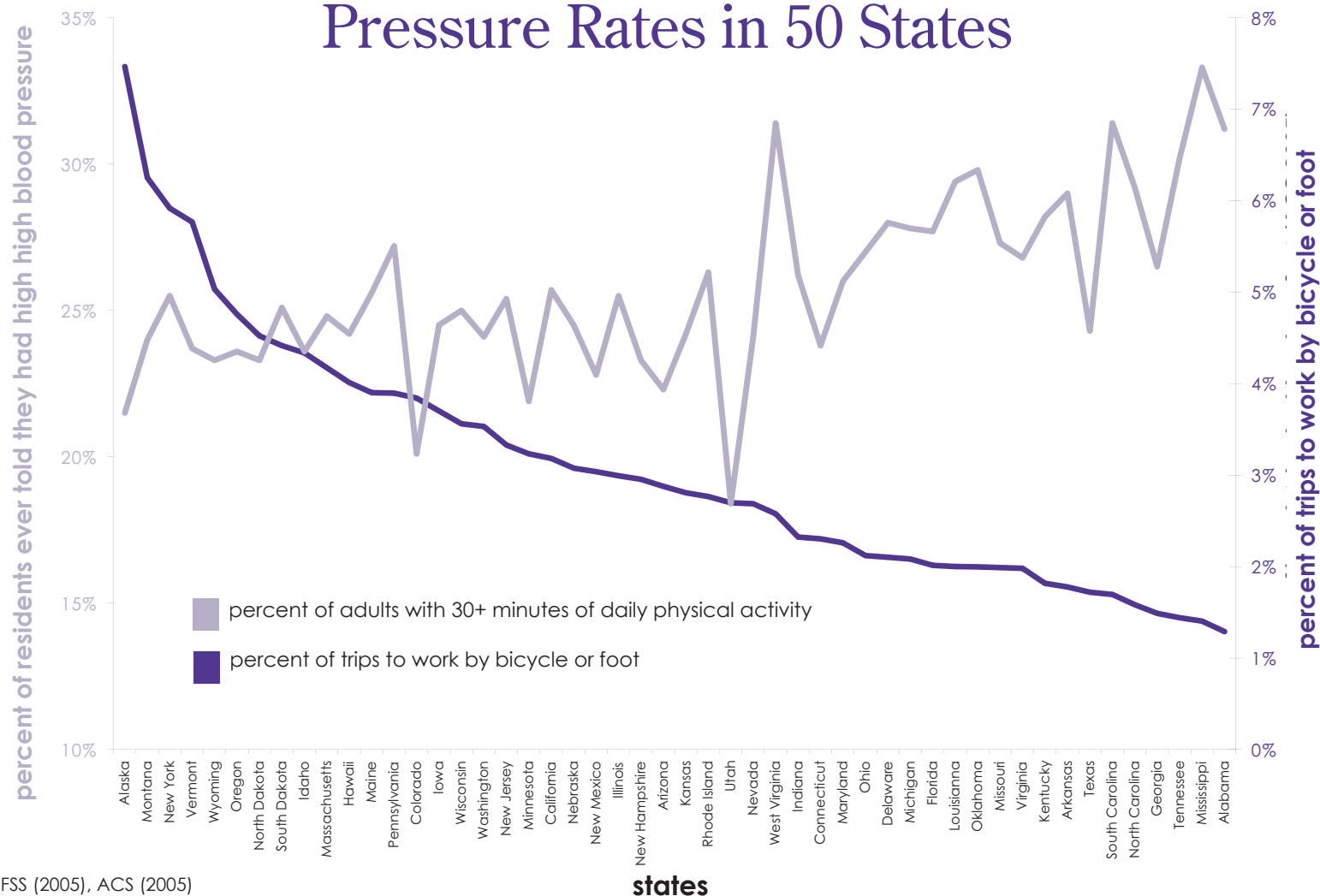
# Comparing Biking and Walking Rates to Physical Activity Rates in 50 States



States with higher levels of cycling and walking have higher levels of physical activity.

A STRONG POSITIVE CORRELATION EXISTS between levels of adults with 30-plus minutes of daily physical activity and levels of biking and walking to work. Data indicate a positive correlation ( $r = 0.68$ ) between the two, suggesting that biking and walking to work help populations meet recommended levels of physical activity.

# Comparing Biking and Walking Rates to High Blood Pressure Rates in 50 States



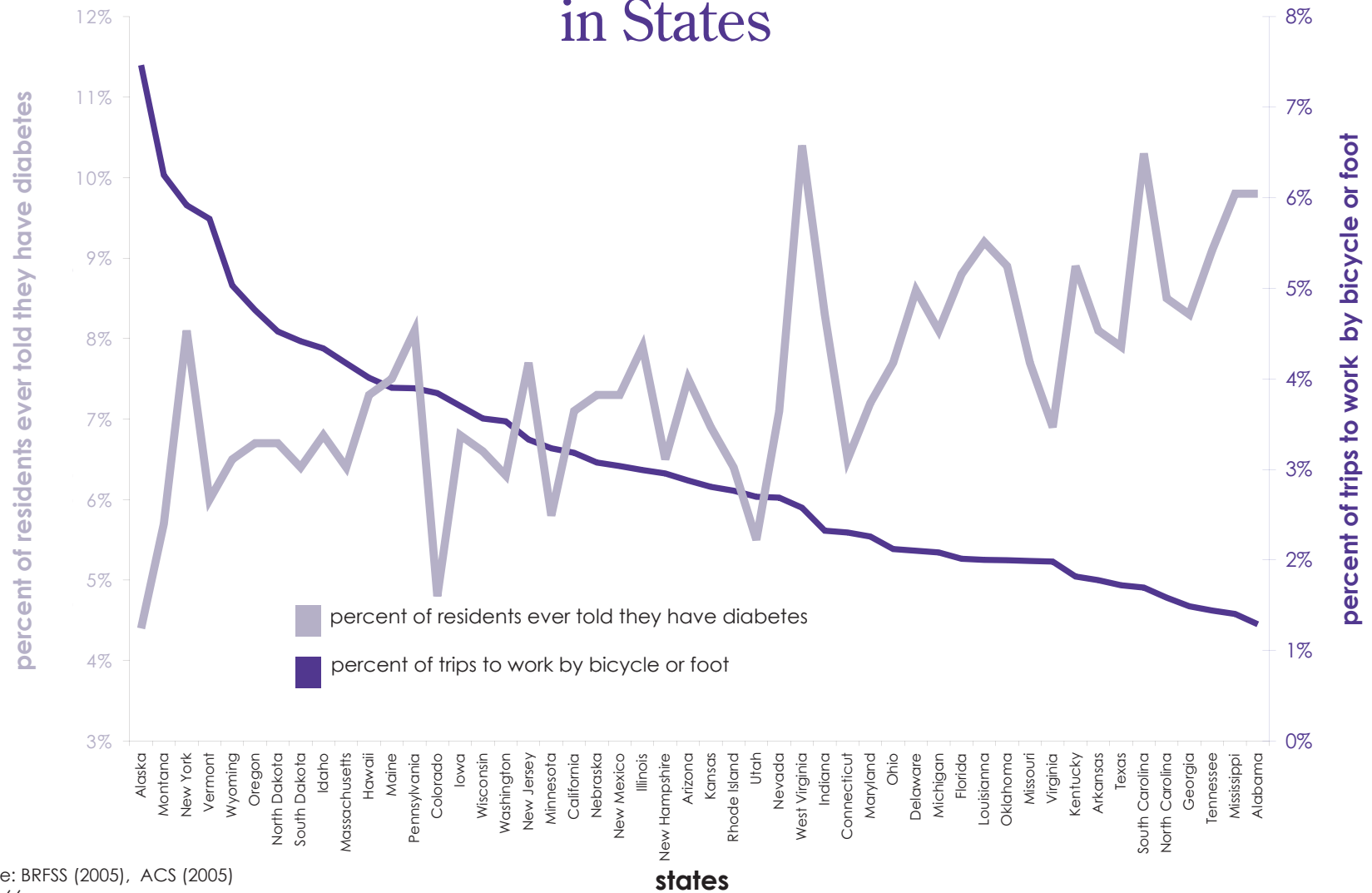
Source: BRFSS (2005), ACS (2005)  
 $r = -0.59$

DATA FROM BRFSS AND ACS SUGGEST A negative correlation between levels of high blood pressure and cycling and walking ( $r = -0.69$ ). This relationship is in line with other results indicating a similar negative correlation between biking and walking levels and levels of obesity and high blood pressure.

States with higher levels of biking and walking average lower levels of high blood pressure.



# Comparing Biking and Walking Rates to Diabetes Rates in States



Diabetes rates are lowest among states with high levels of biking and walking.

DATA SUGGESTS A NEGATIVE CORRELATION exists between rates of diabetes and levels of biking and walking ( $r = -0.66$ ). According to data from BRFSS and ACS 2005, diabetes rates are lowest among states with high levels of biking and walking.

# 9: Conclusions

## Safety in Numbers

Data indicate that higher levels of cycling and walking coincide with lower levels of bicycle and pedestrian fatalities. The “safety in numbers” phenomenon may have more than one explanation. It is possible that in places with more cyclists and pedestrians, drivers are used to sharing roadways with cyclists and looking out for pedestrians at crossings. It is also possible that a number of factors that lead to increased cycling and walking (i.e. sidewalks, bike lanes, marked intersections, education, etc.) may also contribute to safety. Also, when cycling levels are higher, drivers might be cyclists at some point and know what it is like to be on a bike. Either way, data suggests that as cycling and walking levels increase, places will become safer for cyclists and pedestrians.

## If You Build it They Will Come

Examples abound and local advocates and officials know that a new trail or path built where few biked and walked before more often than not will dramatically increase bicycling and walking in that particular corridor. Results of this study suggest what these advocates and officials know to be true: when you build it, they will come. In general, the cities and states with the most miles of bicycling facilities have higher rates of bicycling. Because of limited data on pedestrian infrastructure, the same analysis could not be done for walking.

The density of the built environment also impacts levels of biking and walking. Data show that denser cities (more people per square mile) have higher levels of cycling and walking than cities where people are more spread out. Since biking and walking trips are normally shorter distances than car trips, denser environments with close destinations will encourage

more people to choose biking or walking. The lack of free and/or readily available parking may also be a deterrent for driving in denser communities. Also, denser communities have slower car speeds making cycling relatively more attractive. When it's easier to bike or walk than to drive, cycling and walking levels would be expected to increase. Although this report did not measure data on car-parking or other policies that encourage or discourage car use, this is a possible contributor to the trend towards more biking and walking in dense environments.

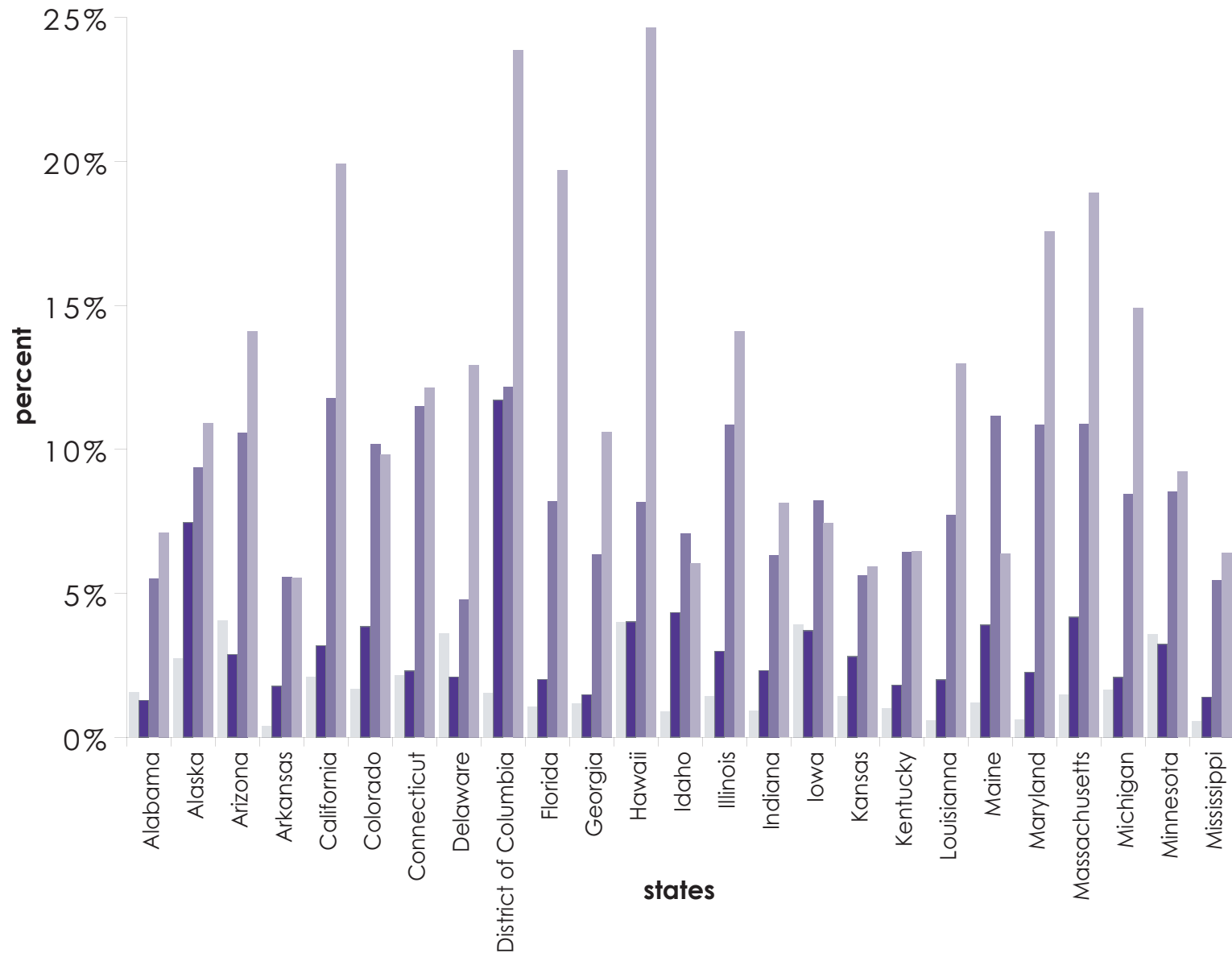
## Biking and Walking to a Healthier Tomorrow

It is undeniable that some link exists between the decline in cycling and walking and the rise in obesity levels over the last 40 years. As suburban sprawl has moved people away from city centers, society has become increasingly dependent on the automobile and biking and walking to destinations has declined. Physical activity once was a way of life. Today, more and more people must make a concerted effort to achieve the minimum recommended level of daily physical activity. Treadmills, spinning classes, and gym memberships have replaced walking and biking for everyday trips to school, work, and errands. Not only does biking and walking to work, school, or elsewhere help to meet healthy levels of daily physical activity, it makes for a healthier society with lower levels of obesity, high blood pressure, and diabetes. This report shows that investing in bicycling and walking is a wise public health investment towards encouraging active lifestyles and reversing this nation's obesity epidemic.

(cont. page 102)

## CONCLUSIONS

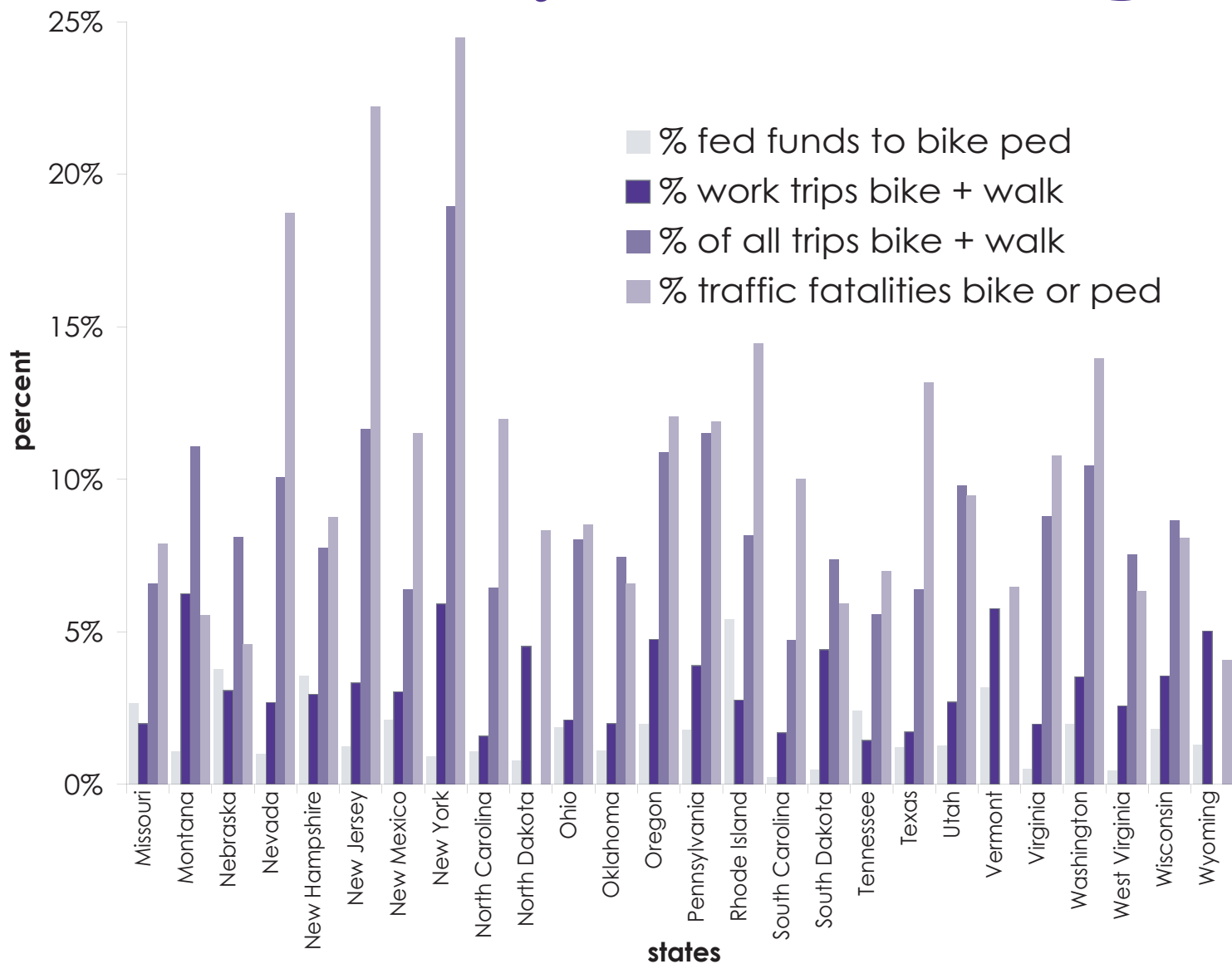
# Overview of Bicycling & Walking



**3.4% of trips to work in the U.S. are by bike or foot;**  
**9.6% of all trips in the U.S. are by bike or foot;**

Sources: ACS (2005), NHTS (2001-2002), FARS (2003-2005), FHWA (2004-2006)

# Levels, Safety, and Funding



**12.9% of U.S. traffic fatalities are bicyclists and pedestrians;  
1.5% of U.S. federal transportation dollars go to bicycling and walking.**



(cont. from page 99)

## Greater Investment Needed

Chapter 7 shows how policies have a direct impact on levels of cycling and walking. Land use policies (density), infrastructure, policies to encourage or discourage automobiles (among others) impact people's decision to bike or walk. Cities and states that rank high for bicycle and pedestrian policies and provisions provide benchmarks for other states and cities to aspire to. However, the graph on pages 100-101 shows that all states fall behind in funding bicycling and walking in proportion to prevalence of these modes. Although bicycling and walking make up almost 10% of all trips, less than 2% of federal transportation dollars go to bicycle and pedestrian projects.

Because so many variables likely factor into increased bicycling and walking levels (i.e. biking and walking facilities, education, secure bike parking, integration with transit, etc) and these variables are often dependent on other variables (i.e. funding and staffing levels, strong advocacy organizations, good policies), it's difficult to point to any of these alone as the greatest need. Rather, looking at the states and cities that rank highest in some of these areas (Chapter 5) reveals that these places also rank among the highest for cycling and walking levels (Chapters 3 and 4). These connections prove that investment in bicycle and pedestrian policies and provisions and biking and walking levels are linked.

## Limitations to this Report

The availability of reliable data, especially for all trips taken by foot and bicycle, limits what this report can show. The most reliable source of mode share data is from the 2005 American Community Survey (ACS). However, since this survey only looks at trips to work, it does not provide a complete perspective on all bicycling and walking trips. The National Household Transportation Survey (NHTS) sponsored by the FHWA, is updated more frequently (every 5-7 years), and attempts to show all trips. However, because it is a national survey, all analysis below the national level have problems with small sample sizes. It is also difficult to extract data for cities from this source, as it uses Metropolitan Statistical Areas (MSAs) which often stretch

beyond city (and sometimes beyond state) boundaries. Some cities have done their own trip counts for bicycling and walking using various methodologies, but too few have been completed to extract a formula for other states and cities based on available data from the Census and the NHTS.

Another limitation of this report is lack of data at the state and city level on bicycle and pedestrian provisions. Many cities and states have no formal system for tracking miles of sidewalks or bike lanes, for example. Data on other provisions such as bicycle racks and parking are often not readily available.

## Benchmarking Into the Future

This report has revealed how accessible and reliable various data indicators for bicycling and walking are. The indicators chosen for inclusion in this report will continue to be measured through the Benchmarking Project, and the following additions will be considered for future reports:

- Neighborhood-level land-use data;
- Data on bicycle and pedestrian education courses;
- Data on car-parking subsidies and requirements;
- Data on cost of school transportation;
- Data on presence of universities and transportation and parking policies at these universities;
- Data on the promotion of bicycling, walking and transit through public policies to reduce greenhouse gases;
- Additional data on infrastructure including signs, connectivity, sidewalks, and bridge access;
- A subjective survey component to measure attitudes and opinions towards bicycling and walking;
- Several mid-sized cities.

On top of these possible additions, Thunderhead will create an on-line database that will capture data collected for this project and make it easily accessible for stakeholders. All of these additions depend on additional funding for Thunderhead's Benchmarking Project. Thunderhead will work with current partners and strive to create new partnerships as the Benchmarking Project goes forward, in an effort to make these important additions a reality.

# 10: Recommendations

## How You Can Use This Report

*For Officials & Advocates*

The top measurement of the success of this project is how prominently advocates and government officials use these data to argue for an increased investment in bicycling and walking in their communities. Thunderhead encourages advocates and officials to use this report to improve where their city or state fails to meet benchmarks set by cities, with a better investment in bicycling and walking. This report shows where cities and states excel and where there is room for improvement. Readers can use this report to find a city or state in their region, or of a comparable size, and create some friendly competition for improving bicycling and walking by the time the next Benchmarking Report is released in 2009. Those who are unclear on a certain data source or value can contact Thunderhead Alliance for clarity and more information.

## Set Goals, Strategize, Evaluate

*For Officials & Advocates*

This document can be a helpful resource for communities to see what areas they are weakest in and to set goals for improving. If a community ranks low on per capita bicycle parking, then they may set a goal to increase bike parking by x number of spaces per year. Thunderhead hopes this document will be used to strategize by looking towards the best practice models from communities that excel in particular areas. Officials and advocates are generally willing to share information on their successes and provide resources to those who ask. Thunderhead Alliance member organizations have access to Thunderhead's online members' resources library where information on best practices including organizational development, winning campaigns, and specific policy topics such as complete streets, can be found. Readers can evaluate progress

over time and will see in the next report if their community has improved. Thunderhead encourages advocates and officials to set realistic and achievable goals that will increase cycling and walking in their community over time.

## Improve Data Collection on Bicycle & Pedestrian Travel

*For Officials & Advocates*

One of the most valuable but missing pieces to this report is documentation on usage and demand. The limitations of existing standardized data sources were highlighted in Chapters 3, 4 and 9. To fill this important data gap, Thunderhead recommends that a national standardized trip-counting methodology, such as the National Bicycle and Pedestrian Documentation Project, be implemented. Thunderhead supports the National Bicycle and Pedestrian Documentation Project's call for an annual bicycle and pedestrian count and survey using standardized methodologies provided for free by them to participating agencies.

The National Documentation Days are in the second week of September with supplementary counts and surveys that can be conducted in January, May and July to provide seasonal data. Participating agencies and organizations should visit [www.altaplanning.com](http://www.altaplanning.com) for descriptions of the project, instructions, and the forms necessary to conduct a count. Thunderhead encourages communities to conduct counts as part of the National Documentation Day and report results to the Institute of Transportation Engineers (ITE) for inclusion in the national database. If enough counts can be collected by cities using a standardized model, it will lead to a more accu-

rate means of assessing the status of communities and evaluating results. Also, if enough cities participate in these counts, researchers could extrapolate a formula for cities who have not yet participated by comparing the results to existing data sources such as the Census and NHTS. These methods of determining all trips made by foot and bike will greatly improve the ability to measure the impacts of these modes in Thunderhead's next biennial report.

## Improve Data Collection by Government Agencies

### *For Officials*

Besides accurate trip counts, there are other important variables that are needed to evaluate effectiveness. Among areas in need of improved data collection by government agencies are funding for bicycle and pedestrian projects, miles of bicycle and pedestrian facilities, number of bike racks, number of other amenities for cyclists and pedestrians such as signs, bike lockers, showers, and benches. As of this report, many states and cities have no means in place for tracking many of these variables.

Government agencies should implement internal policies for collecting data on their investments in cycling and walking including funding levels, facilities, and other amenities. Several government officials reported that data on bicycle and pedestrian projects was hard to access because in many cases it was not separated out from projects that contained a bicycle and pedestrian component. Although Thunderhead supports the integration of cycling and walking into transportation planning, because there is still a large resource disparity between motorized and non-motorized transportation, it is important to track investment in non-motorized transport so that cities and states can evaluate their results.

National agencies also need to work to improve the uniformity and accuracy of reported data. Appendix 4 illustrates how two different data sets, bicycling and walking levels and fatalities, vary between different surveys. Greater effort should

be made to standardize these surveys so that government officials and advocates will have more accurate data for evaluating their efforts.

## Integrate Benchmarking Efforts to Single National Database

### *For Thunderhead Alliance & other National Organizations*

One reason it has historically been difficult for advocates and officials to compare their progress to other communities is the lack of integrated data from various sources. The Introduction chapter of this report summarized other benchmarking-like efforts in the U.S. that have all collected some amount of data on various indicators for cycling and walking levels, attitudes, or policies. Agencies performing these surveys and studies should coordinate their efforts so that data can be accessible for the benefit of all. For local communities that organize surveys and report cards, it may be beneficial to integrate these efforts into a single standardized survey and/or methodology so that communities can use them both for their own purposes and to compare with results from other communities. A future searchable database, as part of Thunderhead's Benchmarking Project, may be an appropriate umbrella for the collection of such data. If enough communities participated in a single standardized survey/evaluation, then it would be appropriate for Thunderhead to compare and analyze the results in future Benchmarking Reports.

## Expand Benchmarking Efforts

### *For Thunderhead*

### *Refine Methodologies*

Many lessons were learned during the process of collecting data for this Benchmarking Report which will allow Thunderhead to refine its methodologies as the Benchmarking Project expands. Thunderhead will add more time for team-building in the initial phase of the project, coordinating the 2009 Benchmarking Project team six months prior to mailing

surveys. The team will expand outreach efforts in the initial phase of data collection to increase the chances for more complete data sets in the future. Messaging and promotion of the report will also be refined in future outreach efforts. For this report, there were a few rare cases of officials and advocates that questioned the intentions of this report and how the data would be used. They were afraid their community would come out looking bad in the final report and feared the embarrassment. Thunderhead hopes that this report will ease those concerns, and in the future will be better prepared for potential fears and concerns that outreach messaging will address.

### Expand Scope of Data

As the Benchmarking Project evolves and Thunderhead is able to secure more funding, there are other areas such as land use, bicycle and pedestrian amenities (such as changing facilities, bike lockers, and benches) and encouragement and safety programs that will be included. Geographic Information System (GIS) and other neighborhood-level technology will be used to compare land-uses including grocery stores, schools, transit, and bike shops locations to levels of bicycling and walking, crashes, and health data. Thunderhead will also add a survey component to measure attitudes on cycling and walking comfort and safety across communities. In addition to these areas, future data collection will include some mid-size cities in the analysis.

### Create Database to Enhance Access

To better reach the objective of increasing access to data, Thunderhead will create a searchable online database with the data collected for this report and for all future data collected. This database will increase the capacity of this project by streamlining data entry and will allow multiple team members to easily work with the data. This database will be beneficial for advocates and officials who need to access more detailed information than could be detailed in this report. Because more information was collected than could be used, and because there is an infinite number of potential ways to illustrate these data but limited space, data may not have been

displayed in the most useful way for everyone. Putting these data into a database accessible to advocates, officials, and other researchers, will significantly broaden the scope and potential impact of the project. Thunderhead has already received requests from advocates that these data be available online. This proves the demand for a searchable database. Thunderhead still needs to secure additional funds to support its development.

## Get Involved with Benchmarking

### *For Officials & Advocates*

This project would not have been possible without the help and support of Thunderhead Alliance member organizations, advocates and government officials across the United States. Thunderhead has received an overwhelming amount of support from advocates and officials who recognize the value of these efforts for their communities. However, in some cases because of time constraints and difficulty accessing data, willing advocates and officials were unable to provide data for their city or state. Thunderhead recommends that advocates and officials get involved with the Benchmarking Project by dedicating a small amount of time every two years to providing data for their state or community. Advocates and officials will see the gaps for their city or state in this report and can make an effort to improve the completeness of their responses in the future.

Another way to get involved with benchmarking is to conduct surveys or counts using standardized methodology, such as from the National Bicycle and Pedestrian Documentation Project. Advocates and officials can be a part of the solution to increasing the availability and access of data on bicycling and walking in their communities and nationwide by playing an active role. The end result is that everyone benefits by discarding failed models and identifying the best practice models to be emulated. Eventually, these efforts will allow Thunderhead organizations and government agencies to partner in transforming their communities into more vibrant, healthy and livable places where walking and cycling thrive.



# Appendix 1: Overview of Data Sources

Data Source	Description	Method of Data Collection	Frequency of Data Collection	Last Date of Availability
<b>ACS</b>	American Community Survey - a survey conducted under the U.S. bureau that collects similar census information between decennial census years	similar to Census long form; (about three million households)	every year	2005
<b>BRFSS</b>	Behavioral Risk Factor Surveillance System, from Centers for Disease Control and Prevention (CDC); state-wide health information	telephone health survey	continuous	2005
<b>Census</b>	From U.S. Census Bureau	mailed forms, and house visit for non-responders	every 10 years	2000
<b>FARS</b>	Fatality Analysis Reporting System - Federal Database of the National Highway Traffic Safety Administration (NHTSA) of vehicle injuries and fatalities	FARS analyst from each state collects data from governments	every year	2006
<b>FHWA - FMIS</b>	Federal Highway Administration' (FHWA)'s Fiscal Management Information System (FMIS)	data reported to FHWA from state and local government agencies	every year	2006
<b>NHANES</b>	National Health and Nutrition Examination Survey - studies designed to assess the health and nutritional status of adults and children in the U.S.; program of the National Center for Health Statistics (NCHS) and the CDC.	interviews and physician examinations	continuous	2005-2006
<b>NHIS</b>	National Health Interview Survey - estimates of broad range of health measures	interviews at household	yearly	2005
<b>NHTS</b>	National Household Travel Survey - inventory of daily and long-distance travel; NHTS is a national survey and all analysis below the national level have problems with small samples; also, NHTS data is reported by metropolitan areas so data shown for cities are estimates only	survey of 26,000 households (additional 44,000 from nine "add-on" areas); collected by the FHWA	every 5-7 years since 1969	2001-2002
<b>NTEC</b>	National Transportation Enhancements Clearinghouse - sponsored by the FHWA and Rails to Trails Conservancy, reports on funded projects	information comes from funded Transportation Enhancement (TE) projects	every year	2006
<b>USHCN</b>	United States Historical Climatology Network - daily and monthly meteorological data	1000 observing stations	continuous	2004-2005
<b>WISQARS</b>	Web-based Injury Statistics Query and Reporting System, from the CDC; fatal and nonfatal injury data	surveillance data or death records	every year	2005

## Appendix 2: Thunderhead Organizations and Study Area Matches

**This chart shows all 50 states and the top 50 most-populated cities that were the study areas of this report.** In chapters 6 and 7 these organizations are cited by the state or city they represent for ease of comparison (and because not all organizations contain their city or state in their organization's name).

NRO = No Representative Organization. States and cities with NRO do not have a Thunderhead member organization dedicated to bicycle and/or pedestrian advocacy in their area.

Some organizations listed cover areas larger than the city or state they are listed with here. Organizations where this is known to be the case are marked with an asterisk.

This representation is by no means all inclusive. Only Thunderhead Alliance member organizations were surveyed for this report. Some areas are represented by more than one Thunderhead organization and only the organizations who responded to the survey are listed here. Organizations that are not included in this report are not Thunderhead member organizations (state or local bicycle and pedestrian non-profit organizations).

State	Thunderhead Organization	City	Thunderhead Organization
AK	NRO	Albuquerque	Bike ABQ
AL	AlaBike	Arlington	NRO
AR	NRO	Atlanta	Atlanta Bicycle Campaign
AZ	Coalition of Arizona Bicyclists	Austin	Austin Cycling Association
CA	California Bicycle Coalition & California Association of Bicycling Organizations	Baltimore	One Less Car*
CO	Bicycle Colorado	Boston	Livable Streets Alliance*
CT	NRO	Charlotte	B.I.K.E.S. of Charlotte/Mecklenberg*
DE	NRO	Chicago	Chicagoland Bicycle Federation*
FL	Florida Bicycle Association	Cleveland	NRO
GA	Georgia Bikes!	Colorado Springs	Pike Peak Area Bikeways Coalition
HI	Hawaii Bicycling League	Columbus	Central Ohio Bicycle Advocacy Coalition*
IA	Iowa Bicycle Coalition	Dallas	BikeDFW*
ID	NRO	Denver	Bike Denver
IL	League of Illinois Bicyclists	Detroit	NRO
IN	Indiana Bicycle Coalition	El Paso	NRO
KS	NRO	Fort Worth	BikeDFW*
KY	NRO	Fresno	NRO
LA	NRO	Honolulu	NRO
MA	MassBike	Houston	Bike Houston
MD	One Less Car	Indianapolis	NRO
ME	Bicycle Coalition of Maine	Jacksonville	NRO
MI	League of Michigan Bicyclists	Kansas City	Greater Kansas City Bicycle Federation & Major Taylor Foundation of Greater Kansas City*
MN	NRO	Las Vegas	NRO
MO	Missouri Bicycle Federation	Long Beach	L.A. County Bicycle Coalition*& Bikestation
MS	Bike Walk Mississippi	Los Angeles	L.A. County Bicycle Coalition*
MT	NRO	Louisville	Bicycling for Louisville
NC	NRO	Memphis	NRO
ND	NRO	Mesa	NRO
NE	NRO	Miami	NRO
NH	Bike-Walk Alliance of NH	Milwaukee	Bicycle Federation of Wisconsin*
NJ	Walk Bike Jersey	Minneapolis	Midway TMO
NM	Bicycle Coalition of NM	Nashville	Walk/Bike Nashville
NV	NRO	New Orleans	Metro Bicycle Coalition*
NY	New York Bicycling Coalition	New York City	Transportation Alternatives
OH	Ohio Bicycle Federation	Oakland	East Bay Bicycle Coalition*
OK	NRO	Oklahoma City	NRO
OR	Bicycle Transportation Alliance*	Omaha	Bikeable Communities
PA	NRO	Philadelphia	Bicycle Coalition of Greater Philadelphia*
RI	Greenway Alliance of Rhode Island	Phoenix	NRO
SC	Palmetto Cycling Coalition	Portland	Bicycle Transportation Alliance*
SD	South Dakota Bicycle Coalition	Sacramento	Sacramento Area Bicycle Advocates*
TN	NRO	San Antonio	NRO
TX	Texas Bicycle Coalition	San Diego	San Diego County Bicycle Coalition*
UT	Utah Bicycle Coalition	San Francisco	San Francisco Bicycle Coalition & Livable City & Walk San Francisco
VA	Bike Walk Virginia & Virginia Bicycling Federation	San Jose	Silicon Valley Bicycle Coalition*
VT	Vermont Bicycle & Pedestrian Coalition	Seattle	Cascade Bicycle Club*
WA	Bicycle Alliance of Washington	Tucson	NRO
WI	Bicycle Federation of Wisconsin	Tulsa	NRO
WV	Mountain State Wheelers	Virginia Beach	NRO
WY	NRO	Washington	Washington Area Bicyclist Association*

# Appendix 3: Thunderhead Member Organizations

## UNITED STATES

### Alabama

Birmingham Urban Mountain Pedaler  
Alabama Bicycle Coalition

### Alaska

Juneau Freewheelers: Juneau

### Arizona

Verde Valley Cyclists: Cottonwood  
Coalition of Arizona Bicyclists  
Prescott Alternative Transportation  
Bicycle Inter-Community Action & Salvage: Tucson

### Arkansas

Mississippi River Trail, Inc.: Fayetteville  
Bicycle Advocacy of Central Arkansas: Little Rock

### California

Bike Alameda  
Bike Bakersfield  
Silicon Valley Bicycle Coalition: Cupertino  
Marin County Bicycle Coalition: Fairfax  
Bikestation: Long Beach  
Los Angeles County Bicycle Coalition  
Napa Valley Bicycle Coalition  
Bay Area Bicycle Coalition: Novato  
East Bay Bicycle Coalition: Oakland  
CA Association of Bicycling Organizations  
California Bicycle Coalition  
Sacramento Area Bicycle Advocates  
San Diego County Bicycle Coalition  
Livable City: San Francisco  
San Francisco Bicycle Coalition  
Walk San Francisco  
San Luis Obispo Bicycle Club  
San Luis Obispo County Bicycle Coalition  
Peninsula Bicycle & Pedestrian Coalition: San Mateo  
Santa Barbara Bicycle Coalition  
People Power: Santa Cruz  
Sonoma County Bicycle Coalition: Santa Rosa

### Colorado

New Century Transportation Foundation: Carbondale

Pikes Peak Area Bikeways Coalition: Colorado Springs  
Bicycle Colorado  
Bike Denver  
Friends of the Fort Collins Bicycle Program

### Connecticut

Connecticut Bicycle Coalition  
Central Connecticut Bicycle Alliance: West Hartford

### Delaware

Urban Bike Project of Wilmington

### District of Columbia

Washington Area Bicyclist Association

### Florida

Alachua County Bicycle Alliance: Gainesville  
Naples Pathways Coalition  
Alliance for Responsible Transportation: Sarasota  
Florida Bicycle Association

### Georgia

Bike Athens  
Atlanta Bicycle Campaign  
Georgia Bikes!  
Southern Bicycle League: Atlanta  
Bike Roswell!

### Hawaii

Hawaii Bicycling League  
People's Advocacy for Trails Hawaii: Kailua-Kona

### Idaho

Teton Valley Trails and Pathways: Driggs  
Treasure Valley Cycling Alliance: Garden City

### Illinois

League of Illinois Bicyclists  
Wheeling Wheelmen: Buffalo Grove  
Chicagoland Bicycle Federation

### Indiana

Calumet Citizens for Connecting Communities  
(C4): Hobart  
Indiana Bicycle Coalition

### Iowa

Iowa Bicycle Coalition

### Kansas

Johnson County Bicycle Club: Shawnee Mission

### Kentucky

Bicycling for Louisville

### Louisiana

Baton Rouge Advocates for Safe Streets (BRASS)  
Metro Bicycle Coalition: New Orleans

### Maine

Bicycle Coalition of Maine: Augusta

### Maryland

One Less Car

### Massachusetts

Massachusetts Bicycle Coalition  
LivableStreets Alliance: Cambridge

### Michigan

Wahtenaw Bicycling and Walking Coalition:  
Ann Arbor  
League of Michigan Bicyclists

### Minnesota

Midway TMO: St. Paul  
Parks & Trails Council of Minnesota: St. Paul

### Mississippi

Bike Walk Mississippi

### Missouri

Missouri Bicycle Federation  
Greater Kansas City Bicycle Federation  
Major Taylor Foundation of Greater Kansas City  
Springbike Bicycle Club: Springfield  
St. Louis Regional Bicycle Federation  
Trailnet: St. Louis

### Montana

Missoula Institute for Sustainable Transportation

**Nebraska**

Bikeable Communities: Omaha  
Great Plains Bicycle Club: Lincoln

**Nevada**

Lake Tahoe Bicycle Coalition: Zephyr Cove

**New Hampshire**

Seacoast Area Bike Routes: Portsmouth  
Bike-Walk Alliance of NH

**New Jersey**

Walk Bike Jersey  
Jersey Off-Road Bicycle Association

**New Mexico**

Bike ABQ: Albuquerque  
Bicycle Coalition of New Mexico

**New York**

New York Bicycling Coalition  
Transportation Alternatives (TA): New York

**North Carolina**

B.I.K.E.S. of Charlotte Mecklenberg  
Bicycling In Greensboro

**Ohio**

Central Ohio Bicycle Advocacy Coalition: Columbus  
Third Hand Bicycle Co-op: Columbus  
Bike Lakewood  
Ohio Bicycle Federation  
Town One Streetscapes: Poland

**Oklahoma**

Red Dirt Pedalers: Stillwater

**Oregon**

Bicycle Transportation Alliance: Portland

**Pennsylvania**

Bicycle Coalition of Greater Philadelphia  
Bike Pittsburgh

**Rhode Island**

Greenway Alliance of Rhode Island: Jamestown

**South Carolina**

Charleston Moves  
Palmetto Cycling Coalition  
Partners for Active Living: Spartanburg

**South Dakota**

South Dakota Bicycle Coalition: Brookings

**Tennessee**

Bike Chattanooga  
Walk/Bike Nashville

**Texas**

Austin Cycling Association  
Texas Bicycle Coalition  
BikeDFW: Dallas/Fortworth  
Bike Houston

**Utah**

Mountain Trails Foundation: Park City  
Salt Lake City Bicycle Collective  
Utah Bicycle Coalition

**Vermont**

Local Motion: Burlington,  
Vermont Bicycle & Pedestrian Coalition

**Virginia**

Virginia Bicycling Federation  
Alliance for Community Choice in Transportation:  
Charlottesville  
Shenandoah Valley Bicycle Club: Harrisburg  
King George Bicyclist Association: King George  
Bike Walk Virginia

**Washington**

Squeaky Wheels: Bainbridge Island  
Mount Baker Bicycle Club: Bellingham  
Bicycle Alliance of Washington  
Cascade Bicycle Club Advocacy Committee: Seattle

**West Virginia**

Mountain State Wheelers  
Positive Spin: Morgantown

**Wisconsin**

Bicycle Federation of Wisconsin  
Bicycle Transportation Alliance of Dane County:  
Madison

**Wyoming**

Friends of Pathways: Jackson

**CANADA****British Columbia**

British Columbia Cycling Coalition  
Capital Bike and Walk Society: Victoria  
Greater Victoria Cycling Coalition  
Vancouver Area Cycling Coalition

**Ontario**

Walk and Bike for Life: Oakville

Visit [www.thunderheadalliance.org/links.htm](http://www.thunderheadalliance.org/links.htm) for complete contact information.

This is a complete listing of Thunderhead Alliance member organizations as of June 2007. For a current and complete list of Thunderhead member organizations as well as contact information and links to their websites, please visit Thunderhead's website at the address above.

**Note:** Cities listed with organizations are the physical location of the organization and in many cases do not represent the complete area they serve.



# Appendix 4: Data Discrepancies

## Discrepancies in Journey to Work Data: Census 2000 and ACS 2005

City	Census 2000 % bike to work	Census 2000 ranking	ACS 2005 % bike to work	ACS 2005 ranking	Census 2000 % walk to work	Census 2000 Ranking	ACS 2005 % walk to work	ACS 2005 Ranking
<b>Albuquerque</b>	1.12%	12	0.81	15	2.69%	26	2.17%	25
<b>Amarillo</b>	0.15%	43	0.14	45	1.10%	51	0.76%	49
<b>Arlington (TX)</b>	0.17%	39	*	*	1.60%	46	*	*
<b>Atlanta</b>	0.31%	35	0.51	28	3.50%	21	3.25%	18
<b>Austin</b>	0.93%	15	1.31	11	2.55%	27	1.80%	38
<b>Baltimore</b>	0.33%	33	0.40	31	7.11%	7	5.42%	10
<b>Boston</b>	0.97%	13	0.94	13	13.04%	1	12.55%	1
<b>Charlotte</b>	0.15%	42	0.16	44	1.52%	49	1.59%	42
<b>Chicago</b>	0.50%	25	0.67	17	5.67%	10	5.47%	9
<b>Cleveland</b>	0.22%	36	0.39	32	4.03%	16	4.23%	15
<b>Colorado Springs</b>	0.52%	24	0.59	24	2.46%	29	2.53%	23
<b>Columbus</b>	0.34%	31	0.63	19	3.20%	23	1.64%	40
<b>Dallas</b>	0.13%	46	0.19	41	1.95%	43	1.81%	35
<b>Denver</b>	0.95%	14	1.41	10	4.35%	14	4.80%	12
<b>Detroit</b>	0.16%	41	0.21	40	2.81%	24	2.54%	22
<b>El Paso</b>	0.12%	49	0.32	34	1.96%	42	2.07%	28
<b>Fort Worth</b>	0.12%	48	0.23	39	1.59%	47	1.09%	48
<b>Fresno</b>	0.79%	18	0.66	18	2.06%	39	1.67%	39
<b>Honolulu</b>	1.25%	7	1.44	9	6.59%	9	6.91%	6
<b>Houston</b>	0.46%	27	0.28	35	2.31%	32	1.87%	33
<b>Indianapolis</b>	0.21%	37	0.10	48	2.00%	40	1.89%	31
<b>Jacksonville</b>	0.42%	29	0.25	38	1.79%	45	1.85%	34
<b>Kansas City (MO)</b>	0.12%	47	0.02	49	2.27%	33	2.22%	24
<b>Las Vegas</b>	0.39%	30	0.34	33	2.16%	37	1.80%	37
<b>Long Beach</b>	0.73%	19	0.60	21	2.53%	28	1.80%	36
<b>Los Angeles</b>	0.61%	22	0.59	23	3.57%	20	3.15%	19
<b>Louisville</b>	0.44%	28	0.27	36	4.09%	15	1.39%	46
<b>Memphis</b>	0.11%	51	*	*	1.93%	44	*	*

## APPENDIX 4: DATA DISCREPANCIES

City	Census 2000 % bike to work	Census 2000 ranking	ACS 2005 % bike to work	ACS 2005 ranking	Census 2000 % walk to work	Census 2000 Ranking	ACS 2005 % walk to work	ACS 2005 Ranking
Mesa	1.23%	8	0.75	16	2.08%	38	2.08%	27
Miami	0.55%	23	0.53	27	3.67%	18	4.87%	11
Milwaukee	0.33%	32	0.57	25	4.71%	13	4.27%	14
Minneapolis	1.89%	3	2.42	2	6.61%	8	5.81%	8
Nashville	0.14%	44	0.17	42	2.38%	30	1.87%	32
New Orleans	1.16%	11	0.97	12	5.21%	12	4.22%	16
New York	0.47%	26	0.48	29	10.41%	3	9.44%	4
Oakland	1.22%	9	1.54	8	3.73%	17	2.98%	21
Oklahoma City	0.11%	50	0.17	43	1.59%	48	1.36%	47
Omaha	0.14%	45	0.12	47	2.37%	31	2.12%	26
Philadelphia	0.86%	16	0.89	14	9.05%	5	8.05%	5
Phoenix	0.86%	17	0.60	22	2.17%	36	1.62%	41
Portland	1.76%	5	3.47	1	5.24%	11	4.30%	13
Sacramento	1.35%	6	1.75	6	2.77%	25	3.66%	17
San Antonio	0.16%	40	0.13	46	2.17%	35	1.49%	45
San Diego	0.73%	20	0.62	20	3.65%	19	1.89%	30
San Francisco	1.98%	2	1.85	5	9.36%	4	9.59%	3
San Jose	0.62%	21	0.40	30	1.44%	50	1.52%	44
Seattle	1.88%	4	2.31	3	7.36%	6	6.87%	7
Tucson	2.21%	1	2.24	4	3.44%	22	3.11%	20
Tulsa	0.21%	38	0.26	37	2.24%	34	1.96%	29
Virginia Beach	0.32%	34	0.56	26	1.96%	41	1.56%	43
Washington	1.16%	10	1.74	7	11.80%	2	9.97%	2

## Bike and Walk to Work Data: 2000 Census vs. 2005 ACS

This table is included to highlight variation in bike and walk to work data from the 2000 Census and the 2005 American Community Survey (ACS). The decennial Census collects data in April which may limit the accuracy of biking and walking travel data. Because many places in the U.S. still have quite low temperatures in April, this may discourage the number of people who bike and walk to work. The ACS collects data year-round which may lead to a more accurate portrayal of yearly commute patterns. Other variations in the two data sets may be caused by the smaller sample size and more recent nature of the 2005 ACS. Rankings are provided ranging from one (highest percentage of people who bike/walk to work) to 50 (lowest percentage of people who bike/walk to work) for comparison.

# Discrepancies in Fatality Data: WISQARS, FARS & State-Reported

States	Bike fatalities WISQARS	Bike fatalities FARS	Bike fatalities state- reported	Difference: WISQARS - FARS (bike)	Difference: state -reported - FARS	Ped fatalities WISQARS	Ped fatalities FARS	Ped fatali- ties state- reported	Difference: WISQARS - FARS (ped)	Difference: state-reported - FARS
<b>Alabama</b>	7.00	10.33	10.00	-3.33	-0.33	84.00	71.67	685.00	12.33	613.33
<b>Alaska</b>	2.67	2.33	*	0.34	*	19.00	8.67	*	10.33	*
<b>Arizona</b>	51.66	26.00	26.00	25.66	0.00	161.33	136.00	142.00	25.33	6.00
<b>Arkansas</b>	24.67	2.33	*	22.34	*	55.66	36.67	*	18.99	*
<b>California</b>	119.67	110.33	*	9.34	*	854.66	710.00	*	144.66	*
<b>Colorado</b>	9.67	7.33	9.33	2.34	2.00	81.00	58.00	57.00	23.00	-1.00
<b>Connecticut</b>	5.66	3.33	10.00	2.33	6.67	49.34	32.00	96.00	17.34	64.00
<b>Delaware</b>	3.33	2.00		1.33	-2.00	16.67	15.33		1.34	-15.33
<b>Florida</b>	123.33	115.67	37.00	7.66	-78.67	556.67	523.00	176.67	33.67	-346.33
<b>Georgia</b>	12.00	20.33	18.67	-8.33	-1.66	201.67	153.00	155.67	48.67	2.67
<b>Hawaii</b>	5.67	5.67	4.67	0.00	-1.00	29.67	29.33	28.33	0.34	-1.00
<b>Idaho</b>	3.33	2.67	2.33	0.66	-0.34	24.00	13.00	13.33	11.00	0.33
<b>Illinois</b>	28.34	21.33	20.00	7.01	-1.33	236.66	169.67	173.00	66.99	3.33
<b>Indiana</b>	14.99	11.00	4.67	3.99	-6.33	93.99	66.00	20.00	27.99	-46.00
<b>Iowa</b>	5.34	7.00	7.00	-1.66	0.00	33.66	22.00	22.33	11.66	0.33
<b>Kansas</b>	5.33	4.00	4.33	1.33	0.33	31.00	23.33	22.00	7.67	-1.33
<b>Kentucky</b>	7.66	8.00	*	-0.34	*	70.67	54.33	*	16.34	*
<b>Louisiana</b>	16.66	15.67	16.00	0.99	0.33	116.34	101.67	100.00	14.67	-1.67
<b>Maine</b>	0.67	1.67	1.67	-1.00	0.00	15.33	10.67	10.00	4.66	-0.67
<b>Maryland</b>	9.33	8.67	9.00	0.66	0.33	128.33	104.33	106.00	24.00	1.67
<b>Massachusetts</b>	6.01	9.00	8.00	-2.99	-1.00	86.00	81.00	85.33	5.00	4.33
<b>Michigan</b>	28.99	26.00	25.67	2.99	-0.33	163.33	146.67	150.00	16.66	3.33
<b>Minnesota</b>	9.67	7.67	7.67	2.00	0.00	63.67	44.67	44.33	19.00	-0.34
<b>Mississippi</b>	5.33	5.67	5.33	-0.34	-0.34	67.33	52.00	52.00	15.33	0.00
<b>Missouri</b>	12.67	6.67	19.00	6.00	12.33	101.66	82.33	84.00	19.33	1.67
<b>Montana</b>	2.33	2.67	*	-0.34	*	19.67	10.00	*	9.67	*
<b>Nebraska</b>	1.66	2.00	*	-0.34	*	19.67	9.67	*	10.00	*
<b>Nevada</b>	8.66	11.33	*	-2.67	*	69.00	62.67	*	6.33	*
<b>New Hampshire</b>	0.99	2.00	*	-1.01	*	12.67	13.00	0.00	-0.33	-13.00
<b>New Jersey</b>	15.67	14.67	*	1.00	*	182.67	147.67	148.00	35.00	0.33

## APPENDIX 4: DATA DISCREPANCIES

States	Bike fatalities WISQARS	Bike fatalities FARS	Bike fatalities state- reported	Difference: WISQARS - FARS (bike)	Difference: state -reported - FARS	Ped fatalities WISQARS	Ped fatalities FARS	Ped fatali- ties state- reported	Difference: WISQARS - FARS (ped)	Difference: state-reported - FARS
<b>New Mexico</b>	6.00	4.00	5.67	2.00	1.67	64.33	56.00	55.67	8.33	-0.33
<b>New York</b>	44.33	41.33	121.00	3.00	79.67	414.33	324.00	324.00	90.33	0.00
<b>North Carolina</b>	26.67	27.00	*	-0.33	*	203.33	159.33	56.67	44.00	-102.66
<b>North Dakota</b>	0.99	1.33	1.33	-0.34	0.00	9.33	7.00	7.00	2.33	0.00
<b>Ohio</b>	18.33	13.33	14.00	5.00	0.67	138.67	96.00	108.00	42.67	12.00
<b>Oklahoma</b>	3.66	5.33	5.33	-1.67	0.00	65.00	45.67	46.67	19.33	1.00
<b>Oregon</b>	13.34	9.33	3.00	4.01	-6.33	67.33	45.67	16.00	21.66	-29.67
<b>Pennsylvania</b>	20.01	17.33	5.67	2.68	-11.66	215.33	159.67	53.33	55.66	-106.34
<b>Rhode Island</b>	0.33	0.67	0.67	-0.34	0.00	13.33	11.33	11.67	2.00	0.34
<b>South Carolina</b>	15.00	16.67	17.33	-1.67	0.66	104.00	88.00	100.00	16.00	12.00
<b>South Dakota</b>	1.33	0.67	0.67	0.66	0.00	13.33	11.00	11.33	2.33	0.33
<b>Tennessee</b>	7.00	7.00	6.00	0.00	-1.00	103.34	83.00	72.00	20.34	-11.00
<b>Texas</b>	60.67	49.67	42.00	11.00	-7.67	528.00	422.33	140.67	105.67	-281.66
<b>Utah</b>	5.67	3.67	6.67	2.00	3.00	39.33	24.33	35.33	15.00	11.00
<b>Vermont</b>	2.34	0.67	0.67	1.67	0.00	7.99	5.67	6.00	2.32	0.33
<b>Virginia</b>	12.33	13.33	**	-1.00	*	119.33	86.33	**	33.00	*
<b>Washington</b>	13.33	10.00	10.00	3.33	0.00	95.00	68.67	69.00	26.33	0.33
<b>West Virginia</b>	2.33	2.33	*	0.00	*	35.34	23.67	*	11.67	*
<b>Wisconsin</b>	12.33	13.33	12.00	-1.00	-1.33	69.67	50.67	*	19.00	*
<b>Wyoming</b>	1.00	1.00	0.67	0.00	-0.33	8.33	5.67	2.67	2.66	-3.00

## Bicycle and Pedestrian Fatality Data: WISQARS, FARS & State-Reported

This table highlights the variation in bicycle and pedestrian fatality data from the Web-based Injury Statistics Query and Reporting System (WISQARS), the Fatality Analysis Reporting System (FARS), and state-reported numbers from Thunderhead's State Surveys. These data reveal enormous discrepancies in fatality data among all three data sets. This could be explained partly through the different approach to data collection. WISQARS is maintained by the Centers for Disease Control and Prevention (CDC) and surveys death records and emergency room visits. FARS is a federal database maintained by the National Highway Traffic Safety Administration (NHTSA) and collects data from governments on vehicle injuries and fatalities. Although significant differences are seen in bicycle fatality reporting (see WISQARS & FARS data for Arizona and Arkansas) an even greater variation is found in pedestrian fatality data (see data for New York and Texas). Because these data are crucial to improving the safety of bicycling and walking and evaluating results of efforts to do so, Thunderhead highly recommends that the CDC and NHTSA work towards standardizing the reporting of fatalities among government agencies.



# Appendix 5: Resources

## Advocacy Organizations:

### State & Local Advocacy Organizations:

- See [www.thunderheadalliance.org/links.htm](http://www.thunderheadalliance.org/links.htm) to find your state or local bicycle and pedestrian advocacy organization

### National Advocacy Organizations:

- **Adventure Cycling:** America's bicycle travel inspiration and resources: [www.adv-cycling.org/](http://www.adv-cycling.org/)
- **Bikes Belong Coalition:** national coalition of bicycle suppliers and retailers working together to put more people on bicycles more often: [www.bikesbelong.org](http://www.bikesbelong.org)
- **International Mountain Bicycling Association:** [www.imba.com](http://www.imba.com)
- **League of American Bicyclists:** national bicycle advocacy organization: [www.bikeleague.org](http://www.bikeleague.org)
- **National Center for Bicycling and Walking:** [www.bikewalk.org](http://www.bikewalk.org)
- **Rails to Trails Conservancy:** works with communities to preserve unused rail corridors by transforming them into trails: [www.railtrails.org](http://www.railtrails.org)
- **Thunderhead Alliance:** national coalition of state and local bicycle and pedestrian advocacy organizations: [www.thunderheadalliance.org](http://www.thunderheadalliance.org)

## Bicycle & Pedestrian Statistics:

### General Information:

- **Pedestrian and Bicycle Information Center:** [www.pedbikeinfo.org](http://www.pedbikeinfo.org)

### Mode Share (Bicycle and Pedestrian Counts):

- **National Bicycle and Pedestrian Documentation Project:** (Alta Planning + Design): [www.altaplanning.com](http://www.altaplanning.com)

## Bicycle Shops:

- **National Bicycle Dealers Association:** find your local bicycle dealer at [www.nbda.com](http://www.nbda.com)

## Bicycling & Walking Policies:

### Complete Streets:

- Advice on complete streets campaigns: [www.thunderheadalliance.org/completestreets.htm](http://www.thunderheadalliance.org/completestreets.htm)
- The latest complete streets news: [www.completestreets.org](http://www.completestreets.org)

### Model Policies:

- **Guide to Complete Streets Campaigns** (Thunderhead Alliance) [www.thunderheadalliance.org/pdf/Guide%20Excerpts.pdf](http://www.thunderheadalliance.org/pdf/Guide%20Excerpts.pdf)
- **Examples of Complete Streets Policies and Guides** [www.completestreets.org/completestreets/Tab1-%20Early%20Success%](http://www.completestreets.org/completestreets/Tab1-%20Early%20Success%20Stories)

### Bicycle Police:

- **International Police Mountain Biking Association:** [www.ipmba.org](http://www.ipmba.org)

### Safe Routes to School:

- **National Safe Routes to School Partnership** [www.bikesbelong.org/page.cfm?PageID=250](http://www.bikesbelong.org/page.cfm?PageID=250)
- **The National Center for Safe Routes to School** [www.saferoutesinfo.org](http://www.saferoutesinfo.org)

## Bicycling & Walking Provisions:

### Bicycle Parking:

- **Bicycle Parking Guidelines:** from the Association of Pedestrian and Bicycle Professionals (APBP): [www.bicyclinginfo.org/pdf/bikepark.pdf](http://www.bicyclinginfo.org/pdf/bikepark.pdf)

### Bicycle & Pedestrian Facility Design:

- **Bicycle Facility Design:** [www.bicyclinginfo.org/de/](http://www.bicyclinginfo.org/de/)
- **Pedestrian Facility Design:** [www.walkinginfo.org/de/](http://www.walkinginfo.org/de/)

## Healthy & Active Living:

- **Centers for Disease Control & Prevention:** Healthy Youth [www.cdc.gov/HealthyYouth/index.htm](http://www.cdc.gov/HealthyYouth/index.htm)
- **Robert Wood Johnson Foundation Active Living by Design:** [www.activelivingbydesign.org](http://www.activelivingbydesign.org)

# Bibliography:

## Chapter 1 - Introduction:

- Bicycle Friendly Communities: Enhancing Cities Through Cycling*; American Bicyclist, League of American Bicyclists, March/April 2007.
- Bikeability Checklist – How bikeable is your community?* From [www.bicyclinginfo.org](http://www.bicyclinginfo.org); Pedestrian and Bicycle Information Center; Bikeability Checklist; [www.bicyclinginfo.org/cps/checklist.htm](http://www.bicyclinginfo.org/cps/checklist.htm).
- CTC Benchmark Project; [www.ctc.org.uk/DesktopDefault.aspx?TabID=3774](http://www.ctc.org.uk/DesktopDefault.aspx?TabID=3774); Summary presented at 2003 VeloCity Conference found at <http://www.ctc.org.uk/resources/Benchmarking/2003VelocityBM.pdf>.
- Feitsersbond, *The Cycle Balance: Objective assessment of local cycling conditions*, [www.bypad.org](http://www.bypad.org), Utrecht, 2001.
- Goldeberg, David, et al. *SMARTRAQ Summary Report . New Data for a New Era: A Summary of the SMARTRAQ Findings Linking Land Use, Transportation, Air Quality and Health in the Atlanta Region*, January 2007.
- League of American Bicyclists Bicycle Friendly Communities ([www.bicyclefriendlycommunity.org/pdf/bfc\\_application\\_1.pdf](http://www.bicyclefriendlycommunity.org/pdf/bfc_application_1.pdf)).  
Report of 2006 Bicycle Friendly Communities at  
[http://www.bicyclefriendlycommunity.org/Images/bfc\\_pdf\\_pages/bicycle\\_friendly\\_community\\_case\\_study.pdf](http://www.bicyclefriendlycommunity.org/Images/bfc_pdf_pages/bicycle_friendly_community_case_study.pdf).
- Making the Grade 2005: T.A.'s 9th Annual Bicycling Report Card*; Transportation Alternatives, Winter 2005.
- National Bicycle and Pedestrian Documentation Project: Instructions*. Alta Planning + Design, Inc., August 2005.  
([http://www.altaplanning.com/nbpd/NDP\\_Instructions090205.pdf](http://www.altaplanning.com/nbpd/NDP_Instructions090205.pdf))
- National Bicycle and Pedestrian Documentation Project: Description*. Alta Planning + Design, Inc., August 2005.  
([http://www.altaplanning.com/nbpd/NDP\\_Description090205.pdf](http://www.altaplanning.com/nbpd/NDP_Description090205.pdf)).
- Report Card on Bicycling: San Francisco 2006*; San Francisco Bicycle Coalition, May 2006, <http://www.sfbike.org/?reportcard>.
- The Bicycle-Friendly Communities Report Card: A Comparative Look at the Quality of Bicycling in Oregon's Cities*; Bicycle Transportation Alliance, Portland, OR, 2002.
- Taylor, Neil – Transport and Travel Research, Ltd., *The Urban Transport Benchmarking Initiative: Year Three Final Report*; Cycling Scotland; July 31, 2006, [www.transportbenchmarks.org](http://www.transportbenchmarks.org).
- Transportation Research Board (TRB), *Does the Built Environment Influence Physical Activity: Examining the Evidence*, TRB Special Report 282, 2005.
- Walkability Checklist How walkable is your community?* From [www.walkableamerica.org](http://www.walkableamerica.org); Partnership for a Walkable America; Walkability Checklist; [www.walkableamerica.org/checklist-walkability.pdf](http://www.walkableamerica.org/checklist-walkability.pdf)
- William C. Wilkinson III, AICP and Robert L. Chauncey, PhD. *Are We There Yet? Assessing the Performance of State Departments of Transportation on Accommodating Bicycles and Pedestrians*. National Center for Bicycling & Walking, Washington, DC, February 2003.

## Chapter 3 - Current Status of Bicycling:

- Barnes, Gary and Kevin Krizek, *Tools for Predicting Usage and Benefits of Urban Bicycle Network Improvements*, Minnesota Department of Transportation, Research Services Section, December 2005.

Evaluating Nonmotorized Transport: Techniques for Measuring Walking and Cycling Activity and Conditions. From the Transportation Demand Management (TDM) Encyclopedia. Victoria Transport Policy Institute, March 2007, [http://www.vtpi.org/tdm/tdm63.htm#\\_Toc121444872](http://www.vtpi.org/tdm/tdm63.htm#_Toc121444872).

Pucher, John and John L. Renne, *Socioeconomics of Urban Travel: Evidence from the 2001 NHTS*, Transportation Quarterly, Vol. 57, No. 3, Summer 2003 (49–77).

## Chapter 5 - Bicycling & Walking Policies & Provisions:

Complete the Streets, National Complete Streets Coalition, *Examples of Complete Streets Policies and Guides*, [www.completethestreets.org](http://www.completethestreets.org).

*History of Safe Routes to School*, from the website of the National Center for Safe Routes to School, [www.saferoutesinfo.org](http://www.saferoutesinfo.org).

*Interim Program Guidance, The Congestion Mitigation and Air Quality (CMAQ) Improvement Program under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*; <http://www.fhwa.dot.gov/environment/cmaq06gd.pdf>, October 31, 2006.

International Police Mountain Biking Association (IPMBA), Survey of EMS Bike Teams, 2002: <http://www.ipmba.org/survey-2002-results-ems.htm>.

Safe Routes to School: <http://safety.fhwa.dot.gov/saferoutes/>.

Surface Transportation Program (STP): <http://www.fhwa.dot.gov/Tea21/factsheets/stp.htm>.

402 Safety Funds: [http://safety.fhwa.dot.gov/state\\_program/section402/index.htm](http://safety.fhwa.dot.gov/state_program/section402/index.htm).

## Chapter 7 - Factors Influencing Cycling, Walking, and Safety:

Jacobsen, P.L., *Safety in numbers: more walkers and bicyclists, safer walking and bicycling*, Injury Prevention, 9: 205-209, 2003.

Pucher, John and Ralph Buehler, *Why Canadians cycle more than Americans: A comparative analysis of bicycling trends and policies*. Transport Policy, 13: 265-279, 2006.

## Chapter 8 - Impacts of Cycling and Walking on Public Health:

Goldeberg, David et al. *New Data for a New Era: A Summary of the SMARTARQ Findings: Linking Land Use, Transportation, Air Quality and Health in the Atlanta Region*.

*Heart and Stroke Foundation 2005 Report Card on Canadians' Health - Has the Suburban Dream Gone Sour?*, Press Release from the Heart and Stroke Foundation, [www.heartandstroke.ca](http://www.heartandstroke.ca), February 10, 2005.

McDonald, Noreen C., *Active Transportation to School: Trends Among U.S. Schoolchildren, 1969–2001*, American Journal of Preventive Medicine, 32 (6); 509-516, 2007.

National Center for Health Statistics, *Health, United States, 2006: With Chartbook on Trends in the Health of Americans*, Hyattsville, MD: 2006, 57 (further cites Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Examination Survey and National Health and Nutrition Examination Survey).

U.S. Centers for Disease Control and Prevention. Kids Walk-to-School: Then and Now—Barrier and Solutions. Available: [www.cdc.gov/nccdphp/dnpa/kidswalk/then\\_and\\_now.htm](http://www.cdc.gov/nccdphp/dnpa/kidswalk/then_and_now.htm) Accessed: June 21, 2007





\$24.95

Made possible in part by:



MAIN OFFICE

P.O. BOX 3309

PRESCOTT, AZ 86302

928.541.9841

[WWW.THUNDERHEADALLIANCE.ORG](http://WWW.THUNDERHEADALLIANCE.ORG)