



U.S. Department of Transportation
Federal Highway Administration

Strategic Agenda for **PEDESTRIAN *and* BICYCLE** **TRANSPORTATION**



SEPTEMBER 2016

1. REPORT NO. FHWA-HEP-16-086	2. GOVERNMENT ACCESSION NO. N/A	3. RECIPIENT'S CATALOG NO. N/A	
4. TITLE Strategic Agenda for Pedestrian and Bicycle Transportation		5. DATE September 2016	
		6. PERFORMING ORGANIZATION CODE N/A	
7. AUTHORS Hannah Twaddell (ICF); Lindsay Martin (ICF); Jennifer Dill (PSU); Nathan McNeil (PSU); Theodore Petritsch (Sprinkle); Peyton McLeod (Sprinkle); Dana Dickman (Alta); Joe Gilpin (Alta)		8. PERFORMING ORGANIZATION CODE N/A	
9. PERFORMING ORGANIZATION CODE NAME AND ADDRESS ICF International (ICF) 9300 Lee Highway, Fairfax, VA 22031 Portland State University (PSU) PO Box 751, Portland, OR 97207 Sprinkle Consulting, Inc. (Sprinkle) 18115 U.S. Hwy 41 North, Suite 600, Lutz, FL 33549 Alta Planning + Design (Alta) 711 SE Grand Ave, Portland, OR 97214		10. WORK UNIT NO. N/A	
		11. CONTRACT OR GRANT NO. DTFH61-11-D-00033	
		Task 5014	
12. SPONSORING AGENCY NAME AND ADDRESS Office of Planning, Environment, and Realty Federal Highway Administration 1200 New Jersey Avenue, SE Washington DC 20590		13. TYPE OF REPORT AND PERIOD COVERED Research Result and Conclusion	
		14. SPONSORING AGENCY CODE FHWA/HEPH-10	
15. SUPPLEMENTARY NOTES			
16. ABSTRACT This Strategic Agenda will inform the Federal Highway Administration's (FHWA) pedestrian and bicycle activities in the next 3 to 5 years and is being organized around four goals: (1) Networks, (2) Safety, (3) Equity, and (4) Trips. Each goal includes actions relating to (a) Capacity Building, (b) Policy, (c) Data, and (d) Research. The Strategic Agenda will inform future investments, policies, and partnerships and serves as the update to DOT's 1994 <i>National Bicycling and Walking Study</i> .			
17. KEY WORDS Bicycle, pedestrian, safety, networks, activity, equity		18. DISTRIBUTION STATEMENT No restrictions. This document is available to the public through the National Technical Information Service, Springfield, VA 22161	
19. SECURITY CLASSIF. (OF THIS REPORT) Unclassified	20. SECURITY CLASSIF. (OF THIS PAGE) Unclassified	21. NO. OF PAGES 62	22. NO. OF PRICE \$0

Disclaimer

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of information contained in this document.

The U.S. Government does not endorse products or manufacturers. Trademarks or manufacturers' names appear in this report only because they are considered essential to the objective of this document.

The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official policy of the U.S. Department of Transportation. This report does not constitute a standard, specification, or regulation.

Publication Number: FHWA-HEP-16-086



Table of Contents

Executive Summary..... 8

Introduction..... 16

Strategic Agenda 32

Goal 1: Networks..... 34

Goal 2: Safety..... 41

Goal 3: Equity..... 46

Goal 4: Trips50

Moving Forward54

Conclusion60



Figures and Tables

Figure 1: Goals	8
Figure 2: Pedestrian and Bicycle Fatal Crashes, 2005-2015.....	11
Figure 3: Pedestrian and Bicycle Travel Trends	17
Figure 4: Pedestrian and Bicycle Commute Trends	18
Figure 5: Pedestrian and Bicycle Fatalities	18
Figure 6: Pedestrian and Bicycle Fatalities, Four-Year Totals	18
Figure 7: Polk County Pedestrian Crash Trends	25
Figure 8: Joint Research Priorities	27
Figure 9: Bicycle and Pedestrian Training Opportunities	29
Figure 10: Investing in Innovation and Capacity Building to Increase Bicycle and Pedestrian Activity	59
Table 1: Federal Obligations for Bicycle and Pedestrian Projects	20
Table 2: Ongoing and Planned Projects by Funding Source	26
Table 3: Distribution of Current Research and Research Needs by Major Topic.....	27
Table 4: Key Programs Funding Pedestrian and Bicycle Research	28
Table 5: Goals Comparison	52
Table 6: Aligning Goals	56

LETTER OF INTRODUCTION



The Federal Highway Administration has a long history of supporting pedestrian and bicycle transportation through funding, policy guidance, program management, and resource development. This Strategic Agenda for Pedestrian and Bicycle Transportation builds on this support and sets the stage for our activities in the coming years.

We're going to continue to lead on pedestrian and bicycle transportation issues by building national capacity to get better multimodal outcomes in the Federal transportation funding process. We're promoting pedestrian and bicycle planning, design, and safety resources, convening peer exchanges, outreaching on existing and updated policies, fostering active public participation in the planning and decisionmaking process, and leading pedestrian and bicycle assessments and audits. We're ensuring accessibility, while also pushing innovation by identifying and filling gaps in knowledge and practice, promoting design flexibility, encouraging and facilitating experimentation, and conducting new research. We're focusing on safety, networks, equity, and trips.

Walking and bicycling are core transportation options in communities throughout the U.S. and it's in our national interest to make walking and bicycling practical, efficient, and safe transportation choices. We are working to institutionalize and mainstream best practices to improve multimodal outcomes in an "all of the above" capacity to meet the goals identified in this Strategic Agenda.

But we cannot do all of this alone. Success in implementing the Strategic Agenda and ultimately improving pedestrian safety and mobility for people of all ages and abilities will depend on the efforts of our partners across the country. We look forward to working in collaboration with you on these important efforts.



Walter Waidehlich
Executive Director
Federal Highway Administration

Executive Summary

This Strategic Agenda for Pedestrian and Bicycle Transportation is a framework to guide the United States Department of Transportation (USDOT) Federal Highway Administration's pedestrian and bicycle initiatives and investments during the five-year period from Federal Fiscal Year (FY) 2016-17 to FY 2020-21. This Executive Summary provides a high level overview of goals, key issues, and top priority actions. The body of the report contains more detailed examinations of issues, full lists of action steps, and links to white papers, technical memoranda, and resources.

This Agenda establishes a strategic, collaborative approach for making walking and bicycling viable transportation options for people of all ages and abilities in communities throughout the U.S. (note that references to “walking” in this document are intended to encompass people using mobility aids including wheelchairs). It should help advance related policies such as the *2014-2018 USDOT Strategic Plan* and the *2010 USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*.

Developed with input from a broad range of technical experts, transportation agency staff, and stakeholders from across the nation, the Agenda articulates goals and supporting actions to promote safe, accessible, and comfortable, and connected bicycle and pedestrian networks; ensure the safety of nonmotorized travelers; advance [Ladders of Opportunity](#) and [Community Connections](#), equitable access for everyone to jobs, schools, and essential services; and to expand transportation options and choices for all.

WHY INVEST IN PEDESTRIAN AND BICYCLE TRANSPORTATION?

The USDOT mission is to “serve the United States by ensuring a fast, safe, efficient, accessible, and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future.” Effective transportation systems provide options that allow people to choose the routes and modes that best suit their daily needs. For example, seamless

FIGURE 1: GOALS



connections among pedestrian, bicycle, and transit routes are essential to urban mobility for people of all ages, abilities, and income levels. To accomplish its mission, USDOT strives to provide the Nation with a full range of viable, flexible transportation choices, from highways, bridges, railways, ferries, and airports to transit services, pedestrian facilities, bicycle networks, and trails. Providing multimodal transportation options improves equitable access to jobs and essential services, encourages efficient mobility of people and goods, and contributes to a range of policy goals related to equity, health, economic development, and the environment. USDOT is committed to making all travel modes, including walking and bicycling, safe, accessible, comfortable, and convenient for everyone. Investing in these modes yields multiple benefits to the nation:

- » **Improved safety for travelers of all ages and abilities:** Well designed multimodal streets meet the needs of all users. They facilitate safe and comfortable interactions between modes, minimize potential conflicts, and moderate motor vehicle speed.
- » **Improved mobility for all people and businesses:** By providing for more efficient travel movement, local complete street networks play a key role in preserving and enhancing mobility throughout the entire transportation

system. Multimodal streets help to distribute multimodal traffic more efficiently and reduce the likelihood of chronic and incident-related congestion and bottlenecks on major roadways.

» **Improved access to jobs and essential services for all:** In many automobile-dependent American communities, people cannot access jobs and services safely and reliably without a car. Since nearly a quarter of Americans living in poverty do not own a vehicle¹, this lack of meaningful alternatives to access employment and educational opportunities is a major barrier to reaching even the first rung of the ladder of opportunity. Because low-income individuals are less likely to own a car, they are more likely to walk or bike, even when conditions are not safe and are, therefore, exposed to more risk of injury. The 2009 National Household Travel Survey reveals that U.S. residents earning less than \$30,000 per year generated 17 percent of all trips made that year, but made 27 percent of all bicycle trips and 28 percent of all walk trips. They also accounted for 26 percent of local transit trips and 60 percent of trips using transit for people with disabilities, virtually all of which require walking some distance to transit pickup points.² But low-income communities are disproportionately affected by unsafe streets: in counties where more than 20 percent of households have incomes below the Federal poverty line, the pedestrian fatality rate is more than 80 percent higher than the national average.³ According to a 2012 study by the Robert Wood Johnson Foundation, 89 percent of high income neighborhoods have sidewalks while only 49 percent of low-income neighborhoods do.⁴ Disadvantaged areas may also have inadequate street lighting, fewer marked crosswalks, and more limited traffic calming measures.

1 Federal Highway Administration. (2014). NHTS BRIEF: Mobility Challenges for Households in Poverty, page 2. Retrieved from <http://nhts.ornl.gov/briefs/PovertyBrief.pdf>

2 Project team analysis of customized 2009 NHTS data tables created on <http://nhts.ornl.gov/tables09/ae/TableDesigner.aspx>.

3 Turrell, G., Haynes, M., Wilson, L.A., Giles-Corti, B. (2013). Can the built environment reduce health inequalities? A study of neighborhood socioeconomic disadvantage and walking for transport. *Health & Place*. 19, 89–98.

4 [Income Disparities in Street Features that Encourage Walking](#). Robert Wood Johnson Foundation Bridging the Gap Research Brief. Robert Wood Johnson Foundation/ University of Illinois Chicago Institute for Health Research and Policy/ University of Michigan Institute for Social Research. March, 2012.

We will enhance the economic and social well-being of all Americans by creating and maintaining a reliable, integrated, and accessible transportation network that enhances choices for all transportation users, provides easy access to educational and employment opportunities, health care, and other destinations, and promotes positive effects on the surrounding community. Both rural and urban centers require reliable multimodal transportation systems to create thriving, healthy, and environmentally sustainable communities; promote centers of economic activity; support efficient goods movement and strong financial benefits; and opportunities to attract a strong workforce.

—*Transportation for a New Generation: The USDOT 2014-2018 Strategic Plan*

» **Increased resilience for all communities:**

Cities and regions that provide their residents and businesses with a complete array of convenient, safe travel choices are more resilient to the short-term shocks of natural and human-caused disasters and the stressors of long-term environmental and economic changes. Overlapping multimodal transportation networks, including shared use paths and recreational trails, provide travel options during an emergency evacuation when events can render key roadways impassable. Multimodal networks provide additional travel options during transit maintenance. Robust nonmotorized networks can also help communities to achieve goals to improve their natural environment by reducing greenhouse gas emissions; to advance public health by encouraging residents to walk and bicycle for everyday travel; and to boost economic resilience by improving access to a variety of jobs, services, and activities for all residents, from low-income people living in isolated neighborhoods to high-income people seeking urban amenities.

THE FEDERAL COMMITMENT TO PEDESTRIAN AND BICYCLE TRANSPORTATION

During the period from the agency's establishment in the 1960s through the early

1980s, USDOT surface transportation investments and policies focused largely on highways, railways, and transit services, with an emphasis on the successful construction of the national interstate highway network. Research and investments in bicycle and pedestrian transportation were also being made throughout this time, but the enactment of legislation in 1990 and 1991 propelled the agency into the current era of leadership in advancing multimodal networks that provide Americans and our International visitors with a choice of safe, convenient options for everyday travel, including bicycle and pedestrian routes. The Department of Transportation and Related Agencies Appropriations Act (Public Law 101-516) enabled USDOT to conduct a national bicycling and walking study. The 1991 adoption of the [Intermodal Surface Transportation and Efficiency Act \(ISTEA\)](#) (Public Law 102-240) launched the current era in which the USDOT has diversified its portfolio of transportation investments by working with State Departments of Transportation (DOTs), regional Metropolitan Transportation Planning Organizations (MPOs), and local governments to complete and strengthen regional and local bicycle and pedestrian networks. In addition to subsequent legislation, policies, and increased funding, Federal support for pedestrian and bicycle transportation has grown significantly through policy and regulatory documents, such as the USDOT [1994 National Bicycling and Walking Study](#) and periodic updates in [1999](#), [2004](#), and [2010](#); the [2000 FHWA report Accommodating Bicycle and Pedestrian Travel: A Recommended Approach](#); the USDOT [2010 Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations](#); and the USDOT [2014–2018 Strategic Plan](#).

PROGRESS TOWARD ADVANCING PEDESTRIAN AND BICYCLE TRANSPORTATION

The 1994 National Bicycling and Walking Study set goals for increasing nonmotorized travel activity and safety and established a policy framework for making investments of Federal resources in pedestrian and bicycle transportation. Over the ensuing 20 years, some of the 1994 goals were achieved or exceeded, including the following:

- » The Federal goal set in 1994 to reduce pedestrian and bicycle injuries and fatalities by 10 percent has been exceeded. Over the period from 1994 to 2013, injuries decreased by 17 percent among

pedestrians and 20 percent among bicyclists, while fatalities dropped by 16 percent among pedestrians and 13 percent among bicyclists. That said, the rate of injuries increased between 2009 and 2015, after steadily dropping between 1994 and 2008. Pedestrian and bicycle fatality trend lines over the last decade are shown in Figure 2 on the following page. The number of fatalities has steadily increased since 2009 with a significant increase in pedestrian (9 percent) and bicycle (12 percent) fatalities in 2015 compared to 2014. The actions outlined in this report are intended to proactively address these trends and the worrisome spike in the latest numbers increase the urgency of these efforts.

- » Progress has been made toward the 1994 goal to double the share of nationwide trips made by pedestrians and bicyclists from 7.9 percent to 15.8 percent; as of 2013, it had risen to 11.5 percent, almost halfway to the target.

Other important advances have been made, including:

- » Federal funding for pedestrian and bicycle transportation has increased dramatically, from \$113 million in 1994 to a peak of \$1.2 billion in 2009; funding for 2014 was \$820 million. Thousands of community investments in pedestrian and bicycle transportation were made possible by the establishment of programs such as Transportation Enhancements and Safe Routes to School (SRTS), which have been incorporated into Transportation Alternatives.
- » Federal policies, guidance, and encouragement for the inclusion of pedestrian and bicycle transportation into routine transportation planning, design, and construction have advanced multimodal planning and project development at local, regional, State, and Federal levels. Most recently, the [USDOT Summary of Pedestrian and Bicycle Safety Assessments](#) documented design and coordination issues found by multi-agency teams during assessments in every State, while the FY 2015-16 [Secretary of Transportation's Mayors' Challenge for Safer People, Safer Streets](#) engaged more than 240 cities, counties, and other local governments to focus on pedestrian and bicycle safety.
- » Information-sharing resources such as the FHWA-sponsored [Pedestrian and Bicycle Information Center](#) have been established, and

professional training programs, guidebooks, and other educational resources have been developed.

- » Hundreds of communities, MPOs, and State DOTs have adopted [Complete Streets policies](#), which require the formal consideration of all modes of travel throughout the project planning and development process.
- » Some improvements have been made to pedestrian and bicycle data collection methods and analysis tools, and research on nonmotorized transportation issues has increased. While the state of the practice is moving forward, there is still a need to mainstream and institutionalize these efforts.
- » Partnerships of pedestrian and bicycle engineers, planners, and advocates have formed with State DOTs, USDOT agencies, and national associations.

Strategic Agenda Goals and Priority Actions

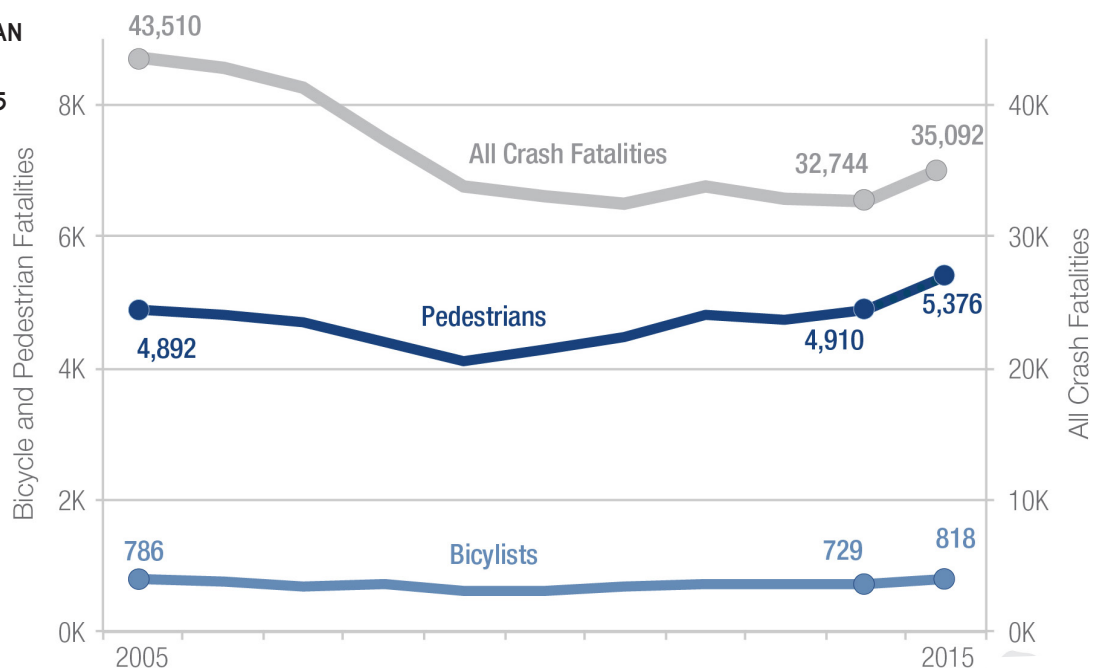
Progress in nonmotorized travel activity, safety, and network development over the past 20 years has set the stage for a bold new vision for walking and bicycling in the U.S. [Transportation For A New Generation](#), the USDOT 2014-2018 Strategic Plan, places a top priority on improving bicycle and pedestrian safety and creating ladders of

opportunity through transportation programs. Numerous related national statements and commitments promote the improvement of nonmotorized transportation systems, such as [the Surgeon General's Call To Action to Promote Walking and Walkable Communities](#). Toward this end, this Strategic Agenda establishes the following National goals that will inform FHWA's pedestrian and bicycle activities in the coming years:

- » Achieve an 80 percent reduction in pedestrian and bicycle fatalities and serious injuries in 15 years and zero pedestrian and bicycle fatalities and serious injuries in the next 20 to 30 years.
- » Increase the percentage of short trips represented by bicycling and walking to 30 percent by the year 2025. This will indicate a 50 percent increase over the 2009 value of 20 percent. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians.

This document outlines the actions FHWA will take to achieve the goals outlined above. These actions reflect FHWA's commitment to fostering public participation in the transportation planning process documenting and promoting pedestrian and bicycle networks, improving multimodal safety, advancing equity, and encouraging nonmotorized trips as a regular transportation mode for all people in the United States.

FIGURE 2: PEDESTRIAN AND BICYCLE FATAL CRASHES, 2005-2015



Source: Fatality Analysis Reporting System (FARS)
Note: *2005-2014 Final File, 2015 Annual Report File

Goal 1: Networks

ACHIEVE SAFE, ACCESSIBLE, COMFORTABLE, AND CONNECTED MULTIMODAL NETWORKS IN COMMUNITIES THROUGHOUT THE U.S.

Networks are interconnected pedestrian and bicycle facilities—which may include sidewalks, on-street bike lanes, and trails—that help people get where they need to go. The presence of complete networks is fundamental to achieving all of the goals of this Strategic Agenda, including improved levels of safety, activity, and equity. Enhancing pedestrian and bicycle connections increases equitable access to jobs and services for all, especially when multimodal networks include access to transit.

The presence of well-connected, completed nonmotorized networks can play a role in reducing traffic congestion on major highways by enabling local travelers to replace short driving trips with nonmotorized and/or transit trips.

NETWORKS: TOP PRIORITIES

- » Continue to promote design flexibility as it relates to pedestrian and bicycle networks, for example by conducting outreach on final controlling criteria changes, and considering where it is appropriate to integrate transportation and recreational trail infrastructure.
- » Complete a comprehensive update of the Bicycle Facility Design course at the National Highway Institute and identify opportunities to expand utilization of the updated course.
- » Create a Center for Pedestrian and Bicycle Excellence focused on implementation and innovation at the State DOT level.
- » Initiate a coordinated and comprehensive effort among all DOT stakeholders to expand the availability and deployment of data about pedestrian and bicycle network infrastructure.
- » Provide interim approvals under the MUTCD for new traffic control devices where research and experimentation are available to support such action. Consider any current interim approvals under the MUTCD as part of the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (AASHTO Bike Guide).
- » Develop a charter to expand on the existing efforts of the Pedestrian and Bicycle Safety Action Team and formalize a structure for coordination on pedestrian and bicycle issues across the Department; this may include redesignating the Team as a Pedestrian and Bicycle Coordinating Committee.
- » Under Fixing America's Surface Transportation (FAST) Act Section 1442 (Safety for Users), DOT will encourage States and MPOs to adopt standards for the design of Federal surface transportation projects for safe and adequate accommodation for all users, including pedestrians and bicyclists. To implement this provision, DOT will provide targeted technical assistance and training for select States and MPOs, catalog examples of State law or transportation policy that provide for the safety of all users in a report to Congress, and identify and disseminate examples of best practices.
- » Work in partnership with AASHTO, the Transportation Research Board (TRB), and others to establish formal structures and regular opportunities to coordinate among pedestrian and bicycle research stakeholders. This enhanced coordination should contribute to improved outcomes in the research process and should include coordination on work in progress, needs identification, problem statement development, and project funding. FHWA has been coordinating with the TRB Pedestrian and Bicycle Committees and the AASHTO Joint Technical Committee on Nonmotorized Transportation and recently identified the joint research priorities highlighted in Figure 8 of the Research summary.
- » Establish a new Transportation Pooled Fund Study to support State, Metropolitan Planning Organization (MPO), and local pedestrian and bicycle experimentation with, and evaluation of, projects that promote design flexibility, contribute to connected networks, and encourage collaboration among a wide range of local, regional, State, and Federal partners. All research projects should maintain and enhance accessibility, even if they are experimental.
- » Initiate a project to identify a range of options available for measuring network connectivity and tracking change over time.

Goal 2: Safety

IMPROVE SAFETY FOR PEOPLE WALKING AND BICYCLING.

This Strategic Agenda's goal is to achieve an 80 percent reduction in pedestrian and bicycle fatalities and serious injuries within 15 years and a 100 percent reduction in pedestrian and bicycle fatalities and serious injuries within 20 years. There is not a universal approach to safety; the requirements for safe facilities differ for pedestrians, people with disabilities, and bicycling. Generally, however, safe pedestrian and bicycle networks feature ample space for all types of travelers, direct access to destinations, clear signs and markings, adequate signal crossing time, good visibility, and low vehicle traffic speeds. Factors that influence safety include:

- » Poor infrastructure conditions: Lack of or inadequate facilities, uneven or unmaintained surfaces, blocked paths, connectivity issues, difficult street crossings, and poor lighting.
- » Unsafe driver behavior or traffic characteristics: Habits displayed by drivers, such as operating vehicles aggressively, negligently, while impaired or distracted, as well as traffic patterns associated with higher crashes such as congestion.
- » Unsafe pedestrian or bicyclist behaviors: Failure to exhibit safe walking and bicycling behaviors, such as ignoring traffic signs or texting while walking or biking.

SAFETY: TOP PRIORITIES

- » Implement and conduct outreach on the nonmotorized measures in the safety performance measures final rule. FHWA published new safety performance measures in 2016 as part of its national safety program Highway Safety Improvement Program, calling for State and regional targets to help reduce highway deaths and injuries, including for the first time, those among people walking and bicycling. The new FHWA regulations call for improved data on roadway features and a consistent definition of serious injuries. The addition of bicycle and pedestrian performance measures is an acknowledgment that nonmotorized safety is of particular concern and improving conditions and safety for bicycling and walking will help create an integrated, intermodal transportation system that provides travelers with real choices.
- » Complete research project on pedestrian and bicycle exposure to injuries and fatalities. This project will create a standardized approach that agencies can use to estimate pedestrian and bicyclist exposure to risk in the form of a Scalable Risk Assessment Methodology. This resource will make it easier for stakeholders to assess exposure to risk and inform funding decisions for a region, which is especially important given the constrained fiscal environment.
- » Continue to operate a National Pedestrian and Bicycle Information Center that supports FHWA's efforts to promote an integrated, convenient, and safe transportation system for all users. The Center will conduct pedestrian and bicycle research, tracking, and technical assistance activities to promote safe and accessible roadway design, livability, equity, and ladders of opportunity. It will develop resources and provide technical support activities and research related to safety behaviors to enhance the safety of pedestrians and bicyclists. The Center will disseminate techniques and strategies for improving pedestrian and bicyclist safety, develop information and educational programs and products related to pedestrian and bicycle facilities, provide tracking and technical support to safety professionals at the State, MPO, and local levels, conduct research, and develop tools and technologies to advance pedestrian and bicycle programs and activities.
- » Promote and expand pedestrian and bicycle safety initiatives that began through the Office of the Secretary's Safer People, Safer Streets Initiative, including follow-up activities from the Mayors' Challenge Network and Road Safety Assessments. For example, FHWA will work with USDOT to foster collaboration with States and assist them in updating processes and documents to meet multimodal needs; and to maintain support for the Mayors' Challenge network of cities that are advancing pedestrian and bicycle transportation.
- » Develop policies and promote strategies to reduce vehicle speeds on multimodal corridors; continue to promote and apply relevant research and guidance, such as the FHWA Office of Safety publication [Methods and Practices for Setting Speed Limits: An Informational Report](#).

- » Continue to work with National Highway Traffic Safety Administration (NHTSA) to promote a 5 Es approach (Engineering, Education, Enforcement, Encouragement, and Evaluation) to addressing safety issues. This could include activities such as promoting Vision Zero policies and researching and documenting outcomes, promoting data sharing with law enforcement and health providers, and examining best practices to educate the public on bicycle and pedestrian laws and safety.
- » Work with NHTSA to encourage consistent collection of more detailed pedestrian and bicycle safety data (including injuries, fatalities, and Property Damage Only) by States, MPOs, and localities.
- » Ensure that safety and mobility impacts and opportunities for pedestrians and bicyclists are incorporated into research and policies on Vehicle to Vehicle (V2V), Vehicle to Infrastructure (V2I), and Vehicle to Everything (V2X) communication technologies.
- » Safe Routes to School (SRTS) administrative funds authorized from the original 2005 legislation could be used to support Vision Zero for Kids activities, which could be an important initial step in meeting the safety goals established in this Strategic Agenda. SRTS programs examine conditions around schools, including low income neighborhoods, and conduct projects and activities that work to improve safety and accessibility, and reduce traffic and air pollution in the vicinity of schools. These programs help make bicycling and walking to school safer and more appealing transportation choices and encourage a healthy and active lifestyle from an early age.

Goal 3: Equity

PROMOTE EQUITY THROUGHOUT THE TRANSPORTATION PLANNING, DESIGN, FUNDING, IMPLEMENTATION, AND EVALUATION PROCESS.

Transportation equity refers to “how transportation practitioners can provide access to affordable and reliable transportation to fairly meet the needs of all community members, particularly traditionally underserved populations.”⁵ An equitable transportation system recognizes the critical role of

WHAT ARE LADDERS OF OPPORTUNITY?

Everyone deserves the chance to achieve economic stability and well-being. Federal agencies have acted upon this principle through a variety of initiatives aimed at “making sure that there are ladders of opportunity for those working hard to make it to the middle class.”

From a transportation perspective, Ladders of Opportunity initiatives physically link people (particularly those among socially and economically disadvantaged target populations) to essential services that can help them to thrive and grow. These connections take a wide variety of forms, as is evident in the variety of programs and initiatives showcased by the White House 2014 awards for “[Champions of Change: Transportation Ladders of Opportunity](#).”

affordable and reliable transportation in providing access to social and economic opportunities. Providing more travel choices to all, including bicycle and pedestrian options, can help to increase access to economic opportunity by meeting the transportation needs of traditionally underserved populations. Accessibility is expanded even more when nonmotorized networks are strategically linked to transit routes. These may include, for example, people in neighborhoods with high proportions of low-income, minority, older adults, and limited English proficiency populations, as well as people with disabilities.

Within the realm of pedestrian and bicycle planning, equity focuses on ensuring that all communities have access to safe, accessible, convenient, and comfortable pedestrian and bicycle infrastructure that is well-connected to the broader network, as well as to the transit system. FHWA has promoted equitable transportation as part of the Ladders of Opportunity and Community Connections initiatives, and by encouraging the use of funding for projects that advance equitable transportation objectives, and developing performance metrics that align with Ladders of Opportunity initiatives.

One opportunity to promote Ladders is through the Every Day Counts-4/Community Connections initiative, which will promote effective practices

⁵ Pursuing Equity in Pedestrian and Bicycle Planning. http://www.fhwa.dot.gov/environment/bicycle_pedestrian/resources/equity_paper/

for reconnecting and revitalizing communities, increase awareness of the role transportation projects can play in supporting community revitalization, and promote proven strategies for assessing the impacts of transportation infrastructure on communities. This will help to ensure that transportation projects meet communities' needs and connect disadvantaged populations to essential services.

EQUITY TOP PRIORITIES

- » Promote USDOT equity-related publications such as the [FHWA Environmental Justice Reference Guide](#) and the [white paper on Pursuing Equity in Pedestrian and Bicycle Planning](#). These resources discuss equity considerations in the pedestrian and bicycle planning process.
- » Proactively encourage MPOs and State DOTs to address equity as part of the planning process. For example, multimodal plans should routinely address complete bicycle, pedestrian, and transit access to jobs and essential services, particularly for disadvantaged communities and for people with disabilities.
- » Educate agencies on funding sources for pedestrian and bicycle projects that advance equity, connectivity, and Ladders of Opportunity principles.
- » Develop guides and case studies on incorporating equity metrics into Federal, State, regional, and local pedestrian and bicycle performance measurement programs.

Goal 4: Trips

GET MORE PEOPLE WALKING AND BICYCLING.

According to the National Household Travel Survey (NHTS), there were 41 billion pedestrian trips in 2009, and 4.1 billion bicycle trips. Combined, this represented 11.5 percent of all trips and accounted for approximately 37 billion miles traveled. This 2009 value is up from 36.5 billion trips (9.5 percent of all trips) in 2001, and 23.7 billion trips (6.25 percent of all trips) in 1995. In addition, the average pedestrian trip length increased from 0.5 miles in 1995 to 0.7 miles in 2009, while average bicycle trip grew from 1.4 miles to 2.2 miles. Similar increases in nonmotorized mode share (percent of trips) for all trips and for short trips occurred over this period. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians.

The increasing number of trips by walking and bicycling can likely be attributed to a number of factors. Changing attitudes and improved infrastructure—more sidewalks, better bike facilities, complete streets, and more interconnected trail networks—are likely having a significant impact.

TRIPS: TOP PRIORITIES

- » Establish the Traffic Monitoring and Analysis System (TMAS) as a national repository of pedestrian and bicycle volume data in order to track trends, conduct research, and develop the basis for comprehensive performance measurement of nonmotorized modes. Provide guidance to agencies on how to collect and submit counts to the TMAS database. Where feasible, add existing historical counts of bicyclist and pedestrians to TMAS from external sources such as the National Bicycle and Pedestrian Documentation Project, an effort to provide a mechanism to collect annual bicycle and pedestrian count and survey data in a consistent format.

Moving Forward

Walking and bicycling are core transportation options in communities throughout the U.S. FHWA will continue to support pedestrian and bicycle transportation by focusing on networks, safety, equity, and trips. Encouraging people to use active transportation modes instead of driving, especially for short trips, helps to preserve capacity on our nation's roadways, including National Highway System corridors. Advancing the development of safe, accessible, and convenient bicycling and walking networks plays a fundamental role in achieving national public health goals to reduce illnesses related to sedentary lifestyles, as well as national policies to foster equitable access to Ladders of Opportunity for everyone.

As it has for many years, FHWA will play a national leadership role in promoting pedestrian and bicycle resources and encouraging our partners and stakeholders to institutionalize and mainstream best practices to improve multimodal outcomes in the Federal transportation funding process. FHWA will promote innovation, identify and address knowledge gaps, and partner with national organizations and local, regional, and State agencies in an integrated capacity to meet the goals identified in this Strategic Agenda.

INTRODUCTION

The 2016-2021 Strategic Agenda for Pedestrian and Bicycle Transportation builds on 25 years of progress toward increasing walking and biking safety and activity throughout the United States. The 1994 National Bicycling and Walking Study: Transportation Choices for Changing America set the stage for advancing safe, accessible, comfortable, and well-used pedestrian and bicycle transportation networks, with a focus on increasing trips and reducing injuries and fatalities.

In the years since, Federal policies, guidance, and funding to support nonmotorized transportation have grown significantly, yielding significant improvements in bicycle and pedestrian safety and increases in the numbers of Americans choosing active transportation. During the coming five years, FHWA will work with its partners to create complete, accessible, safe, convenient, and attractive nonmotorized transportation networks throughout America and strive to achieve ever more ambitious goals for increasing traveler safety and trip making.

Historical Context

Progress Over the Years

The 1994 National Bicycling and Walking Study: Transportation Choices for Changing America (1994 Study) represented the first comprehensive examination of the state of nonmotorized transportation in the United States. The 1994 Study included a nine-point Federal Action Plan, supported by approximately 60 strategies. Status reports on progress toward the 1994 goals and strategies were developed in [1999](#), [2004](#), and [2010](#). These reports documented progress toward the original commitments made by the USDOT to establish pedestrian travel as a meaningful element of a safe, convenient transportation system.

The 1994 study also established two overall goals:

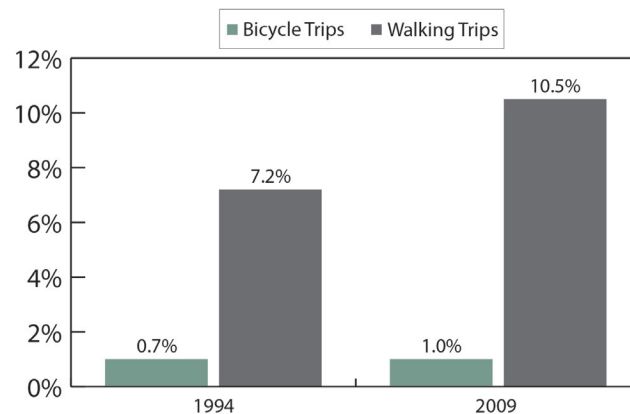
- » Double the percentage of total trips made by bicycling and walking in the United States from 7.9 percent to 15.8 percent of all travel trips; and
- » Simultaneously reduce by 10 percent the number of bicyclists and pedestrians killed or injured in traffic crashes.

Progress Toward Goals: Activity Level Trends

According to the most recent National Household Travel Survey, 11.5 percent of all trips were made by bicycling or walking in 2009, compared with 7.9 percent in 1994. This represents an increase of 45 percent, which demonstrates progress but falls short of the goal to double the share. Most of the increase is attributed to more walking: the percentage of all trips pedestrians made increased from 7.2 to 10.5 percent, while the share of trips made by bicycles increased from 0.7 to 1 percent (see Figure 3: Pedestrian and Bike Travel Trends).

According to the 2014 American Community Survey (ACS), the number of American workers who commute by bicycle increased from 532,364 in 2005 (0.4 percent of all commute trips) to 857,774 in 2013 (0.6 percent of all commute trips). This 60 percent increase among bicyclists was the largest change among the types of commuter modes reported. The number of people walking to work increased from 3,327,276 (2.5 percent of all commute trips) to 4,002,946 (2.8 percent of all commute trips) over the same period, representing

FIGURE 3: PEDESTRIAN AND BICYCLE TRAVEL TRENDS, PERCENTAGE OF ALL TRIPS, 1994 AND 2009



SOURCE: NATIONAL HOUSEHOLD TRAVEL SURVEY

a 20 percent increase. By comparison, the number of people driving alone increased by only four percent, from 89,875,050 in 2005 to 93,713,554 in 2013, and this group's representation among all commuters dropped from 77 to 76 percent (see Figure 4: Pedestrian and Bicycle Commute Trends).

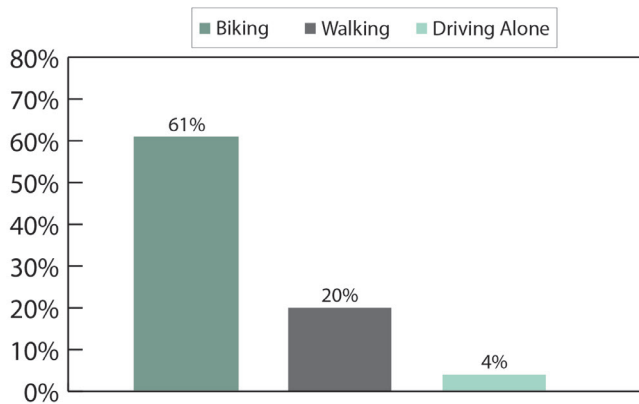
Progress Toward Goals: Safety Trends

Data indicate that nonmotorized traveler safety has generally improved since 1994. The number of fatalities among pedestrians and bicyclists during a recent four-year period (2012–2015) are lower than the four-year period between 1994 and 1997, which would indicate that the ten percent reduction goal set in 1994 was met. But the steady downward trend through the 1990s and early 2000s has reversed; incidents of nonmotorized traveler fatalities have gone up every year since 2009. The number of pedestrian fatalities in 2015 was only two percent lower than the number in 1994, while the number of bicyclist fatalities was two percent higher in 2015 than it was in 1994 (see Figure 5: Pedestrian and Bicycle Fatalities and Figure 6: Pedestrian and Bicycle Fatalities, Four-Year Totals).

Federal Funding for Bicycle and Pedestrian Transportation

Federal policies and investments to promote bicycle and pedestrian transportation have evolved steadily over the past 25 years. The overall tone and content of Federal, State, and local policy statements regarding nonmotorized transportation have shifted to reflect a significant increase in its perceived value, from a forgotten mode in the 1980s to routine consideration, proactive support, and leadership today.

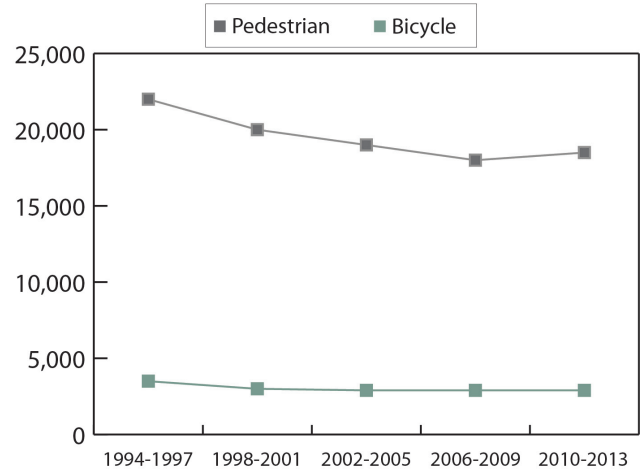
FIGURE 4: PEDESTRIAN AND BICYCLE COMMUTE TRENDS, PERCENT INCREASE, 2005-2013



SOURCE: AMERICAN COMMUNITY SURVEY, NATIONAL ALLIANCE FOR BICYCLING AND WALKING 2014 BENCHMARKING REPORT

This section provides an overview of legislation and policies beginning with ISTEA in 1991, and focuses on key highlights pertaining to pedestrian and bicycle transportation. ISTEA marked a major shift in Federal transportation policy – from the traditional focus on high-speed roadway networks to a multimodal system. It was the first time pedestrian and bicycle projects became broadly eligible under the Federal surface transportation program. This legislation included funding categories specifically intended to benefit bicycle and pedestrian projects, such as the Transportation Enhancements (TE) activities and made bicycle and pedestrian investments broadly eligible under the Federal-aid and Federal Lands highway programs.

FIGURE 6: PEDESTRIAN AND BICYCLE FATALITIES, FOUR-YEAR TOTALS, 1994-2013

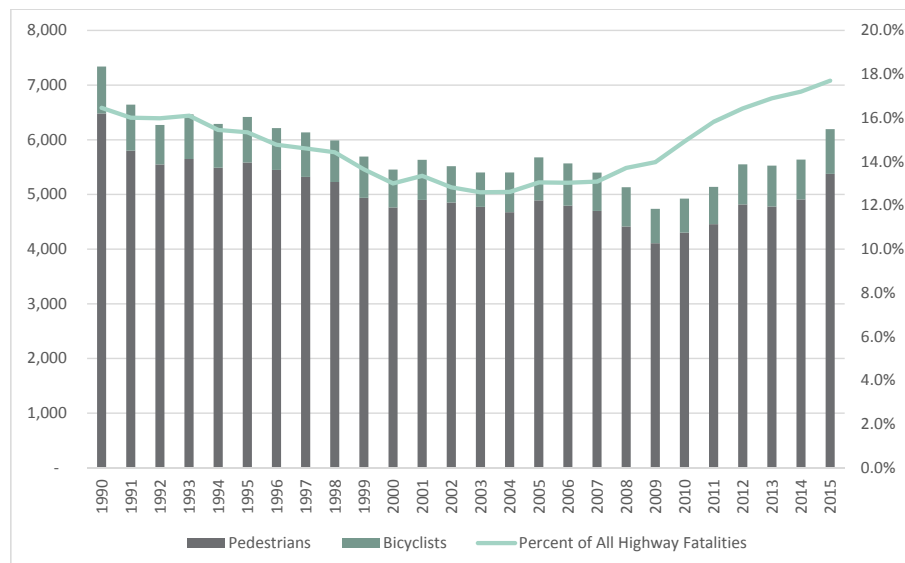


SOURCE: NHTSA

Note: During the most recent four-year period (2012-2015), there were 19,883 pedestrian fatalities and 3,303 bicyclist fatalities. This data indicates a continued upward trend among nonmotorized traveler fatalities since the year 2009.

ISTEA required that bicycle and pedestrian projects must be included in long-range transportation plans developed by Metropolitan Planning Organizations (MPOs). ISTEA required States to use a portion of funds from the Surface Transportation Program (later retitled the Surface Transportation Block Grant (STBG) program under the FAST Act) and the Congestion Mitigation and Air Quality Improvement (CMAQ) program to fund a Bicycle and Pedestrian Coordinator position within the State DOT tasked with promoting and facilitating nonmotorized

FIGURE 5: PEDESTRIAN AND BICYCLE FATALITIES, 1990-2015



SOURCE: NHTSA

transportation. ISTEA also established the National Recreational Trails Funding Program, and authorized (but did not appropriate) up to \$30 million a year.

- » The National Highway System Designation Act of 1995 included several clauses that advanced Federal support for bicycle and transportation investments, to streamline the development of bicycle and pedestrian projects, and to provide funding for National Recreational Trails Funding Program.
- » The Transportation Equity Act for the 21st Century (TEA-21) of 1998 further established pedestrian and bicycle facilities as part of the multimodal transportation system by requiring that the needs of pedestrians and bicyclists be addressed in comprehensive transportation plans, and expanding funding eligibility, and developing design guidance. It required USDOT to fund a national bicycle and pedestrian clearinghouse. It also established the Recreational Trails Program (RTP) as a specific Federal-aid program.
- » The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 established minimum funding levels for TE and increased funding for the RTP. It also established the SRTS program and required USDOT to fund a National SRTS Clearinghouse to enable and encourage children to walk and bicycle to school. SAFETEA-LU also created the Nonmotorized Transportation Pilot Program.
- » The Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012 created the Transportation Alternatives Program (TAP) combining the Transportation Enhancements, RTP, and SRTS programs into a single funding source.
- » The FAST Act of 2015 replaced TAP, with the Transportation Alternatives (TA) Set-Aside under the STBG Program, maintaining funding levels and eligibility. It also established a NHTSA safety fund to reduce bicycle and pedestrian fatalities, and broadened design guidelines for pedestrian and bicycle facilities.

History of Funding and Programmatic Support

In FY 1990, the year before ISTEA was enacted, Federal transportation funding obligations for pedestrian and bicycle improvements amounted to about \$6 million. The emphasis on multimodal transportation under ISTEA, particularly the introduction of the TE activities, resulted in a rapid expansion of funds obligated for bicycle and pedestrian projects. The 1992 obligation of almost \$23 million was nearly four times as large as the 1990 obligation. By 1997, obligations on bicycle and pedestrian projects totaled \$238 million, about three-fourths of which came from the TE funds. Federal obligations on these modes under TEA-21 increased from \$204 million in 1999 to more than \$427 million in 2004, with about two-thirds from TE activities. Funding levels remained around the \$500 million mark until 2009, when they increased again to the current annual range of \$800 million to \$1 billion (see Table 1).

Today, bicycle and pedestrian projects are broadly eligible for funding throughout the Federal-aid and Federal Lands programs. National Highway Performance Program (NHPP), STBG Program, CMAQ, Highway Safety Improvement Program, the TA Set-Aside under STBG (including the RTP set-aside and SRTS projects), Tribal Transportation Program, Federal Lands Transportation Program, and Federal Lands Access Program funds may be used for bicycle transportation and pedestrian walkways.

Bicycle and pedestrian projects also are eligible under [Federal Transit Administration \(FTA\) funding programs](#) for transit-related planning and project development, including formula allocations for MPO and State planning, urban transit services, and programs for access to jobs and to public lands. Momentum has been growing among partner organizations also, including these accomplishments:

- » Evolution of AASHTO Guides: AASHTO produced a *Guide for the Planning, Design, and Operation of Pedestrian Facilities* and a *Guide for the Development of Bicycle Facilities*. An updated version of the Pedestrian Guide will be released soon. The current version of the bicycle

guide was updated in 2012, and is currently being updated to reflect the rapid advancement in bicycle facility development.

- » Growing Presence of NACTO: Since its founding in the mid-1990s, the National Association of City Transportation Officials (NACTO) has emerged as a key player in promoting pedestrian and bicycle transportation. NACTO resources include design guides for urban bikeways, multimodal urban streets, urban streets, and transit streets. In addition, NACTO offers a variety of workshops and courses on nonmotorized transportation planning, policy, and design.
- » Continuing Involvement of ITE: The Institute of Transportation Engineers (ITE) has expanded its role in pedestrian and bicycle transportation, in particular by updating the *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach* guidebook in coordination with FHWA, and through the activities of the ITE Pedestrian and Bicycle Committee.

TABLE 1: FEDERAL OBLIGATIONS FOR BICYCLE AND PEDESTRIAN PROJECTS, 1992-2014

Year	New Projects	Total Obligations (in millions)
1992	50	\$22.9
1993	163	\$33.6
1994	461	\$112.6
1995	778	\$178.7
1996	706	\$197.1
1997	715	\$238.8
1998	681	\$216.6
1999	724	\$204.1
2000	971	\$296.6
2001	1,081	\$339.2
2002	1,287	\$433.7
2003	1,237	\$430.1
2004	1,226	\$426.1
2005	1,077	\$400.0
2006	1,320	\$394.9
2007	1,584	\$564.0
2008	1,817	\$540.9
2009	3,010	\$1,188.3
2010	3,007	\$1,036.6
2011	2,763	\$790.9
2012	2,248	\$853.7
2013	2,424	\$676.1
2014	2,485	\$820.5
2015	1,562	\$833.7
Totals	33,377	\$11,229.6

Note: Table 1 shows obligations for projects that States code as “bicycle and pedestrian projects.” FHWA does not have separate codes for pedestrian-only or bicycle-only projects, or for specific kinds of facilities. Projects coded as “bicycle and pedestrian projects” may be independent projects, or may be part of larger highway projects. However, many highway projects that have incidental benefits for pedestrians and bicyclists are not coded as “bicycle and pedestrian projects.” Therefore, actual Federal obligations for bicycle and pedestrian facilities are higher, but not quantifiable. See [Federal-Aid Highway Program Funding for Pedestrian and Bicycle Facilities and Programs - FY 1992 to 2015](#) for more information.

Significant Actions From 2010 to 2016

Building upon the past 25 years of increasing support for bicycle and pedestrian transportation through policies, funding programs, research projects, and capacity building initiatives, USDOT and FHWA have recently implemented several significant actions, including the following:

- » **USDOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations:** This policy directs Federal agencies and partners to incorporate safe and convenient walking and bicycling facilities into transportation projects. It notes the responsibility of States, local governments, professional associations, community organizations, public transportation agencies, and other government agencies to "improve conditions and opportunities for walking and biking, and to integrate pedestrian and biking facilities into their transportation systems." It also encourages transportation agencies to go beyond minimum standards to provide safe and convenient facilities for these modes.
- » **Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements Under Federal Transit Law:** This directive helps to improve multimodal connectivity by calling for pedestrian and bicycle improvements located near transit stations to have a "de facto" relationship to the public transportation service.
- » **Bicycle and Pedestrian Facility Design Flexibility:** This guidance is accompanied by institutional support for more flexible approaches to bicycle and pedestrian facility design. Design flexibility enables communities to better plan and design safe and convenient facilities for pedestrians and bicyclists.
- » **Support for Bicycle and Pedestrian Design Resources:** FHWA's design flexibility memorandum confirms that the NACTO Urban Bikeway Design Guide can be used to inform the planning and design process. Subsequently published Questions and Answers on the FHWA website confirm that the Urban Street Design Guide can also be used to inform the planning and design process.
- » **Bicycle and Pedestrian Funding, Design, and Environmental Review:** FHWA is working to proactively identify, clarify, and address common misconceptions that can interfere with the timely and cost-effective development of bicycle and pedestrian projects.
- » **New Safety Performance Measures, Including Bicycle-Pedestrian Safety:** FHWA published new safety performance measures in 2016 as part of its national safety program, calling for State and regional targets to help reduce highway deaths and injuries, including for the first time, those among people walking and bicycling.
- » **Revision of Controlling Criteria for Design and Documentation of Design Exceptions:** FHWA reduced the number of design criteria for lower-speed streets from 13 to 2, making it easier for engineers to design bicycle- and pedestrian-friendly streets in urban areas.
- » **Separated Bike Lane Planning and Design Guide:** This FHWA guidebook proactively supports innovative street design, and is complemented by the agency's outreach efforts to encourage development of separated bike lane facilities across the country.
- » **52-State Road Safety Assessments:** FHWA, along with NHTSA, FTA, Federal Rail Administration (FRA) and Federal Motor Carrier Safety Administration (FMCSA), completed safety assessments in every State, and engaged more than 240 communities on pedestrian and bicycle safety issues as part of the USDOT Mayors' Challenge for Safer People and Safer Streets.

Development of the 2016–2021 Strategic Agenda

Outreach was an integral component of the development of the Strategic Agenda. FHWA engaged stakeholders within USDOT, pedestrian and bicycle practitioners, and the public to identify the core areas of focus and key considerations, issues and opportunities, and potential actions. FHWA captured input through multiple avenues, including focus groups, interviews, public webinars, and meetings. From these efforts, FHWA collected a broad range of recommendations to consider for inclusion in the Strategic Agenda.

Internal Engagement

The FHWA Pedestrian and Bicycle Work Group and the Office of the Secretary of Transportation Pedestrian and Bicycle Safety Action Team were engaged throughout the development of this Strategic Agenda. The goals and actions identified reflect feedback received from these groups, which include representatives from FHWA, NHTSA, FTA, FRA, and FMCSA. Representatives from Federal Lands agencies participated through these Work Groups and in other venues.

Pedestrian and Bicycle Points of Contact in each FHWA Division Office provided critical insights based on their perspectives working at the State level. Technical leads from throughout FHWA participated in the development of this Strategic Agenda, including the FHWA Offices of Planning, Environment, and Realty; Safety; Operations; and Infrastructure; and Highway Policy information as well as Resource Center Technical Services Teams specializing in areas such as planning, freight, safety, and design.

External Engagement

TECHNICAL WORK GROUP

A Technical Work Group (TWG) comprised of experts representing a range of national organizations and local agencies, provided direction throughout the project. TWG members reviewed white papers and technical

2016–2021 STRATEGIC AGENDA TECHNICAL WORK GROUP

Debra Alvarez, AARP

Linda Bailey, National Association of City Transportation Officials (NACTO)

Phil Caruso, Institute of Transportation Engineers (ITE)

Josh DeBruyn, Michigan Department of Transportation

DeLania Hardy, Association of Metropolitan Planning Organizations (AMPO)

Roger Geller, City of Portland, OR

Jim McDonnell, American Association of State Highway Transportation Officials (AASHTO)

Beth Osborne, Transportation for America

Martha Roskowski, PeopleForBikes

Barb Thoman, Transit for Livable Communities

Sam Zimbabwe, District of Columbia Department of Transportation

memos developed during the research phase, participated in outreach activities, and provided input regarding the final report.

STATE DOT BICYCLE AND PEDESTRIAN COORDINATORS

As part of the planning process, the project team engaged State DOT Pedestrian and Bicycle Coordinators throughout the U.S. This engagement occurred at annual DOT Coordinator meetings and in regular ongoing calls. Feedback received from State DOT Coordinators is incorporated throughout this report.

NATIONAL BIKE SUMMIT

In March 2015, FHWA sponsored two events at the National Bike Summit, an annual conference for bicycle advocates and practitioners. The first event was an open house style listening session. Attendees provided input on Strategic Agenda priorities related to data, research, equity, and training for pedestrian and bicycle planners, engineers, and policymakers. The second was a two-hour workshop that engaged a mix

of Federal, State, local, and nongovernmental organizations. The workshop facilitated in-depth discussions about the various topics and actions being considered for the Strategic Agenda.

NATIONAL WALKING SUMMIT

In October 2015, FHWA hosted a workshop at the National Walking Summit that convened Federal, State, and local agencies, as well as practitioners, public health and transportation officials, and stakeholders. The purpose of the workshop was to develop a shared understanding of major Federal initiatives, and to identify actions to increase walkable communities.

NATIONAL WEBINARS

FHWA hosted two national webinars while developing the Strategic Agenda. The webinars provided an opportunity to share information about the project and capture feedback from participants through interactive features (e.g., poll and chat box). The webinars were open to the public, and were promoted through FHWA's distribution lists and national listservs sponsored by groups such as the Association of Pedestrian and Bicycle Professionals.

The first webinar was held in March 2015 to provide an overview of the Strategic Agenda project and present preliminary findings from the existing conditions assessment. More than 175 people participated.

In July 2015, FHWA hosted another national webinar focused on pedestrian and bicycle research. The webinar presentation provided an overview of the assessment of the current pedestrian and bicycle research, with a focus on topic areas of active research projects, gaps in current research, research funding sources and processes, and the role of key players in bicycle and pedestrian research. A panel representing research stakeholders and partners provided brief overviews of research efforts at their respective organizations and agencies.

The process of engaging pedestrian and bicycle practitioners, stakeholders, and the public yielded valuable insights on the progress made to encourage walking and biking since the 1994 study. This input, combined with insights from the technical research, helped FHWA to shape priorities for the 2016 Agenda.

Technical Memoranda and White Papers

One of the first steps in the development of the Strategic Agenda was to conduct an assessment of the current status and progress toward achieving the goals and actions in the 1994 Study. The findings from this assessment provided substantive content for the Pedestrian and Bicycle Transportation Chapter in the *2014 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance Report to Congress*, the first time ever that this annual report included a chapter on pedestrian and bicycle transportation.

Following this step, a series of technical memoranda was developed to examine key topics related to pedestrian and bicycle transportation—Data, Research, Training, and Ladders of Opportunity—to inform the development of the Strategic Agenda. Summaries of these memoranda follow and are available as digital appendices to this Strategic Agenda.

Data

Transportation professionals rely on accurate, comprehensive data in order to plan, design, fund, construct, and evaluate all types of facilities, networks, and services. The work involved to develop and use data is particularly challenging for those working in the nonmotorized transportation arena because of inconsistencies and gaps in data collection among national, State, regional, and local agencies. USDOT assesses national trends in pedestrian and bicycle commuting volumes and mode share by extrapolating data from the decennial Census, the ACS, the NHTS, and local NHTS add-ons. Other information, such as safety trends and non commute activity, is dependent upon locally administered counts and surveys, and is difficult to aggregate at a national scale.

While many local jurisdictions maintain some types of inventories related to pedestrian and bicycle facilities and activities, there are few standards in terms of data collection methodologies, such as the types of information collected, and the frequency of counts. Few agencies possess a comprehensive array of regularly updated databases on facility conditions and operations, crash statistics, and system usage for all types of trips. Among the agencies that do maintain some or all of these types of data, there is variation in collection methods and quality control. For example, data on the frequency, severity, and causes of bicycle- and pedestrian-related crashes collected by local law enforcement agencies vary depending upon agency policies and the judgment of individual officers. In addition, MPOs, localities, and other transportation agencies often engage the public to collect data about nonmotorized travel patterns by administering travel surveys, visual preference surveys, needs assessments, crowdsourcing mobile apps, and other tools.

Some pedestrian and bicycle data collection efforts are incorporated into the agency's routine multimodal travel survey process, but they are more often conducted for a specific initiative such as nonmotorized transportation plans or corridor studies. Data collected from the public is not usually standardized in ways that make it possible to aggregate the results with data from other regions or agencies.

The Strategic Agenda's technical memorandum on bicycle and pedestrian data issues and opportunities identifies key gaps and proposes recommendations for ways that FHWA can support local, regional, State, and Federal agencies with the task of working together to improve the comprehensiveness, accuracy, consistency, and availability of data regarding pedestrian and bicycle system usage, safety, infrastructure, and funding. Key data types that need to be considered for enhancement include volume and mode share, safety, infrastructure, investment, and health-related data. Each of these data areas is discussed briefly below.

VOLUME AND MODE SHARE DATA

Nonmotorized traffic volume and mode share data, while important for numerous applications, are not collected and stored with the same regularity, accuracy, or precision as motorized traffic data. When it is collected, data may tend to be short-term in nature and not combined with motor vehicle count information. Planners and researchers need more comprehensive coverage and more consistent data formats in order to help decision makers to identify infrastructure investments that are most likely to advance desired outcomes for safety, health, and overall nonmotorized trip making. As discussed below, improvements to data development and analysis methods are particularly needed in regard to safety factors, infrastructure conditions, investment levels, and health outcomes.

SAFETY DATA

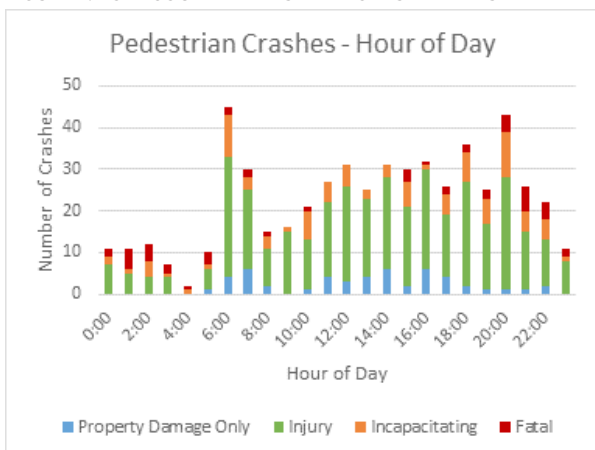
Roadway crash reports written by local and State traffic law enforcement agencies are the most uniformly collected safety data and are usually accurate regarding basic indicators such as the types and locations of crashes and the numbers of people involved, although the level of detail and the interpretation of qualitative or subjective observations can vary depending upon agency practices and the expertise of individual officers. Data about off-road crashes or injuries occurring on sidewalks or trails are not as uniformly collected.

Safety-related data developed by other agencies such as hospitals and public health agencies tend to rely on sampling. The information is less comprehensive and does not uniformly address causes and mechanisms of crashes, but can yield

insights to researchers who correlate the data to crash reports. For example, the U.S. Consumer Product Safety Commission maintains the National Electronic Injury Surveillance System, a national probability sample based on data from selected American hospitals about emergency visits involving injuries associated with consumer products, including bicycles (product codes 5040 and 5033). From this sample, researchers can estimate the total number of bicycle-related injuries treated in hospital emergency rooms nationwide, as well as factors such as injury rates among different age, ethnic, and gender groups; trends in types and dispositions of injuries (i.e. whether people were treated and released, hospitalized, or dead upon arrival); and comparative rates of injuries among people using bicycles to those using other products such as all-terrain vehicles and mopeds.

Improved safety data will allow transportation professionals to more precisely identify the causes of crashes and thus create more specifically targeted countermeasures. Crash data from local or State law enforcement reporting can help planners to consider a variety of factors that can affect nonmotorized traveler safety. For example, a three-year analysis of temporal and spatial crash data in Polk County, Florida reveals more crashes occurring during daylight hours, but more fatalities occurring at night (Figure 7). By cross-referencing this time-of-day data with maps of fatal crash locations, planners can pinpoint areas where improved lighting or other night time safety countermeasures may be most urgently needed.

FIGURE 7: POLK COUNTY PEDESTRIAN CRASH TRENDS



SOURCE: [Polk County Transportation Planning Organization Draft Pedestrian Safety Action Plan, February 2016.](#)

INFRASTRUCTURE DATA

A number of transportation agencies across the country have compiled some type of pedestrian and/or bicycle infrastructure inventory, usually as part of a planning or asset management processes. However, data collection methods are not consistent across jurisdictions, and the information is not usually incorporated into routinely maintained multimodal roadway system inventories.

Therefore, it is difficult to report the degree of nonmotorized network coverage and to track increases in coverage. Better infrastructure data will provide the information needed to eliminate gaps in the nonmotorized network and evaluate nonmotorized networks for their quality.

INVESTMENT DATA

As noted in Table 1, it is difficult to determine how much money is being spent to improve the bicycle and pedestrian network. The primary data source for federally-funded transportation investments is the FHWA Fiscal Management Information System. This system identifies stand-alone pedestrian and bicycle infrastructure projects, but is not designed to parse out nonmotorized facility design and construction allocations that are bundled within larger roadway projects. This makes it difficult to determine how much of a project's budget was actually for nonmotorized facilities.

HEALTH DATA

Nonmotorized transportation can improve the health of those who take advantage of it. However, data relating to the impacts of nonmotorized transportation on the general health of population groups is not available. Health data includes crash and injury statistics, as well as quantifications of physical activity and related outcomes such as reductions in obesity, heart disease, and diabetes. By creating consistent and comparable datasets that allow data comparison and cross-referencing, and developing a lexicon that is understandable to practitioners from both the transportation and health disciplines, practitioners can then develop analytical methods and tools for studying the impacts of pedestrian and bicycle investments on health outcomes.

Research

The volume and breadth of research on pedestrian and bicycle transportation has increased significantly over the past decade. This work is funded and conducted by a growing number of entities, including Federal, State, local, and regional government agencies, universities, and other professional organizations and foundations. There is an increasing need to better understand the breadth of the research that is taking place and the research gaps and needs that still exist. There is also a need to better understand how research is coordinated across the various entities, and where opportunities exist to increase collaboration, identify and reduce overlap, and determine whether new funding mechanisms are needed.

To address these issues, the Strategic Agenda technical memoranda on research included four sets of information: (1) an inventory of ongoing and planned research projects on pedestrian and bicycle transportation; (2) an assessment of research needs and gaps; (3) a summary of existing research funding processes; and 4) a consideration of possible bicycle and pedestrian research topics that would be suitable for a pedestrian and bicycle focused Transportation Pooled Fund Study.

ONGOING AND PLANNED PEDESTRIAN AND BICYCLE RESEARCH

The memorandum identified 128 pedestrian and bicycle research projects that were underway or planned in mid-2015. The USDOT’s University Transportation Center (UTC) program was funding nearly half of the research projects, and State DOTs were funding nearly one-quarter (Table 2).

Safety is the most common topic for research followed by planning and policy. Most projects are funded within a range of \$50,000 to \$175,000, while a few involve large, multiyear investigations with total funding well over \$1 million. Health-related studies tend to be funded for longer periods with larger budgets, often through the National Institutes of Health.

RESEARCH NEEDS AND GAPS

To assess how current research aligned with research needs, the research team identified a total of 214 research needs compiled from recent

TABLE 2: ONGOING AND PLANNED PROJECTS BY FUNDING SOURCE

Funding Source	Percent of Total Projects
University Transportation Centers	46%
State DOTs	22%
Federal Highway Administration (FHWA)	10%
National Cooperative Highway Research Program (NCHRP)	6%
National Highway Traffic Safety Administration (NHTSA)	5%
National Science Foundation (NSF)	4%
National Institutes of Health (NIH)	3%
Private	2%
Strategic Highway Research Program 2 (SHRP2)	1%
USDOT Volpe, The National Transportation Systems Center	1%
Grand Total (n=128)	100%

(2010-2015) documents from government agencies, professional organizations, and the academic literature. Table 3 shows results by major topic and mode compared with the inventory of research underway or planned in 2015. In general, the distribution of major topics aligns fairly well between stated needs and actual research projects. Research about data, and particularly pedestrian data, appears to be underrepresented relative to identified needs. In addition, the large majority of research needs focus on either bicycling or walking, while about half of the current research projects combine the two. Given the differences between the modes, this may reveal a limitation of current research. Concurrent with this study process, FHWA has also been coordinating with the TRB Pedestrian and Bicycle Committees and the AASHTO Joint Technical Committee on Nonmotorized Transportation and recently identified the joint research priorities highlighted in Figure 8.

PEDESTRIAN AND BICYCLE RESEARCH FUNDING PROCESSES

Many stakeholders engaged in the development of the 2015-2021 Strategic Agenda noted the lack of clarity on how research projects are identified and funded. Based upon existing information and interviews with agency staff,

TABLE 3: DISTRIBUTION OF CURRENT RESEARCH AND RESEARCH NEEDS BY MAJOR TOPIC

	Current & Planned Research Projects (2015)					Research Needs (2010-2014)			
Primary Research Topic	Median Project Funding	% of projects				% of research needs identified			
		Bike	Bike/Ped	Ped	Total	Bike	Bike/Ped	Ped	Total
Safety	\$130,000	26%	37%	55%	40%	26%	14%	47%	34%
Planning & Policy	\$96,700	37%	20%	14%	23%	38%	34%	11%	25%
Design	\$92,191	11%	8%	24%	14%	11%	0%	22%	15%
Data	\$175,000	9%	16%	2%	9%	10%	34%	10%	14%
Economics	\$245,887	6%	6%	0%	4%	7%	10%	3%	6%
Operations & Maintenance	\$242,500	9%	4%	5%	5%	3%	0%	6%	4%
Health	\$1,945,361	3%	10%	0%	5%	3%	7%	0%	2%
Total	\$130,000	100%	100%	100%	100%	100%	100%	100%	100%
Number	106	35	51	42	128	87	29	98	214

Notes: Percentages shown may not add to 100 due to rounding. 22 projects did not have funding amounts identified.

the study team documented the processes used by several programs to select and fund pedestrian and bicycle research, summarized in Table 4. In addition to the internal processes listed, the programs used a variety of input from external sources, including AASHTO and TRB Committees.

POTENTIAL APPLICATIONS FOR A TRANSPORTATION POOLED FUND STUDY

One additional way that State DOTs, FHWA, and other agencies can combine funds to support research is through the Transportation Pooled Fund (TPF), an FHWA-administered program. Pooled fund programs provide a useful mechanism to fund research projects that might not be undertaken by a single entity. Rather than a single agency finding \$100,000 or more to carry out a project, several agencies can pool smaller amounts to achieve the same objective. The current mechanisms are used frequently by State DOTs to cover a range of transportation related research topics. The pooled fund approach could be particularly useful for conducting cross-disciplinary research, and/or projects focused on topics that are not well represented in the current body of research.

FIGURE 8: JOINT RESEARCH PRIORITIES

The following research priorities were identified jointly by the AASHTO Technical Committee on Nonmotorized Transportation, the TRB Standing Committee on Pedestrians, and the TRB Standing Committee on Bicycle Transportation.

- » Creating relevant nonmotorized datasets
- » Identifying signal timing considerations for accessibility
- » Achieving improved outcomes by applying planning and design flexibility
- » Improving bicycle level of service analysis methods documented in the Highway Capacity Manual
- » Getting smart on protected intersections
- » Planning and designing neighborhood greenways
- » Planning and designing transitions between bicycle facility types
- » Developing retrofit solutions for existing corridors
- » Designing two-way separated bike lanes at intersections

TABLE 4: KEY PROGRAMS FUNDING PEDESTRIAN AND BICYCLE RESEARCH

Agency or Program	Office, Program, Website	Pedestrian and Bicycle Focus	Funding Cycle	Key Internal Inputs/Processes
Federal Highway Administration (FHWA)	Office of Planning, Environment, and Realty (HEP)	Planning, design, safety, and policy research	Annual	Pedestrian and Bicycle Research Strategic Plan (5-year)
	Office of Safety (HSA)	Develops education, training, and guidance products.	Annual	15-year Pedestrian Safety Strategic Plan (2010), annual Safety Roadmap meetings
	Office of Safety Research and Development (HRDS)	Research on causes/countermeasures to reduce roadway-related fatalities	Annual	15-year Pedestrian Safety Strategic Plan (2010), annual Safety Roadmap meetings
	Exploratory Advanced Research (EAR) Program	High-risk/high-reward research; has not to date addressed bicycle/pedestrian topics	Multiyear	Stakeholder input, scanning trips, and agencywide input
National Highway Traffic Safety Administration (NHTSA)	Office of Behavioral Safety Research	Behavioral highway safety research for traffic injury control and prevention	Annual	Behavior Safety Research Plan (3-5 year), Annual Meeting with Regional Directors
USDOT Office of the Secretary	Office of the Assistant Secretary for Research and Technology (OST-R), University Transportation Centers (UTC)	Research on full range of pedestrian and bicycle topics	Often annual	Each UTC adopts a strategic plan based on a focused theme area
National Cooperative Highway Research Program (NCHRP)	Administered by Transportation Research Board (TRB) ; governed by American Association of State Highway Transportation Officials (AASHTO)	Planning, safety, behavior	Annual	Annual Problem Statements from AASHTO Committees
State DOTs	State DOT research office or division, funded with Federal State Planning and Research (SP&R) funds Each State DOT has a website	Behavioral Safety	Varies, usually 1-3 times per year	Varies, typically annual funding priorities and sometimes longer-term strategic research plan, annual or more frequent call for problem statements, Research Advisory Committee (RAC) selection panel

Note: In addition to what is listed in the table, FTA has funded research on transit access and safety issues related to bicyclists and pedestrians, and will publish a guidebook on pedestrian and bicycle connections to transit in December, 2016. The USDOT Intelligent Transportation Systems Joint Program Office is conducting research on [Vehicle to Pedestrian \(V2P\) Communications Technologies](#) to improve the ability of drivers and pedestrians to detect one another and avoid collisions.

Training

Creating a safe and connected pedestrian and bicycle transportation system requires transportation practitioners who are trained in planning, designing, engineering, maintaining, and operating transportation systems for all modes. As part of the research conducted for the 2016-2021 Strategic Agenda, the project team studied an array of publicly advertised bicycle and pedestrian training programs for transportation planners, engineers, and others. The resulting technical memorandum on training includes an assessment of current nonmotorized transportation training resources and a summary of training gaps and needs relevant to transportation planners and engineers at all levels.

EXISTING TRAINING OPPORTUNITIES

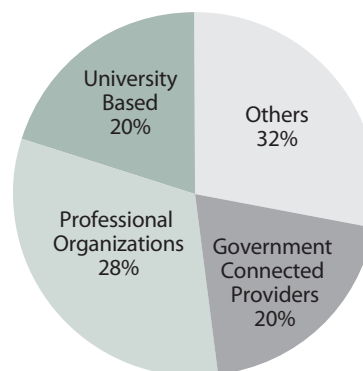
The assessment identified 302 professional bicycle and/or pedestrian transportation training opportunities that were advertised to the public and scheduled between June 2013 and May 2015, summarized in Figure 9. Training providers generally fell into several broad categories, including government connected providers such as the FHWA Office of Safety, the Pedestrian and Bicycle Information Center (PBIC), the National Highway Institute (NHI) and FHWA Local & Tribal Technical Assistance Programs (LTAP/TTAP) housed in each State as well as Puerto Rico and tribal government centers; professional organizations such as ITE and the Association of Pedestrian and Bicycle Professionals (APBP); university-based centers; and other organizations such as NACTO and Advocacy Advance. The inventory included publicly available versions of Safety Action Planning courses developed by the FHWA Office of Safety for Focus State and City participants, including free webinars offered by PBIC and fee-based instructor led classes provided by NHI. It also included publicly advertised webinars provided by the FHWA Office of Safety about FHWA tools such as PEDSAFE (in addition to the training offered to the public, FHWA provides customized training such as educational resources for Focus City program participants).

FIGURE 9: BICYCLE AND PEDESTRIAN TRAINING OPPORTUNITIES, 2013-2015

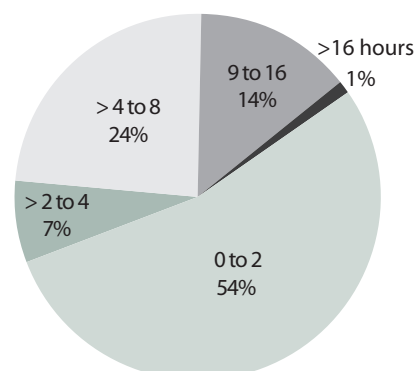
TRAINING TYPE



TRAINING PROVIDER



LENGTH OF TRAINING, IN HOURS



The most frequently addressed topics included facility design and guidance, planning and implementation, accounting for nearly half of the total training opportunities and over half of the in-person trainings. More than half of the training was conducted online, usually via webinar. Webinars offer a valuable, usually low-cost opportunity to provide a large number of practitioners and other interested parties with introductory-level exposure to specific topics. In-person trainings provide an opportunity to go into greater depth on topics and allow participants and instructors to interact in ways that are generally not possible with online trainings. In addition, they provide opportunities for participants to apply classroom-based learning to real physical environments as part of the experience.

There are many free offerings along with other modestly priced offerings. Cost does not seem to be a major limitation to access for some types of training such as traveling workshops (in-person training provided at a host agency site such as a DOT or University) and webinars. In-person trainings at provider locations tend to be more expensive, especially for longer courses, which may be a limiting factor for some potential participants. Scholarships are sometimes made available to help improve access to courses that require extensive travel and/or higher fees.

TRAINING NEEDS AND GAPS

The study team engaged a number of stakeholders and experts around the country on the topics of currently available trainings, including DOT Pedestrian and Bicycle Coordinators from 21 States. These interviews highlighted areas where practitioners are asking for enhanced information and guidance as well as opportunities to insert bicycle and pedestrian topics into current courses. Several key findings from this engagement include:

- » There is an overall strong demand for more professional development opportunities, including more guidance on the application of emerging and innovative facilities.

- » There is a need for trainings to help bridge the gap between planners and engineers, including exposing planners to engineering concepts, and increasing exposure of engineers to nonmotorized modes.
- » Transportation training resources on topics outside of walking and bicycling may need to include or expand upon nonmotorized issues. For example, training related to livability, land use and transportation coordination, and the transportation planning process could build upon existing references to pedestrian and bicycle accessibility, while courses on topics such as roadway asset management might benefit from adding references to new resources such as the 2016 FHWA publication [Incorporating Bicycle Networks Into Resurfacing Projects](#).
- » There is a need for additional trainings on the selection and application of facilities based on local context using professional judgment.

Ladders of Opportunity

A multimodal transportation system provides everyone with safe, reliable, and affordable connections to employment, education, health care, civic resources, recreation, and other essential services. From a transportation perspective, Ladders of Opportunity initiatives physically link people to essential services that can help them to thrive and grow. While Ladders of Opportunity initiatives can benefit everyone in a community, they are particularly focused on improving the economic and social well-being of underserved and under-resourced populations.

Traditionally underserved populations—sometimes referenced as at-risk, vulnerable, low-resource, or disadvantaged—are defined by FHWA as persons or communities fitting one or more of the following descriptions:

- Low Income
- Minority
- Older Adults
- Limited English Proficiency
- Persons with Disabilities

THE ROLE OF PEDESTRIAN AND BICYCLE TRANSPORTATION IN ADVANCING EQUITY

Providing access to essential services among disadvantaged or under-resourced populations can be challenging in automobile-dependent areas. In many American communities, transportation networks (particularly for bicyclists and pedestrians) are fragmented, and transit coverage is limited. People may live in a neighborhood that is physically close to many essential services but are unable to access them safely without a car due to barriers such as high-speed highways, railroad lines, or waterways, or because of substandard sidewalks and bicycle facilities, a lack of interconnected trails, or inadequate transit services.

Bicycle and pedestrian accessibility play a key role in achieving local and regional Ladders of Opportunity goals. Given a safe, accessible network, walking and bicycling are modes that nearly everyone can use, regardless of socio-economic status, education level, or age. A good bicycle can be obtained and maintained for relatively little cost and does not require a license to operate, while all that pedestrians need are accessible and safe facilities for people that can walk or use a wheelchair or walker. The Ladders of Opportunity initiative has the potential to serve as a catalyst for the increased use of walking and bicycling as both transportation modes and recreational activities.

ADVANCING EQUITY THROUGH BICYCLE AND PEDESTRIAN TRANSPORTATION

Advancing equitable access to jobs and essential services requires a comprehensive approach to planning and decision making that enables transportation agencies to support functional goals for system performance as well as community-oriented goals for economic development and quality of life. To be effective, this approach should embody the principles of transparency, inclusiveness, respectfulness, and trust. The following strategies can help agencies and organizations address equity issues in pedestrian and bicycle planning, as well as the broader transportation system:

- » **Examine Organizational Practices and Policies Through the Lens of Equity**—Conduct a systemic review of organizational processes (e.g., human resources, communications, strategic planning, and project selection) to identify potential equity issues and opportunities to improve equitable outcomes.
- » **Foster Inclusive Public Involvement**—Use public engagement tools and methods that empower traditionally underserved communities to participate in the transportation planning process and feel comfortable expressing their concerns and needs.
- » **Leverage Data to Identify Concerns and Opportunities**—Use the various data sources available to identify vulnerable populations. Data can also help to pinpoint areas that lack adequate transportation access or face safety issues related to pedestrian and bicycle crashes.
- » **Design Streets and Facilities for Everyone**—Employ a universal design or Complete Streets approach to roadway design that accommodates pedestrian and bicycle travel, and transit use for people of all ages and ability levels.
- » —Material adapted from the FHWA supported 2016 White Paper [“Pursuing Equity in Pedestrian and Bicycle Planning.”](#)

STRATEGIC AGENDA

The Strategic Agenda for Pedestrian and Bicycle Transportation is a collaborative framework for pedestrian and bicycle planning, design, and research efforts to be developed during the five year period from 2016 to 2021. It is an action-oriented plan that synthesizes and builds upon FHWA's ongoing and planned efforts, and that acknowledges and incorporates opportunities to support related initiatives by external partners and stakeholders.

The specific actions, culled from recommendations identified through outreach and technical research, are categorized into four main goals: Networks, Safety, Equity, and Trips. For each of the goals, the Strategic Agenda establishes specific, time-bound actions related to policy, capacity building, data, and research activities. The actions are organized according to a general timeline that includes ongoing activities already underway; immediate actions that can be accomplished within the coming year; near term actions that can be initiated within two or three years; and mid term actions that span the five-year Agenda timeline. A shortlist of “Top Priority” actions selected from the full list of activities is shown with the opening statement for each goal.

Action Framework

[FHWA's mission](#) is to “improve mobility on our Nation’s highways through national leadership, innovation, and program delivery.” To implement this mission, the agency provides guidance and resources to State, regional, and local transportation agencies as well as research institutions and partner organizations. Advocates and community members are also essential to the advancement of pedestrian and bicycle transportation. FHWA should proactively encourage the ongoing engagement of partners, stakeholders, and members of the public to build and improve the nation’s multimodal transportation system and to operate programs to promote safe, accessible, and convenient travel for all people in the United States, including bicyclists and pedestrians. Toward this end, FHWA will advance the 2016-2021 Strategic Agenda through four main types of activities described below, each of which supports the work being done within the Federal realm and by partner agencies: Capacity Building, Policy, Data, and Research. Bicycle and Pedestrian Program staff in the FHWA Office of Planning, Environment, and Realty will lead the implementation of the Strategic Agenda, working in close partnership with staff from USDOT, other FHWA programs and offices, other Federal agencies, and State and local partners.

Types of Actions

CAPACITY BUILDING



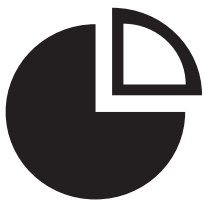
Definition: Providing guidance and educational resources that increase the ability of transportation professionals and advocates to plan, design, fund, build, maintain, and operate bicycle and pedestrian networks.

POLICY



Definition: Clearly defining principles, requirements, and desired outcomes for Federal agencies, States, MPOs, localities, transit agencies, and other entities on the use of Federal resources toward advancing bicycle and pedestrian transportation.

DATA



Definition: Working with partner agencies to define, collect, assemble, store, maintain, interpret, and use information about bicycle and pedestrian safety and system usage.

RESEARCH



Definition: Working with partner agencies to identify and investigate issues that affect bicycle and pedestrian safety and system usage.

GOAL I

Networks: Achieve safe, accessible, comfortable, and connected multimodal networks in communities throughout the U.S.

Networks are interconnected pedestrian and bicycle facilities—which may include sidewalks, on-street bike lanes, and trails—that help people get where they need to go. The presence of complete networks is fundamental to achieving all of the goals of this Strategic Agenda, including improved levels of safety, activity, and equity.

When continuous and well-connected, networks provide walking, biking and wheelchair access between homes, schools, jobs, and other essential destinations, including grocery stores, health care, outdoor recreation, and other transportation modes (e.g., transit and carsharing). As fundamental components of the multimodal transportation system, pedestrian and bicycle networks are critical elements of publicly adopted transportation plans, especially those that guide regulations and funding programs, such as local comprehensive or general plans, Americans with Disabilities Act transition plans, MPO long range plans, Transit Development Plans, and State transportation plans. For example, the [City of Durango, CO](#) is incorporating accessibility components into a multimodal transportation plan to link pedestrian, bicycle, and transit networks.

Enhancing pedestrian and bicycle infrastructure connections in urban, suburban, and rural areas, makes walking and bicycling a viable transportation option for everyone. This improves equitable access to jobs and services, and contributes to public health by providing ways for people to integrate physical activity into daily life. The presence of well-connected, completed nonmotorized networks can also play a role in reducing traffic congestion on the National Highway System by enabling

6 Adapted from the Dutch CROW (Centre for Research and Contract Standardization in Civil and Traffic Engineering) manual. These principles provide a useful method for assessing how well a pedestrian and bicycle network meets its intended purpose. An exemplary pedestrian and bicycle network will satisfy each of these.

local travelers to replace short driving trips with pedestrian, bicycle, and transit trips. The hallmarks of effective connected networks that support safe, convenient, and attractive nonmotorized travel include the following characteristics⁶:

- » Cohesion: How connected is the network in terms of its concentration of destinations and routes?
- » Directness: Does the network provide direct and convenient access to destinations?
- » Accessibility: How well does the network accommodate travel for all users, regardless of age or ability?
- » Alternatives: Are there a number of different route choices available within the network?
- » Safety and Security: Does the network provide routes that minimize risk of injury, danger, and crime?
- » Comfort: Does the network appeal to a broad range of age and ability levels, and is consideration given to user amenities?

KEY EXISTING FHWA RESOURCES

- » [Manual on Uniform Traffic Control Devices](#)
- » [Separated Bike Lane Planning and Design Guide](#)
- » [Incorporating On-Road Bicycle Networks into Resurfacing Projects](#)
- » [Bicycle Network Planning & Facility Design Approaches in the Netherlands and the United States](#)
- » [Case Studies in Delivering Safe, Comfortable and Connected Pedestrian and Bicycle Networks](#)
- » [Bike Network Mapping Idea Book](#)
- » [Transportation Alternatives Program Performance Management Guidebook](#)
- » [Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts](#)
- » [Design Resource Index](#)
- » [Statewide Pedestrian and Bicycle Planning Handbook](#)
- » [Pedestrian Safety Strategic Plan: Recommendations for Research Plan and Product Development and Pedestrian Safety Strategic Plan, Background Report](#)

Network Goal Actions

The Network Goal Actions include activities that support assessing network quality, connectivity and use, and developing networks with all types of users and ability levels in mind.

Ongoing Actions

-  N1—Promote existing pedestrian and bicycle resources, such as the “Key Resources” listed on the previous page, that inform the development of connected high quality multimodal networks. Networks are interconnected pedestrian and/or bicycle transportation facilities that allow people of all ages and abilities to safely and conveniently get where they want to go.
-  N2—Develop resources to help planners and designers right-size environmental review for smaller pedestrian and bicycle projects. FHWA will work with the AASHTO Center for Environmental Excellence and others to compile case studies on streamlining the planning and implementation of bicycle and/or pedestrian projects including how to make State and local governments aware of funding sources, streamlining the funding application process, and accelerated environmental review.
-  N3—Complete the Multimodal Networks in Small Town and Rural Communities project, which provides design guidance, illustrations, and discussion of how to implement multimodal facilities in a rural context.
-  N4—Continue to work in partnership with ITE to develop a Practitioner’s Guide for Walkable Urban Thoroughfare Design to enhance the practices and principles published in the ITE Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, an ITE Recommended Practice. This Guide will provide an attractive and easy-to-use resource that clearly communicates the principles, techniques, and design solutions highlighted in the original document. It will serve as a catalyst for increased State, regional,

and local implementation of multimodal principles in the design of urban thoroughfares.



N5—Support FTA in developing and promoting its Guidebook for Enhancing Pedestrian and Bicycle Connections to Transit. This Guidebook will cover topics such as pedestrian and bicycle access improvement opportunities, physical characteristics and urban design at and near stations, station area design, bicycle parking and bike share at stations, models of collaboration, and public engagement strategies.

FHWA will also promote linkages between walking, bicycling, and transit through a targeted technical assistance effort in Richmond, Virginia. FHWA will work with the City of Richmond to conduct a bicycle and pedestrian network connectivity analysis around future Bus Rapid Transit stations and identify recommendations for improving bicycle and pedestrian connectivity within a quarter and half mile from the stations. As part of this effort, FHWA will also synthesize existing methods, tools, and techniques for documenting qualitative data to inform the transportation planning process.



N6—Continue to evaluate level of service methodologies to incorporate multimodal considerations and include new and emerging bicycle facility types.

Immediate Action



N7—Continue to promote design flexibility as it relates to pedestrian and bicycle networks, for example by conducting outreach on final controlling criteria changes, and considering where it is appropriate to integrate transportation and recreational trail infrastructure.

FHWA should also develop a resource that will help State and local agencies identify the most appropriate types of bike facilities to use based on user and roadway characteristics, for example when to separate bicyclists from vehicular traffic to improve safety and mobility.

NETWORKS: TOP PRIORITIES



N7—Continue to promote design flexibility as it relates to pedestrian and bicycle networks, for example by conducting outreach on final controlling criteria changes, and considering where it is appropriate to integrate transportation and recreational trail infrastructure.



N14—Complete a comprehensive update of the Bicycle Facility Design course at the National Highway Institute and identify opportunities to expand utilization of the updated course.



N39—Create a Center for Pedestrian and Bicycle Excellence focused on implementation and innovation at the State DOT level.



N17—Initiate a coordinated and comprehensive effort among all DOT stakeholders to expand the availability and deployment of data about pedestrian and bicycle network infrastructure.



N9—Provide interim approvals under the MUTCD for new traffic control devices where research and experimentation are available to support such action.

N9.1—Consider any current interim approvals under the MUTCD as part of the AASHTO Bike Guide update.



N10—Develop a charter to expand on the existing efforts of the Pedestrian and Bicycle Safety Action Team and formalize a structure for coordination on pedestrian and bicycle issues across the Department; this may include redesignating the Team as a Pedestrian and Bicycle Coordinating Committee.



N25—Under FAST Act Section 1442 (Safety for Users), DOT will encourage States and MPOs to adopt standards for the design of Federal surface transportation projects for safe and adequate accommodation for all users, including pedestrians and bicyclists. To implement this provision, DOT will provide targeted technical assistance and training for select States and MPOs, catalog examples of State law or transportation policy that provide for the safety of all users in a report to Congress, and identify and disseminate examples of best practices.



N12—Work in partnership with AASHTO, TRB, and others to establish formal structures and regular opportunities to coordinate among pedestrian and bicycle research stakeholders. This enhanced coordination should contribute to improved outcomes in the research process and should include coordination on work in progress, needs identification, problem statement development, and project funding. FHWA has been coordinating with the TRB Pedestrian and Bicycle Committees and the AASHTO Joint Technical Committee on Nonmotorized Transportation and recently identified the joint research priorities highlighted in Figure 8 of the Research summary.



N20—Establish a new Transportation Pooled Fund Study to support State, MPO, and local pedestrian and bicycle experimentation with, and evaluation of, projects that promote design flexibility, contribute to connected networks, and encourage collaboration among a wide range of local, regional, State, and Federal partners. All research projects should maintain and enhance accessibility, even if they are experimental.



N21—Initiate a project to identify a range of options available for measuring network connectivity and tracking change over time.



N8—Develop a curriculum (onboarding process) targeted to Federal, State, MPO, and local pedestrian and bicycle coordinators. This resource can also be used by a broader audience of planners and engineers at all levels that need to build their capacity on pedestrian and bicycle topics. This should include baseline pedestrian and bicycle information for which staff will be responsible for understanding and communicating to others. It should also include checklists, opportunities for self-paced online courses, and other resources that staff can use to initiate enhanced multimodal outcomes within their respective organizations. This initiative can be supported by the proposed Federal staff “ambassador” program described in N24.



N9—Provide interim approvals under the MUTCD for new traffic control devices where research and experimentation are available to support such action.

N9.1—Consider any current interim approvals under the MUTCD as part of the AASHTO Bike Guide update.



N10—Develop a charter to expand on the existing efforts of the Pedestrian and Bicycle Safety Action Team and formalize a structure for coordination on pedestrian and bicycle issues across the Department; this may include redesignating the Team as a Pedestrian and Bicycle Coordinating Committee.



N11—Update and enhance pedestrian and bicycle research projects listed in the Research in Progress (RiP) database. This Database and a data-entry system allows users in State DOTs, the USDOT, UTCs, and other USDOT funded activities to add, modify, and delete information on their current research projects. Ensuring that the RiP database includes the latest pedestrian and bicycle research will promote awareness and coordination throughout the research process.



N12—Work in partnership with AASHTO, TRB, and others to establish formal structures and regular opportunities to coordinate among pedestrian and

bicycle research stakeholders. This enhanced coordination should contribute to improved outcomes in the research process and should include coordination on work in progress, needs identification, problem statement development, and project funding. FHWA has been coordinating with the TRB Pedestrian and Bicycle Committees and the AASHTO Joint Technical Committee on Nonmotorized Transportation and recently identified the joint research priorities highlighted in Figure 8.



N13—Engage UTCs around the goals identified in this Strategic Agenda. Provide targeted information to UTCs on the goals and actions identified in this Agenda at the 2016 UTC Spotlight Conference in December 2016, which will be focused on pedestrian and bicycle safety.

Near Term Actions



N14—FHWA should complete a comprehensive update of the Bicycle Facility Design course at the National Highway Institute and identify opportunities to expand utilization of the updated course. This is anticipated to include detailed information on separated bike lanes and other innovations in bicycle planning and design. This may incorporate information from a pilot course on Designing for Bicyclist Safety, which covers the range of information on bicycle facilities. The pilot course covers the overarching safety and planning concepts and then the more detailed design guidelines and recommendations on different facilities. The NHI Pedestrian Facility Design should also be evaluated and updated if needed.

A comprehensive evaluation of pedestrian and bicycle training needs should be undertaken via a cross-unit, cross discipline meeting or forum to review and determine priorities for training (in person, web based, and via workshops or courses). This meeting should include Headquarters and Resource Center representatives from the discipline and program areas focused on planning,

human environment, civil rights and design. Topics to be addressed include a review of current NHI courses and other training opportunities, evaluation of customer needs, and an assessment of existing training gaps.



N15—Develop Volume II of the report entitled Case Studies in Delivering Safe, Comfortable, and Connected Pedestrian and Bicycle Networks. This report will build off of the Volume I report of the same name. It will highlight pedestrian and bicycle network principles and show examples from communities across the country. By collecting these examples and sharing them, this report will provide inspiration to agencies interested in making improvements to their pedestrian and bicycle networks.



N16—Work with FRA and other partners to develop and publish an FRA report on effective practices regarding policy, design, and operational procedures for Rails with Trails (RWTs). The purpose of the RWTs Effective Practices Report is to document and synthesize relevant State and local laws and regulations, policies, plans, designs, and operational procedures for the establishment of RWTs. The report will provide examples of widely accepted effective practices to maintain or enhance the safety and security of railroad and transit employees and property, recreational trail users, and the general public, while meeting community mobility and land use goals. The target audience includes those involved in planning, design, development, maintenance, management, education, or security of recreational trails along or abutting a railroad or rail transit right-of-way.



N17—Initiate a coordinated and comprehensive effort among DOT stakeholders to expand the availability and deployment of data about pedestrian and bicycle network infrastructure. Build upon information generated by the 10 MPOs participating in the [FHWA Bicycle-Pedestrian Count Technology Pilot Program](#) and reach out to transportation agency staff with technical assistance and

examples of ways in which nonmotorized data is collected, disseminated, and used for systems level and project planning. Work with DOT partners such as Bureau of Transportation Statistics and other agencies such as U.S. Geological Survey to develop data management standards and technical resources. Work with States, MPOs, and other partners to identify necessary data elements and to develop a national repository of locally collected data housed in a suitable information system such as the Highway Performance Monitoring System, All Roads Network Of Linear Referenced Data, Fiscal Management Information System, or a new system. Through this and other work, document and publicize good practices for bicycle and pedestrian facility inventory data gathering and reporting and explore the development of a national system and data where bike and pedestrian facilities can be reported, gathered, analyzed, and published.



N18—Issue a Notice of Proposed Rulemaking on FHWA's pedestrian and bicycle regulation at [23 CFR 652](#) to be consistent with current law, policies, and practices. Propose amendments to title 23 United States Code that may be appropriate for the next reauthorization, especially in section 217, to be consistent with current policies, practices, and technology.



N19—Initiate targeted calls for research as part of the MUTCD experimentation process in order to proactively gather data on priority topics. Develop guidance for State, MPO, and local agency staff on conducting pedestrian and bicycle experimentation and evaluation projects, including examples and best practices.



N20—Establish a new Transportation Pooled Fund Study to support State, MPO, and local pedestrian and bicycle experimentation with, and evaluation of, projects that promote design flexibility, contribute to connected networks, and encourage collaboration among a wide range of local, regional, State, and Federal partners. All research projects should

maintain and enhance accessibility, even if they are experimental.



N21—Initiate a project to identify a range of options available for measuring network connectivity and tracking change over time. This effort will synthesize and present the full range of options available for measuring network connectivity. It will cover low stress methodologies and other methodologies developed by public, private, and nonprofit agencies and organizations working at the local, regional, State, national, and international level. The project will apply a subset of these methodologies in case study communities and the results will be included in the final report.



N22—Explore U.S. applications of information generated through international best practices research, building upon the cooperative agreement with the Netherlands. Work with the Dutch embassy to support additional [ThinkBike](#) workshops in the U.S.



N23—Initiate a research project on Innovative Street Design and Accessibility. This research project will focus on the extent to which new and emerging street designs and practices, such as shared streets, are meeting the needs of people with disabilities, specifically regarding navigation for pedestrians with vision disabilities. It will synthesize current practice and document linkages to existing accessibility design guidance and regulations. It will highlight innovative practices that are enhancing accessibility in communities and document key design challenges, instances where existing design guidance is lacking, and areas where additional research is needed.



N24—Implement an ambassador program to train staff within USDOT to spearhead efforts to integrate and institutionalize pedestrian and bicycle resources and recent policy changes into ongoing activities such as the Policy Council, Operations Futures Group, Resource Center, Local Public Agency (LPA) Essentials process, and via the regional

Transportation Workforce Centers.

The ambassador group can support development of the State DOT Bicycle and Pedestrian Coordinator onboarding curriculum described in N8.



N25—Under FAST Act Section 1442 (Safety for Users), DOT will encourage States and MPOs to adopt standards for the design of Federal surface transportation projects for safe and adequate accommodation for all users, including pedestrians and bicyclists. To implement this provision, DOT will provide targeted technical assistance and training for select States and MPOs, catalog examples of State law or transportation policy that provide for the safety of all users in a report to Congress, and identify and disseminate examples of best practices.

Mid Term Actions



N26—Develop a series of web-based modules to promote network planning, design, and implementation covering topics such as accessible design around bus stops, liability considerations relating to the pedestrian and bicycle planning and design process, and strategies to design more efficient, convenient networks such as mapping desire lines of informal footpaths and cut-throughs that reveal the routes pedestrians and bicyclists prefer over existing sidewalks and bicycle facilities, or how they navigate areas with no facilities.



N27—Create an online community of practice for pedestrian and bicycle practitioners to share design resources such as construction drawings, design details, and real world cost examples.



N28—Promote pedestrian, bicycle, and accessibility topics in undergraduate and graduate programs, using the PBIC University Course Curriculum series as the foundation.



N29—Significantly expand the images provided in the FHWA PBIC Image Library (www.pedbikeinfo.org), including examples of new and innovative

nonmotorized design treatments being built across the U.S. The PBIC Image Library is a searchable collection of free, real-world images relating to walking and bicycling and complete streets. This is a valuable resource and needs to be updated to reflect the latest best practices in communities throughout the U.S.

 N30—Develop pedestrian and bicycle content to be provided as part of the FHWA LPA Essentials process and via the five regional Transportation Workforce Centers.

 N31—Proactively encourage MPOs and States to specifically address pedestrian and bicycle network planning as part of the local and State planning process. This could be encouraged, for example, through Planning Emphasis Areas and the annual Unified Planning Work Program (UPWP) process.

 N32—Advance policies and encourage new and existing programs and projects to promote nonmotorized and multimodal transportation access and connectivity to and through Federal Land Management Agency (FLMA) areas (e.g. Bureau of Land Management, U.S. Forest Service, Fish and Wildlife Service, National Park Service, U.S. Army Corps of Engineers, Bureau of Reclamation, Bureau of Indian Affairs). Encourage and facilitate collaboration between FLMAs, Tribes, other Federal partners, and States, MPOs, and localities to incorporate nonmotorized and multimodal access, safety, and connectivity to these areas into MPO, Regional Planning Organizations, and statewide planning processes. Promote coordination on multimodal transportation activities through the Federal Agency Coordination Team (FACT) and highlight linkages to important resources such as the Multimodal Catalog for Federal Lands, a database of transit and trail systems located within or adjacent to Federal Lands.

 N33—Evaluate NHTSA motor vehicle codes and document notable practices regarding legal and policy issues such as requirements to use bike lanes; prohibiting cyclists on sidewalks; allowing two-way

travel on bike lanes; requiring motorists to yield to cyclists and pedestrians; and laws regarding vehicle idling, stopping, or parking in bike lanes.

 N34—Study procedures for, and implications of, documenting nonmotorized infrastructure construction and maintenance costs within the context of larger multimodal projects.

 N35—Complete Phase II of the MySidewalk SBIR project to develop an application that will enable crowdsourcing of sidewalk data for use by practitioners to facilitate pedestrian network planning.

 N36—Research economic benefits associated with the development and promotion of connected networks (including trails) such as workforce attraction and retention, cost savings from improved public health, and impact on local businesses.

 N37—Evaluate methods and procedures for funding the construction and maintenance of pedestrian and bicycle networks through asset management programs.

 N38—Create a Center for Pedestrian and Bicycle Excellence focused on implementation and innovation at the State DOT level.

GOAL 2

Safety: Improve safety for people walking and bicycling

Improving pedestrian and bicycle safety continues to be a top priority at the USDOT. This Strategic Agenda aspires to achieve an 80 percent reduction in pedestrian and bicycle fatalities and serious injuries in 15 years and zero pedestrian and bicycle fatalities and serious injuries in the next 20 to 30 years. Initiatives to achieve these goals complement the FHWA Safety Strategic Plan vision of zero deaths and fatalities on the Nation's roadways. According to the research conducted for this Strategic Agenda project, pedestrian injuries and fatalities have dropped since 1994 by 16 percent and 17 percent, respectively, while bicyclist injuries and fatalities have dropped by 20 percent and 13 percent.

Progress made toward pedestrian safety in the 1990s and early 2000s, however, began to reverse after 2009. After dropping steadily from 1994 to 2009, the annual average number of pedestrian fatalities rose from 4,504 during the period 2006–2009 to 4,970 in 2012–2015. During the period 2012–2015, pedestrians accounted for 15 percent of all traveler fatalities, compared to previous four-year periods when percentages ranged from 11 to 13. Meanwhile, bicyclists consistently accounted for two percent of all deaths throughout the period 1991–2015, although the total numbers dropped. Pedestrian and bicycle fatalities increased in 2015, as demonstrated in Figure 2.

In order to meet its ambitious safety goals, FHWA will work closely with partner agencies to discern root causes and effective countermeasures that address a wide variety of factors. For example, nonmotorized travelers need ample space along roadways and paths, direct and logical routes (which may not always be the same as driving routes), clear signs and markings, adequate signal time at crossings, and good visibility. Other factors that influence safety include infrastructure conditions, traveler behavior, traffic characteristics, and urban design elements. In addition, considerations must be given to the different types and levels of treatments appropriate for children and older adults, people with disabilities, and other travelers with unique needs or characteristics.

KEY EXISTING RESOURCES

- » [PEDSAFE](#)
- » [BIKESAFE](#)
- » [A Resident's Guide for Creating Safer Communities for Walking and Biking](#)
- » [Pedestrian Road Safety Audit Guidelines and Prompt Lists](#)
- » [Bicycle Road Safety Audit Guidelines and Prompt Lists](#)
- » [A Guide for Maintaining Pedestrian Facilities for Enhanced Safety](#)
- » [Handbook for Designing Roadways for the Aging Population](#)
- » [Proven Safety Countermeasures](#)
- » [Road Diet Informational Guide](#)
- » [Pedestrian Safer Journey](#)
- » [Bicycle Safer Journey](#)
- » [Pedestrian Safety Guide for Transit Agencies](#)
- » [Toolbox of Countermeasures and their Potential Effectiveness for Pedestrian Crashes](#)

Safety Goal Actions

The Safety Goal Actions include activities to improve pedestrian and bicycle safety. These include efforts to reduce the prevalence of pedestrian and bicycle injuries and fatalities, better integrate safety into planning and project development, enhance availability and quality of safety data, and promote safety education initiatives.

Ongoing Actions



S1—Encourage MPOs and States to consider pedestrian and bicyclist safety as fundamental elements of performance based transportation planning and programming, and to incorporate it into their strategic safety planning processes.



S2—Complete research project on pedestrian and bicycle exposure to injuries and fatalities. This project will create a standardized approach that agencies can use to estimate pedestrian and bicyclist exposure to risk in the form of a Scalable Risk Assessment Methodology. This resource will make it easier for stakeholders to assess exposure to risk and inform funding decisions for a region, which is especially important given the constrained fiscal environment.



S3—Continue to synthesize, implement, and provide outreach on activities in relevant FHWA roadmaps. Roadmaps will continue to be informed by the Pedestrian Safety Strategic Plan: Recommendations for Research Plan and Product Development, which is a 15-year plan (completed in October 2010) for pedestrian safety research and technology transfer.



S4—Obligate remaining SRTS administrative funds within the next five years to support activities envisioned in the original 2005 legislation. SRTS programs examine conditions around schools, including low-income neighborhoods, and conduct projects and activities that work to improve safety and accessibility, and reduce traffic and air pollution in the vicinity of schools. These programs help make bicycling and walking to school safer and more appealing transportation choices and encourage a healthy and active lifestyle from an early age.

SRTS administrative funds remaining from the original 2005 legislation could be used to support activities to help FHWA meet the safety goals established in this Strategic Agenda. Funds could support collection and analysis of school travel trend data, which could inform the short trip goal established in this Strategic Agenda. School travel data could also inform FHWA's ongoing work to establish and help communities implement pedestrian and bicycle crash rate methodologies. Remaining administrative funds may also support activities such as developing resources on collecting and using qualitative data to improve the local planning process and strategies for targeting new proven safety countermeasures and enhanced enforcement around schools.



S5—Continue to operate a National Pedestrian and Bicycle Information Center that supports USDOT's efforts to promote an integrated, convenient, and safe transportation system for all users. The Center will conduct pedestrian and bicycle research, tracking, and technical assistance activities to promote safe and accessible roadway design, livability, equity, and ladders of opportunity. It will develop resources and provide technical support activities and research related to safety behaviors to enhance the safety of pedestrians and bicyclists. The Center will disseminate techniques and strategies for improving pedestrian and bicyclist safety, develop information and educational programs and products related to pedestrian and bicycle facilities, provide tracking and technical support to safety professionals at the State, MPO, and local levels, conduct research, and develop tools and technologies to advance pedestrian and bicycle programs and activities



S6—Identify attributes associated with pedestrian fatalities in order to inform policy decisions about high risk pedestrian areas. In 2016, the Office of the Under Secretary for Policy and the Office of the Chief Information Officer, in coordination with NHTSA and FHWA, are connecting FARS data to information on roadway, neighborhood, and socioeconomic characteristics, as well as relevant State laws.

Immediate Action



S7—Implement and conduct outreach on the nonmotorized measures in the safety performance measures final rule. FHWA published new safety performance measures in 2016 as part of its national Highway Safety Improvement Program, calling for State and regional targets to help reduce highway deaths and injuries, including for the first time, those among people walking and bicycling. The new FHWA regulations call for improved data on roadway features and a consistent definition of serious injuries. The addition of bicycle and pedestrian performance measures is an acknowledgment that nonmotorized safety is of particular concern and improving conditions and safety for bicycling and walking will help create an integrated, multimodal transportation system that provides travelers with real choices.

SAFETY: TOP PRIORITIES



S7—Implement and conduct outreach on the nonmotorized measures in the safety performance measures final rule. FHWA published new safety performance measures in 2016 as part of its national Highway Safety Improvement Program, calling for State and regional targets to help reduce highway deaths and injuries, including for the first time, those among people walking and bicycling. The new FHWA regulations call for improved data on roadway features and a consistent definition of serious injuries. The addition of bicycle and pedestrian performance measures is an acknowledgment that nonmotorized safety is of particular concern and improving conditions and safety for bicycling and walking will help create an integrated, intermodal transportation system that provides travelers with real choices.



S2—Complete research project on pedestrian and bicycle exposure to injuries and fatalities. This project will create a standardized approach that agencies can use to estimate pedestrian and bicyclist exposure to risk in the form of a Scalable Risk Assessment Methodology. This resource will make it easier for stakeholders to assess exposure to risk and inform funding decisions for a region, which is especially important given the constrained fiscal environment.



S5—Continue to operate a National Pedestrian and Bicycle Information Center that supports USDOT's efforts to promote an integrated, convenient, and safe transportation system for all users. The Center will conduct pedestrian and bicycle research, tracking, and technical assistance activities to promote safe and accessible roadway design, livability, equity, and ladders of opportunity. It will develop resources and provide technical support activities and research related to safety behaviors to enhance the safety of pedestrians and bicyclists. The Center will disseminate techniques and strategies for improving pedestrian and bicyclist safety, develop information and educational programs and products related to pedestrian and bicycle facilities, provide tracking and technical support to safety professionals at the State, MPO, and local levels, conduct research, and develop tools and technologies to advance pedestrian and bicycle programs and activities.



S23—Develop policies and promote strategies to reduce vehicle speeds on multimodal corridors; continue to promote and apply relevant research and guidance, such as the FHWA Office of Safety publication [Methods and Practices for Setting Speed Limits: An Informational Report](#).



S24—Continue to work with NHTSA to promote a 5 Es approach to addressing safety issues. This could include activities such as promoting Vision Zero policies and researching and documenting outcomes, promoting data sharing with law enforcement and health providers, and examining best practices to educate the public on bicycle and pedestrian laws and safety.



S26—Work with NHTSA to encourage consistent collection of more detailed pedestrian and bicycle safety data (including injuries, fatalities, and Property Damage Only) by States, MPOs, and localities.



S30—Ensure that safety and mobility impacts and opportunities for pedestrians and bicyclists are incorporated into research, pilots, and policies on Vehicle to Vehicle (V2V), Vehicle to Infrastructure (V2I), and Vehicle to Everything (V2X) communication technologies.



S4—Obligate remaining SRTS administrative funds within the next five years to support activities envisioned in the original 2005 legislation. SRTS programs examine conditions around schools, including low-income neighborhoods, and conduct projects and activities that work to improve safety and accessibility, and reduce traffic and air pollution in the vicinity of schools. These programs help make bicycling and walking to school safer and more appealing transportation choices and encourage a healthy and active lifestyle from an early age.



S14—Promote and expand pedestrian and bicycle safety initiatives that began through the Office of the Secretary's Safer People, Safer Streets Initiative, including follow-up activities from the Mayors Challenge Network and Road Safety Assessments projects. For example, FHWA can work with USDOT to assist States in updating their processes and documents to meet multimodal needs; conduct the assessments described in action S12; maintain the Mayors' Challenge network of cities that are advancing pedestrian and bicycle transportation; and foster collaboration with States.

 S8—Promote the [Crash Modification Factors \(CMF\) Clearinghouse](#) as a safety resource and undertake efforts to increase the number of CMFs for pedestrian/bicyclist safety.

 S9—Promote research and resources documenting the proven “[safety in numbers](#)” effect.

 S10—Continue to implement the FHWA Office of Safety’s [Focus City / Focus State Program](#). This initiative, launched in 2004, provides pedestrian and bicycle safety training and resources to American cities with high rates of nonmotorized injuries and fatalities.

Near Term Actions

 S11—Launch and promote a new Every Day Counts 4 (EDC-4) initiative on Pedestrian Safety. The EDC-4 innovation, Safe Transportation for Every Pedestrian will promote cost-effective pedestrian crossing countermeasures such as Pedestrian Hybrid Beacons, pedestrian refuge islands, Road Diets, raised crosswalks, crosswalk visibility enhancements, and rectangular rapid flash beacons.

 S12—Work with ITE to update the ITE Traffic Calming Guide to address topics such as mid-block crossings and community connections. The original Traffic Calming Guide came out over 15 years ago and the new guide will incorporate new noteworthy practices and research findings concerning traffic calming.

 S13—Educate and encourage transportation agency staff to use the [FHWA USLIMITS2](#) tool. USLIMITS2 is a web based tool designed to help practitioners set reasonable, safe, and consistent speed limits for specific segments of roads and it takes pedestrians and bicyclists into consideration. USLIMITS is applicable to all types of roads ranging from rural local roads and residential streets to urban freeways.

 S14—Build upon [USDOT’s Vehicle-to-Pedestrian \(V2P\) research and initiatives](#) to consider pedestrian and bicyclist safety issues and opportunities associated with connected vehicle technologies.

 S15—Promote and expand pedestrian and bicycle safety initiatives that began through the Office of the Secretary’s Safer People, Safer Streets Initiative, including follow-up activities from the Mayors’ Challenge Network and Road Safety Assessments projects. For example, FHWA can work with USDOT to assist States in updating their processes and documents to meet multimodal needs; conduct assessments; maintain the Mayors’ Challenge network of cities that are advancing pedestrian and bicycle transportation; and foster collaboration with States.

 S16—Encourage FHWA Division Offices to conduct follow-up assessments and educational activities with agencies from the 50 States, along with the District of Columbia and Puerto Rico, that participated in the 2015 Road Safety Assessment process. Assessments are one of many ways that FHWA Division Offices can play an increasingly proactive role in promoting multimodal transportation at the State level. Ongoing engagement with the Pedestrian and Bicycle Points of Contact in each FHWA Division Office will help to build capacity at the State level, while also facilitating the sharing of best practices for improving multimodal outcomes in the Federal transportation funding process.

 S17—Accomplish specific targets on institutionalizing use of road diets in 26 States as part of completing the Road Diet EDC-3 initiative.

 S18—Work with Centers for Disease Control and Prevention (CDC) to determine potential Behavioral Risk Factor Surveillance System revisions that would enable pedestrian and bicycle risk assessment, such as adding questions about nonmotorized travel to health surveys.

 S19—Conduct research on the development of CMFs for different separated bike lane configurations. This will help to determine the influence that Separated Bike Lanes (SBLs) have on the total number and severity level of crashes. The objective is to quantify how the various SBL configurations influence the number and type of crashes along a corridor

(both at the midblock and at intersections, if feasible) by developing one or more CMFs. The analysis methods will be consistent with nationally accepted data-driven statistical procedures similar to those used to develop the AASHTO Highway Safety Manual. A second objective is to coordinate with ongoing efforts to modify TMAS, based on the Traffic Monitoring Guide format, so that SBL exposures can be properly assessed and incorporated into a system for acquiring and assembling SBL data. These efforts will specifically include nonmotorized safety performance measures.



S20—Research safety and operations at the terminus of two-way separated bike lanes (e.g. Do riders cross intersection diagonally to continue travel on the correct side of the street? What are best practices to provide safety through the intersection and compliant bike behavior?).

Mid Term Actions



S21—Coordinate with NHTSA to promote existing and new educational and information-sharing resources focusing on pedestrian and bicycle safety. Given the rapid innovation in roadway design underway in the U.S., it is increasingly important for FHWA and NHTSA to coordinate on education and enforcement activities.



S22—Encourage local, regional, State, and Federal transportation agencies to engage regularly with law enforcement agencies in pedestrian and bicycle project and program development (in coordination with NHTSA).



S23—Develop policies and promote strategies to reduce vehicle speeds on multimodal corridors; continue to promote and apply relevant research and guidance, such as the FHWA Office of Safety publication [Methods and Practices for Setting Speed Limits: An Informational Report](#).



S24—Continue to work with NHTSA to promote a 5 Es approach to addressing safety issues. This could include activities such as promoting Vision Zero policies and researching and documenting outcomes,

promoting data sharing with law enforcement and health providers, and examining best practices to educate the public on bicycle and pedestrian laws and safety.



S25—Consider opportunities to expand the compilation and evaluation of motorized and nonmotorized crash data in identifying safety needs.



S26—Work with NHTSA to encourage consistent collection of more detailed pedestrian and bicycle safety data (including injuries, fatalities, and Property Damage Only) by States, MPOs, and localities.



S27—Continue to encourage States to use the NHTSA Minimum Model Uniform Crash Criteria (MMUCC) guidelines when developing their databases. Work with NHTSA to consider expanding the MMUCC guidelines and other State and local crash reporting rubrics to improve coding requirements about contextual information (manner of collision and direction of traffic) for pedestrian and bicycle crashes.



S28—Continue to develop additional proven safety countermeasures. FHWA has promoted Proven Safety Countermeasures since 2008. The list of countermeasures was updated in 2012 and FHWA is considering another update to the list. FHWA is conducting research to identify additional effective treatments and also maintains a crash modification clearinghouse to help practitioners.



S29—Encourage stakeholders to conduct safety and crash analyses using before/ after studies consistent with the AASHTO Highway Safety manual. This should include innovative pedestrian and bicycle facilities.



S30—Ensure that safety and mobility impacts and opportunities for pedestrians and bicyclists are incorporated into research and policies on V2V, V2I, and V2X communication technologies. Linkages to the Smart City challenge and Connected Vehicle Pilot Projects will be explored, especially as they relate to pedestrian and bicycle transportation. FHWA will also continue to support connected bike research, building on a Small Business Innovative Research project initiated in 2016 to develop connected vehicle hardware and software for bicycles.

GOAL 3

Equity: Promote equity throughout the transportation planning, design, funding, implementation, and evaluation process

Transportation equity is defined as “how transportation practitioners can provide access to affordable and reliable transportation to fairly meet the needs of all community members, particularly traditionally underserved populations.”⁷ An equitable transportation system recognizes the critical role of affordable and reliable transportation in providing access to social and economic opportunities. Providing more travel choices to all, including bicycle and pedestrian options, can help the nation to increase access to economic opportunity by meeting the transportation needs of traditionally underserved populations. These may include, for example, people in neighborhoods with high proportions of low-income, minority, older adults, and limited English proficiency populations, as well as persons with disabilities.

Within the realm of pedestrian and bicycle planning, equity focuses on ensuring that all communities have access to safe, convenient and comfortable pedestrian and bicycle infrastructure that is well-connected to the broader network, as well as to the transit system. Recently, FHWA has promoted equitable transportation as part of the Ladders of Opportunity initiative, by institutionalizing equity into relevant programs and activities, encouraging the use of funding for projects that advance equitable transportation objectives, developing performance metrics related to walking and bicycling that align with Ladders of Opportunity initiatives, and promoting pedestrian and bicycle initiatives as part of Ladders of Opportunity projects and programs at non transportation agencies.

⁷ [Pursuing Equity in Pedestrian and Bicycle Planning](#).

⁸ [Active Living by Design. \(2012\). Low income populations and physical activity: an overview of issues related to active living. Chapel Hill, NC](#)

⁹ [Smart Growth America and Complete Streets Coalition: Complete Streets Mean Equitable Streets.](#)

KEY EXISTING RESOURCES

- » [Pursuing Equity in Pedestrian and Bicycle Planning White Paper](#)
- » [FTA Environmental Justice Policy Guidance For Federal Transit Administration Recipients: FTA Circular 4703.1](#)
- » [USDOT Ladders of Opportunity Resource Catalogue](#)
- » [FHWA Environmental Justice Reference Guide \(April 2015\)](#)
- » [NCHRP Report 750, The Effects of Socio-Demographics on Future Travel Demand](#)
- » [NCHRP Report 710: Practical Approaches for Involving Traditionally Underserved Populations in Transportation Decision-making \(2012\)](#)
- » [How to Engage Low-Literacy and Limited-English-Proficiency Populations in Transportation Decisionmaking](#)
- » [FHWA Environmental Justice Emerging Trends and Best Practices Guidebook \(November 2011\)](#)
- » [NCHRP Report 532: Effective Methods for Environmental Justice Assessment \(2004\)](#)
- » [DOJ/DOT Joint Technical Assistance on Title II of the ADA Requirements to Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing](#)
- » [Glossary of Terms for DOJ/FHWA Joint Technical Assistance](#)
- » [Q and A Supplement to the 2013 DOJ/DOT Joint Technical Assistance](#)

According to a recent survey by Active Living by Design⁸, low-income respondents were twice as likely to report that fears about safety were major obstacles to traveling using nonmotorized modes. Because low-income individuals are less likely to own a car, they are more likely to walk or bike, even when conditions are not safe and are, therefore, exposed to greater risk of injury.

According to Smart Growth America⁹, “low-income communities are disproportionately affected by unsafe streets. In counties where more than 20 percent of households have incomes below the Federal poverty line, the pedestrian fatality rate is over 80 percent higher than the national average.”

Opportunities to Address Multimodal Inequities¹⁰

- » Leverage Data and Analysis Methods to Identify Equity Concerns and Opportunities
 - » Transportation practitioners can share data with partners such as public health departments, economic and community development agencies, and human service providers to identify areas where vulnerable groups exist and demand is not met, to assess performance of equity initiatives, or to determine areas where more engagement is needed. In addition, transportation analysts can enrich methods for traditional activities such as adding multimodal factors to Level of Service analyses and cross-referencing them with maps of equity indicators.
- » Emphasize flexibility in infrastructure planning, project prioritization and design
 - » Engage in discussion about equity, connectivity and community cohesion in all aspects of project and program development including goal setting and funding.
- » Foster Inclusive Public Involvement
 - » Empower and provide resources to support participation by underserved communities in transportation planning processes. Engagement early in the process can both identify community needs but also build capacity among underserved populations.
- » Examine Organizational Practices and Policies with an equity lens
 - » Organizational practices and policies may have unintended consequences when it comes to transportation equity. Examine opportunities to institutionalize Ladders of Opportunity principles into relevant long-term programs.

Equity Goal Actions

The Equity Goal Actions include activities to advance equity considerations in transportation planning, programming, and performance measurement.

Ongoing Actions

-  E1—Promote USDOT equity-related publications such as the [FHWA Environmental Justice Reference Guide](#) and the white paper on [Pursuing Equity in Pedestrian and Bicycle Planning](#). These resources discuss equity considerations in the pedestrian and bicycle planning process.
-  E2—Identify issues and promote opportunities to advance equity as part of the Every Place Counts Design Challenge and the Smart City Design Challenge. Pedestrian, bicycle, and equity issues were discussed at Every Place Counts Design Challenge community visioning sessions in Summer 2016 in Spokane, WA, Philadelphia, PA, Nashville, TN, and St Paul-Minneapolis, MN.
-  E3—Proactively encourage MPOs and States to address equity as part of the planning process. This should focus on assessing and mapping the level to which pedestrian and bicycle networks provide access to jobs and essential services, particularly for disadvantaged communities.
-  E4—Complete ongoing project to develop the Guide to Performance Management: The Why and How of Measuring Access to Opportunity. The Guide, being developed in partnership with the Governors Institute on Community Design (GICD), will provide will provide State DOTs and MPOs with an overview of the state of the practice of performance management with a focus on connectivity, multimodal, and livability outcomes through the production of a Guidebook and two Performance Measurement Workshops.

¹⁰ [Pursuing Equity in Pedestrian and Bicycle Planning](#)

EQUITY: TOP PRIORITIES



E1—Promote USDOT equity-related publications such as the [FHWA Environmental Justice Reference Guide](#) and the white paper on [Pursuing Equity in Pedestrian and Bicycle Planning](#). These resources discuss equity considerations in the pedestrian and bicycle planning process.



E3—Proactively encourage MPOs and States to address equity as part of the planning process. This should focus on assessing and mapping the level to which pedestrian and bicycle networks provide access to jobs and essential services, particularly for disadvantaged communities



E5—Educate agencies on funding sources for pedestrian and bicycle projects that advance equity, connectivity, and Ladders of Opportunity principles.



E9—Develop guidance and case studies on incorporating equity metrics into Federal, State, regional, and local pedestrian and bicycle performance measurement programs.

Immediate Action



E5—Educate agencies on funding sources for pedestrian and bicycle projects that advance equity, connectivity, and Ladders of Opportunity principles. These include funding sources outlined in FHWA's [Pedestrian and Bicycle Funding Opportunities](#) table, and also opportunities such as the [Transportation Investment Generating Economic Recovery \(TIGER\)](#) grant program.

Near Term Actions



E6—Develop consistent, comparable and compatible datasets across transportation and health related disciplines, building off of the [Transportation and Health Tool](#).

THE EVERY PLACE COUNTS DESIGN CHALLENGE

USDOT established the [Every Place Counts Design Challenge](#) to raise awareness and identify innovative community design solutions that bridge the infrastructure divide and reconnect people to opportunity. The Challenge represents the department's latest effort to transform our transportation network into a system that reflects and incorporates the input of the people and communities they impact.

THE USDOT SMART CITY DESIGN CHALLENGE

The USDOT [Smart City Design Challenge](#) will help one city to define what it means to be a “Smart City” and to fully integrate innovative technologies—self-driving cars, connected vehicles, and smart sensors—into its transportation network. Columbus, OH was selected as the winner of the Smart City Challenge. Columbus will receive up to \$40 million from USDOT and up to \$10 million from Paul G. Allen's Vulcan Inc. to supplement the \$90 million that the city has already raised from other private partners to carry out its plan. Using these resources, Columbus will work to reshape its transportation system to become part of a fully-integrated city that harnesses the power and potential of data, technology, and creativity to reimagine how people and goods move throughout the city.



E7—Partner with the Better Bike Share Partnership and others to convene events to share lessons learned and promote dialogue on equity and bike sharing. The Better Bike Share Partnership is a collaboration to build equitable and replicable bike share systems.

Mid Term Actions

-  E8—Expand training on advancing equity through pedestrian, bicycle, transit, and accessibility with a focus on training professionals and advocates that work with disadvantaged communities. This could occur, for example, through the new USDOT Community Academy initiative.
-  E9—Develop guidance and case studies on incorporating equity metrics into Federal, State, regional, and local pedestrian and bicycle performance measurement programs.
-  E10—Encourage nontransportation agencies (e.g. public health, housing, labor, natural resource, and parks and recreation) to integrate pedestrian and bicycle access and safety into projects and programs that promote equity.
-  E11—Develop methods to assess equity-related community benefits, implications, and outcomes of pedestrian and bicycle investments, particularly for people in disadvantaged communities (metrics could include, for example, access to essential services, opportunities for income and wealth generation, reduction of personal transportation costs, job growth, issues such as gentrification and affordable housing, and health outcomes).
-  E12—Document challenges and identify potential strategies for addressing disparities among different socio-economic and demographic groups in pedestrian and bicycle accessibility and safety-related community benefits, implications, and outcomes of pedestrian and bicycle investments, particularly for people in disadvantaged communities (metrics could include access to essential services, opportunities for income and

wealth generation, reduction of personal transportation costs, job growth, issues such as gentrification and affordable housing, and health outcomes).

-  E13—Continue to research and improve transportation and health connections through ongoing efforts such as the [Transportation and Health Tool](#). The tool has 14 indicators measuring how States, metropolitan areas, and urbanized areas are performing in terms of health and transportation, including measures like ‘Physical Activity from Transportation’ and ‘Commute Mode Share by using Biking or Walking.’ In addition, the [Health in Transportation Planning Framework](#) includes a series of steps a community can take to improve the overall health of a corridor by including elements such as better sidewalks and bike paths. Communities can use the Framework to pursue better collaborations around Transportation and Health.

-  E14—Encourage a broad range of stakeholders (law enforcement, health care, and environmental) to engage in selecting research topics and evaluating results.

-  E15—Identify and promote ways that shared mobility can help to promote equity in communities throughout the U.S. by integrating bicycle, pedestrian, and transit options for people in all types of communities. Pursue additional research and case studies as needed to articulate the safety benefits of shared mobility.¹¹ It will be helpful to examine linkages between walking, bicycling, transit, and shared mobility, for example through the provision of bike racks on car share vehicles, the emergence of electric bikes, and accessible bike share options.

¹¹ Shared-use mobility comprises transportation services that are shared among users, including traditional public transit; taxis and limos; bikesharing; carsharing (round-trip, one-way, and personal vehicle sharing); ridesharing (car-pooling, van-pooling); ride-sourcing; scooter sharing; shuttle services; neighborhood jitneys; and commercial delivery vehicles providing flexible goods movement. Source: [American Public Transit Association Shared Use Mobility Center](#)

GOAL 4

Trips: Get more people walking and bicycling

According to the National Household Travel Survey, there were 41 billion pedestrian trips in 2009, and 4.1 billion bicycle trips. Combined, this represented 11.5 percent of all trips and accounted for approximately 37 billion miles traveled. This 2009 value is up from 36.5 billion trips (9.5 percent of all trips) in 2001, and 23.7 billion trips (6.25 percent of all trips) in 1995. In addition, the average pedestrian trip length increased from 0.5 miles in 1995 to 0.7 miles in 2009, while average bicycle trip grew from 1.4 miles to 2.2 miles. Similar increases in nonmotorized mode share (percent of trips) for all trips and for short trips occurred over this period. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians.

The increasing number of trips by walking and bicycling can likely be attributed to a number of factors. Changing attitudes towards nonmotorized transportation are probably contributing to increased activity. Improved infrastructure – more sidewalks, better bike facilities, complete streets, shared use paths – are likely having a significant impact as well. A review of gas price trends for this period and before (adjusted to 2015 dollar values) does not indicate a relationship between fluctuating gas costs and nonmotorized travel activity or trip lengths.

Based on these trends, the following objectives and targets are established in this Strategic Agenda:

- » Increase the percentage of short trips represented by bicycling and walking to 30 percent by the year 2025. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians. This would indicate a 50 percent increase over the 2009 2009 value of 20.1 percent. A linear extrapolation of mode share among short trips indicates that pedestrian and bicycle trips combined would make up 25.5 percent (23.4 percent pedestrian, 1.69 percent bicycle) of all short trips. This would represent an increase of 26.7 percent over

KEY EXISTING RESOURCES

- » [Traffic Monitoring Guide](#)
- » [Guidebook for Developing Pedestrian and Bicycle Performance Measures](#)
- » [NCHRP Report 797: Guidebook on Pedestrian and Bicycle Volume Data Collection](#)
- » [Transportation Alternatives Program Performance Management Guidebook](#)

the 2009 value (26.2 percent for pedestrians, 6.29 percent for bikes). A target of 50 percent growth in nonmotorized mode share among short trips by the year 2025 is ambitious but achievable.

Trips Goal Actions

Trips Goal Actions include activities that facilitate and encourage increased walking and biking trips.

Ongoing Actions

-  T1—Continue to educate stakeholders on sources of Federal funds that may be used to support nonmotorized counting programs.

Immediate Action

-  T2—Develop guidance for States, MPOs, localities, and Federal Lands agencies on developing ongoing pedestrian and bicycle count pilot programs.

-  T3—Encourage MPOs and States to address pedestrian and bicycle activity as part of the planning process. Strategies could include collecting pedestrian and bicycle Average Daily Traffic (ADT) to complement motorized vehicle ADT counts and programs, and expanding forecasting tools to include pedestrian and bicycle travel demand and impacts. Resources to support these initiatives could include the [PlanWorks tool](#) developed through the Strategic Highway Research Program (SHRP2). A new application focusing specifically on Bicycles and Pedestrians was recently added to PlanWorks.

-  T4—Work with Smart City Challenge winners and applicants to promote strategies for fully integrating innovative technologies that can help to achieve the goals of the Strategic Agenda.

Near Term Actions

-  T5—Conduct a second Count Technology Deployment Pilot Project to support establishing MPO bicycle and pedestrian counting programs at mid-sized MPOs (under 1 million population). The first project completed in 2016 targeted MPOs with over a million people.

-  T6—Establish TMAS as a national repository of pedestrian and bicycle volume data in order to track trends, conduct research, and develop the basis for

TRIPS: TOP PRIORITIES

-  T6—Establish TMAS as a national repository of pedestrian and bicycle volume data in order to track trends, conduct research, and develop the basis for comprehensive performance measurement of nonmotorized modes. Provide guidance to agencies on how to collect and submit counts to the TMAS database. Where feasible, add existing historical counts of bicyclist and pedestrians to TMAS from external sources such as the National Bicycle and Pedestrian Documentation Project.

comprehensive performance measurement of nonmotorized modes. Provide guidance to agencies on how to collect and submit counts to the TMAS database. Where feasible, add existing historical counts of bicyclist and pedestrians to TMAS from external sources such as the National Bicycle and Pedestrian Documentation Project.

-  T7—Continue to work with CDC and others to implement the [“Surgeon General’s Call to Action to Promoting Walking and Walkable Communities”](#) which recognizes the importance of physical activity for people of all ages and abilities. The Call to Action calls on Americans to be more physically active through walking and calls on the nation to better support walking and walkability. The purpose is to increase walking across the United States by calling for improved access to safe and convenient places to walk and wheelchair roll and by creating a culture that supports these activities for people of all ages and abilities. The Call to Action includes five strategic goals to promote walking and walkable communities in the United States, which are cross-referenced with the Strategic Agenda goals in Table 5.

TABLE 5: GOAL COMPARISON

Goals from the Surgeon General's Call to Action to Promote Walking and Walkable Communities	Goals in the FHWA Strategic Agenda for Pedestrian and Bicycle Transportation
Goal 1. Make Walking a National Priority	Goal 4. Get more people walking and bicycling
Goal 2. Design Communities that Make it Safe and Easy to Walk for People of All Ages and Abilities	Goal 1. Networks—Achieve Safe comfortable, and connected multimodal networks in communities throughout the U.S. Goal 2. Safety—Improve safety for people walking and bicycling
Goal 3. Promote Programs and Policies to Support Walking Where People Live, Learn, Work, and Play	Goal 4. Get more people walking and bicycling Goal 3. Equity—Promote equity throughout the transportation planning, design, funding, implementation, and evaluation process
Goal 4. Provide Information to Encourage Walking and Improve Walkability	Goal 4. Get more people walking and bicycling Goal 3. Equity—Promote equity throughout the transportation planning, design, funding, implementation, and evaluation process
Goal 5. Fill Surveillance, Research, and Evaluation Gaps Related to Walking and Walkability	Goal 4. Get more people walking and bicycling



T8—Encourage agencies to extend their existing traffic monitoring activities to include systematic and comprehensive counts of bicycling and walking.



T9—Advance pedestrian and bicycle counting initiatives through EDC-4. This will include providing support to agencies for buying counting equipment and establishing effective regional count programs is feasible and timely.



T10—Convene a Federal Agency Pedestrian and Bicycle Work Group. This group would complement the Sustainability Council and would focus on activities such as implementation of Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance); DOT/CDC coordination on the Surgeon General's Call To Action on Walking and Walkable Communities; and other collaborative initiatives.

Mid Term Actions



T1—Encourage MPOs and States to publish statistics routinely about benefits to local communities associated with increased cycling and walking such as improved economic opportunities, air quality, public health, quality of life, and property values.



T12—Identify strategies to improve nonmotorized data trends collected as part of the ACS and the NHTS; expand the scope and applications of transportation datasets from agencies such as NHTSA, CDC, and the Census Bureau; and coordinate with private vendors such as Google Waze on strategies for identifying overarching travel patterns from crowdsourced pedestrian and bicycle safety and user data. Examples of strategies to enrich existing public data sets could include adding data on part time/secondary mode walking, biking, and transit use to the ACS and differentiating NHTS "average

American” community profiles according to urban, suburban, and rural contexts.¹²



T13—Conduct research into new data collection methods, including video detection and crowdsourcing.



T14—Synthesize tools and techniques for capturing qualitative data and identify opportunities to incorporate it into the planning process in order to better meet community needs and achieve better outcomes. Promote the application of these tools in the local planning process.



T15—Continue to research and document the linkage between walking and bicycling and climate change, greenhouse gas emissions, resiliency, stormwater management, and emergency evacuation related goals and activities.

¹² “Secondary mode” data can include, for example, bicycling or walking to and from transit stations.

MOVING FORWARD



Advancing National Goals and Policies

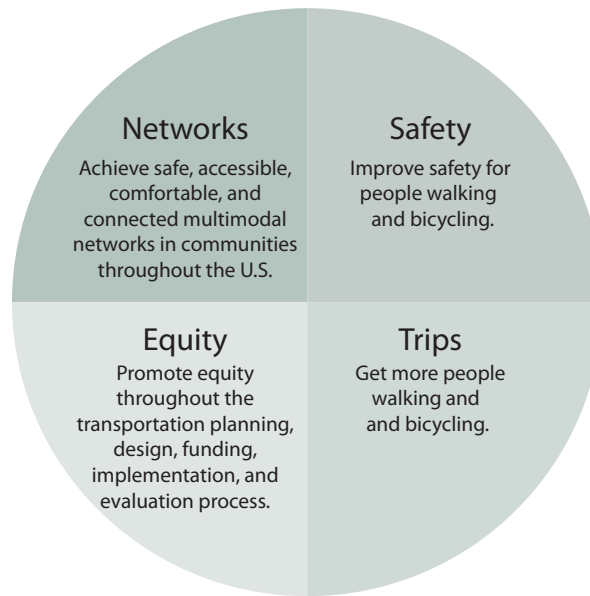
Walking and bicycling are core transportation options in communities throughout the U.S. FHWA will continue to support pedestrian and bicycle transportation by focusing on networks, safety, equity, and trips. Encouraging people to use active transportation modes instead of driving, especially for short trips, helps to preserve capacity on our nation's roadways, including National Highway System corridors. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians. Advancing the development of safe, accessible, and convenient bicycling and walking networks plays a fundamental role in achieving national public health goals to reduce illnesses related to sedentary lifestyles, as well as national policies to foster equitable access to Ladders of Opportunity for everyone.

Aligning the Strategic Agenda with USDOT Goals

As noted in Table 6, the Strategic Agenda goals reflect the following priorities established in the DOT Strategic Plan for FY 2014-18:

- » Safety—Improve public health and safety by reducing transportation-related fatalities and injuries for all users, working toward no fatalities across all modes of travel.
- » State of Good Repair—Ensure the U.S. proactively maintains critical transportation infrastructure in a state of good repair.
- » Economic Competitiveness—Promote transportation policies and investments that create ladders of opportunity, support strong communities, and bring lasting and equitable economic benefits to the Nation and its residents.
- » Quality of Life in Communities—Foster quality of life in communities by integrating transportation policies, plans, and investments with coordinated housing, recreation, and economic development policies to increase transportation choices and access to transportation services for all.
- » Environmental Sustainability—Advance environmentally sustainable policies and

GOALS



investments that reduce carbon and other harmful emissions from transportation sources.

- » Organizational Excellence—Develop a diverse and collaborative workforce that will enable the Department to advance a transportation system that serves the Nation's long-term social, economic, security, and environmental needs.

FHWA's Role in Promoting the Strategic Agenda

The process of implementing the Strategic Agenda for Pedestrian and Bicycle Transportation provides many opportunities for FHWA to advance its agencywide goals, which are as follows:

- » National Leadership—FHWA leads in developing and advocating solutions to national transportation needs.
- » System Performance—The Nation's highway system provides safe, accessible, reliable, effective, and sustainable mobility for all users.
- » Program Delivery—Federal-aid highway programs are effectively and consistently delivered through successful partnerships, value-added stewardship, and risk-based oversight.
- » Corporate Capacity—Organizational resources are optimally deployed to meet today and tomorrow's mission.

TABLE 6: ALIGNING GOALS

USDOT Goals	Strategic Agenda Goals			
	Achieve safe, accessible, comfortable, and connected multimodal networks.	Improve safety for people walking and bicycling.	Promote equity throughout the planning, design, implementation, and evaluation.	Get more people walking and bicycling.
Safety	X	X	X	X
State of Good Repair	X	X	X	X
Economic Competitiveness	X		X	
Quality of Life	X	X	X	X
Environmental Sustainability	X			X
Organizational Excellence		X	X	X

As it has for many years, FHWA will continue to play a national leadership role in promoting pedestrian and bicycle resources and encouraging our partners and stakeholders to institutionalize and mainstream best practices to improve multimodal outcomes in the Federal transportation funding process. FHWA will promote innovation, identify and address knowledge gaps, and partner with national organizations and local, regional, and State agencies in an integrated capacity to meet the goals identified in this Strategic Agenda.

The Strategic Agenda actions pinpoint dozens of specific ways in which FHWA will pursue the goals stated in the opening of this document:

- » Achieve an 80 percent reduction in pedestrian and bicycle fatalities and serious injuries in 15 years and zero pedestrian and bicycle fatalities and serious injuries in the next 20 to 30 years.
- » Increase the percentage of short trips represented by bicycling and walking to 30 percent by the year 2025. This would indicate a 50 percent increase over the 2009 value of 20.1 percent. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians.

In order to move in this direction, FHWA will implement the actions outlined in this

Strategic Agenda, which emphasize the following overarching themes:

- » **Work to meet the needs of people of all ages and abilities.** Safety (real and perceived) and comfort matter a great deal to all travelers, especially to pedestrians and bicyclists who are more vulnerable. Millions of people across America rely on sidewalks, bicycle lanes, and shared use paths for daily transportation. Design elements such as lateral separation for bicyclists and buffers between sidewalks and roads are not to be treated as extras. They are fundamental to meeting the USDOT goals of providing safe, accessible, and efficient transportation for all travelers.
- » **Continue focusing primarily on pedestrian and bicycle safety.** There is a real relationship between roadway design, speed, and safety, and pedestrian and bicycle safety in numbers. FHWA is working to integrate these ideas into our day-to-day work and decision-making. The agency is focusing on crash rates and recognizing that safety is more than just crashes; near misses and perceptions of safety also matter.
- » **Increasingly focus on connected pedestrian and bicycle networks.** FHWA is moving away from thinking about pedestrian and bicycle investments as stand-alone projects and moving toward a network perspective, one focused on providing the types of connectivity that make the

entire system functional for all users. The agency is leading innovation in this area, for example, by spearheading research on measuring multimodal network connectivity and tracking changes in connectivity over time.

- » **Increasingly focus on making walking and bicycling more practical and efficient transportation modes.** That means using methods such as analyzing walking and bicycling desire lines (an unofficial route that represents the most direct and convenient path to where people need to go) and working to accommodate them rather than trying to force nonmotorized travelers to use routes that may make sense for drivers but not for cyclists and pedestrians. FHWA is focusing on planning and designing for the activity and behavior we want to see, and the agency is emphasizing the mutual benefits of increased active transportation on goals to advance public health, access to recreation, economic development, environmental protection, and congestion reduction.
- » **Work to ensure that autonomous vehicles, connected infrastructure, smart technology, and other technological advances will result in real and tangible improvements for people walking and bicycling.** It is recognized that this will require a series of important policy decisions in the coming years as the technology develops and comes online.
- » **Foster shared experience with FHWA's partners and stakeholders around pedestrian and bicycle issues and opportunities.** This should be part of the way FHWA does business and should occur, for example, through collaborative pedestrian and bicycle assessments and audits on an ongoing basis and robust public engagement and community involvement in transportation planning. These shared experiences are central to getting the details right. Walking and bicycling are localized activities; the fine-grained details matter, and positive results happen when partners and stakeholders have strong relationships and work together.

Opportunities for Coordination and Collaboration

Advancing bicycle and pedestrian transportation is a collective effort. Over the past 20 years, FHWA has built strong relationships with Federal and State agencies, MPOs and localities,

professional organizations, and advocacy groups. The agency has also worked to exchange knowledge and experience with peers from countries around the world that are also striving to improve access to safe, convenient nonmotorized transportation options. Key collaborative activities that FHWA should advance with partners over the next few years include:

- » Convene a Federal Agency Pedestrian and Bicycle Work Group. This group will complement the Sustainability Council and will focus on activities such as implementation of Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance); DOT/CDC coordination on the Surgeon General's Call to Action on Walking and Walkable Communities; and other collaborative initiatives.
- » Work with partners at the Federal Railroad Administration, NHTSA, FTA, and others to develop and publish an effective practices report to document policy, design, and operational procedures for RWTs.
- » Develop accessibility guidance in coordination with the U.S. Access Board after the Public Rights of Way Accessibility Guidelines (PROWAG) are finalized.
- » Advance policies and encourage new and existing programs and projects to promote nonmotorized and multimodal transportation access and connectivity to and through FLMA areas (e.g. Bureau of Land Management, U.S. Forest Service, Fish and Wildlife Service, National Park Service, U.S. Army Corps of Engineers, Bureau of Reclamation, Bureau of Indian Affairs). Encourage and facilitate collaboration between FLMAs, Tribes, other Federal partners, and States, MPOs, and localities to incorporate nonmotorized and multimodal access, safety, and connectivity to these areas into MPO, Regional Planning Organization (RPO), and statewide planning processes. Promote coordination on multimodal transportation activities through FACT and highlight linkages to important resources such as the Multimodal Catalog for Federal Lands, a database of transit and trail systems located within or adjacent to Federal Lands.
- » Continue to work with NHTSA to promote a 5 Es approach to addressing safety issues. This could include activities such as promoting Vision Zero policies and researching and documenting

outcomes, promoting data sharing with law enforcement and health providers, and examining best practices to educate the public on bicycle and pedestrian laws and safety.

- » Complete the Guide to Performance Management: The Why and How of Measuring Access to Opportunity and promote and expand pedestrian and bicycle safety initiatives that began through the Office of the Secretary's Safer People, Safer Streets Initiative, including follow-up activities from the Mayors' Challenge Network and follow-up assessments and educational activities with agencies from the 50 States, along with the District of Columbia and Puerto Rico, that participated in the 2015 Road Safety Assessment process.
- » Develop a curriculum (onboarding process) for Federal, State, MPO, and local pedestrian and bicycle coordinators, supported by a Federal staff ambassador program that encourage peers to exchange information.
- » Exchange information with peers in the Netherlands on designing and building bicycle networks. U.S. and Dutch experts will work together to develop a deeper understanding of specific themes of interest including, (1) Applying the sustainable safety approach in different contexts and in different land use settings; (2) Facility type section approaches and techniques; and (3) Planning for and measuring regional bike connectivity.
- » Continue to work in partnership with ITE to develop a Practitioner's Guide for Walkable Urban Thoroughfare Design and a new Traffic Calming Guide.
- » Facilitate a coordinated and comprehensive effort among all DOT stakeholders to expand the availability and deployment of data about pedestrian and bicycle network infrastructure.
- » Establish TMAS as a national repository of pedestrian and bicycle volume data in order to track trends, conduct research, and develop the basis for comprehensive performance measurement of nonmotorized modes. Provide guidance to agencies on how to collect and submit counts to the TMAS database. Where feasible, add existing historical counts of bicyclist and pedestrians to TMAS from external sources such as the National Bicycle and Pedestrian Documentation Project.
- » Develop resources to help planners and designers right-size environmental review for smaller pedestrian and bicycle projects. FHWA will work with the AASHTO Center for Environmental Excellence and others to compile case studies on streamlining the planning and implementation of bicycle and pedestrian projects including how to make State and local governments aware of funding sources, streamlining the funding application process, and accelerated environmental review.
- » Work in partnership with AASHTO, TRB, and others to establish formal structures and regular opportunities to coordinate among pedestrian and bicycle research stakeholders, specifically between the TRB Pedestrian and Bicycle Committees and the AASHTO Joint Technical Committee on Nonmotorized Transportation.
- » Develop and conduct outreach on the nonmotorized components of the Safety Performance Management Measures rule. The addition of bicycle and pedestrian performance measures is an acknowledgment that nonmotorized safety is of particular concern and improving conditions and safety for bicycling and walking will help create an integrated, intermodal transportation system that provides travelers with real choices.
- » Proactively encourage MPOs and States to address equity as part of the planning process. For example, multimodal plans should routinely address complete bicycle, pedestrian, and transit access to jobs and essential services, particularly for disadvantaged communities and for people with disabilities.
- » Engage with local, regional, and State partners and stakeholders through research projects on topics such as measuring network connectivity, assessing pedestrian and bicycle exposure, and evaluating innovative roadway design and accessibility strategies.
- » Continue to use the EDC initiative to promote safety improvements for pedestrians and bicyclists through the EDC-3 effort on Road Diets and the EDC-4 effort on Safe Transportation for Every Pedestrian. In addition, educate and encourage transportation agency staff at all levels to use the FHWA USLIMITS2 tool.
- » Coordinate with PeopleForBikes and track progress on their "Big Jump" initiative to help

communities demonstrate that completing a low-stress network and encouraging people to ride can result in a big jump in biking over a three-year period. PeopleForBikes plans to work with 10 cities over 3 years, focusing on a neighborhood or zip code. At least half of the neighborhoods will have a strong equity component. As part of the project, PeopleForBikes plans to create a measurement toolkit that evaluates factors such as the connectivity of the low-stress network, rider participation and safety rates, traveler perception and the broader community impacts of increased bicycle ridership.

- » Coordinate with the Better Bike Share Partnership and others and consider convening events to share lessons learned and promote dialogue on equity and bike share. The Better Bike Share Partnership is a collaboration to build equitable and replicable bike share systems.
- » Continue to work with representatives of Pedestrian and Bicycle Safety Focus States and Cities (communities with the highest pedestrian fatalities) to develop and implement plans to reduce pedestrian and bicyclist fatalities.

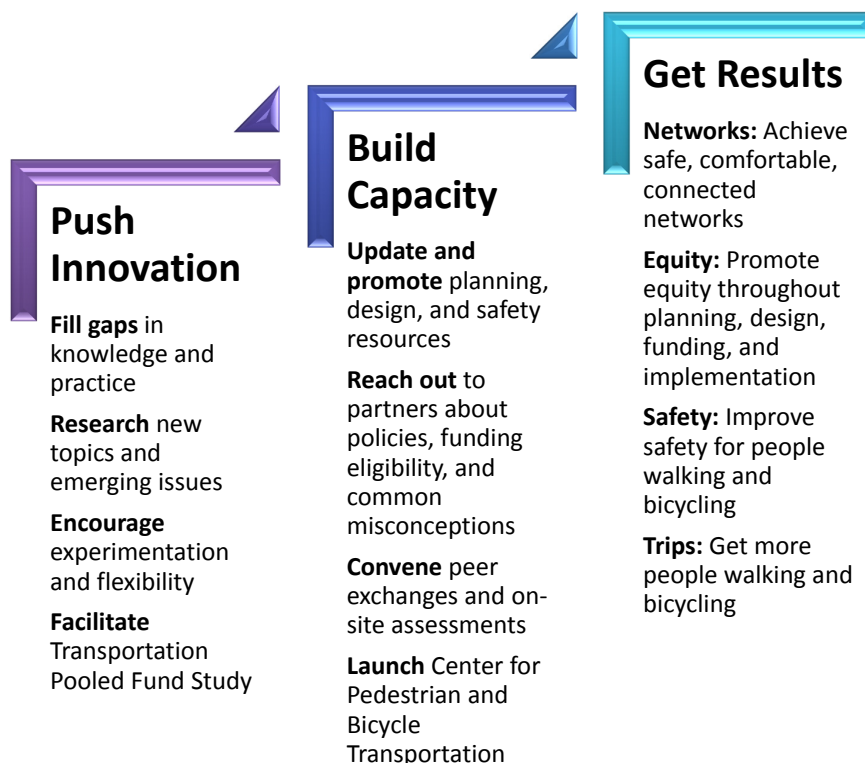
Implementation: Putting it all Together

In the coming years, FHWA will provide strategic focused leadership and resources to help stakeholders and partners achieve tangible results on the ground.

The agency will push innovation through research, data development, and initiatives that encourage States and localities to experiment with new, flexible approaches to building and promoting pedestrian and bicycle transportation networks.

Simultaneously FHWA will build the capacity of transportation agencies and partners at national, State, and local levels by providing continuously updated guidance and training on planning, designing, funding, building, and evaluating the effectiveness of pedestrian and bicycle networks. By investing in innovation and capacity-building, FHWA will work with its partners to adopt and implement policies, programs, and projects that yield complete multimodal networks, safety for all travelers, equitable access to jobs and essential services, and increased bicycling and pedestrian activity across America.

FIGURE 10: INVESTING IN INNOVATION AND CAPACITY BUILDING TO INCREASE BICYCLE AND PEDESTRIAN ACTIVITY



CONCLUSION



FHWA has set forth ambitious goals and clearly defined action steps for enhancing safe, accessible, convenient, and comfortable nonmotorized transportation options for everyone.

This Strategic Agenda sets forth two long-term goals, as follows:

- » Achieve an 80 percent reduction in pedestrian and bicycle fatalities and serious injuries in 15 years and zero pedestrian and bicycle fatalities and serious injuries in the next 20 to 30 years.
- » Increase the percentage of short trips represented by bicycling and walking to 30 percent by the year 2025. This would indicate a 50 percent increase over the 2009 value of 20.1 percent. Short trips are defined as trips 5 miles or less for bicyclists and 1 mile or less for pedestrians.

In the coming five years, (between FY 2016-17 and FY 2020-21), FHWA will focus on building and improving complete multimodal networks; improving safety for nonmotorized travelers; increasing equitable pedestrian and bicycle access to jobs and essential services; and encouraging more people to use active transportation. Toward this end, FHWA will work with its partners to implement the following types of activities:



Capacity Building: Providing guidance and educational resources that increase the ability of transportation professionals and advocates to plan, design, fund, build, maintain, and operate bicycle and pedestrian networks.



Policy: Clearly defining principles, requirements, and desired outcomes for Federal agencies, States and other agencies, MPOs, localities, transit agencies, and other entities on the use of Federal resources toward advancing bicycle and pedestrian transportation.



Data: Working with partner agencies to define, collect, assemble, store, maintain, interpret, and use information about bicycle and pedestrian safety and system usage.



Research: Working with partner agencies to identify and investigate issues that affect bicycle and pedestrian safety and system usage.

FHWA will achieve results by working with partner agencies, stakeholders, and the public to advance innovative research, data development, policies, and initiatives, and by encouraging States and localities to experiment with new approaches and to practice flexibility in building and promoting pedestrian and bicycle transportation networks. FHWA will also support its partners by providing guidance and training that enables them to implement the goals of this Strategic Agenda. By advancing innovation and building capacity among its partners through the actions outlined in this Strategic Agenda, FHWA will advance its vision to provide people across America with complete, safe, and accessible multimodal networks that encourage active transportation and that provide equitable access to jobs and essential services.



For More Information Visit:

http://www.fhwa.dot.gov/environment/bicycle_pedestrian
Publication Number: FHWA-HEP-16-086