Pursuing Equity in Pedestrian and Bicycle Planning

April 2016

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For:
U.S. Department of Transportation
**Federal Highway Administration**

INTRODUCTION

Professionals in the transportation field, in particular those working on pedestrian and bicycle issues, are familiar with the concept of the "Es": Education, Enforcement, Engineering (and Policies), Encouragement, Evaluation, and sometimes also Emergency Management. In recent years, another "E", Equity, has emerged as an important consideration for transportation officials working on developing connected multimodal systems that provide meaningful choices in transportation. Equity in transportation seeks fairness in mobility and accessibility to meet the needs of all community members. A central goal of transportation equity is to facilitate social and economic opportunities through equitable levels of access to affordable and reliable transportation options based on the needs of the populations being served, particularly populations that are traditionally underserved. Traditionally underserved groups include individuals in at least one of the following categories: Low Income, Minority, Elderly, Limited English Proficiency, or Persons with Disabilities. It is important to note that transportation equity does not mean allocating transportation resources in equal amounts to all people. The graphic below (development credited to Out Front Minnesota) illustrates the differences between equality and equity. An equitable transportation plan considers the unique circumstances impacting various community members' mobility and connectivity needs and uses this information to determine appropriate amount of resources to allocate to different people and places so that the transportation network more effectively serves all members.
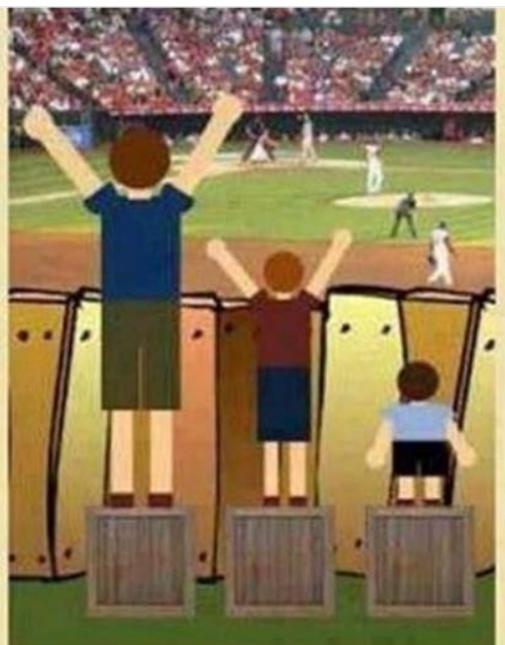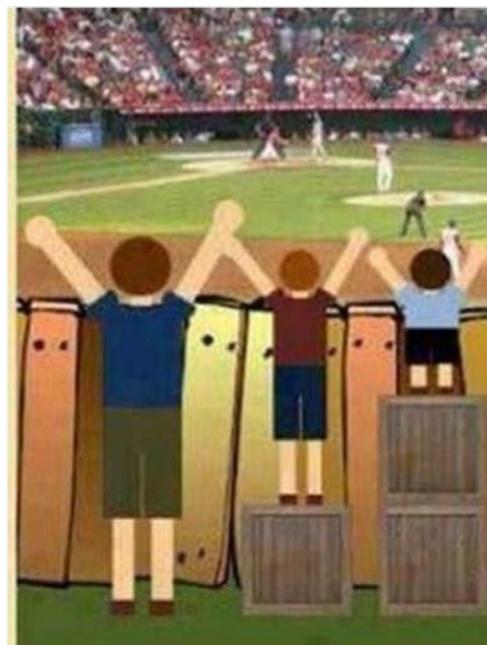
Improving the ability of traditionally underserved communities to travel safely and conveniently via walking or wheeling is essential to achieving a sustainable, equitable transportation system that can provide options in how people access jobs, schools, health care services, faith entities, social gatherings, and other destinations. Numerous studies have shown that enhancing the ability of traditionally underserved populations to travel via nonmotorized modes can potentially lead to improved outcomes in public health, safety, and economic development; promote resource efficiency; strengthen inclusive neighborhood relations; and bolster public transit services (*1, 2, 3, 4, 5*). These benefits are not limited to underserved and disadvantaged populations but have been shown to have positive impacts community-wide.

The purpose of this paper, intended for transportation practitioners and decision-makers, is to:

1) Define transportation equity-related terms in the context of planning for bicycle and pedestrian facilities and programs;

2) Synthesize and highlight recent research findings related to the travel needs of traditionally underserved populations and the role of pedestrian and bicycle planning in addressing equity concerns; and

3) Share strategies, practices and resources to address bicycle and pedestrian planning inequities.

DEFINING TRANSPORTATION EQUITY-RELATED CONCEPTS

Many different, often interrelated terms have been used in discussions about transportation equity—environmental justice, social equity, reducing disparities, etc. This section defines key terms used throughout the paper in order to provide clarity and context for why the terms are used.

For the purpose of this paper, the term **transportation equity** relates to how transportation practitioners can provide access to affordable and reliable transportation (and specifically, pedestrian and bicycle facilities and programs) to fairly meet the needs of all community members, particularly traditionally underserved populations. **Traditionally underserved populations**—sometimes referenced as at-risk, vulnerable, low-resource, or disadvantaged—are defined here using FHWA's definition, which include persons or communities fitting one or more of the following descriptions:

- Low Income

- Minority

- Older Adults

- Limited English Proficiency (LEP)

- Person with Disabilities

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Key Equity Related Terms and Definitions

Environmental Justice—At the Federal Highway Administration (FHWA), this means identifying and addressing disproportionately high and adverse effects of the agency's programs, policies, and activities on minority and low-income populations to achieve an equitable distribution of benefits and burdens (*6*).

Low Income—A person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines. (Source: U.S. Department of Health and Human Services (DHHS) Poverty Guidelines).

Minority—Belonging to a minority racial or ethnic group including Black, Hispanic or Latino, Asian American, American Indian and Alaskan Native, and Native Hawaiian or Other Pacific Islander (Source: DOT & FHWA Environmental Justice Executive Order). Note that some people and organizations believe that the term "minority" is inappropriate and prefer terms such as "communities of color" or "people of diverse backgrounds." For this paper, the term "minority" is used to remain consistent with Federal definitions.

Older Adults—Defined as 65 years of age and older (Source: DHHS). Also commonly referred to as seniors or aging populations.

Limited English Proficiency—Individuals who do not speak English as their primary language and who have a limited ability to read, speak, write, or understand English (Source: U.S. Department of Justice).

Person with Disabilities—A person with a disability is one who has a physical or mental impairment that substantially limits one or more major life activities of such individual, a record of such an impairment, or being regarded as having such an impairment (Source: The Americans with Disabilities Act (ADA) of 1990).

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RESEARCH ON THE TRANSPORTATION NEEDS OF TRADITIONALLY UNDERSERVED POPULATIONS

Traditionally underserved populations may have a greater need for safe facilities for walking and wheeling compared to other groups. These research findings provide evidence of the particular needs of underserved populations and highlight the importance of providing safe facilities for nonmotorized travel:

- Twenty four percent of Americans living in poverty do not own a vehicle (*7*). Many people in the U.S., in particular traditionally underserved populations, suffer from problems associated with inactivity, many of which could be addressed through improved access to safe walking and wheeling facilities (*8*).

- Low-income, minority, or immigrant individuals are more likely to have jobs that cause them to commute outside of traditional '9 to 5' hours, often in the dark and when public transit services are not operating (*9, 1*).

- Immigrants and those with language barriers are more likely to travel by bicycle but are often less likely to practice safe bicycling techniques (such as riding with traffic, using lights, and wearing helmets and reflective clothing) (*1, 10*).

- Immigrants and individuals with language barriers travel more frequently by walking or wheeling than non-immigrants and native English speakers but are often forced by circumstance to do so along roads lacking safe, accessible pedestrian and bicycle facilities (*1, 9, 10*).

- Children, older adults, and individuals with physical or cognitive disabilities may be unable to drive and are, thus, more reliant on nonmotorized travel modes. At the same time, these individuals may also face challenges that make them less able to take advantage of sub-par pedestrian and bicycle facilities than people without such challenges (*11*).

- People with diverse cultural or religious backgrounds may choose not to own motorized vehicles and may live where public transportation options are limited (*12, 13*).

- As individuals age, they are increasingly likely to depend on transit as primary transportation. Safe pedestrian access to bus stops and transit stations is a key aspect of accessibility among older adults, who are especially at risk of social exclusion if they are unable to get out of the house. Older

adults are also more likely to benefit from safe walking and wheeling facilities than younger adults, as walking (and wheeling) is a primary form of physical activity and socializing for many of them (*14, 15*).

- According to the recent League of American Bicyclists publication, *Pedaling Toward Equity*, women and minorities feel significantly less safe traveling by bicycle than non-minority males in the U.S. A majority of women and minorities agreed or strongly agreed that, given more supportive infrastructure (e.g., sidewalks, bike lanes, and separated facilities), they would be much more likely to try using a bicycle for transportation (*10*).

- Individuals with limited travel options (including limited access to nonmotorized travel modes) travel less overall, make fewer trips for shopping and socializing; have a harder time applying for and accepting employment; are less likely to access healthy foods, health care, and educational resources; and are more likely to experience social isolation (*16, 17, 18*).

Despite the strong need for safe pedestrian and bicycle facilities and high use of existing facilities as described above, traditionally underserved populations often face a travel environment that presents challenges for those walking, bicycling, or taking the bus or train. Research findings indicate that a lack of access to quality transportation facilities can have disproportionate effects for low-income and minority populations. Consider the following:

- Residents of underserved communities are less likely to live near or travel along roads with safe, accessible, and high-quality pedestrian and bicycle facilities (*1, 9, 10, 19, 20*). Where appropriate pedestrian and bicycle facilities do not exist, individuals are more likely to be exposed to walking or wheeling along roadways with higher traffic speeds, volumes, and ground-level air pollution (*18*). The risk of crashes with motorized vehicles increases when pedestrians are forced onto substandard or nonexistent facilities (*8, 20-24*).

- According to a recent survey by Active Living by Design, low-income respondents were twice as likely to report that fears about safety were major obstacles to traveling using nonmotorized modes (*25*). Because low-income individuals are less likely to own a car, they are more likely to walk, wheel, or bike, even when conditions are not safe and are, therefore, exposed to more risk of injury (*26*).

- Minorities and low-income children have greater odds of a poor outcome when crashes occur. One recent study found that among pedestrians that had been involved in a collision with a car, Black pedestrians were 22 percent more likely and Latinos 33 percent more likely to die from their injuries than whites (*23*). These discrepancies may be due to differences in overall health of the individual, the severity of the crash, in the amount of speeding and cut-through traffic happening in the neighborhood where the pedestrians were traveling, and/or the quality of emergency medical care available. Nonetheless, many studies have found that pedestrians and bicyclists in traditionally underserved communities face a greater threat of injury or death due to collisions with motor vehicles than the general population.

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

A focus on improving the ability of traditionally underserved communities to travel safely and conveniently by walking or wheeling is essential to achieving a balanced, equitable transportation system that can be used by everyone.

STRATEGIES AND PRACTICES TO ADDRESS BICYCLE AND PEDESTRIAN INEQUITIES

Concerted efforts to improve the ability of the traditionally underserved to travel by walking and bicycling, and to safely reach transit stops, will help reduce transportation-based inequities and the negative outcomes that impact underserved communities. Pedestrian and bicycle planners and other transportation practitioners are uniquely positioned to lead, facilitate, advocate for, and otherwise contribute to those improvements and be informed by those traditionally under-represented. The detailed knowledge of how to meet community transportation needs, combined with the ability to reach out to affected neighborhoods means that transportation planners can make a real difference in addressing the concerns outlined earlier in this paper.

A key concept is that equity can be considered both a process and an outcome. For the outcome to be equitable, the process to get there should also be equitable and based on the principles of transparency, inclusiveness, respectfulness, and building trustworthy relationships with the community. The following strategies, practices, and processes can be used by organizations and individuals looking to enhance their ability to address equity issues within the context of pedestrian and bicycle planning or beyond.

Examine Organizational Practices and Policies through the Lens of Equity

Organizational practices and policies may have unintended consequences when it comes to transportation equity. An organization seeking to be mindful of equity concerns should begin with a systematic review of its practices to identify potential equity issues and opportunities.

Hiring, training, and communications

As reported in the document, *Building Equity: Race, ethnicity, class, and protected bike lanes: An idea book for fairer cities*, "professional planners are disproportionality white," with 88 percent of practicing planners self-identifying as white in a 2013 American Planning Association survey (*27*). The disparity between the sociodemographics of transportation decision-makers and the community they are meant to serve can lead to less-than-equitable outcomes. Agencies should continually seek to increase the diversity of its staff at all levels of leadership and decision-making so that its workforce represents a range of backgrounds and life experiences and reflects the community it serves.

In addition, agencies may need to provide cultural competency training on a regular basis to all staff and work to build an organizational culture that values equity and is sensitive to the issues and how they are communicated. Similarly, government staff, officials, and leaders might need training on disability sensitivity, how to communicate effectively with people with disabilities, how to select accessible meeting sites, and how to ensure reasonable accommodation.

In discussions about transportation equity—which often raise complex issues regarding race, class, age , disability status, and other topics—words and terminology matter. It is important that staff is trained on how to communicate effectively and use language that is appropriate. One example is to be sure staff uses person-oriented communications, with emphasis on the person (such as "persons with disabilities") rather than terms focusing on an individual's disability as a defining characteristic (such as "the disabled" or "handicapped"). To learn more, consider these resources:

- [The Society for Human Resource Management](#) offers training, tools, research, and other resources aimed at human resource management. A [specific section of its website](#) is devoted to the topic of diversity. The Society also hosts an annual Diversity and Inclusion Conference and Exhibition.

- [The National Center for Cultural Competence](#) provides resources to help organizations design, implement, and evaluate culturally-competent programs to "address growing diversity, persistent disparities, and to promote health and mental health equity." It offers distance learning, self-assessments, and other resources.

- June Thomas's 2008 *Planning Theory* article, "The Minority-Race Planner in the Quest for a Just City," provides additional information on how diversity within the workplace can lead to achieving equitable outcomes.

Infrastructure planning, goal-setting, and project prioritization

Several studies have demonstrated the role of the built environment—from micro-level considerations like sidewalk and bicycle-lane design and maintenance, to macro-level issues such as land use—in reducing or intensifying pedestrian and bicycle inequities. In particular, transportation practitioners should examine the processes by which transportation investments are made and prioritized in light of equity considerations. Some projects or programs are prioritized by how well they meet needs for "efficiency" or cost-effectiveness, with the goal of minimizing the cost of providing facilities or services. An example of this approach is prioritizing the installation of bicycle paths or sidewalks along streets with preexisting rights-of-way or in resurfacing projects where opportunities for quick, affordable infrastructure improvements exist. Similarly, some agencies use "public request" or "complaint-based" systems to drive investment or maintenance plans. Many communities rely on 311 numbers or websites such as SeeClickFix to collect and respond to maintenance requests. However, efficiency-based and/or complaint-based prioritization schemes alone may not be sufficient to help address equity issues, as shown in the Seattle example below. These approaches can unintentionally lead to resources being directed toward the most affluent or well-resourced community members— who have the time to use complaint-based systems and are comfortable working within government systems—rather than to communities that may need the improvements the most. An additional issue with complaint-based systems is that communities that have never had access to high-quality facilities (such as sidewalks or separated bike lanes) may not be aware of what facilities are available, why they are important, or how to go about requesting them through a complaint-based system. Further, these systems may not be accessible to all users, especially persons with disabilities or those with limited English proficiency.

Rethinking its Complaint-based Prioritization System: Seattle's Experience

For many years in Seattle, WA, the City relied on a 311 number to respond to reports of broken street lights. Street lighting is a critically important roadway feature to support nonmotorized safety, as according to NHTSA, in 2013, 70 percent of pedestrians and 43 percent of bicyclists that were killed were struck in dark conditions. Upon assessment of street light improvements, it became apparent that repairs were disproportionately being made in high-income neighborhoods, likely due to the greater resources and comfort level that high-income residents had with using its complaint system. Citing equity concerns, the City changed its street-light-repair prioritization process to a fixed schedule of repairs made system-wide. Ultimately, this turned out to be more cost-effective than the former complaint-based system and resulted in more equitable, geographically-dispersed street light improvements.

Transportation practitioners can make equity a bigger part of the decision-making process by discussing what "equitable" outcomes mean and would look like, setting goals for equitable transportation outcomes, and changing processes to better meet those goals. Decision-makers can ask "who would benefit from pedestrian and bicycle services?" and "who would not benefit from these services?" under different resource distribution scenarios. Organizations can aim to target services and facilities toward populations and geographies that are disproportionally affected by health and safety burdens, acknowledging that policies and designs that improve conditions for vulnerable groups can benefit everyone in the community. Several tools are available to help organizations examine their programs through the framework of equity and develop plans and programs that incorporate equity goals. To learn more, consider these resources:

- Race Forward's *Racial Equity Impact Assessment (REIA) Toolkit* is similar to a health impact assessment in that it allows for an "examination of how different racial and ethnic groups will likely be affected by a proposed action or decision. REIAs are used to minimize unanticipated adverse consequences in a variety of contexts, including the analysis of proposed policies, institutional practices, programs, plans and budgetary decisions. The REIA can be a vital tool for preventing institutional racism and for identifying new options to remedy long-standing inequities."

- FHWA's *Performance-Based Planning and Programming Guidebook* discusses how agencies can develop investment priorities that take into account equity, environmental justice, and other considerations. It provides guidance on making tradeoffs when developing long-range transportation plans as well as case studies regarding how State departments of transportation engaged residents and stakeholders during the planning process.

- The *Transportation and Health Tool*, developed by the U.S. Department of Transportation (USDOT) and Centers for Disease Control, is a simple-to-use tool for transportation decision-makers to better understand how their community or state compares to their peers in terms of key health and transportation indicators. The tool can help inform health-supportive state and regional transportation policies and project decisions and strengthen collaboration between transportation and public health sectors.

Tools such as these are being applied by governmental and nongovernmental organizations in cities across the U.S. For example, the City of Seattle's Racial and Social Justice Initiative applies to all city departments, including the Department of Transportation. Similarly, King County, WA, has an Equity and Social Justice Initiative that applies to all county departments, including Transportation and Roads. The organization PolicyLink promotes equity

and addresses mobility issues through its [Transportation Equity Caucus](). Following are two examples of how equity was considered in the transportation planning process and two examples of how equity concerns were taken into account when developing and implementing pedestrian and bicycle programs such as Bike Share and Safe Routes to School activities.

Putting Equity Goals First: East Portland, OR, in Motion Plan

The *East Portland in Motion Plan*, produced by the Urban League of Portland, "identified equity as a leading principle of the project" and used equity as one of the two key criteria for project selection in an effort to add bike lanes to connect a network through a traditionally underserved community. Portland, OR's, *Racial Equity Strategy Guide*, describes the effort and compares it to another project in which equity was not a key consideration, sharing lessons on how it could have improved the process and potential equity outcomes.

Including Equity in Statewide Planning: Hawaii's Pedestrian Plan

The *Hawaii Pedestrian Plan* explicitly includes equity as the "sixth E" of an effective pedestrian program. The plan explains the importance of involving the diverse needs of communities as part of transportation plans, programs, and projects; and it addresses equity strategies with respect to inclusivity for all income groups and those with different language needs. Its equity section concludes, "Equity is a consideration that should permeate all planning and design efforts as Hawaii works to implement a statewide transportation system that values and addresses the needs of all pedestrians and all transportation system users." To learn how other plans incorporate equity issues, read the report *Active Transportation Equity: A Scan of Existing Master Plans*.

Decision-Making Around Equity Issues: Bike Share Programs Across the U.S.

The *Philadelphia Bike Share Strategic Business Plan*, released in August 2013, contains an explicit "Social Equity Strategy." The plan highlights the importance of station siting in low income and minority communities as well as the provision of bicycle-friendly facilities in those areas. In addition, to overcome some communities' limited access to online resources, bike share messaging will be posted on advertising boards throughout the city. Given that many people in low-income communities do not possess credit cards, the city will leverage partnerships with local banks, health organizations, and nonprofit organizations to expand user verification options. As an alternative to the typical annual up-front fee, this program is also considering alternative payment plans, such as a monthly option, that amortizes the cost of an annual membership into easy access, low monthly payments. The city plans to implement a comprehensive community outreach strategy to reach both minority and low-income communities. This will be done by coordinating with local individual champions and partnering with key existing organizations.

Other bike-share programs are also looking for ways to improve access to the system for all users and provide additional support. The Capital Bike Share system in Washington, DC, has a program in partnership with local banks to provide discounted annual memberships to those in need. Additionally, the *Capital Bike Share* system in Montgomery County has a County-funded program called Job Access Reverse Commute (JARC)—separate from a federal program with the same name—that offers free Bike Share memberships to customers meeting income-requirements, as well as free bicycle safety training, a free helmet, and support for route planning. Boston's Roll it Forward program "collects, repairs, and distributes bikes to low-income Boston residents who might not otherwise have access to a bike." Similarly, San Francisco's Bay Area BikeMobile program hosts free bicycle repair clinics at public facilities and community events, focusing efforts in low-income communities where professional bike repair services are not always available.

Equity in Safe Routes to School Programs: Ohio's Approach

Ohio Department of Transportation (DOT) *Safe Routes to School* (SRTS) program worked with two underserved schools in Columbus: Valleyview Elementary School and Westmoor Middle School. To receive SRTS funding, municipalities must complete "School Travel Plans," a key element of which is summarizing the economic status of the students attending individual schools and the school district as a whole. For these schools, the student communities on average are 85 percent economically disadvantaged, compared to 48 percent statewide. Most students in these schools walk or wheel to school, but conditions were not ideal. Many children crossed over active railroad tracks during their commute or traveled on shoulders or unmarked paths along the road. Ohio DOT's SRTS program partnered with the Department of

Public Health, Department of Parks and Recreation, City of Columbus Police, and others to determine the needs for the project, the appropriate countermeasures, and funding sources. Off-road multi-use paths and an at-grade rail crossing were constructed to provide safe, designated pathways for students to access Valleyview Elementary and Westmoor Middle Schools. Not only does the new infrastructure improve student access, but it also connects to the greater regional trail network.

The National Center for Safe Routes to School held a webinar in February 2015, highlighting some State and MPO program measures that support equitable distribution of Safe Routes funding and successful projects in traditionally underserved communities.

Foster Inclusive Public Involvement

Individuals and communities, and particularly traditionally underserved community members, need to be empowered to participate in the transportation planning processes and have their needs heard. Public outreach and engagement are critical components of gathering information on these needs. There are a variety of steps pedestrian and bicycle practitioners can take to better understand and incorporate the needs of underserved populations in the transportation investment decision-making process via public participation. To start, it is important to examine and acknowledge the history of communities that have faced inequities—such as legacy community and accessibility impacts from construction of the national highway system—and to consider the relationship of such communities with their governments. For engagement, communication, and relationship-building to take place, government staff may need to recognize and take ownership of past mistakes, acknowledge injustices, and open the door for potentially uncomfortable or charged discussions. While difficult, this may be a critical step in building trust and inclusivity. Transportation agencies can consider what is needed to provide a space that is safe and empowering for these conversations to take place. In some places, maybe a survey is needed to ask the community about its needs and experiences. In other instances, it may be appropriate to have a third-part facilitator support the discussion.

Another key is to meet community members where they are and minimize barriers to participation. Some community engagement steps—such as making sure public hearings and meetings are held in buildings that are accessible and providing public notice in advance—are required by law. FHWA and FTA planning regulations further support this by requiring State Departments of Transportation and Metropolitan Planning Organizations (MPOs) to hold any public meetings in convenient and accessible locations and times. Planning regulations also require States and MPOs to seek out and consider the needs of traditionally underserved by existing transportation systems, such as low-income and minority households, who may face challenges accessing employment and other services.

Other steps may not be required but could be critical in ensuring the participation of traditionally underserved groups. Some ideas include:

- Sharing information and announcements in ways that people actually receive information, which may include posting fliers, connecting to community networks, using social media, and other outreach methods.

- Providing opportunities to meet and talk in informal settings, such as local community centers, religious institutions, or coffee shops, in addition to government buildings.

- Making public information (technical information and meeting notices) available in electronically accessible formats and means, such as the World Wide Web.

- Hosting events at schools, when parents can drop by after picking up their children. Keep in mind, however, that many schools in the U.S., or the paths of travel leading to them, are not fully accessible.

- Partnering with a not-for-profit or community group and working through local community partners or events.

- Providing opportunities for residents to participate during weekday and weekend times.

- Giving surveys in multiple languages and considering the needs of people who are blind or have low vision and those who are deaf or hard of hearing.

- Providing childcare at meetings or making events family-friendly.

- Hosting "pizza party" meetings at the end of the month, which can be a good way to engage families and feed them at the same time when household incomes may be running low at the end of the month.

As technologies continue to develop and agencies learn how to harness technology to engage communities, it is important to acknowledge the limitations of popular methods (such as crowd-sourcing tools) in engaging underserved communities. Rural communities without access to broadband, low-income residents, older adults, people with disabilities, and others may have limited access, ability, or comfort in using internet-based communications or other technologies. Agencies should carefully evaluate the use of technology in community engagement and consider a range of approaches to meaningfully engage the full spectrum of community stakeholders. Any technology used should be compliant with the Section 508 of the Rehabilitation Act so it is fully accessible for all. The following examples highlight how communities are taking action to ensure inclusive public outreach and engagement as they aim for equitable planning processes and outcomes.

Community Engagement to Ensure Inclusivity

Burlington, VT, proactively reaches out to specific communities within the city and through a variety of avenues (e.g., using technology, traditional meetings, and one-on-one feedback). The city has offered expanded business hours for drop-in public comments and, when requested, provides child care or translators. The city also employs an outreach employee who focuses on new residents/immigrants.

Denver, CO, uses a variety of public participation techniques to inform vision and goals, confirm ideas, and identify and prioritize individual project recommendations. The city works with community advocates to conduct neighborhood outreach and tailors the input process to the specific area or level of project. Staff has also participated in cultural training to help improve its ability to conduct outreach in low-income and limited-English-speaking neighborhoods. Denver also has worked to improve accessibility throughout the city – it has a full-time ADA coordinator and funds a program for residents to request audible pedestrian signals.

In *New York City, NY*, the Local Spokes Coalition in the Lower East Side/Chinatown engages local residents in envisioning the future of bicycling in their diverse neighborhoods, as documented in their *Neighborhood Action Plan*. Through multilingual outreach and a youth ambassadors program, Local Spokes developed a neighborhood action plan that outlines resources to address potential barriers and to increase accessibility to bicycling for residents. The recommendations of this plan include conducting bike-share demonstrations and information sessions, implementing a wayfinding and rules-of-the-road signage campaign, and conducting a bicycle education curriculum in local neighborhood schools.

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Performing Assessments to Focus on Equity and Revitalization: Gary, IN

As part of the U.S. DOT's *Pedestrian and Bicycle Safety Initiative*, a comprehensive safety assessment was performed in Gary, IN, to highlight pedestrian and bicyclist safety needs. A particular emphasis in the assessment was on equity and how pedestrian and bicycle facilities could support revitalization efforts. The assessment involved a diverse range of stakeholders, including Mayor Karen Freeman-Wilson, regional, State, and Federal departments of transportation, Gary Public Transit Corporation, the Northwestern Indiana Regional Planning Commission (Northwest Indiana MPO), the Indiana Criminal Institute for Justice, Environmental Protection Agency, Department of Housing and Urban Development (HUD), and advocacy groups representing bicyclist and pedestrians, including persons with disabilities. The assessment focused on key areas, such as downtown and the Emerson and Horace Mann neighborhoods, which are involved in the Northside Redevelopment Project, a Federally supported revitalization effort. The results of the assessment will be used to guide planning and investment approaches to enhance transportation choices and access. (Image courtesy of Joyce Newland, FHWA.)

For more on this topic, consider these resources:

- *NCHRP REPORT 710: Practical Approaches for Involving Traditionally Underserved Populations in Transportation Decisionmaking* provides State departments of transportation, metropolitan planning organizations, and other transportation agencies with practical and effective tools, techniques, and approaches for identifying and connecting with populations that have traditionally been underserved

and underrepresented in transportation decision-making. The report provides resources for engaging these populations for one project or on a continuous basis.

- *How to Engage Low-Literacy and Limited-English-Proficiency Populations in Transportation Decisionmaking* documents best practices in identifying and engaging low-literacy and limited English-proficiency populations in transportation decision-making.

- FHWA Public Involvement/Public Participation Website offers background on legislation and policies regarding public engagement in transportation planning as well as provides case studies and a reference tool to identify legislation enacted in each State.

- FHWA resources on public engagement provide a comprehensive set of publications and tools related to public involvement and equity in transportation planning. They include links to legislation and guidance, publications, and relevant websites and organizations.

- *FHWA Resident's Guide for Creating Safer Communities for Walking and Biking* , Chapter 2, includes tips on developing diverse partnerships to address pedestrian and bicycle concerns, and ways to encourage inclusivity. The Guide also includes a dozen community success stories, many of which highlight efforts to work with and in vulnerable communities to reduce disparities.

- *USDOT Pedestrian and Bicyclist Road Safety Assessments Summary 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.

Leverage Data to Identify Concerns and Opportunities

Transportation practitioners, public health departments, and decision-makers may have access to many sources of data that can help identify areas where vulnerable groups exist and demand is not met, or where more engagement may be needed. For example, emergency department or police-reported pedestrian and bicycle crash data can be used to identify high-crash locations or corridors. Census data on household income, education, vehicle ownership, or other measures can be used to help identify potentially vulnerable neighborhoods within a community. Overlaid with crash data, this information can provide a particularly insightful tool for understanding how traditionally underserved communities may be overburdened by pedestrian and bicycle crashes. A look at broader public health data—such as infant mortality

rates, drug-related hospitalization rates, and obesity rates can also potentially point to traditionally underserved communities that would likely benefit from targeted investment in pedestrian and bicycle programs. Partnership and collaboration with other agencies that may collect and use such these data on a regular basis—such as police departments, public health departments, and hospitals—may be an essential step in the process. While these data may help identify potential problems or deficits, agency staff should not overlook community assets and resources as well.

In addition to using crash data and public health data to identify populations of interest, transportation practitioners can use facility inventory data to identify gaps in transportation facility connectivity or access to essential services. Essential services typically include housing, employment, health care, and schools/education. Interactive mapping tools such as WalkScore, the HUD and USDOT's Location Affordability Index or the EPA's Smart Location Mapping tool can be used to assess and compare neighborhood situations. A focus on identifying pedestrian and bicycle network connectivity gaps may first involve defining what it means to be connected to essential services (e.g., percentage of households within a certain distance of a service or facility) and developing analytical methods to measure connectivity across the system (such as in the example provided below). It could also involve the identification of solutions to address those gaps.

Evaluating Alternatives Using Data and Visualization

In April 2015, the USDOT held a forum, "Measuring Connectivity: Creating Ladders of Opportunity," which included discussions and presentations on measuring multi-modal access for underserved populations. Participants defined connectivity, shared data gathering strategies, and described current applications and experiences in communicating connectivity with the public and decision makers. Participants also discussed policy approaches that can improve access to essential services, including zoning changes, facility siting criteria, and tax incentives. Improving access for bicyclists and pedestrians in particular helps ensure access for a greater proportion and diversity of the population.

In one example, participants created a map to display the unequitable distribution of multi-modal access to essential services. The discussion identified two solution options: 1) increase the infrastructure and quality of transportation services, and/or 2) evaluate how changes in land use could bring more essential services and jobs of all ranges closer to underserved populations. Participants in the forum made clear that both solutions must be on the table so that collaborative problem-solving between the community, elected officials, and private sector can take place.

For a summary of the USDOT initiative, see the presentation *Creating Ladders of Opportunity: USDOT's Efforts to Increase Access for the Future*.

Use scenario planning indicators to support data-driven decision-making and performance measurement

As described in FHWA's *Scenario Planning Handbook*, scenario analysis is part of the planning process that typically involves "assessing the impacts, influences, and effects that various scenarios exert on selected indicators." There are several established indicators, and associated data sources, that relate to potential equity issues and can be used to assess the impact of transportation projects on facility use/demand and access to jobs, affordable housing, etc. These include:

- Percentage of population with access to transit.

- Number and/or percentage of jobs located near affordable housing.

- Change in average commuting times.

- Vehicle miles traveled by mode.

- Percentage of work or all trips by mode.

In particular, change in average commuting times has been closely linked to transportation equity issues. According to a recent article, "In a large, continuing study of upward mobility based at Harvard, commuting time has emerged as the single strongest factor in the odds of escaping poverty. The longer an average commute in a given county, the worse the chances of low-income families there moving up the ladder."

A variety of applications and models can be used to help identify and develop indicators. These include travel demand models, which can be used to gauge transportation accessibility, as well as GIS-based applications to assess roadway facility availability (such as sidewalks and bike lanes), create buffers to assess transit ridership, or other analyses. For example, the EPA has an Environmental Justice Screening Toolkit, EJSCREEN, which is a web-based GIS tool that can be used to map key environmental and demographic indicators to support problem identification, community engagement, and other planning efforts. Also, consider the "Data Collection and Analysis" Chapter of FHWA's *Environmental Justice Reference Guide*. See the following example on the use of data in relation to equity initiatives taking place in Humboldt County, CA.

Data-Gathering to Map Equity Issues in Humboldt County, CA

Partners in Humboldt County, CA, completed a large data-gathering effort to map areas of the community with a specific need for equity-based transportation interventions. This information was considered important for the region's ability to prioritize improvements based on need rather than opportunity. The effort sought to develop and test a means to gather, analyze, and disseminate information on discrepancies in access to transportation opportunities using local knowledge and readily-available data. Data for the transportation needs maps were gathered from a variety of sources. Development of the maps was driven by data availability and by input (via well-documented public participation processes) from stakeholders. The maps provided visual aids to enable planners and elected officials to better understand the distribution of populations at-risk for being underserved and transportation facilities across the county. "Hotspots" in the maps indicated preliminary areas to prioritize for transportation investments, including pedestrian and bicycle infrastructure projects. The maps also served as a starting point for conversations with elected officials, transportation experts, and non-expert stakeholders about the location and nature of transportation inequities in Humboldt County. The result, the [Humboldt County Transportation-Disadvantaged Populations Report](#), has been widely praised as a model that resource-constrained communities can adopt to improve their ability to identify, understand, and begin to address transportation inequities. (Image source: [Figure 13: Transit Routes and Areas of Multivariate Transportation Disadvantage in Humboldt County](#)).

Figure 13: Transit Routes and Areas of Multivariate Transportation Disadvantage in Humboldt County
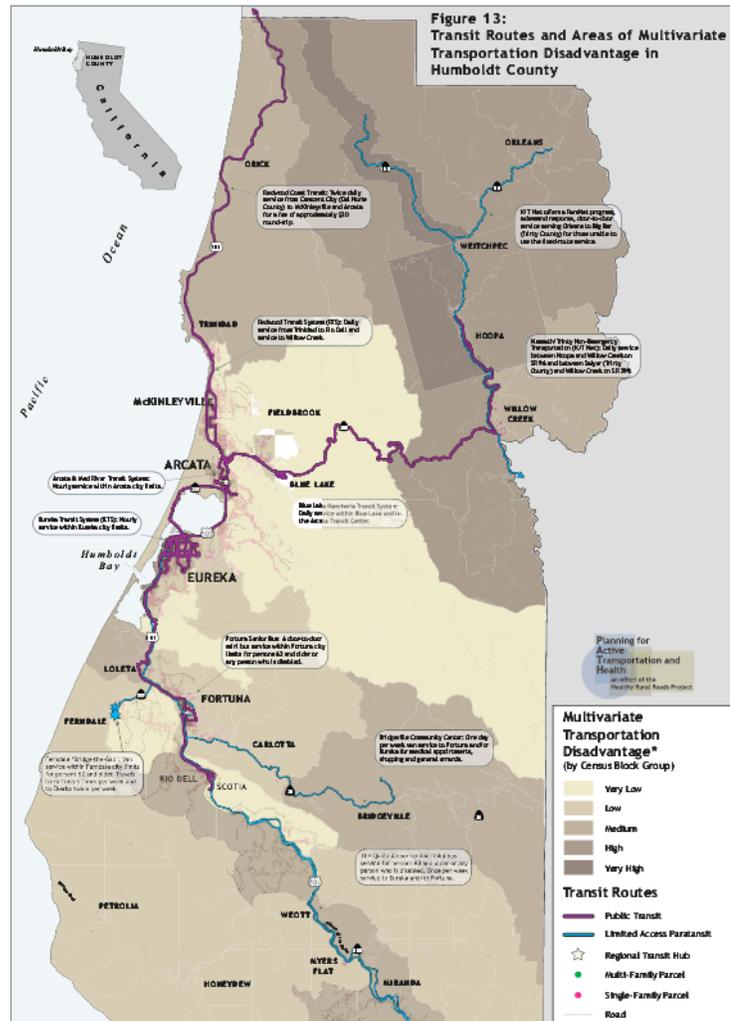
Design Streets and Facilities for Everyone

Ensuring that roadway facilities can be accessed by everyone is a cornerstone of equitable transportation planning. While beyond the scope of this paper to discuss in detail, there are many existing resources that highlight the importance of "universal design"—or

roadway design that accommodates roadway users of all ages and ability levels—and provide guidance on how it can be achieved. The Walk Friendly Communities website provides a listing of key references related to the Americans with Disabilities Act (ADA), and FHWA has an ADA/Section 504 of the Rehabilitation Act of 1973 website with comprehensive resources as well. When designing accessible pedestrian and bicycle facilities, also consider the Pedestrian and Bicycle Information Center's Design Resource Index, which provides a roadmap for finding specific information on various pedestrian and bicycle design treatments in key national design manuals, including several Institute of Transportation Engineers guidebooks.

In addition to adhering to universal design principles, many communities are adopting policies to support Complete Streets—streets designed to be safe and comfortable for all users, including pedestrians, bicyclists, transit riders, motorists and individuals of all ages and capabilities. The National Complete Streets Coalition offers a wealth of resources on Complete Streets, including guidance on policies, policy implementation, and examples and case studies from across the U.S.

CONCLUSION

Enhancing the ability of traditionally underserved populations to travel by nonmotorized modes can potentially lead to improved public health and safety outcomes. These outcomes include strengthened neighborhood ties, improved access to health care services, reduced exposure to vehicular collisions by nonmotorized travelers, and lowered health care costs (*2, 3, 4*). Expanding opportunities for nonmotorized travel strengthens workforces, and it improves economic productivity by providing better access to educational and employment opportunities and by improving access to and expanding customer bases for local businesses (*2*). Transit services are also improved as investments in pedestrian and bicycling facilities expand catchment areas, increasing the number of potential passengers with safe access to transit and the number of destinations accessible via transit (*2, 3*). These benefits are not limited to underserved communities. Creating a more equitable distribution of pedestrian and bicycle facilities and services has been shown to have positive impacts community-wide. Everyone, not just the estimated 30 percent of Americans who do not drive (*2*), is likely to experience some level of transportation disadvantage in their lifetime. Whether that disadvantage is temporary or permanent, and whether it arises via age, disability, loss of income, or the imposition of additional travel burdens, efforts to improve access to pedestrian and bicycle opportunities for today's underserved populations are likely to provide a direct benefit to a large percentage of Americans at some point in their lives.

Transportation practitioners and those engaged in pedestrian- and bicycle-related efforts are uniquely positioned to lead, facilitate, advocate for, and contribute to improving transportation equity to better meet community members' varying needs and abilities to access

employment, education, and other opportunities safely and conveniently by walking or wheeling. By examining fundamental organizational practices and policies through the lens of equity, by seeking inclusivity and community integration, by leveraging data to identify concerns and opportunities, and by designing facilities that can be used by everyone, transportation professionals can promote equity both as a process and as an outcome. While transportation equity cannot be achieved through pedestrian and bicycle planning efforts done in isolation, equity goals and outcomes can be moved forward when equity is part of the overall policy and programming framework across all levels of decision-making.

USEFUL RESOURCES

Equity-Related Initiatives, Resources, and Tools
- *Active Transportation Equity: A Scan of Existing Master Plans* (pdf)

- *Building Equity: Race, ethnicity, class, and protected bike lanes: An idea book for fairer cities*

- *Multicultural Communities for Mobility*

- Race Forward's *Racial Equity Impact Assessment (REIA) Toolkit*

- EPA's Environmental Justice Screening Toolkit

- HUD and USDOT's Location Affordability Index

- EPA's Smart Location Mapping tool

Federal Reports and Guidelines
- FHWA's *Performance-Based Planning and Programming Guidebook* (pdf)

- FHWA's Public Involvement/Public Participation Website

- FHWA's Resources on Public Engagement

- FHWA's *Scenario Planning Handbook*

- FHWA's *How to Engage Low-Literacy and Limited-English-Proficiency Populations in Transportation Decisionmaking*

- *NCHRP REPORT 710: Practical Approaches for Involving Traditionally Underserved Populations in Transportation Decisionmaking* (pdf)

- FHWA's *Nonmotorized Transportation Pilot Program: Continued Progress in Developing Walking and Bicycling Networks* (pdf)

- FHWA's *Resident's Guide for Creating Safer Communities for Walking and Biking* (pdf)

Webinars and Training Opportunities

- National Highway Institute's Course Offering *Public Involvement in the Transportation Decisionmaking Process*

- *Advancing a Sustainable Highway System: Highlights of FHWA Sustainability Activities* resource and webinar on Access and Affordability (held May 2015)

- Pedestrian and Bicycle Information Center webinar on Equity (held December 2013)

- The National Center for Safe Routes to School webinar on Ladders of Opportunity (held February 2015)

- The Society for Human Resource Management

- The National Center for Cultural Competence

Additional Resources

There are many other resources and ongoing initiatives—by the Federal Highway Administration and other organizations—that hold promise for further informing the conversation around equity in transportation. Read more about FHWA research in progress, or sign up to receive bi-weekly emails from the Human Environment Research Digest. You can also sign up for the Pedestrian and Bicycle Information Center quarterly newsletter or follow the Facebook page to receive regular updates on the status of projects and available resources.

ACKNOWLEDGEMENTS

WORKS CITED

1. Natural Resources Services. (2006, May). *Humboldt County Transportation-Disadvantaged Populations Report*. Humboldt County, CA: The County of Humboldt Public Works Department. Retrieved from: http://www.nrsrcaa.org/path/pdfs/HumCoTDPReport5_06.pdf.

2. Betts, K.S. (2012, January 1). Big Biking Payoff: Alternative Transportation Could Net Midwest over $8 Billion. *Environmental Health Perspectives*, 120(1), a34–a34.

3. Litman, T.A. (2003). Economic value of walkability. *Transportation Research Record: Journal of the Transportation Research Board*, 1828(-1), 3–11.

4. Canepa, B. (2007). Bursting the Bubble: Determining the Transit-Oriented Development's Walkable Limits. *Transportation Research Record: Journal of the Transportation Research Board,* 1992, 28–34.

5. Olszewski, P., Wibowo, S.S., (2005). Using equivalent walking distance to assess pedestrian accessibility to transit stations in Singapore. *Transportation Research Record: Journal of the Transportation Research Board*, 1927, 38–45.

6. Federal Highway Administration. (2015). *Environmental Justice Reference Guide*, page 3. Retrieved from http://www.fhwa.dot.gov/environment/environmental_justice/resources/reference_guide_2015/.

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

8. Frumkin, H., Frank, Lawrence, D., Jackson, R. (2004). Urban sprawl and public health: designing, planning, and building for healthy communities. Washington, DC: Island Press.

9. Chen, C. (2008 Oct). The Temporal and Social Dimension of Accessibility for New York City Residents. 17p.

10. League of American Bicyclists. (2013). *The new majority: pedaling towards equity*. Washington, DC. Retrieved from: http://www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/equity_report.pdf.

11. Apparicio, P., Seguin, A.M., (2006, January). Measuring the Accessibility of Services and Facilities for Residents of Public Housing in Montreal. *Urban Studies,* 43(1), 187–211.

12. Ohio Department of Transportation. (2015, May 15). *Systems Planning & Program Management - Amish Buggy*. Retrieved from: http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/MajorPrograms/Amish%20Buggy/Amish%20Buggy%20Safety%20on%20Ohio's%20State%20Roadway%20System.pdf.

13. Pennsylvania Department of Transportation. (2013, September). *Horse and Buggy Driver's Manual*. Report No.: 632, 9-13. Retrieved from: ftp://ftp.dot.state.pa.us/public/PubsForms/Publications/PUB%20632.pdf.

14. Booth, M.L., Owen, N., Bauman, A., Clavisi, O., Leslie, E., (2000, July 31). Social–Cognitive and Perceived Environment Influences Associated with Physical Activity in Older Australians. *Preventive Medicine*. 1, 15–22.

15. Cunningham, G., Michael, Y.L. (2004, July 18). Concepts Guiding the Study of the Impact of the Built Environment on Physical Activity for Older Adults: A Review of the Literature. *American Journal of Health Promotion*. 18(6), 435–43.

16. Lucas, K. (2008). Transport and social exclusion: Where are we now? *Transport Policy*. 20, 105–113.

17. Wright, D. (2008). No Way to Go: A Review of the Literature on Transportation Barriers in Health Care. *World Transport Policy & Practice*. 14(3), 7–23.

18. Casas, I., Horner, M., Weber, J. (2009). A Comparison of Three Methods for Identifying Transport-Based Exclusion: A Case Study of Children's Access to Urban Opportunities in Erie and Niagara Counties, New York. *International Journal of Sustainable Transportation*. 3(4), 227–245.

19. Power, A. (2012, March). Social inequality, disadvantaged neighborhoods and transport deprivation: an assessment of the historical influence of housing policies. *Journal of Transport Geography*. 21, 39–48.

20. Kravetz, D., Noland, R. (2012, December 1). Spatial Analysis of Income Disparities in Pedestrian Safety in Northern New Jersey. *Transportation Research Record: Journal of the Transportation Research Board*. 2320(-1), 10–7.

21. Morency, P., Gauvin, L., Plante, C., Fournier, M., Morency, C. (2012, June). Neighborhood Social Inequalities in Road Traffic Injuries: The Influence of Traffic Volume and Road Design. *American Journal of Public Health*. 102(6), 1112–9.

22. Cottrill, C., Thakuriah, P. (2010). Evaluating pedestrian crashes in areas with high low-income or minority populations. *Accident Analysis & Prevention*. 42(6), 1718–1728.

23. Maybury, R.S., Bolorunduro, O.B., Villegas, C., Haut, E.R., Stevens, K., Cornwell III, E.E., et al. (2010, August). Pedestrians struck by motor vehicles further worsen race- and insurance-based disparities in trauma outcomes: The case for inner-city pedestrian injury prevention programs. *Surgery*. 148(2), 202–8.

24. Evans, T., Brown, H. (2003). Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion*. 10(1-2), 11–2.

25. Active Living by Design. (2012). *Low income populations and physical activity: an overview of issues related to active living*. Chapel Hill, NC. Retrieved from: http://www.bms.com/documents/together_on_diabetes/2012-Summit-Atlanta/Physical-Activity-for-Low-Income-Populations-The-Health-Trust.pdf.

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

27. People for Bikes. (2015, March 4). *Race, ethnicity, class, and protected bike lanes: an idea book for fairer cities*. Boulder, CO: Anderson, M. Retrieved from: http://www.peopleforbikes.org/blog/entry/race-ethnicity-class-and-protected-bike-lanes-an-idea-book-for-fairer-citie.