U.S. Department of Transportation
Pedestrian and Bicyclist Road Safety Assessments

Summary Report

October 2015

A Message about Pedestrian & Bicyclist Safety

Ensuring pedestrian and bicycle safety is an important goal across the U.S. Department of Transportation. In the fall of 2014, I announced the Safer People, Safer Streets initiative with the goal of improving pedestrian and bicycle safety across the country. This three-part initiative includes the Safer Streets Assessment, the Mayors' Challenge, and Safer Policies. The first element of the initiative was a call for the Department to convene a walk/bike safety assessment in every State. I asked our Operating Administrations to collaborate and create new partnerships across State, regional, and local agencies, as well as local pedestrian and bicyclist communities across America. Our field offices embraced this call, and by the end of June 2015, 52 assessments were completed across the country.

This report is an overview of the approaches taken and the outcomes of those assessments; it highlights successes and identifies common barriers, as well as potential solutions. In addition to producing valuable observations about individual corridors, these assessments helped achieve a larger goal of identifying ways for local, State, and Federal agencies and stakeholders to collaborate more effectively to reverse the recent rise in deaths and injuries among people who use our transportation system to bicycle or walk to work, school, transit, and other important destinations.

The U.S. Department of Transportation is committed to making safe walking and biking a reality for all Americans, regardless of racial or ethnic background, age, income, and ability. I strongly encourage you to use this assessment report to identify how you can get involved in your own community and at all levels of government to work together for improved pedestrian and bicyclist safety. We will succeed by collaborating and building relationships across jurisdictional boundaries and bringing together partners around these important goals. We look forward to continuing to work with new and existing partners to ensure our transportation networks are safe and accessible for all people.

Anthony R. Foxx
Secretary of Transportation

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Acknowledgments

This report was produced by the United States Department of Transportation (U.S. DOT) Pedestrian and Bicycle Safety Action Team with assistance from the Volpe National Transportation Systems Center. The Team is comprised of representatives from the Federal Highway Administration (FHWA), Federal Motor Carrier Safety Administration (FMCSA), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), National Highway Traffic Safety Administration (NHTSA), and Office of the Secretary (OST). U.S. DOT would like to acknowledge the contributions of the modal field offices who planned and participated in the pedestrian and bicycling safety assessments and reported back to us on findings and insights from the event. A list of all offices participating can be found at the end of this report. Dozens of State, regional, and local agencies and stakeholders also made valuable contributions without which this project would not have been possible.

We also thank the U.S. DOT field offices for contributing all photos used in this report.

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Executive Summary

Beginning in the fall of 2014, the United States Department of Transportation (U.S. DOT) field offices began organizing pedestrian and bicycle safety assessments, on-the-ground examinations of transportation facilities conducted by a multidisciplinary, multi-agency team. By June of 2015, field offices from the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), National Highway Traffic Safety Administration (NHTSA), Federal Motor Carrier Safety Administration (FMCSA), and Federal Railroad Administration (FRA) had hosted or participated in 52 assessments, one in every State, Puerto Rico, and the District of Columbia. More than 1,500 people, including elected officials, field office leaders, and representatives from local, regional, State, Federal, and non-governmental agencies took part, helping advance Secretary Foxx's Safer People, Safer Streets Initiative for pedestrian and bicycle safety. This report summarizes results from this effort; all photographs in this report come from the assessments.

The assessments were intended to facilitate and encourage relationship-building between people who work for different jurisdictions and share responsibility for creating safer streets. The assessments generated a buzz of enthusiasm at all levels. Many participants were excited to share their concerns and ideas by coordinating with stakeholders at other agencies that share a role in creating safer environments for walking and bicycling. Participants noted the value of bringing together a variety of organizations to learn from one another and build partnerships, and many noted the desire to organize additional assessment events around their State. Local elected officials participated in 10 assessments, and senior U.S. DOT field leadership attended more than half of the events.

This initiative was also intended to help U.S. DOT promote assessments as an effective tool for improving pedestrian and bicycle safety. U.S. DOT has a long history of supporting on-the-ground assessments, ranging from formal pedestrian and bicycle Road Safety Audits (RSAs), to neighborhood walkabouts, because such assessments can provide substantial benefits to all road users while improving safety.

The local teams used a data-driven process to identify locations with pedestrian and bicycle safety challenges, and adapted existing assessment tools to fit the particular context. The teams considered site-specific recommendations and worked to envision broader systemic changes needed to improve safe walking and bicycling.

The assessments took place in a variety of contexts, and served as informal snapshots of pedestrian and bicycle travel conditions. However, the findings were consistent with more formal studies and audits of pedestrian and bicycle safety and indicate that physical as well as policy and coordination barriers continue to impede access to safe walking and bicycling.

Assessments from all States identified a wide range of physical barriers preventing safe walking and bicycling. The problems ranged from facilities in significant disrepair to missing infrastructure and poorly designed roadways and signals. Common findings included a lack of safe and comfortable sidewalks, crossings, and bicycle facilities. Many roadways and signal systems were designed to accommodate high volume, high speed vehicular traffic, without considering the needs of all roadway users. In many cases, the assessments noted challenges in ensuring that infrastructure meet the needs of users with visual and mobility impairments.

Since walking and biking are affordable and environmentally-friendly ways to reach public transportation, many of the assessments focused on, or included, an evaluation of safe bicycle and pedestrian access to bus stops and transit stations. Some of the barriers impeding safe access to transit included lack of safe, marked crossings and intersections; flawed station area design and traffic flow; poor sightlines; and inadequate lighting.

U.S. DOT has produced and supported the development of many resources of value to States and communities in eliminating these physical barriers and creating a safer road environment, and many are listed in this report.

In addition to identifying physical barriers, one of the purposes of the assessments was to examine how policies and lack of coordination across multiple departments or agencies present barriers to safe walking and bicycling. The policy and coordination barriers identified related to planning and project development,

public engagement, changing community context, intergovernmental coordination, funding, data shortcomings, and the need for enforcement and education.

Participants in many of the assessments discussed how planning processes and policies often do not adequately consider the needs of people on foot or bicycle, resulting in projects that are unsafe or that do not accommodate all users. One way to ensure that transportation projects properly account for walking and bicycling facilities is to integrate them fully into the transportation planning and design processes for every project. The FHWA Bicycle and Pedestrian Program website contains many resources available regarding planning and project development.

Many assessments noted that transportation agencies need to do a better job of engaging stakeholders throughout planning and project development phases to ensure that their needs are reflected. In many cases, the assessments themselves proved to be an effective method of public engagement. Both FHWA and FTA offer resources to broaden the scope of public participation in the planning process.

Other assessments identified locations where the original roadway design may have been appropriate for its use, but due to increased development and other changes in the community, the facilities are now insufficient to meet the community's current needs. Another recurring issue was of intergovernmental coordination – situations in which it was unclear who was responsible for providing and maintaining facilities to promote safe walking and bicycling. Some assessments identified the important role of transit agencies and Metropolitan Planning Organizations (MPOs) in fostering such coordination.

Finally, assessments also discussed the need for improved data on walking and bicycling networks, volumes, and needs, as well as funding opportunities to implement infrastructure projects and non-infrastructure programs. While many communities face shortfalls between available funding and system needs, the assessments demonstrated the importance of funding projects to support walking and bicycling, and also provided an opportunity for stakeholders to discuss funding opportunities and ways to leverage existing sources.

Throughout the report, we have highlighted some of the ways that communities used the assessments to better understand and address some of the barriers, and resources that local communities and the U.S. DOT can use, both at the physical and programmatic levels, to continue to work to improve safe walking and bicycling throughout the country.

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Background

Secretary of Transportation Anthony Foxx has made pedestrian and bicycle safety one of U.S. DOT's top priorities. In 2014, he launched the Safer People, Safer Streets Pedestrian and Bicycle Safety Initiative (the Initiative). As part of the Initiative, the Secretary instructed U.S. DOT field offices from the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), the National Highway Transportation Safety Administration (NHTSA), the Federal Railroad Administration (FRA), and Federal Motor Carrier Safety Administration (FMCSA) to convene and lead one road safety assessment focused on pedestrian and bicycle safety in every State (as well as in the District of Columbia and Puerto Rico). The U.S. DOT has long promoted and continues to promote conducting assessments of roadway facilities to foster safer walking and bicycling. The U.S. DOT has developed a variety of assessment tools, ranging from formal pedestrian and bicycle Road Safety Audits (RSAs), to neighborhood walkabouts, to using walkability and bikeability checklists to examine routes to school. Evidence has shown that such assessments can provide substantial benefits to all road users while improving safety.[1]

This initiative was intended to help U.S. DOT promote assessments as an effective tool for improving pedestrian and bicycle safety. Secretary Foxx identified the following goals for the assessment effort:

- Facilitate and encourage relationship-building between people who work for different jurisdictions and share responsibility for creating safer streets.

- Engage practitioners who are typically focused on pedestrian and bicycle safety, as well as those who are not.
- Examine barriers to providing safe pedestrian and bicycle access to transportation infrastructure.
- Use the assessments process to expand the national discussion around ensuring safe and accessible walking and bicycling networks.

The road safety assessments conducted as part of this initiative varied in approach but were generally informal, on-the-ground examinations of transportation facilities conducted by a multidisciplinary and multi-agency team. These assessment activities did not constitute a formal audit or compliance review. The assessments focused on locations with documented or perceived problems related to pedestrian and bicycle safety and access. Effectively addressing these problems requires reviewing the physical design and enforcement issues on the ground, and examining the decisions that have led to those challenging conditions for walking and bicycling.

1 For more information on the benefits of conducting road safety audits, see: http://safety.fhwa.dot.gov/rsa/benefits/

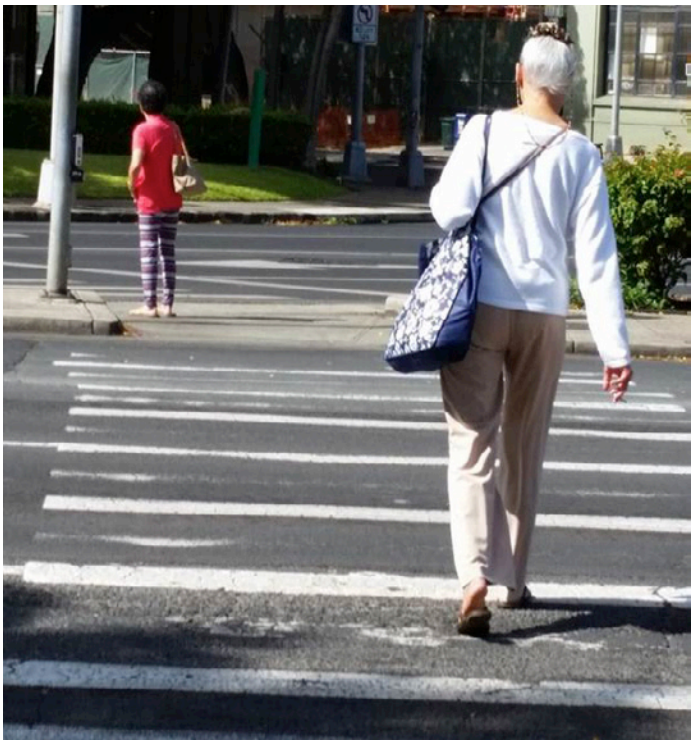
The purpose of the assessments was for teams to consider site-specific recommendations as well as to envision broader systemic changes needed to improve safe walking and bicycling. While simply conducting an assessment does not immediately fix problems, the act of bringing together many partners to focus their attention on these issues lays the groundwork for effective interagency collaboration going forward.

While many pedestrian and bicycle-related decisions are ultimately made at the State and local level, U.S. DOT plays an important role in supporting access to safe walking and bicycling, whether through providing technical assistance, reviewing proposed plans and designs, encouraging flexibility in design and funding approaches, or assessing updates to internal policies and procedures. The U.S. DOT used the assessments as an opportunity to lead by example, increasing awareness and understanding of pedestrian and bicycle safety needs and concerns throughout U.S. DOT, and fostering communication and collaboration between agencies at all levels of government.

This report highlights some of the varied and creative methods used to conduct the assessments. It discusses examples of both infrastructure and non-infrastructure barriers identified through the assessments; how specific communities used the assessments to discuss and address barriers; and resources (existing and under development) to support communities in ensuring safe and convenient access to walking and bicycling.

What We Did

The assessments took place between July 2014 and June 2015, and involved U.S. DOT field offices in every State, engaging nearly 1,500 participants across the country. Each assessment was convened by one U.S. DOT agency, coordinating closely with other U.S. DOT agency field offices serving that State and their stakeholders to form an assessment planning team. FHWA had primary responsibility for 36 assessments; FTA and NHTSA each had primary responsibility for seven assessments; and FRA and FMCSA each hosted one assessment. See Appendix 3 for more information on assessment locations.



The field offices invited many stakeholders to take part in the assessments. While attendance varied at each event, participation typically included:

- **Federal partners:** Environmental Protection Agency, U.S. Department of Housing and Urban Development, U.S. Department of Health and Human Services, the National Park Service, and the U.S. Postal Service

- **State agencies:** transportation, health, economic development, motor vehicles, highway safety, universities, energy, conservation and natural resources

- **Local/regional governments:** planning, transportation, public works, economic development, disability/accessibility commissions, civil rights/diversity/inclusion offices, police, fire, health, parks/trails, mayors, transit agencies, elected officials, metropolitan planning organizations (MPOs)/regional planning commissions

- **Tribal governments**

- **Resident/non-governmental organizations:** Chambers of Commerce, Rotary Club, hospitals, neighborhood associations/groups, local walk/bike/transit advocates, land trust, local arts, local business owners, seniors, environment/energy groups, smart growth groups, and other community interest and advocacy groups representing diverse/minority/low income communities

- **Private consultants:** those working with local/State/transit agencies

The assessments generated enthusiasm at all levels. Many participants were eager to share their concerns and ideas through coordinating with stakeholders at other agencies that share a role in creating safer environments for walking and bicycling. Participants noted it was valuable to bring together a variety of organizations, to learn from one another and build partnerships, and many noted the desire to organize

In Maine, the connections made during the assessment helped prompt discussions about future collaboration between public health and transportation agencies. Maine DOT and Maine Center for Disease Control and Prevention (CDC) discussed conducting Rural Active Living Assessments (RALAs) and using some of the data to inform transportation decisions.

additional assessment events around their State. Local elected officials participated in ten assessments, and senior U.S. DOT field leadership attended more than half of the events.

Most of the assessments were half- to full-day events, with some spread over two days to accommodate an introduction, on-the-ground assessment, and then a follow-up meeting and debrief. The planning teams used a variety of methods for conducting the assessments, tailoring the events to fit the size of the group and the scope of the assessment site.

The assessment teams took a thoughtful approach to planning and executing these events as part of the Secretary's initiative. There are many methods for conducting safety assessments, which can apply to different contexts and scales. The assessments for the Secretary's initiative focused on building relationships, and examining the bigger picture of the status of walking and bicycling at the assessment sites. Some States expanded the assessments to increase awareness of bicycling and pedestrian safety issues among a broader audience in the community, using press releases and inviting large numbers of participants. While the value of these larger scale assessment events was evident, smaller scale assessments focused on engineering changes are also important. See Appendix 1 for a brief how-to guide for conducting safety assessments based on the instructions given to the field offices for this project.

Site Selection

Each assessment planning team selected a location within their State, taking into account known or documented pedestrian and bicycle safety issues, upcoming roadway or transit station improvement or rehabilitation projects, and local feedback. Some assessments emphasized certain issues, such as access to transit or accessibility for people with disabilities.

Many teams used a data-driven process to select the assessment site, analyzing crash data, local demographics, commuting patterns, pedestrian and bicycle counts, and proximity to transit. For example, the Tennessee assessment team used U.S. Census data and Tennessee DOT safety data to identify the assessment location in Nashville. The staff analyzed factors such as households without access to vehicles, households below the poverty line, use of alternative modes of transportation to get to work, and non-motorized crash data. The Florida team used data to identify a low income area in Orlando with high pedestrian and bicycle crash rates and a high percentage of transit use. The Idaho team developed a site selection criteria checklist to help identify potential sites (see Appendix 2).

The assessment locations ranged from downtown or urban environments to more suburban and rural settings. Some

examined a single intersection while others covered corridors of up to three or four miles. Many assessments focused on urban arterials because they often have multiple lanes, challenging intersections, are served by transit, have relatively high traffic volumes and speeds, and have some form of shared responsibility between State and local entities. The Illinois team selected a highly complex six-legged intersection in Chicago that is within one-half mile of a commuter rail station, and has heavy vehicular traffic, multiple bus stops for major bus routes, nearby interstate ramps, railroad viaducts, and documented crashes involving pedestrians.

More than half of the groups used the assessment as an opportunity to examine pedestrian and bicycle facilities in locations with planned or recent roadway reconstruction projects. In general, assessments that take place in the relatively early stages of project scoping are advantageous because they have the best chance to influence the design, evaluate alternatives, and get to desired performance outcomes. For example, in Connecticut, the assessment identified several short term improvements that could be implemented relatively easily, as well as longer term steps that could be incorporated into an upcoming safety project on the corridor. The Mississippi assessment took place in downtown Jackson, on a road that was recently converted from a one-way street to a two-way street with installation of landscaping, roundabouts, and bicycle and pedestrian facilities. For this assessment, as with others, it was particularly useful to have project engineers and designers participating to answer questions and experience firsthand the issues and concerns raised during the assessment.

Conducting the Assessments

To help guide the effort, U.S. DOT developed a planning guide and disseminated several examples of existing assessment tools and worksheets (see Appendix 1). any assessment teams customized these resources or created their own tools to best fit the local needs and context. For example, Minnesota used a State-level guide to evaluate treatments for pedestrians and uncontrolled intersections. The Nebraska team created a resource guide with a survey form, photographs, and suggested solutions. The Hawaii team adapted two existing FHWA guides for their assessment.

Participants walked and/or bicycled the assessment areas, in some cases riding in vehicles on longer sections and getting out at select locations to analyze the areas in more depth. In some cases, they also had impromptu discussions with passersby and local business owners to learn about their experiences. For example, during the South Dakota assessment, a local business owner saw the team walking around, and provided input on the issues she observed at an intersection near her business.

Several assessment teams noted the importance of time of day and the local context when planning an assessment, in order to better understand how the infrastructure serves (or does not serve) its users under different conditions. For example, the Massachusetts assessment analyzed the area around a transit station scheduled for rehabilitation. Participants conducted the bicycle portion of the assessment earlier in the afternoon, and the pedestrian portion of the assessment during the evening rush hour, to best observe pedestrian behavior and volumes, as well as vehicular, pedestrian, and bicycle traffic in the station area. Participants noted that they perceived the pedestrian experience differently in the quiet afternoon versus during the busy evening rush hour. In Georgia, assessment organizers included a nighttime review in order to document impediments to safe walking and bicycling after dark (e.g., lack of lighting, retroreflectivity, and signing visibility).

FMCSA led the Washington State assessment, which focused on large trucks and buses. Participants chose to experience the area by riding along in large trucks or metro transit buses, or by watching a video shot from the perspective of a bicyclist or large truck driver. Participants then completed the assessment tool, which asked for perceptions of surface conditions; intersections; pavement markings; signing; and behavior of other road users. This creative use of media provided an opportunity for participants to experience and analyze the corridor from a new perspective. More information about this assessment, including a short video, is available on the U.S. DOT Fast Lane website.

For the New York assessment, NHTSA organized participants into smaller groups with a mix of disciplines (e.g., planner, patrol officer, public health professional, engineer, and highway safety program manager). The groups first walked the length of their assigned segment without tools or prompts, for a more natural experience of the environment as a pedestrian. When each group reached the end of its assigned route, facilitators distributed copies of a Walkability Assessment Checklist, for participants to begin to apply their personal experience walking the route to a more guided process for evaluating the infrastructure and user behavior.

In addition to focusing on specific locations, some groups used the assessments as an opportunity to provide training and education to participants, in some cases organizing full-day or multi-day events with multiple training sessions. The California assessment included an afternoon workshop for over 50 participants, discussing topics such as engineering improvements, data, funding, and policy opportunities. Alaska and Oregon both used the assessments as an opportunity to demonstrate successes and show models of recently built facilities that successfully integrate bicycling and walking.

Leveraging Other Initiatives

In some States the assessment team coordinated with organizers of other existing initiatives, allowing them to pool resources and reach new stakeholders. For example, the Utah team planned the assessment to take place at the same time as Utah's Road Respect Tour Community Event in Hurricane, Utah. The Road Respect Tour is run by the Utah DOT and the State Bicycle Federation, and the purpose of the tour is raise awareness of bicycle safety on roadways. The benefits of pairing safety assessments with other initiatives include raising awareness of existing initiatives among larger audiences, combining events to make more effective use of travel funding, forming and strengthening relationships with new partners, and demonstrating the will and commitment of many stakeholders to improving conditions for pedestrians and cyclists.

The Michigan assessment planning team coordinated with the Michigan DOT to combine a pre-planned offering of the State's "Training Wheels" course on roadway design for bicycling, targeted toward local planners and engineers, with the bicycle safety assessment. After a classroom session on bicycle facility design, participants cycled a 7.3 mile route which covered a variety of road types, including local subdivision roads, separated paths, and arterial roads with and without bike lanes. After the group ride, participants discussed their "behind the handlebars" experiences and potential design retrofits for problem intersections they encountered on the ride.

What We Found: Lessons and Solutions

While the assessments evaluated pedestrian and bicycle safety needs at specific study locations, they also helped participants recognize common safety challenges and helped the different jurisdictions responsible for the assessment locations to work together to address these problems. Though this national effort was not a scientific study of pedestrian and bicycle safety needs across the country, the 52 locations, with many different contexts and settings, provided illustrations of issues that have been documented in many other reports and studies. Many of the issues identified in the assessments fall into two categories: physical barriers and institutional barriers related to policies and coordination.

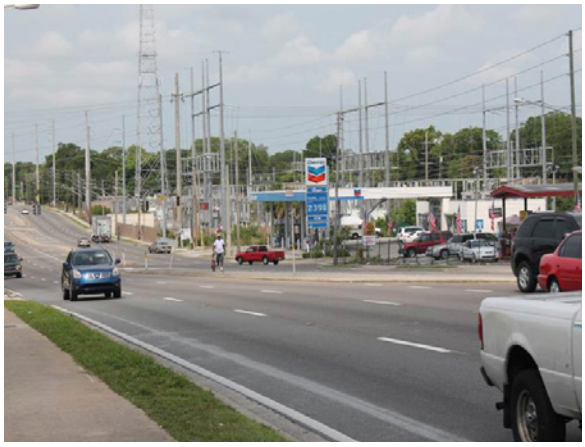
Physical Barriers

Assessments from all States identified a wide range of physical barriers that prevent safe walking and bicycling. The problems ranged from facilities in significant disrepair to missing infrastructure and poorly designed roadways and signals. Common findings included a lack of safe and comfortable sidewalks, crossings, and bicycle facilities. Many roadways and signal systems were designed to accommodate high volume, high speed vehicular traffic, without considering the needs of all roadway users. The sections below discuss and show examples of some of the key issues related to roadway design, accessibility for all users, and bicycle safety concerns.

Roadway Design

Creating safe and connected pedestrian and bicycle transportation networks is an area of increasing emphasis in communities throughout the country. Many roadway designs, whether constructed decades ago or quite recently, have prioritized driver comfort and safety over pedestrian and bicyclist comfort and safety. Observed characteristics of disconnected networks for non-motorists included:

- **Wide, multi-lane roads**, without pedestrian facilities such as a median refuge or high-quality bicycle facilities, that contribute to high speeds and increase risk of exposure for nonmotorized users;



- **Missing or poorly located curb cuts**, making it difficult for people using mobility devices or strollers to cross safely at intersections;

- **Lack of marked crossings** at intersections or midblock crossing locations on long blocks, leading unpredictable and irregular pedestrians crossing behavior;
- **Gaps in sidewalks and bicycle facilities** that create risk and limit ability for users to safely travel to and from destinations;
- **Constrained rights of way** preventing construction and development of sidewalks or bike lanes;

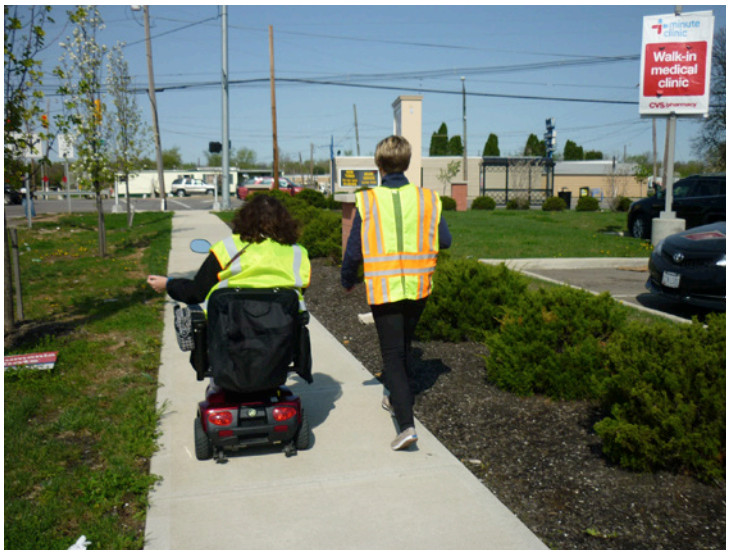
- **Poor design of street parking**, limiting visibility of and for pedestrians and bike riders;
- **Intersection designs** that may not account for pedestrians and bike riders, making it difficult to cross; and
- Roadways with an **excessive number of driveways,** creating **many potential conflict points**, and poor visibility.

These observations were key findings of many assessments, as the accompanying photographs show, and many assessments documented multiple designed-in impediments to safe cycling and walking.

The U.S. DOT is coordinating with key stakeholders and conducting research on best practices related to facility design, with new resources available at the FHWA Bicycle and Pedestrian Program webpage and the FHWA Office of Safety web page. FHWA also has many resources available to assist with applying a context sensitive approach[2] to roadway projects. FHWA partnered with the Institute of Transportation Engineers (ITE) to develop resources on using a context sensitive approach to and Integration of Safety in the Project Development Process and Beyond. Most recently, FHWA proposed revisions to the 13 Controlling Design Criteria that would allow much more design flexibility on lower-speed roads on the National Highway System, without requiring special approval from FHWA.

One assessment highlighted that the city traffic engineer, city public works engineer, and State DOT district engineer all had different perspectives on some of the issues and possible solutions. It was helpful to bring them together to discuss their interpretations, so that they could better communicate and collaborate on addressing problems in the future.

2 Context sensitive solutions (CSS) are collaborative, interdisciplinary approaches that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.



Pedestrian Safety and Accessibility for All Users

The assessments addressed a range of challenges related to pedestrian safety, many of which also pointed to instances of **infrastructure that were inadequate to meet the needs of people with disabilities.** Challenges identified included:

- Inadequate or missing curb ramps at intersections;
- Long crossing distances combined with short crossing times at intersections;
- Poorly maintained or missing sidewalks;
- Poles, street furniture, or other obstructions impeding the path of travel;
- Excessive grades and slopes, and
- Inappropriate placement of pedestrian signal actuation buttons.

Poor maintenance practices contributed to the deterioration of both the physical and aesthetic condition of the infrastructure, often resulting in the accumulation of trash or other debris. Due to the seasonal timing of the assessments, the teams did not have an opportunity to observe the adequacy of ice and snow removal. However, the New Hampshire assessment team conducted a "pre-assessment" in the winter to look at conditions related to snow and ice. It found that overall, snow removal was done well, but there were issues with icy patches and the formation of ice dams.

In some cases, the problems were found with older infrastructure designed and built prior to the Rehabilitation Act of 1973 or the Americans with Disabilities Act (ADA) of 1990. In other cases the problems were present on more recent facilities, some of which had not yet been brought into ADA compliance but were included in local plans. These challenges highlighted the need for additional resources to maintain and manage existing assets, and for increased education and training for planners and engineers, to ensure that all new and upgraded facilities meet current standards in a timely fashion.

In 2015, the FHWA Office of Civil Rights created a multi-office and disciplinary Working Group that works closely with the States to ensure that their ADA transition plans include the minimum regulatory required attributes. The new approach developed by the Working Group is focused on outcomes and on facilitating the acceleration of the States' ability to ensure ADA compliance in the public rights-of-way.

The assessment results highlighted a **need for planners and engineers to coordinate with staff focused on ADA compliance**, in order to more effectively work together to improve accessibility for all users. These responsibilities are often separated within an agency, sometimes resulting in missed opportunities for coordination. Every assessment noted the need for access improvements, and the great need to do more to involve communities of color and people with disabilities in pedestrian and bicycle safety assessments. The statutory definition of pedestrian includes persons with disabilities, which covers persons who use mobility devices as well as persons with vision or hearing disabilities. The first-hand experience and insight of persons with disabilities is invaluable to an assessment team. It is also vital to coordinate with ADA experts to ensure that assessments identify specific training and technical assistance needs related to accessibility, and with transportation planners to ensure that ADA solutions are woven into the transportation planning and project development processes.

It should be noted that while all of the assessments noted challenges related to accessibility, the assessments were not compliance reviews, and not meant to be used as an audit report of ADA issues. The assessments focused on deepening participants' understanding of and educating participants about barriers to safe walking and bicycling, and brainstorming ways to address existing and prevent such barriers in the future.

The U.S. DOT has resources that can be used to ensure that roadways are designed to be safe and comfortable for pedestrians, and accessible for all users. These resources include FHWA accessibility guidance and ADA resources, FHWA's Handbook on Designing Roadways for the Aging Population, FHWA's Guide for Maintaining Pedestrian Facilities for Enhanced Safety, and NHTSA's Walkability Checklist.

> The Indiana assessment noted that many local public agencies in the State have ADA transition plans, which include installation of new sidewalks. Indiana DOT is in the process of updating the statewide self-evaluation and ADA Transition Plan; when it is complete there will be an opportunity for project scoping and coordination among the state and local jurisdictions.

The National Aging and Disability Transportation Center (NADTC) is a new technical assistance center funded through a cooperative agreement with FTA. It provides access to resources (including this bus stop assessment toolkit and this assessment pocket guide) to assist the disability community, seniors, human services providers, and the transportation industry in supporting accessible community transportation. This center builds on the history and activities of the previous technical assistance center for accessible transportation, called Easter Seals Project ACTION (ESPA). Resources currently available through ESPA's website will soon be available via the new NADTC website.

Bicycle Safety Concerns

Many assessments discussed the need for dedicated bicycle facilities, whether as non-separated or separated bicycle lanes, as well as issues related to the design and maintenance of existing facilities.

In many cases, the assessment locations were on higher speed, higher volume roadways that would benefit from dedicated bicycling facilities to increase comfort and safety. On lower volume, rural roads, well maintained and paved shoulders with signs and striping may serve as appropriate pedestrian and bicycle facilities. The most appropriate type of bicycle facility depends on context (e.g., road function, size, speed and volume of vehicular traffic, volume of bicycling), and in some cases, participants suggested that bicycling facilities would be better placed on adjacent roads with lower speeds and traffic volumes. The Iowa assessment included a road that had recently undergone a road diet[3] from four to three lanes to accommodate a bicycle lane, and the assessment report noted the potential benefit of a "share the road" education campaign to teach people driving and riding bicycles how to operate safely together on the roadway. **Using signing combined with education and enforcement campaigns to accompany new bicycling facilities may be helpful.**

Several assessments noted concerns about bicycle safety at intersections, in particular regarding left turns. Whether in dedicated lanes or through travel lanes, bike riders often ride on the right side and merge left to turn. Merging across multiple lanes of traffic, especially on high speed roadways, or in steep topography with limited sight distance, can be difficult. Participants in the Montana assessment noted these concerns while making a left hand turn on a three-lane roadway, and suggested signing as a short term solution to increase driver awareness of people on bicycles.

3 A Road Diet is generally described as removing travel lanes from a roadway and utilizing the space for other uses and travel modes. For more information see: http://safety.fhwa.dot.gov/road_diets/info_guide/

Some assessments also found that bicycle lanes or wider shoulders designated for cycling were obstructed by debris or found drainage grates oriented with the long side parallel to the direction of traffic, which poses a risk that thin bicycle tires will get stuck in the grates. Such facilities need to be maintained and kept free of debris, and should also have bicycle-appropriate drainage systems.

The U.S. DOT has several resources that help identify bicycle safety concerns and appropriate solutions such as the NHTSA Bikeability Checklist, the FHWA Bicycle Safety Guide and Countermeasure Selection System. Most notable is the just-issued FHWA Separated Bike Lane Planning and Design Guide, a comprehensive handbook for planning and discussing the appropriate placement and installation of this design innovation in U.S. cities.

In addition, FHWA is developing a Strategic Agenda for Pedestrian and Bicycle Transportation to establish a collaborative framework for pedestrian and bicycle planning, design, and research efforts in the next five years. The project will establish a unifying framework for addressing issues such as data collection and management; network implementation; research; and training and guidance. It will also identify critical gaps and near-term priorities for pedestrian and bicycling efforts. Implementation of the Strategic Agenda will involve coordinating policies, leveraging investments, promoting partnerships, and enhancing access to opportunity in communities and neighborhoods throughout the United States.

Transit Access

Since walking and biking are common, affordable and environmentally-friendly ways to reach public transportation, many of the assessments focused on, or included, an evaluation of safe bicycle and pedestrian access to bus stops and transit centers, as well as transit stations for light rail, subway, and commuter rail service.

Many of the bus stops observed during assessments were located relatively far from marked crosswalks or intersections, leading to challenging conditions for pedestrians walking to or from destinations on the other side of the road – a crossing that is necessary on every round trip. On roadway stretches with long blocks and important destinations between intersections, midblock transit stops may be unavoidable, but they present a challenge because passengers will often cross the roadway to reach their destinations, regardless of whether there is a marked crossing. This is an area where transit agencies and roadway planners and engineers could coordinate to better consider transit stop placement, as well as ways to provide safe mid-block crossings.

In addition to bus stop placement, several assessments discussed issues with the infrastructure at and surrounding the stops. One assessment noted that the bus stop shelters, signs, and benches were generally in good condition, but sidewalk connections to the stops were in poor condition. Other assessments also found, that many bus stops are poorly lit, which can present visibility and personal safety issues.

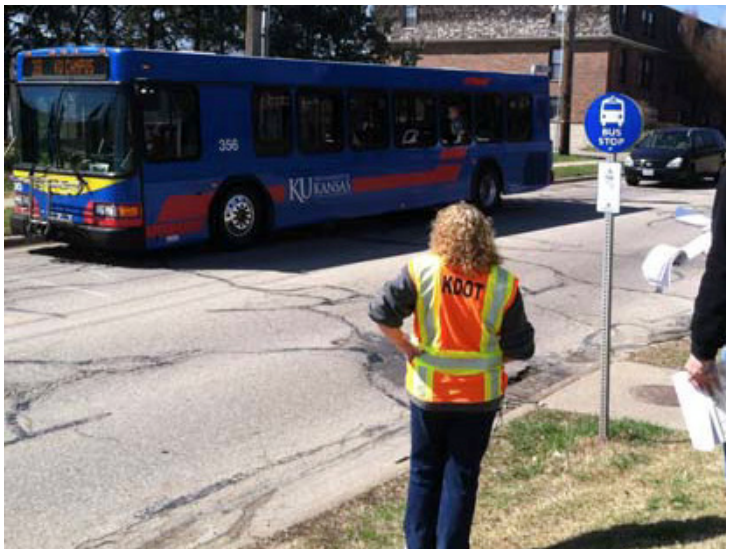
For transit stations, many assessments noted that it is essential to plan, fund, design and build safe bicycle and pedestrian connections to the stations. One assessment around a transit station noted a previous study finding that approximately 20 percent of the cars parked in the 550 space parking lot were registered at addresses within one mile of the station, a distance that should be an easy walk or bicycle ride. These additional cars driving such a short distance exacerbate traffic management issues that affect the neighborhood and other pedestrians and bike riders trying to access the station. Pedestrians accessing that station must contend with a large parking lot without delineated pedestrian zones, sidewalks, or planted medians; and stairs that are unevenly distributed, slippery in the winter, and described as "tripping hazards" by transit riders. There were sidewalks located along the parking lot edges, but they did not have curb ramps, and were not well used because they did not lead to desired destinations. There is covered bicycle parking available at one entrance to the station, but no bicycle facilities on the roads leading to either station entrance, some of which include intersections with fast turning traffic. During the assessment, participants observed cyclists riding on the sidewalk rather than on the roadway, which while not prohibited in that area, could indicate that cyclists do not feel comfortable biking on the street.

Transit station area design that forces or encourages people to walk or ride through a parking lot or a bus bay to access the station entrance creates risky conflicts between vehicles, bicycles and pedestrians. The assessments also noted walls, viaducts and other barriers, which were built to safely separate

non-motorized travelers from the rail right of way, unintentionally created poor sightlines, dim lighting, and an overall feeling of isolation, vulnerability and lack of personal safety.

Many assessment teams recommended specific improvements to address these conditions at bus stops and rail stations. For example, participants in the Arizona assessment suggested that infrastructure such as mid-block crossings, if designed and implemented appropriately, could help improve pedestrian safety around a planned light-rail extension.

Assessments recommended improvements to lighting, landscaping and sightlines, as well as pedestrian- and bicycle-oriented development, public art and signs. Project sponsors can engage people who travel by foot, bicycle, or mobility device in the planning and design phases of the station area, to ensure that their needs are identified and met.



For those transit stations that share right of way with freight, commuter rail and Amtrak, the assessments identified and recommended safety improvements for highway-rail grade crossings, including adding DO NOT STOP ON TRACKS signs. One assessment suggested the "safety-critical design criteria" used for railroad grade crossings be employed as a model for assessing and planning for roadway risk around transit stops.

Participants who took part in assessments during peak commute times noted that station areas and surrounding infrastructure need to be able to support high pedestrian volumes traveling to and from transit stations and stops. Participants noted a need for wider sidewalks, pedestrian refuge, traffic calming and road diet measures to accommodate crowds, as well as creatively designed pedestrian crossings to ensure they are well used.

The U.S. DOT notes the availability of several resources that provide additional information to local jurisdictions looking to ensure that bus stops and transit stations have safe pedestrian and bicycle access, including the Mineta International Institute's report on Bicycling Access and Egress to Transit, the Transportation Research Board's Integration of Bicycles and Transit, the research report on Guidelines for Providing Access to Public Transportation Stations; and APTA Design of On-street Transit Stops and Access from Surrounding Areas. The FHWA report on Safety Effects of Marked versus Unmarked Crosswalks at Uncontrolled Locations: Final Report and Recommended Guidelines may help address crossing issues around midblock bus stops, and the FHWA-funded Pedestrian and Bicycle Information Center website includes many resources on Access to Stations and Stops.

Policy and Coordination Barriers

In addition to identifying physical barriers, one of the purposes of the assessments was to examine how underlying policies combine with a lack of coordination across multiple departments or agencies to present barriers to safe walking and bicycling. This section discusses some of the non-infrastructure barriers, many of which are addressed through local, MPO, and State planning processes.

Planning and Project Development

Though Section 217 of Title 23 of the United States Code requires that "bicyclists and pedestrians shall be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State," participants in many of the assessments discussed how planning processes and policies often do not adequately consider the needs of people on foot or bicycle, resulting in projects that are unsafe or that do not accommodate all users. Some assessments indicated that even when walking and bicycling are considered, this may come later in the process after key decisions have been made, leading to a feeling that the transportation agencies view pedestrian and bicycle facilities as an add-on or an afterthought, rather than as a key component of a complete project or complete transportation system.

One way to ensure that transportation projects properly account for walking and bicycling facilities is to integrate them fully into the transportation planning and design processes for every project. Some cities, MPOs, and State DOTs have adopted complete streets policies that focus on designing and operating the entire roadway right of way to enable safe access for all users, regardless of age, ability, or mode of transportation.

> In 2010, U.S. DOT issued a policy statement on bicycle and pedestrian accommodation: "The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes."[4] This statement forms the basis for the seven Challenge Areas in the Mayors' Challenge for Safer Streets, Safer People.

Complete streets policies range widely—from simple resolutions stating support of the concepts, to detailed laws, policies, and regulations discussing context, design, users, and exceptions. These policies can be particularly effective at institutionalizing the provision of pedestrian and bicycle transportation, incorporating it as a consideration into each stage of project development in all roadway activities. While these policies will not immediately address existing roadway deficiencies, they will establish the framework for approaching any new, upgraded, or rehabilitated facilities. Several assessments noted that communities were working on developing complete streets policies and would consider the assessment results in drafting their policy statements. However, the policies can only be effective if they are acted upon.

4 United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/overview/policy_accom.cfm

Some assessments also noted that there was a State complete streets policy, but that the city or developers had not fully implemented it, and others had questions related to how the city would approach other site-specific issues.

Other assessments discussed the disconnect between stated policies or plans as drawn, and the way that projects are actually developed. In some cases a project may be designed to include pedestrian and bicycle facilities, but these are later removed due to complications or budgetary constraints. One way to prevent this from happening for Federally funded projects is to specify all project components in the National Environmental Policy Act (NEPA) documentation and in the TIP (Transportation Improvement Program) and STIP (Statewide Transportation Improvement Program).

Transportation agencies at all levels (local, MPO, and State DOT) may need to consider their approaches to planning and project implementation, including educating designers and stakeholders, and conducting reviews to ensure project commitments are carried out.

The FHWA Bicycle and Pedestrian Program website contains many resources regarding planning and project development, including references to legislation and regulation, the Statewide Pedestrian and Bicycle Planning Handbook and a forthcoming companion handbook focused on MPO pedestrian and bicycle planning. Other sample plan and sample policy resources for all levels of government are available on the Pedestrian and Bicycle Information Center website. The National Complete Streets Coalition, through Smart Growth America, has many resources related to complete streets policies and plans.

Public Engagement

A fundamental requirement of transportation planning is public involvement, and there may be more interest in and support for walking and bicycling than planners, engineers, and local elected officials realize. Some assessments noted the value of strong voices supporting walking and bicycling so that elected officials will pay attention to and prioritize policies and investments to support walking and bicycling.

Many assessments noted that transportation agencies need to do a better job of engaging stakeholders throughout planning and project development to make sure that their needs are reflected. It is important to involve and include representatives of a wide range of vulnerable and traditionally underrepresented populations broadly in the transportation planning and project development processes, and also in preparing and participating in assessments. This may include people with disabilities, older people, younger people, environmental justice communities, and persons who are dependent on walking and

biking. Nationwide, particularly in urban areas, pedestrian fatalities occur disproportionately in low-income areas. High-income areas have half as many pedestrian deaths as low income areas where people are more likely to rely on walking, bicycling, and transit to access jobs, school, retail, and health care. These neighborhoods are also less likely to have sidewalks and other pedestrian infrastructure.[5] It is important to consider these issues when identifying assessment locations and participants. In the Arizona assessment, a Spanish-speaking team member who participated in the field reviews was able to communicate with parents of students at the elementary school, transit riders, and patrons in the community market. He was able to relay a local perspective and information to the team that would not otherwise have been captured during the assessment. Other assessment teams noted the need for interpreters and materials in other languages.

In many cases, the assessments themselves proved to be an effective method of public engagement. Many assessments discussed the usefulness of bringing together people with a wide range of backgrounds, expertise, and perspectives. In particular, some assessments provided an opportunity for diverse stakeholders to discuss issues directly with a project engineer. In some cases, assessment participants suggested improvements that seemed quite logical, but with more detailed information on the site and the project, the project engineer was able to explain why they had been considered and rejected. In other cases the project engineers were able to gain a deeper understanding of the need for the facilities and how they are used, which could lead to changes in design as the projects progressed. Participants in assessments that focused on accessibility for people with disabilities and older adults expressed that it was useful to view the pedestrian and bicycle experience through those lenses.

For more information on involving the public in pedestrian and bicycling planning, see FHWA's A Resident's Guide for Creating Safer Communities for Walking and Biking and research funded by FTA regarding innovative ways to broaden the scope of public participation on issues related to Walking to Transit. The FHWA also has resources available to communicate with Spanish-speaking pedestrians and bicyclists.

5 Kevin Gibbs et al., "Income Disparities in Street Features that Encourage Walking," Bridging the Gap (March 2012), http://www.bridgingthegapresearch.org/_asset/02fpi3/btg_street_walkability_FINAL_03-09-12.pdf.

Changing Community Context

Several assessments included discussion of changes in the community and how they related to provision of safe walking and bicycling facilities.

A key issue related to changing community context is the need to update expectations and requirements about how the roadway system functions, as communities transition from rural to suburban and urban, and as roadways transition from a focus on through traffic toward serving local businesses and residents. The Ohio assessment noted that many older arterials began as rural facilities, but have urbanized over time. With this change, there has been an increase in the number and type of users on the roads, such as residential, business/industry, and through-traffic. These arterials often do not have usable shoulders, sidewalks, or bicycle facilities because they were designed for a different context. Another assessment noted that there were no sidewalks in an area that the State DOT refers to as a "rural transition zone," but that the area is no longer rural. These examples highlight the need for communities and State DOTs to update their expectations for how their roadways should function and the types of facilities that should be present.

The FHWA is currently developing resources to address roadways undergoing this transition, through traffic calming and design flexibility, as well as examining conflicts at locations where multiple modes (e.g., walk, bike, car, truck, transit, etc.) all interact. These resources are expected to be available in early 2016 at the FHWA Bicycle and Pedestrian Program website. The FHWA published a Road Diet Information Guide to assist communities in making roads safer for non-motorized

users through the reduction of traffic lanes on roadways. FHWA is developing a handbook for pedestrian and bicycle planning at the Metropolitan Planning Organization (MPO) level. The handbook will discuss how walking and bicycling fit into metropolitan planning activities and requirements; discuss the role of the MPO in regional pedestrian and bicycle planning and visioning; and provide examples and inspiration for how to continue to advance the state of the practice. The FHWA has resources available to assist with pedestrian and bicycle planning for State DOTs, and for better coordinating land use and transportation decisions at the local, MPO, and State levels.

Intergovernmental Coordination

Many of the assessments identified situations in which it was unclear who was responsible for providing and maintaining facilities to promote safe walking and bicycling. The responsible parties could be local government, the State DOT, transit agency, or even a private land owner. These accountability issues are particularly pronounced on corridors that serve as boundaries between one municipality and

another, or on State owned roadways within municipal boundaries. Transit stop or station areas, and locations where it is unclear whether the municipality or the adjacent landowner must pay for and maintain sidewalks, are also subject to this uncertainty. Often, if the responsibility is unclear, no entity has stepped forward to ensure a safe facility or corridor for non-motorized travel.

In examining access to transit in particular, the assessments illuminated a need and an opportunity for transit agencies to take more decisive leadership in working with local government agencies to ensure safe and accessible walking and bicycling access to transit.

Several assessments noted an important role for MPOs in ensuring effective coordination, as they are involved in many of the planning and funding decisions in their regions, and convening municipalities, State DOTs, and transit agencies. MPOs often provide education and technical assistance to their member governments. Strong MPO leadership is critical to focusing on systemic approaches to get to safe, connected, and convenient walking and bicycling networks.

Another reason to pay close attention to coordination is that **different professionals all looking at the same situation can draw different conclusions** about the key problems, their root causes, and potential solutions. For example, the Maryland assessment report highlighted different ways of interpreting a problem – poor roadway design, poor signal timing, insufficient enforcement, poor transit stop placement – when examining a problem with drivers "blocking the box" or pedestrians crossing in the "wrong" place. This anecdote illustrates that there are many potential solutions, and that comprehensively addressing a problem may require more than one approach, including both engineering and non-engineering solutions.

In part, to address some of the issues of unclear responsibility, the Colorado assessment team selected a corridor serving as the border between two communities with a heavy transit presence. The assessment team found gaps in the sidewalk network, as well as inconsistent traffic enforcement along the corridor, due in part to questions of jurisdictional responsibility. The team found that the assessment event helped to encourage cross-agency collaboration, which is also likely to increase in the near future, as the communities each received $800,000 in Transportation Alternatives Program (TAP) funds from the MPO for the design and early implementation of some of the recommendations coming from the assessment, including portions of sidewalk in the corridor.

During the Virginia assessment, staff from Washington Metropolitan Area Transit Authority (WMATA) discussed their Station Area Strategic Investment Plan initiative. As part of the initiative, WMATA completed walkability analyses for its 91 rail stations in order to identify gaps in connectivity. WMATA made presentations to various jurisdictions to show planning partners where the gaps are located, and provided estimates on potential ridership improvements. This initiative is unique for a transit agency, and underscores the role that WMATA plays in coordinating with other stakeholders to improve pedestrian and bicycle access to its transit stations.

Funding

Local communities and State DOTs around the country face difficult decisions about how to fund and maintain their transportation systems in this era of limited resources. Many assessments noted insufficient funding as a barrier to making needed infrastructure investments to support safe walking and bicycling. In several assessments, local participants identified needed improvements, but noted that they felt limited in their ability to implement them, because they believed they did not have access to the "right" funding sources – in these cases referring to the Transportation Alternatives Program (TAP), which is a common, but very limited funding source for pedestrian and bicycle-related projects, or the Highway Safety Improvement Program (HSIP) funds.

One benefit of conducting assessments is that **bringing together partners and stakeholders from many agencies and disciplines can also help to inform participants of additional funding opportunities and strategies.** For example, in Wisconsin, the assessment

provided an opportunity for local staff to discuss their vision of the area with U.S. DOT staff. During these discussions, they were able to learn about funding flexibility and potential opportunities to use Federal funds to remove a bridge and to retrofit an area of the riverfront to make it accessible. In the Utah assessment, U.S. DOT staff helped to educate participants about transportation funds available to Federal Lands agencies (the assessment included a portion of a national park), and about funding available through the Utah Transit Authority to encourage safe walking and bicycle access to transit.

While all transportation agencies seek to address many pressing needs with a limited budget, there is considerable flexibility in how communities can use Federal transportation funds. Two tables, developed by FHWA and FTA, show that existing surface transportation funding sources can be used for a range of pedestrian and bicycle plans, projects, and programs, and clarify eligible use of transit funding sources. The FHWA Bicycle and Pedestrian Funding, Design, and Environmental Review: Addressing Common Misconceptions document further clarifies the wide variety of Federal funding available to improve pedestrian and bicycle safety.

In 2011, FTA clarified its policy on using Federal transit funds for pedestrian and bicycle improvements, stating that "all pedestrian improvements located within one-half mile and all bicycle improvements located within three miles of a public transportation stop or station shall have a de facto physical and functional relationship to public transportation. Pedestrian and bicycle improvements beyond these distances may be eligible for FTA funding by demonstrating that the improvement is within the distance that people will travel by foot or by bicycle to use a particular stop or station."

Data

Some assessments noted that insufficient data exists to effectively identify and address walking and bicycling needs. Transportation agencies routinely collect traffic volume data for a variety of purposes, including analyzing travel patterns, identifying system deficiencies and needs, and studying potential project locations. Because the methods used for collecting motorized traffic volume data often do not work for counting pedestrians and bicycles, **many agencies have an incomplete picture of the extent of the use of and demand for safe walking and bicycling facilities.** For example, the Delaware assessment noted that it would be helpful to have good pedestrian count data to help build support for projects focused on improving pedestrian access and safety.

Many agencies conduct periodic manual counts of pedestrians and bicycles at key locations, and in recent years there have been many advances in automated counting technologies. The U.S. DOT has developed and supported a number of resources that transportation planning stakeholders can use to implement better data collection programs for non-motorized modes. These resources include the PBIC Planning & Data Collection Tools, the NCHRP Guidebook on Pedestrian and Bicycle Volume Data Collection, the FHWA Traffic Monitoring Guide (Chapter 4), and the NHTSA State Traffic Safety Information. In March 2015, FWHA announced Bicycle-Pedestrian Count Technology Pilot awards to 10 MPOs. The Pilot funds the purchase of a limited number of portable automatic counters to collect counts at various locations within the MPO planning areas. The program requires collecting counts over a period of one year using the portable counters as well as sharing data and experiences with FHWA. The results and lessons learned of the pilot will add valuable and practical insight to the existing resources.

While many communities would benefit from additional resources to support enforcement, the assessments also acknowledged that some of the recurring safety challenges may require infrastructure improvements to help guide users to the appropriate behaviors. In order to do this, some roadway users may need education on how to operate in and around pedestrian and bicycle facilities, in particular for newer designs, such as separated bike lanes, that may be less familiar. Several assessments indicated opportunities for signing and other education campaigns for new designs, as well as user education in high pedestrian volumes such as around schools and universities.

Enforcement and Education

Many assessments noted a need for improved traffic enforcement and education about the rights and responsibilities of all roadway users. Enforcement issues observed during assessments included speeding traffic, cars parked in bike lanes or other areas designated for no parking, bicyclists riding in prohibited areas, and traffic signal violations by motorists, pedestrians, and bicyclists. Many assessments included participation from local law enforcement agencies, and participants appreciated the support of local law enforcement officials on addressing pedestrian and bicycle safety issues and the opportunity to share perspectives. Several assessments recommended more formal coordination between planners and engineers and law enforcement agencies to assist with education, enforcement, and collecting data on crashes.

The NHTSA has many resources to support education and enforcement efforts, including the Pedestrian Safety Enforcement Operations: A How-To Guide, Countermeasures that Work: A Highway Safety Countermeasures Guide for State Highway Safety Offices-7th Edition (Chapters 8 & 9 address counter-measures associated with enforcement and education related to pedestrians and bicyclists). Also of value are the High Visibility Enforcement on Driver Compliance to Pedestrian Yield Right-of-Way Laws, and the Governor's Highway Safety Administration (GHSA) Everyone Walks, Understanding and Addressing Pedestrian Safety report. The NHTSA has also developed training courses on Pedestrian Safety for Law Enforcement and on Enhancing Bicycle Safety: Law Enforcement's Role.

Conclusions and What's Next

Conducting a simple assessment can be an effective first step in beginning a conversation about how to improve walking and bicycling networks. The national assessments effort confirms and reflects the benefits that assessments can provide at many levels, including the ability to influence policies, planning, and funding; educate and engage a wide range of stakeholders; and build diverse partnerships to support safe walking and bicycling.

The assessments provided opportunities for community, local, State, and Federal stakeholders to work together to address pedestrian and bicycle safety concerns in a variety of environments and locations. Many assessments noted that while the assessment was useful at a site level, it was also valuable in establishing more cohesive and collaborative working relationships between various stakeholders going forward. For example, the Maryland assessment identified an opportunity for better data sharing among agencies and stakeholders; the Maryland State Highway Administration maintains relevant data that other stakeholders did not necessarily know existed. As a result of the assessment in Louisiana, the State DOT invited the FHWA Division Office to give a presentation at the Statewide Traffic Operations Engineer's meeting on the assessment and performing roadway safety audits for non-motorized users. In Ohio, as a result of the assessment, the State DOT is planning to create a pedestrian/bicycle subcommittee of the Strategic Highway Safety Plan (SHSP) steering committee, and provide training to local public agencies on how to conduct multi-discipline pedestrian and bicycle safety assessments.

The assessments also helped to develop a common understanding of various challenges and thereby build partnerships to support addressing them. In Arkansas, a community visioning meeting was held in the evening after the assessment to discuss the vision for the corridor, where a regional arts center (drawing 5,000 to 7,000 visitors per year) is planned. The success of the arts center plan would rely on good pedestrian and bicycle access, and the assessment results have clearly articulated needs for pedestrian and bicycle safety improvements in the downtown area. Based on the discussion of these needs, that evening the City Council approved funds for a Master Pedestrian and Biking Trail Plan.

Many locations noted opportunities to incorporate assessment findings into upcoming planning efforts and project scoping, including a regional pedestrian and bicycle plan in Puerto Rico and a roadway safety project in North Carolina.

Based on the previous evidence of the value of assessments and the positive feedback coming out of this effort, U.S. DOT encourages Federal, State, and local staff to continue to conduct assessments (see Appendix 1 for guidance on how to conduct an assessment). The U.S DOT recognizes assessments as a valuable way to gather information needed to address other priorities related to multi-modal transportation connectivity, accessibility for people with disabilities, access to essential services for communities of color, and promoting sustainable transportation policies and practices.

Through the Safer People, Safer Streets: Pedestrian and Bicycle Safety Initiative, U.S. DOT continues to work in parallel on:

- Safer Communities, providing resources and outreach to elected officials, staff, and other stakeholders at the local government level, to increase awareness of community pedestrian and bicycle safety needs, and encourage support for improved physical infrastructure, and policies for walking, driving, and biking;

- Safer Streets, working with transportation practitioners to promote culture change, increase awareness of use of infrastructure to improve pedestrian and bicycle safety, and expand transportation practitioner use and awareness of existing resources; and

- Safer Policies, working with policymakers, advocates, researchers, and other thought leaders to share knowledge on innovative approaches to improving pedestrian and bicycle safety, and identify solutions to policy barriers that impede safer road user behaviors and infrastructure planning.

It is clear that there is great interest and enthusiasm around the country for working collaboratively to promote safe walking and bicycling, as evidenced by this assessments activity and also by the activities of the more than 234 communities that have signed on to Secretary Foxx's Mayors' Challenge for Safer People, Safer Streets. These mayors and other local elected officials are leading their communities by proactively forming local action teams to advance safety and accessibility, through the Challenge activities, which are meant to address many of the infrastructure and policy and coordination barriers outlined in this report.

The U.S. DOT is excited to collaborate with so many longstanding and new partners, as we continue to conduct outreach, research, and new ways to work together to ensure that residents of all communities, regardless of age, race, national origin, income, or disability status, have access to safe walking and bicycling opportunities.

Appendix

U.S. Department of Transportation – How to Conduct a Bicycle and Pedestrian Assessment

Appendix 1

Introduction

This document is designed to assist organizations conducting effective walking and/or bicycling road safety assessments in support of the Secretary's priority on pedestrian and bicycle safety.

Road safety assessments are safety examinations of transportation facilities by a multidisciplinary team. Although the focus of these assessments will be safety, U.S. DOT realizes that without safe accommodations and infrastructure, access to vital public transportation systems and use of bikeways and walkways are impacted. Assessments are an effective method of observing safety issues and identifying potential physical and operational improvements.

Purpose

The purpose of these assessments is to:

- Facilitate and encourage relationship-building between people who work for the different jurisdictions that share responsibility for creating safer streets. Participants will experience challenges that non-motorized users face and have the opportunity to discuss the issues that are raised with Federal, State, local, regional, and transit agency staff, community representatives and advocates, and other stakeholders.

- Engage practitioners who are not typically focused on pedestrian and bicycle safety. Although committed stakeholders and specialists with long-term experience on these issues should be engaged, the primary focus of the initiative is connecting engineers, planners, and highway safety professionals, helping them work together to consider non-motorized safety regularly and systematically in their work on all transportation and highway safety projects.

- Focus on locations that have non-motorized safety challenges (e.g., major road or transit corridors, significant intersections, transit station areas). The best locations will be those already under consideration for roadway improvement or rehabilitation in the next State Transportation Improvement Program or Transportation Improvement Program. Furthermore, locations identified through the problem identification research conducted as part of the State's Highway Safety Plan may be good choices. For example, urban arterials are recommended locations because of the challenges they pose, the transit networks that serve them, and the often shared responsibility between State and local entities. More detail about site selection is included below.

Field assessments are intended to provide a practical, real-world environment to foster discussions, share knowledge, identify the patterns that result in gaps in the non-motorized network, and build relationships that will lead to safer pedestrian and bicycle networks over time – as the lessons discussed below illustrate. The assessments are aimed at extending pedestrian and bicycle networks, which are "interconnected pedestrian transportation facilities that allow people of all ages and abilities to safely and conveniently get where they want to go."

Appendix 1

Keys to Hosting a Successful Assessment

Based on the experience of previous pilots, U.S. DOT has developed the following proposed steps for hosting successful road safety assessments. More details on each step follow below.

1) **Identify roles and partners**: Consider the role of Federal staff early on and identify existing initiatives/ funding to leverage (where applicable).

2) **Plan the event:** Pick a location (for example, arterial roads and transit area stations can be good candidates) with identified safety problems that involve a variety of stakeholders. Choose audience-appropriate assessment tools.

3) **Invite attendees:** Reach out to stakeholders and practitioners at all levels, including those that are not traditionally involved in pedestrian and bicycle safety issues.

4) **Conduct the event:** Convene an event to present background information on the assessment location, review the assessment tool, conduct the assessment, and debrief with participants.

1) Identify Roles and Partners

When identifying roles and partners for the assessment, consider:

- What can Federal staff contribute to the assessment?

- What are the key safety issues and concerns in your area that your agency influences (roadway design and operations, transit station access, bus stop access and crossings, visibility near intersections, educating law enforcement and the public, etc.)?

- Are there existing efforts or initiatives at the State/regional/local level to connect to? What initiatives and/or safety focus areas could benefit from Federal staff involvement and an elevated profile?

- Which jurisdictions/partners have the capacity and resources to host an event?

2) Choose a Location

Working with key assessment partners, there are a number of decisions to make in advance of the event:

Location and Scale

Selected locations should be along corridors that are planned for improvement within the next five years, so that findings can be integrated with future plans. Locations with overlapping responsibilities between the State DOT, county and city transportation agencies, and transit providers also provide an opportunity to increase collaboration. Locations with identified high incidences of motor vehicle crashes with pedestrians and/or bicyclists are also excellent candidates.

Choosing an assessment tool

Each assessment should be conducted using an assessment tool. There are many assessment tools available – such as those listed below – from a variety of sources; choose and consider customizing tools based on context and audience. Links to assessment tools developed by U.S. DOT and others developed with U.S. DOT funding can be found below:

- FHWA Pedestrian Road Safety Audit Guidelines and Prompt Lists (2007): http://www.pedbikeinfo.org/pdf/PlanDesign_Tools_Audits_PedRSA.pdf
- FHWA Bicycle Road Safety Audit Guidelines and Prompt Lists (2012): http://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa12018/
- Pedestrian and Bicycle Information Center Road Safety Audit Resource Page: http://www.pedbikeinfo.org/planning/tools_audits.cfm

Select facilitators

Identify assessment facilitators with expertise in pedestrian and/or bicycle safety. Consider whether these individuals should have previous familiarity with or professional experience in the assessment location. While facilitators with close knowledge of the area may enable a more streamlined event, their expertise may dampen the engagement of assessment participants.

Select a route and travel mode

Develop a route that lets the group observe all relevant transportation modes in the area and observe different types of infrastructure or lack thereof (crosswalks, ramps, sidewalks, signals, multi-use trails, bike lanes, etc.). Ideally participants should experience the majority of the route by foot or bicycle.

3) Invite Attendees

A mixture of "experts" and people who have on-the-ground safety experience in the assessment area is helpful (station managers, law enforcement, etc.). The team may also consider inviting a broader audience, including pedestrian and bicycle advocacy groups, elected officials, and other advocacy and special interest groups.

When finalizing the list of invitees, consider which professionals and organizations in the community have the resources, influence, relationships, and motivation to convene or participate in the assessment. Also consider how the composition of the assessment group will support shared learning and relationship development.

4) Conduct the Event

Most road safety assessments consist of three elements:

1) An opening/introductory meeting with background information,

2) An organized and facilitated walking and/or bicycling safety assessment tour along a pre-determined route, and

3) A debrief session.

All three elements usually take place on the same day, but they could be divided. Be sure to include time for introductions, background information, the assessment, and a debrief session; tailor each to the experience level of the group.

Considerations for each of three basic meeting elements are noted below:

Opening/Introductory Meeting

- Provide background and context to guide the assessment, such as:
    - o Elements of the pedestrian/bicycle environment
    - o Connection between vehicle speed and fatalities/injuries
    - o Key concepts related to pedestrian/bicycle safety (speed, lighting, crossing/turning movements, dooring, etc.)
    - o Information about local non-motorized counts
    - o Mapped injury and fatality events and contributing factors from police reports (note any disproportional fatality and injury rates for specific populations)
    - o Ideas/best practices for reducing vehicle speeds, including road diets, traffic calming, signal timing, etc.

Facilitated Safety Assessment Tour

- Think about the 3Es of transportation safety:
    - o Engineering: signal timing, crosswalk and lane striping, intersection engineering, etc.
    - o Enforcement: known issues or violations, opportunities for targeted enforcement to enforce roadways laws for all users.
    - o Education: opportunities to educate all roadway users on traffic laws, safe practices, etc.

- Use this opportunity to understand and discuss why this corridor does not have a safe non-motorized network in the first place. Consider what policies or practices might provide solutions to this problem, as well as what might be done to avoid the development of such gaps in the future.

Debrief

- Be sure to set sufficient time aside to debrief after the group walk or bike ride.
- Depending on the size of the group, break out into multiple subgroups to facilitate discussion.
- Discuss implementation next steps:
    - o Identify and discuss approaches to improve collaboration (e.g., between departments of planning and public works)
    - o Integrate the assessment recommendations into the city/county/State maintenance plans to increase likelihood of implementation
    - o Discuss funding opportunities and emphasize that pedestrian and bicycle projects are eligible for many Federal-aid Highway and transit programs
    - o Encourage a multimodal approach to street maintenance

5) Assessment Results

Following successful completion of the assessment, the participants should discuss the results of the assessment. It is recommended to document assessment findings in a short report. The results should include reflections on how the assessment was conducted and issues identified, both at the site specific and the more macro level. The reports are intended to be a useful resource tool during future infrastructure development projects, policy decision making, or funding for projects.

WalkBoston staff present at the Massachusetts pilot opening meeting.

Participants bicycle during the Michigan pilot.

Appendix 2

Site Selection Criteria Checklist Used by the Idaho Assessment Team

___ Corridor is used by pedestrians?

___ Corridor is used by bicyclists?

___ Is there bicycle/pedestrian count data for the site/corridor?

___ Corridor connects to pedestrian network?

___ Corridor connects to bicyclist network?

___ Corridor includes links to transit?

___ Corridor is used by freight modes?

___ Corridor is used by pedestrians?

___ Does the corridor include a railroad crossing?

___ Does the corridor include or link to a school?

___ Are there crash locations within the corridor?

___ Is there multi-modal conflict within the corridor?

___ Is there a main street/ State highway conflict?

___ Is there local support and involvement for active transportation and/or transit?

___ Will the community benefit from the assessment? Is there lack of capacity to do such work?

___ Are there any studies underway or scheduled for the corridor?

___ Are there any infrastructure improvements underway or planned for the corridor?

Appendix 3

Assessment Dates and Locations

State	Location	Date	Lead Agency
Alabama	Birmingham	April 2015	FHWA
Alaska	Sitka	May 2014	FHWA
Arizona	Phoenix	March 2015	FHWA
Arkansas	El Dorado	April 2015	FHWA
California	San Francisco	April 2015	NHTSA
Colorado	Denver/Lakewood	March 2015	FTA
Connecticut	Norwich	May 2015	FHWA
Delaware	Kent County/ Dover	May 2015	FHWA
District of Columbia	Washington, D.C.	March 2015	FRA
Florida	Orlando	April 2015	FHWA
Georgia	Atlanta	March 2015	FTA
Hawaii	Honolulu	May 2015	FHWA
Idaho	Garden City	May 2015	FHWA
Illinois	Chicago	April 2015	FHWA
Indiana	Gary	April 2015	FHWA
Iowa	Des Moines	November 2014	FHWA
Kansas	Lawrence	March 2015	FHWA
Kentucky	Frankfort	March 2015	FHWA
Louisiana	Baton Rouge	April 2015	FHWA
Maine	Portland	April 2015	FHWA
Maryland	Dundalk	April 2015	NHTSA
Massachusetts	Quincy	August 2014	FTA
Michigan	Lansing	July 2014	FHWA
Minnesota	Minneapolis/St. Cloud	May 2015	FHWA
Mississippi	Jackson	December 2014	FHWA
Missouri	Kansas City	March 2015	FHWA
Montana	Helena	May 2015	FHWA
Nebraska	Lincoln	April 2015	FHWA
Nevada	Las Vegas	January 2015	FHWA
New Hampshire	Manchester	April 2015	FHWA
New Jersey	Bergen County	April 2015	NHTSA
New Mexico	Albuquerque/Sandia Pueblo	May 2015	FHWA
New York	Rockland County	May 2015	NHTSA
North Carolina	Greensboro	April 2015	FHWA
North Dakota	Bismarck	May 2015	FHWA
Ohio	Columbus	April 2015	FHWA

State	Location	Date	Lead Agency
Oklahoma	Oklahoma City	December 2014	FHWA
Oregon	Portland	May 2015	FHWA
Pennsylvania	Philadelphia	April 2015	FHWA
Puerto Rico	San Juan	May 2015	FHWA
Rhode Island	Providence	April 2015	NHSTA
South Carolina	Columbia	May 2015	FHWA
South Dakota	Hot Springs	April 2015	FHWA
Tennessee	Nashville	April 2015	FHWA
Texas	Dallas/Fort Worth	July 2014	NHTSA
Utah	Hurricane/ locations close to Zion National Park	May 2015	FHWA
Vermont	Rutland	April 2015	NHTSA
Virginia	Reston	May 2015	FTA
Washington	Seattle	May 2015	FMCSA
West Virginia	Huntington	April 2015	FHWA
Wisconsin	Janesville	April 2015	FHWA
Wyoming	Laramie	April 2015	FHWA

Appendix 4

Links to Existing Resources

Executive Summary and Background (pg. 1)

FHWA's Road Safety Audit Resource
http://safety.fhwa.dot.gov/rsa/

U.S. DOT's Fast Lane Blog Entry on Seattle Assessment
https://www.transportation.gov/fastlane/trucks-trains-and-bicycles-seeking-safe-co-existence-south-seattle

U.S. DOT's Safer People, Safer Streets Initiative
http://www.transportation.gov/policy-initiatives/ped-bike-safety/safer-people-safer-streets-pedestrian-and-bicycle-safety

Physical Barriers (pg. 11)

- ***Roadway Design***

FHWA Bicycle and Pedestrian Guidance
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/

FHWA Bicycle and Pedestrian Program
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/

FHWA and ITE: Integration of Safety in the Project Development Process and Beyond
http://library.ite.org/pub/e4edb88b-bafd-b6c9-6a19-22e98fedc8a9

FHWA Context Sensitive Solutions Resources
http://contextsensitivesolutions.org/

FHWA Office of Safety Resources
http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/chapter3/3_controlcriteria.cfm

FHWA Office of Safety - The 13 Controlling Design Criteria
http://safety.fhwa.dot.gov/ped_bike/

FHWA Proposed Revisions to 13 Controlling Design Criteria
http://www.regulations.gov/#!documentDetail;D=FHWA-2015-0020-0003

- ***Pedestrian Safety and Accessibility for All Users***

Easter Seals PROJECT ACTION and Resources
http://www.projectaction.org/AboutESPA.aspx
http://www.projectaction.org/ResourcesPublications.aspx

FHWA Accessibility Guide
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/

FHWA ADA Resources
http://www.fhwa.dot.gov/civilrights/programs/ada.cfm

FHWA's Guide for Maintaining Pedestrian Facilities for Enhanced Safety

http://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa13037/fhwasa13037.pdf

FHWA's Handbook for Designing Roadways for Aging Populations
http://safety.fhwa.dot.gov/older_users/handbook/aging_driver_handbook_2014_final%20.pdf

NHTSA Walkability Checklist
http://www.pedbikeinfo.org/cms/downloads/walkability_checklist.pdf

- ***Bicycle Safety Concerns***

FHWA Bicycle Safety and Countermeasures Selection System
http://pedbikesafe.org/BIKESAFE/index.cfm

FHWA Separated Bike Lane Planning and Design Guide
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/separated_bikelane_pdg/page00.cfm

NHTSA Bikeability Checklist
http://www.pedbikeinfo.org/pdf/bikeability_checklist.pdf

- ***Transit Access***

APTA Design of On-Street Transit Stops and Access from Surrounding Areas
http://www.apta.com/resources/hottopics/sustainability/Documents/APTA%20SUDS-RP-UD-005-12%20On%20Street%20Transit%20Stops.pdf

FHWA Report on Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations
http://www.fhwa.dot.gov/publications/research/safety/04100/

Mineta International Institute Report on Bicycling Access and Egress to Transit:
http://www.fta.dot.gov/documents/Mineta_Report_April_2011_bike.pdf

Pedestrian and Bicycle Information Center (funded by FHWA)
http://www.pedbikeinfo.org/index.cfm
http://www.pedbikeinfo.org/planning/transit_access.cfm

Transportation Research Board's Guidelines for Providing Access to Public Transportation Stations
http://www.trb.org/Main/Blurbs/166516.aspx

Transportation Research Board's Integration of Bicycle and Transit
http://onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_syn_62.pdf

Policy and Coordination Barriers (pg. 22)

- ***Planning and Project Development***

FHWA Statewide Pedestrian and Bicycle Planning Handbook
http://www.fhwa.dot.gov/planning/processes/pedestrian_bicycle/

National Complete Streets Coalition
http://www.smartgrowthamerica.org/complete-streets

Pedestrian and Bicycle Information Center - Sample Plan and Policies
http://www.pedbikeinfo.org/planning/sample.cfm

Unites States Code - Title 23, Section 217
https://www.fhwa.dot.gov/map21/docs/title23usc.pdf

- ***Public Engagement***

FHWA's How to Engage Low-Literacy and Limited-English-Proficiency Populations in Transportation Decisionmaking
http://www.fhwa.dot.gov/planning/publications/low_limited/lowlim07.cfm

FHWA's Resident's Guide for Creating Safer Communities for Walking and Biking
http://safety.fhwa.dot.gov/PED_BIKE/ped_cmnity/ped_walkguide/residents_guide2014_final.pdf

FHWA Resources for Spanish-speaking Pedestrians and Cyclists
http://safety.fhwa.dot.gov/ped_bike/hispanic/materials/

FTA's Walking to Transit
http://www.fta.dot.gov/documents/FTA_Report_No.0031.pdf

- ***Changing Community Context***

FHWA Road Diet Information Guide
http://safety.fhwa.dot.gov/road_diets/info_guide/

FHWA Toolkit for Integrating Land Use and Transportation Decision-Making
http://www.fhwa.dot.gov/planning/processes/land_use/toolkit.cfm

- ***Funding***

FHWA Bicycle and Pedestrian Funding, Design, and Environmental Review: Addressing Common Misconceptions
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/misconceptions.cfm

FTA and FHWA Bicycle and Pedestrian Transportation Funding Sources
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm

FTA Program and Bicycle Related Funding Opportunities
http://www.fta.dot.gov/13747_14400.html

FTA Policy on Funding Eligibility for Pedestrian and Bicycle Improvements
http://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf

- ***Data***

FHWA Bicycle-Pedestrian Count Technology Pilot Program
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/countpilot/

FHWA Traffic Monitoring Guide (Chapter 4)
https://www.fhwa.dot.gov/policyinformation/tmguide/

NCHRP Guidebook on Pedestrian and Bicycle Volume Data Collection
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_797.pdf

NHTSA State Traffic Safety Information
http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM

Pedestrian and Bicycle Information Center - Planning and Data Collection Tools
http://www.pedbikeinfo.org/planning/tools.cfm

- ***Enforcement and Education***

GHSA Everyone Walks, Understanding and Addressing Pedestrian Safety
http://www.ghsa.org/html/publications/sfped.html

NHTSA Enhancing Bicycle Safety: Law Enforcement's Role
http://www.nhtsa.gov/Driving+Safety/Bicycles/Enhancing+Bicycle+Safety:+Law+Enforcement's+Role

NHTSA Pedestrian Program Training and Assessment
http://www.nhtsa.gov/Driving+Safety/Pedestrians/Pedestrian+Safety+Training+for+Law+Enforcement+(CD-ROM)

NHTSA Pedestrian Safety Enforcement Operations: A How-To Guide
http://www.nhtsa.gov/Driving+Safety/Pedestrians/Pedestrian+Safety+Enforcement+Operations:+A+How-To+Guide

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