



FHWA's Fostering Multimodal Connectivity Newsletter

The Federal Highway Administration's (FHWA's) *Fostering Multimodal Connectivity Newsletter* provides transportation professionals with real-world examples of how multimodal investments:

- Make our transportation system safer for all people
- Promote an inclusive and sustainable economy
- Reduce inequities across our transportation systems and the communities they affect
- Address the climate crisis by building more resilient transportation systems
- Support complete trips and mobility innovation.

This newsletter also showcases how FHWA, and its partners are improving connectivity, accessibility, equity, safety, and convenience for all transportation users, including equitable transportation options for traditionally underserved communities.

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Addressing Transportation Inequities in the Wilmington, Delaware Region

William Swiatek, Principal Planner, Wilmington Area Planning Council

The Wilmington Area Planning Council (WILMAPCO) has one of the strongest transportation equity initiatives in the country. Planners at the mid-sized Metropolitan Planning Organization (MPO), which serves a mainly suburban population of 660,000 in New Castle County, Delaware and Cecil County, Maryland, put this down to experience. The initiative has evolved over two decades, with each of the agency's half-dozen successive transportation equity plans building upon work in the previous one.

[WILMAPCO's "Transportation Justice" \(TJ\) initiative](#) gathers all equity related MPO requirements (related to Title VI, Environmental Justice, Americans with Disabilities Act, and Limited English Proficiency) into a single plan. Developed with partner agencies, the plan makes recommendations based on technical analyses, policy considerations, and community engagement successes or challenges. WILMAPCO found that this streamlined approach reduces redundancy and ambiguity in meeting Federal requirements and improves its stakeholder awareness of transportation equity.

While it produces a single, overall plan, WILMAPCO does not employ a one-size-fits-all approach to identify vulnerable communities. Instead, it uses several different indices including Environmental Justice Neighborhoods, Areas of High Social Determinants of Health Concern, Mobility Challenged communities, and Urban Technology Deserts. Identification of vulnerable communities informs project prioritization, community engagement considerations, and technical equity analyses.

This analysis enables targeted policy shifts to address specific inequities. For example, in the [2019 TJ Plan](#), WILMAPCO found that, since 2002, Black neighborhoods received 38 percent less transportation spending through the Transportation Improvement Programs (TIP) than would be expected based on their population size. WILMAPCO did not find the same disparity with Hispanic, Asian, or impoverished neighborhoods. That finding led to a specific adjustment to WILMAPCO's prioritization process whereby projects within Black neighborhoods received extra points to help close the equity gap.

WILMAPCO measures a dozen other transportation equity indicators—from familiarity with the agency, to transportation affordability, to crash rates. One important indicator is multimodal connectivity. This begins with a regional assessment of good connectivity from each housing unit to key destinations by car, walking, biking, and bus. This yields a rich, localized picture of connectivity by mode. It also enables analysis of connectivity equity for project alternatives to be better weighed against one another and for stronger performance measurement in general.

WILMAPCO used some of these data to better define food deserts. Food deserts are low-income areas without a nearby grocery store. Building on the traditional United States Department of Agricultural identification method, WILMAPCO's approach also considers the quality of bus connectivity to grocery stores from low-income areas—encouraging interventions where they are needed most.



As a follow-up to recommendations in its 2019 TJ Plan, WILMAPCO is currently analyzing connectivity from areas of concern with poor bus connectivity to grocery stores and job centers. This data allows the agency to explore how connectivity can be improved by transportation network changes. For example, a local low-income trailer park community currently has very poor bus connectivity to both supermarkets and jobs. WILMAPCO demonstrated that a minor bus route deviation could provide about 800 of its households access to supermarkets and jobs that they lack today.

Federal support for WILMAPCO's Transportation Justice efforts has been strong. The agency recently received FHWA State Transportation Innovation Council (STIC) Incentive Program funding to hold a social justice training series for planners across Delaware. STIC funding also enabled WILMAPCO to produce a series of public outreach videos, including one about the TJ initiative. The FHWA Transportation Planning Capacity Building program developed a [case study highlighting this TJ initiative](#).

WILMAPCO will refresh its TJ Plan after updating its long-range plan in early 2023.



Main Street Project: A Model of Successful Public Participation in Concord, New Hampshire

Thomas J. Aspell, Jr., City Manager

Concord, the capital of New Hampshire, is a community of about 44,000 with a historic downtown replete with dozens of 19th century vintage red-brick, multi-story buildings. The heart of the downtown is Main Street which is home to the New Hampshire State House and over 200 businesses.

Multiple planning studies dating back to the 1990s and early 2000s demonstrated that Concord's downtown, although still reasonably successful, had become "tired" and "fragile." Main Street's public infrastructure had, for decades, remained largely unchanged. There were four vehicular lanes, head-in angled parking, little or no refuge for pedestrians crossing the travel way, and narrow sidewalks with double-step curbs in long stretches. Main Street's charm—its historic architecture—was also one of its biggest challenges. Eighteen storefronts were inaccessible due to the original granite steps at their entrances. Commercial vacancies were not widespread but increased over the years as motoring customers could simply travel a few miles away to the regional big box stores with ample parking or shop online.

Community leaders realized that a change was essential to create the type of Main Street that would, once again, be the center of business, tourism, and civic activity. Concord became an early adopter of the Complete Streets approach. The community believed that an engaging and attractive street is one that accommodates a variety of modalities (motorists, pedestrians, transit users, bicyclists). By 2011, these Complete Street principles had framed the community's understanding of Main Street. The city, non-profit partners, business owners, elected officials, and residents coalesced to create a ["Re-Thinking Main Street" report](#) and subsequent [YouTube campaign](#) that touted Concord's commitment to make the corridor safe, inviting, and prosperous. This social media campaign, which also featured former Governor Lynch and U.S. Senator Jeanne Shaheen, reinforced the city's Transportation Investments Generating Economic Recovery (TIGER) program—now known as the Better Utilizing Investments to Leverage Development (BUILD) program—[grant application](#) helping to land a \$4.7 million award in 2012. Winning the award from the Federal Highway Administration was a critical element in what would become a model project of public participation.

From 2012 to the start of the streetscape construction in 2016, the City retained the services of a professional communications firm which created a multi-layered outreach strategy with a project website, social media campaign, videos, and in-person regular contact. The team also conceived a "Digger the Tiger" project mascot who appeared on marketing materials and in costume to playfully educate



Figure 1: Digger the Tiger mascot marches with the high school marching band. (Image courtesy of City of Concord.)



Implementing the Design for Distancing Program in Baltimore, Maryland

Briony Hynson, Deputy Director, Neighborhood Design Center

The Neighborhood Design Center (NDC), a nonprofit community design organization with offices in Baltimore and Hyattsville, MD, recognizes the importance of working slowly—approaching projects in the built environment with intention and deep listening. The nonprofit “moves at the pace of collaboration,” making space for equitable outcomes that reflect the organization’s vision for shared spaces that work well for everyone.

However, in the spring of 2020, as the COVID-19 pandemic took hold, it was time to act fast. Baltimore, like cities and towns across the world, had ground to a halt, with businesses shuttered and restaurants cautiously pivoting to takeaway models. When it became clear that this was not a temporary closure but instead a paradigm shift that might last months or more, the city knew that urgent action was needed to keep the economy and public life moving.

The Design for Distancing (D4D) program came together with unprecedented speed. The City of Baltimore, the Office of Mayor Jack Young, and the Baltimore Development Corporation worked together to allocate funding to resources that would support Baltimore businesses, tapping the Neighborhood Design Center to engage the city’s design and public health communities.

The first outcome of the collaboration was the [Ideas Guidebook](#), a compendium of ten concepts for public space interventions that can be adapted for, and installed in, communities everywhere. Designs for the Guidebook were solicited through a global call for entries. A review panel composed of experts from the Johns Hopkins Bloomberg School of Public Health, leaders from the City of Baltimore, and leaders from the Baltimore small business and design communities voted on designs, ultimately selecting ten. Design teams partnered with the NDC to finalize their concepts for the Guidebook, and each eligible team was awarded a \$5,000 stipend.

The Guidebook focused on centering equity with respect to physically distanced gathering. According to Keshia Pollock Porter, professor at the Johns Hopkins Bloomberg School of Public Health who helped develop the Guidebook, the publication presented “principles that prioritize communities of color and communities that have been disinvested.” As increased use of public space brought racial inequity to light across the country, the D4D was “a tremendous opportunity to center equity and public health in how we rethink public spaces,” said Porter.

Designs from the Guidebook were also intended to serve as a point of departure for the second initiative of D4D—[Public Space Interventions](#). Through a \$1.5M investment from Baltimore City’s COVID-19 Small Business Assistance Initiative, temporary public space interventions were initiated in 17 Baltimore City Districts. Each District was paired with a local design-build team to scope, develop, and implement public space interventions. Design-build teams were offered a design stipend, and construction was funded through the Baltimore Development Corporation.

When work began on the public space interventions, NDC felt the strain of the accelerated timeline. Typically, NDC projects are community-initiated, meaning that an organized group of community members with a shared idea for a project in the built environment come to the organization for support on developing an engagement



process and design drawings. In the case of D4D, the City and NDC were approaching neighborhoods to propose quick-turnaround public space interventions. Things needed to move quickly in order to make an impact, but the cost of fast-tracking the vision and coalition building work that goes into a typical NDC project was real. NDC found that better-resourced neighborhoods were often more able to make use of the D4D investment, while historically disinvested neighborhoods weren't immediately equipped to receive and manage such intensive projects.

Furthermore, while the city was able to quickly direct financial resources to support D4D, the challenge of moving projects through Baltimore City's permitting and approval processes was significant. Even with allowances for COVID-19, projects moved more slowly through the approval process than expected. Future iterations of such a project would benefit greatly from establishing a clear process with buy-in from city staff that is also easily navigable by community stakeholders. For example, New York City established its [Open Culture permit](#) during COVID, which allowed community groups to utilize city-owned public space and streets for cultural events with only two-weeks lead time. The program supported 450 events in just six months.

In spite of challenges, the impact of D4D has been profound. From socially distanced dining areas to beautifully activated vacant lots, the investment from D4D in Baltimore has brought existing and new public spaces to life. In the first six months of the project, there were over 15,000 visits to [the program website](#) and 10,000 downloads of the Ideas Guidebook, reaching more than 50 countries. According to Sister Israel, a Baltimore resident from the Park Heights neighborhood, where D4D activated a public gathering space with a mural, planters, and new signage, "These projects have shown us how our public spaces can serve small businesses and the people of Baltimore. Similar projects have popped up all over the city since D4D, and people are already talking about how to be sure that they'll live on after the pandemic has passed."

The D4D sites in Baltimore continue to have a lasting positive impact on how we use the public realm. The process of implementing these efforts has shifted expectations for fast-paced, coordinated agency support for projects with a clear public benefit. One example of this is [a new portal](#) inaugurated by Baltimore City's Department of Transportation where Baltimore residents can apply directly for community projects in the right of way. It's a tangible early step in sharing ownership for excellent, resident-led design work in the city's public spaces.



Deploying the COMPASS Data Bike in Southwest Idaho

Dane Hoskins, Assistant Planner, Community Planning Association of Southwest Idaho

Ada and Canyon Counties in southwest Idaho—the Treasure Valley—are known across the mountain west for their intercity network of multiuse active transportation pathways. Facilities such as the 25-mile Boise River Greenbelt have seen a dramatic increase in popularity that has coincided with a greater need to monitor pathway conditions to address maintenance needs.

To meet the growing demand for pathway condition data, the Community Planning Association of Southwest Idaho (COMPASS), the metropolitan planning organization for the two-county area, applied for, and received, a Federal Highway Administration Technology Transfer (T2) grant in 2018 to develop a tool to quantitatively measure off-street pathway conditions. Using the T2 funds, COMPASS developed and deployed the COMPASS Data Bike (see Figure 5).



Figure 4: COMPASS Data Bike Deployment. (Image courtesy of Community Planning Association of Southwest Idaho.)

The COMPASS data bike employs multiple components to assess pathway conditions (see Figure 6):

- **Tern GSD Electric Cargo Bike:** To traverse pathways and carry all monitoring equipment; the use of an e-bike is critical as the pedal assist feature helps to minimize sway as the rider propels the bike forward, ensuring that the condition monitoring software remains vertical for accurate data acquisition.
- **Samsung 360° Camera:** To document the surrounding environment; photos or videos can be uploaded to Google Street View.
- **GoPro Hero 7 Camera:** To photograph the pavement as it passes under the bike.
- **iPhone 7:** To measure displacement (roughness) using accelerometers and gyroscopes and to host the rRuf roughness measurement software.

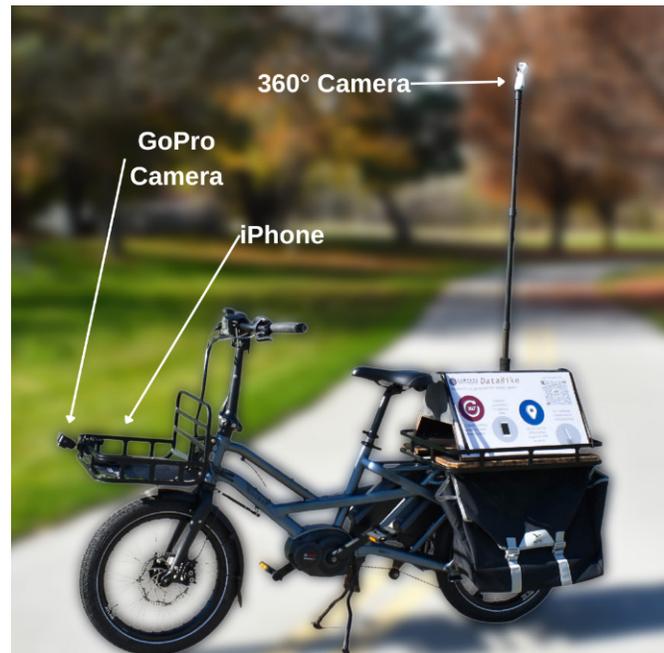


Figure 5: COMPASS Data Bike components. (Image courtesy of Community Planning Association of Southwest Idaho.)



As the bike travels down a pathway, the iPhone measures acceleration and vertical displacement. The rRuf software then converts those measurements into the widely recognized roughness measure, the International Roughness Index (IRI). The resulting IRI score is then reported on a five-tier scale from “very rough” to “very smooth” (Figure 7). The quantitative data are cross-referenced with the imagery generated by the GoPro and 360° camera to ensure that roughness is the result of deteriorating pavement, and not other sources of bumpy rides, such as curbs, driveway cuts, or debris on the path.

The COMPASS Data bike was first deployed on a 3.5-mile proof-of-concept loop in 2020. Since then, the COMPASS Data Bike has been used on over 40 miles of multi-use pathway across the Treasure Valley.

COMPASS member agencies—cities, counties, and transportation agencies—have been engaged throughout the COMPASS Data Bike deployment and are using findings to inform local and regional projects, including supporting grant applications and shaping conversations with decision makers over funding for pathway maintenance. COMPASS is also beginning to integrate roughness classifications into its formula fund prioritization process.

Additionally, the COMPASS Data Bike has been an unexpected public outreach tool. “Every time I deploy the Data Bike, I’m stopped by members of the public who want to know what I’m riding. After a quick conversation, everyone has voiced support for better maintained and safer pathways,” says Dane Hoskins, COMPASS Planner and Data Bike program lead.

Moving forward, the possibilities for application of COMPASS Data Bike data are expanding. Some member agencies are looking to use longitudinal pathway condition data to develop a deeper understanding of how quickly and severely different pathway materials and construction techniques deteriorate. Others are leveraging



Figure 6: Pathway Roughness Scale. (Image courtesy of Community Planning Association of Southwest Idaho.)



the data to inform facility management programs to better plan for, finance, and schedule pathway maintenance projects. Still other agencies are exploring applications of the COMPASS Data Bike to support Americans with Disabilities Act compliance and identify barriers. The energy and engagement around the COMPASS Data Bike highlight the possibilities it provides.

However, developing the COMPASS Data Bike program has not been without challenges. Data are in high demand but deploying the COMPASS Data Bike on the Treasure Valley's 571 miles of pathways is a daunting proposition. Prioritization is key, but dedicated staff time and sustained institutional attention are required to ensure this program thrives. Storing, processing, and synthesizing the data generated—particularly the imagery—also requires a higher level of organizational capability and technical sophistication than anticipated at the outset. Strong technical and geographic information systems support have helped to overcome this challenge and have been key to the success of the program.

The COMPASS Data Bike has quickly become an integral tool in support of regional pathway planning, providing key data to support decision making and grant applications, while increasing awareness of cycling as transportation, pathway planning, and the importance of maintenance on the entire transportation system.



University Avenue Corridor Study in Lafayette, Louisiana

Cathie Gilbert, Lafayette Consolidated Government, Planning Manager, Community Development and Planning Department

The [University Avenue Corridor](#) is the gateway to the community. It is an interchange on Interstate-10, that passes through an area of disinvestment near downtown, as well as downtown, and the University of Louisiana at Lafayette terminating at the Lafayette Regional Airport. A considerable number of professionals, public officials, business owners, neighbors, and interested citizens were invested in revitalizing the portion of the corridor that went through the area of disinvestment that included predominately lower income, minority neighborhoods with low car ownership.

In 2017, the Acadiana metropolitan planning organization (MPO) received funding from the FHWA Urban Systems for [a planning study](#) for the University Avenue Corridor. Stakeholders noted the importance of a beautified and well-connected road that accommodated all citizens and reconnected communities on either side. The plan centered around multimodal streetscape elements including medians, roundabouts, street trees, generous sidewalks, and safe areas for biking. While these elements have not traditionally been primary to most roadworks, the importance of this corridor and the number of incidences of pedestrian and bicycle crashes led to the development of a project that was widely supported.

The initial phase of the planning process focused on resident input, involving data collection and documentation of existing conditions to understand the connection of University Avenue to the local area, the corridor's impact on adjacent neighborhoods, the transportation capacity and the safety of existing roadway conditions, and an inventory of related infrastructure networks. In addition, a snapshot of historical and current demographic and economic conditions was evaluated to define the market base and potential for new private and public investment. Based on the data collection and preliminary assessment, opportunities and constraints were identified for the study area, as well as preliminary concepts for targeted corridor redevelopment at three catalyst sites.



Figure 7: Proposed view of University Avenue and Cameron. (Image courtesy of Lafayette Consolidated Government.)

Multiple facilitated community workshops were held that cultivated a variety of feedback from interested groups. Participants responded to improvement surveys and provided feedback on design alternatives. The consensus building initiative was foundational for vetting recommended corridor improvement concepts. The Mayor-President's office staff were active in encouraging people to attend public meetings. Active



neighborhood groups (Oasis Community Coteie, La Place Coterie, and Townfolk), adjacent business owners, and property owners were instrumental in maintaining participation with those who stand to be impacted the most by this project.

Recommendations and implementation strategies centered around three main corridor goals:

1. Create a safe and connected corridor;
2. Revitalize and enhance the corridor community; and
3. Create a dynamic and inviting gateway corridor.

One important aspect to the success of this plan was the layering of complementing initiatives. For example, a pivotal intersection in the project area, called Four Corners, had historic significance for the community but had fallen into decline. A \$35 million affordable housing project, the Bottle Art Lofts, was a public-private partnership that included the renovation of a historic Coca-Cola bottling plant. This catalytic project also replaced a blighted motel on this pivotal corner. Subsequent to the planning effort, an Economic Development District, Cultural District, and Opportunity Zone were implemented to foster private development, arts/culture and historic tax credits, and funding to complement this public investment.

One challenge was the heavy commercial and industrial type uses on a portion of the project area. Staff undertook an administrative rezoning to include for more pedestrian friendly neighborhood retail and services. This continues to be a challenge, though the zoning changes curate future development, the existing buildings still lend themselves to continued nonconforming uses that are not in line with the vision for the corridor.

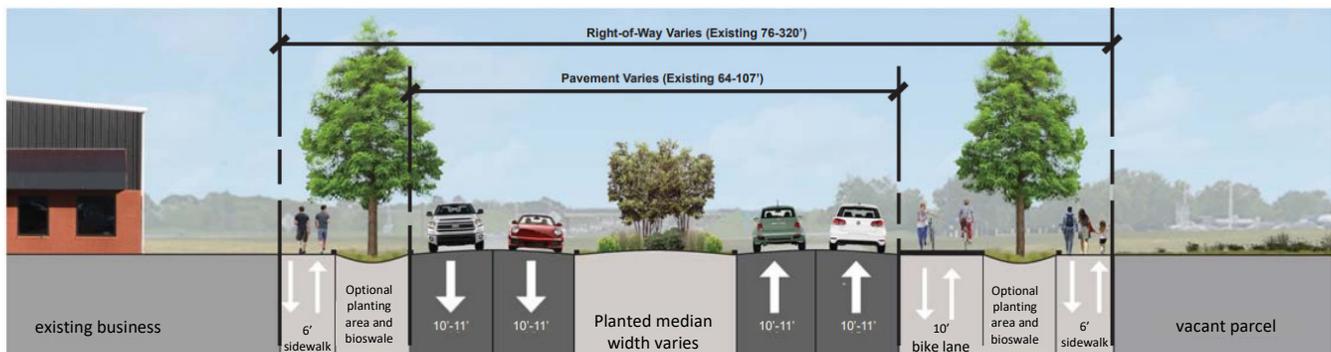


Figure 8: Typical cross section of University Avenue showing Complete Streets. (Image courtesy of Lafayette Consolidated Government.)

The plan laid the foundation for a 2020 [FHWA BUILD application](#) that resulted in a \$10 million construction grant. This paired with State funds and local funds has resulted in a phased project that will be bid out in 2023. As numerous community leaders have said, this is one of the biggest infrastructure investments in this part of Lafayette in a long time. In 2022, this project received a [FHWA Environmental Excellence Award](#).



Announcements/New Resources

The Federal Highway Administration released the following:

- [Improving Safety for Pedestrians and Bicyclists Accessing Transit](#) provides a comprehensive understanding of how to address pedestrian and bicyclist safety concerns related to accessing transit.
- [Pedestrian and Bicycle Funding Opportunities](#) indicates potential eligibility for pedestrian, bicycle, and micromobility activities and projects under the U.S. Department of Transportation surface transportation funding programs.
- [FHWA Office of Safety Pedestrian and Bike Forum Newsletter – Fall 2022](#) includes multiple articles on pedestrian and bicycle safety.
- The [Vulnerable Road User Safety Assessment Guidance](#) helps States address the crisis of non-motorized roadway deaths across our nation as part of its ongoing efforts to prioritize safety and meet milestones laid out in the Bipartisan Infrastructure Law.
- The updated FHWA [America's Byways website](#) recognizes the collection of 184 distinct and diverse National Scenic Byways and All-American Roads designated by the U.S. Secretary of Transportation. This update redesigns the look of the website and includes new profiles for the 49 byways designated in 2021.
- The [FHWA Complete Streets website](#) includes updated resources for planning and implementing Complete Streets.
- In the November/December 2022 issue of [Innovator](#), FHWA highlighted [the Hawaii Department of Transportation \(HDOT\)'s efforts to install raised crosswalks](#). HDOT began this program to reduce driver speeds. These raised crosswalks discourage fast driving and make it easier to see pedestrians, resulting in fewer crashes. [Innovator](#) also highlighted [efforts in New York and Louisiana to reduce lanes in roundabouts](#), allowing for better multimodal safety and service.
- FHWA [selected](#) the University of North Carolina Highway Safety Research Center to lead the national [Pedestrian and Bicycle Information Center](#).

Other related resources and announcements released by the U.S. DOT:

- [U.S. DOT announced four awardees](#) for Phases 2 and 3 of the [Complete Trip ITS4US Deployment Program](#).
- The Federal Transit Administration released the [2023–2026 Coordinating Council on Access and Mobility Strategic Plan](#). The plan prioritizes expanding safe access to transit, providing affordable mobility options, and sets a framework for collaboration among CCAM grantees at all levels and across jurisdictions.

