2050

MARYLAND
Statewide Bicycle & Pedestrian
Master Plan

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Statewide Bicycle
& Pedestrian Plan

MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION

The 2050 Maryland Bicycle and Pedestrian Master Plan

January 2024

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Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADA	Americans with Disabilities Act
ATTAIN	Advanced Transportation Technologies & Innovation
Bike AAA	Bicycle Advocates for Annapolis and Anne Arundel County
BMC	Baltimore Metropolitan Council
BOE	Board of Education
BPMP	Maryland Bicycle and Pedestrian Master Plan
BPPA	Bicycle & Pedestrian Priority Areas
BWI	Baltimore/Washington International Thurgood Marshall Airport
COVID-19	Coronavirus Disease 2019
CRISI	Consolidated Rail Infrastructure and Safety Improvements
DAC	Disadvantaged areas and community
DOT	Department of Transportation
E-bike	Electric bike
ETC	Equitable Transportation Community
FHWA	Federal Highway Administration
FRA	Federal Rail Administration
FTA	Federal Transit Administration
GPS	Global Positioning System
HCCSP	Howard County Complete Streets Policy
HEPMPO	Hagerstown/Eastern Panhandle Metropolitan Planning Organization
ICAM	Innovative Coordinated Access and Mobility Pilot Program
IIJA	Infrastructure Investment and Jobs Act of 2021
IMBA	International Mountain Bicycling Association
INFRA	Infrastructure for Rebuilding America
LEHD	Longitudinal Employer-Household Dynamics
LTS	Level of Traffic Stress
MARC	Maryland Area Rail Commuter
MBPAC	Maryland Bicycle and Pedestrian Advisory Committee
MDDNR	Maryland Department of Natural Resources
MDOT	Maryland Department of Transportation
MDTA	Maryland Transportation Authority
MNCPPC	Maryland-National Capital Park and Planning Commission
MOU	Memorandum of Understanding
MTA	Maryland Transit Administration
MTP	Maryland Transportation Plan
MDMUTCD	Maryland Manual on Uniform Traffic Control Devices
MUTCD	Manual on Uniform Traffic Control Devices
MVA	Motor Vehicle Administration
MWCOG	Metropolitan Washington Council of Governments
NACTO	National Association of City Transportation Officials
OMB	Office of Management and Budget
OMOC	One Maryland One Centerline
OPCP	Office of Planning and Capital Programming
OPPE	Office of Planning and Preliminary Engineering
OST	Office of the Secretary of Transportation

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INTRODUCTION

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1.1 Overview & Purpose of the Plan

The Maryland Bicycle and Pedestrian Master Plan (BPMP)[1] identifies goals and strategies for improving active transportation access across the state and helps advance the Maryland Department of Transportation (MDOT) vision to **provide safe and convenient active transportation that supports equitable access for all.** Active transportation as defined by the American Association of State Highway and Transportation Officials (AASHTO) includes walking and biking, as well as other human-powered modes like roller skates and skateboards, assistive mobility devices and human-scaled electronic mobility devices, such as e-bikes and e-scooters. The BPMP establishes priorities and performance measures to guide future planning and investment based on the goals instituted in the 2023 Moore-Miller Transition Report and the overarching goals of the Maryland Transportation Plan (MTP) Playbook, summarized to the right. Because the BPMP applies to all state and local roadways, Maryland counties and municipalities are critical partners in developing connected and safe active transportation networks. The BPMP is designed to continue and improve upon the vital partnerships and resources within the purview and mission of MDOT.

The BPMP describes and builds on the state of active transportation in Maryland today. The BPMP then presents strategies to advance a vision for complete and integrated systems through policy, infrastructure and collaboration proposals. While the BPMP does not provide specific infrastructure recommendations, it includes guidance for identifying appropriate facilities based on context.

MTP GOALS:

Enhance Safety & Security	Deliver System Quality
Environmental Stewardship	Serving Community & Economy

MOORE-MILLER TRANSITION REPORT GOALS:

Quality Public Transit	Transit Hubs & Physical Infrastructure
Road & Pedestrian Safety	Cleaner Maryland Transit

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[1] The BPMP is legislatively mandated by the Transportation Article of the Maryland Annotated Code § 2-604.

1.2 Plan Process

This BPMP applied a data-driven approach and leveraged robust stakeholder and public engagement to develop goals, objectives, strategies and key initiatives. Figure 1 depicts the planning process. The recommended strategies and key initiatives are action items for the Plan. Short-term recommendations are to be completed within five years, when the Plan will be next updated. Longer-term recommendations are generally estimated to take between five to ten years to complete.

FIGURE 1: **Plan Process**

January 2023	Feb.-Mar. 2023	April-May 2023	June-Aug. 2023	Sept.-Dec. 2023	January 2024
Study Kickoff	**Existing Conditions Assessment**	**Needs Assessment**	**Development of Recommendations**	**Plan Development**	**Plan Adoption**

Phase 1 Public Outreach
Collect public and stakeholder input on BPMP goals, objectives, strategies and existing conditions

Phase 2 Public Outreach
Collect public and stakeholder input on draft BPMP recommendations

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1.3 Public & Stakeholder Engagement

The BPMP relied on a robust engagement process to connect with a variety of stakeholders acknowledged in Appendix A, including:

◆ advisory groups (i.e., the Maryland Bicycle and Pedestrian Advisory Committee [MBPAC] and the Technical Advisory Group [TAG]),

◆ affinity groups (i.e., those most affected by the plan's recommendations), and

◆ implementing partners (i.e., elected officials, relevant agencies and departments, metropolitan planning organizations and county commissions).

The project team coordinated with the MBPAC and met bi-monthly with the TAG, which included MBPAC members. Public engagement to reach affinity groups and implementing partners occurred across two phases. Phase 1 occurred as part of the existing conditions assessment in spring 2023. Phase 2 followed the development of draft recommendations in fall 2023.

PROJECT WEBSITE

The project website provided the public with a hub for information on the BPMP's development. During Phase 1, the website supplied background information on the project, the project schedule, upcoming public meetings and engagement opportunities and a link to the online survey and comment map. The website also allows Maryland residents to submit comments and questions at any time during the life of the project.
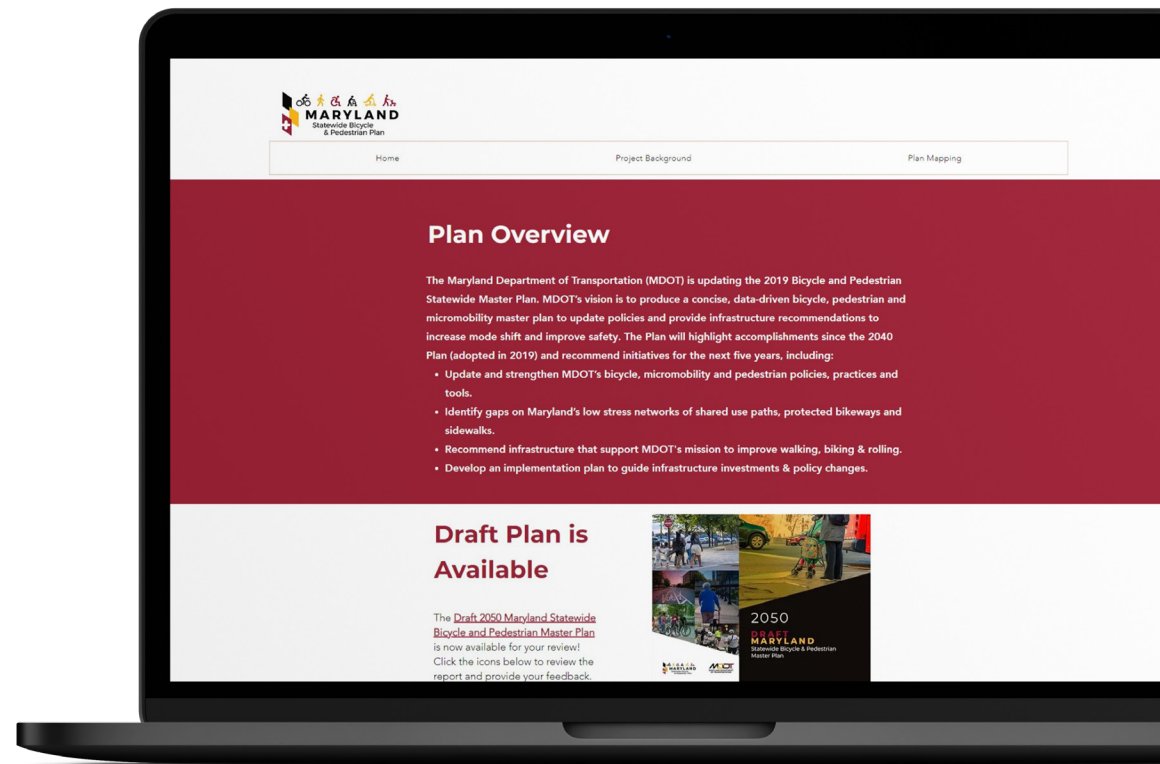
Phase 1 Engagement Summary

Phase 1 included a mix of online and in-person efforts aimed at informing the public about the BPMP and soliciting input on issues, opportunities and priorities. Engagement strategies included:

- a project website,
- an online survey,
- an online comment map,
- a virtual public meeting, and
- public outreach at Howard County's 2023 GreenFest.

ONLINE SURVEY RESULTS

An online survey conducted during Phase 1 of public engagement gauged preferences regarding walking, biking and using micromobility devices. **The survey received 647 responses.** The summary of responses below reflects the number of responses received for each question. **Maryland residents walk and bike for a variety of reasons and overwhelmingly use these modes for exercise and recreation.**

WALKING

94% of respondents walk for exercise or recreation.

47% of respondents walk for personal trips like grocery shopping.

73% of respondents are willing to walk half a mile or more.

81% of respondents want to see more shared use paths and wider sidewalks.

56% of respondents identified a lack of sidewalks as a key barrier to walking.

Approximately **40%** of respondents identified concerns for personal safety, poor walking conditions or too much traffic as other key barriers.

BIKING

93% of respondents bike for exercise or recreation.

44% of respondents bike for personal trips, like getting groceries or shopping.

18% of respondents bike in most traffic conditions.

An additional **60%** of respondents would bike more with less traffic interaction.

74% of respondents identified feeling unsafe on roads with traffic as a key barrier to biking.

Approximately **40%** of respondents identified personal safety or security concerns or a lack of bike parking facilities at destinations as barriers to biking.

73% of respondents want to see more shared use paths and protected bike lanes.

66% of respondents already use or are interested in using e-bikes and e-scooters.

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"Add the missing marked crosswalk here. MDSHA should update its policy to add marked crosswalk on all legs of signalized intersections to support neighborhood walkability and access to public transit stops."

"Sidewalk stops and starts and there is no shoulder. Pedestrian must either walk in the road or through private property landscaping. I wish I could walk from Bonifant to New Hampshire."

"Very dangerous bike lane. The lane along Veirs Mill Road/MD 586 heading toward Twinbrook Parkway gets narrower and narrower and then ends mid-block…"

ONLINE COMMENT MAP

The comment map invited participants to mark points and routes directly on a map to identify challenges and opportunities related to walking and biking. This platform yielded almost 600 infrastructure-specific comments. Figure 2 depicts the web application and highlights a few responses.

VIRTUAL PUBLIC MEETING

More than 30 individuals attended a virtual meeting on April 13, 2023, and the question-and-answer period generated more than 40 questions and comments from community members.

OUTREACH AT HOWARD COUNTY GREENFEST

The project team tabled at the Howard County GreenFest on April 15, 2023, at the Howard Community College. GreenFest attendees learned more about the project and spoke directly to members of the team. Flyers and cards with QR codes to access the online survey were distributed at the table and at the event's bike valet. The project team spoke to more than 200 people at the event.

The project team spoke to more than

200 people
at Howard County GreenFest.

As interactive elements, the team offered a site walk and bike ride in the area to observe multimodal infrastructure needs and opportunities with community members. Additionally, the team hosted a table activity (Figure 3) where participants were given stickers with dollar amounts and asked to place the stickers on the infrastructure strategies that were most important to them. The ten categories of infrastructure strategies included:

- Americans with Disabilities Act (ADA) improvements,
- trails,
- separated bike lanes,
- micromobility/bike share,
- access to opportunities,
- bicycle and pedestrian supportive strategies,
- sidewalks,
- safe routes to school,
- bicycle and pedestrian connections to transit, and
- parks & green space.

STICKER SURVEY HIGHLIGHTS

750
dots placed by community members as part of this activity

$469
total "money" spent on infrastructure strategies

Trails and Parks & Green Space were the highest valued priorities:

$96
"money" allocated to Trails

$81
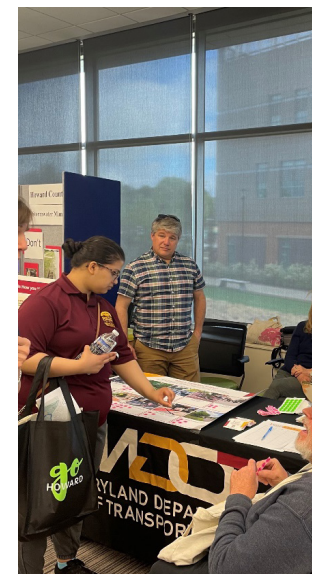"money" allocated to prioritization of Parks & Green Space

FIGURE 3: **GreenFest Outreach Sticker Activity**

Phase 2 Engagement Summary

Phase 2 of public engagement focused on promoting the draft BPMP to the public and stakeholders and soliciting their feedback through in-person and electronic means. Many promotional activities for the Plan occurred in collaboration with MDOT's promotion of the draft 2050 Maryland Transportation Plan (MTP) which held a review and public comment period coinciding with the BPMP's.

Two online surveys were available to the public accompanying the draft Plan from September 8 to November 20, 2023. The first was a survey collecting demographic information on those reviewing the draft Plan. Eighteen people responded to questions concerning age, gender, ethnicity, preferred language and income. The results are included in Appendix B.

A second survey was embedded into each page of the draft Plan and solicited the reviewer's feedback on the Plan itself. With 107 people responding, 96 specific comments were made by 70 individuals; they were reviewed and addressed by members of the BPMP project team. Changes to the draft Plan were made, as needed.

The draft Plan and online survey were promoted in fall 2023 as Phase 2 as follows:

WEBSITES

◆ Maryland Bicycle and Pedestrian Plan project website. The website was first made available during Phase 1 of the Plan and has been used to provide updates on the Plan's development. The project website hosted the draft Plan for review, along with both surveys.

◆ Maryland Transportation Plan project website. The project site for the MTP hosts the BPMP as well as providing the public with easy access to both draft Plans and the opportunity for comment.

ELECTRONIC DISTRIBUTION

◆ MDOT sent an email soliciting feedback on the MTP Playbook and BPMP. The email was sent to 11,315 people on September 12, 2023.

◆ The MDOT Active Transportation News included an article dedicated to the 2050 BPMP and encouraged the public to review and provide comment. The newsletter was sent to 4,291 people on October 4, 2023.

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2050 Statewide Bicycle and Pedestrian Master Plan Update

The Plan focuses on updating policies and practices to make it safer and more convenient to walk and roll in Maryland.

Visit the website to learn more and provide your input:
2050marylandbpmp.com

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EVENTS

- **September - November –** MDOT visits each of Maryland's 23 Counties and Baltimore City as part of its annual Consolidated Transportation Program (CTP) Fall Tour. The public was provided with information on how to provide feedback on the BPMP and MTP, including promotional cards to direct the public to the Plans' websites.

- **Fall –** A representative of the MDOT attended meetings hosted by several governmental organizations in Maryland and encouraged participants to review and provide comment, including:

  - Baltimore Regional Transportation Board's Bicycle & Pedestrian Advisory Group
  - MBPAC Pedestrian Subcommittee
  - Metropolitan Planning Organizations Roundtable
  - Prince George's County Bicycle Pedestrian Safety Committee
  - Wilmington Area Planning Council (WILMAPCO) Non-motorized Transportation Working Group
  - Attainment Report Advisory Committee

- **October –** MDOT's annual WALKTOBER events announced the availability of the draft BPMP at three of its webinars and encouraged people to review and comment online. Those webinars reached over 1,880 attendees.

- **October –** On October 27, 2023, MDOT hosted the fall quarterly meeting of the Maryland Bicycle and Pedestrian Advisory Committee. A member of the MDOT presented an overview of the Plan, solicited feedback, and encouraged individual committee members to review and comment.

- **October –** A representative from MDOT's gave an overview of the Plan to the Eastern Shore Land Conservancy on October 11, 2023. Attendees reviewed the Plan and provided feedback during a two-hour discussion.

- **October –** The Washington Area Bicyclist Association organized the 4th Great Montgomery County Bike Summit on October 29, 2023. A representative of the MDOT was one of the speakers and encouraged participants to learn more, review the draft Plan, and to provide their comments.

PUBLIC RESPONSE

The public's response to the Plan has been encouraging and overall positive. Over 1,450 visits were made to the project website during the time when the draft Plan and surveys were available. About 825 unique devices and browsers were used to access the site and surveys suggesting about 825 members of the public.

825
unique visits to the Plan website

PROGRESS SINCE THE 2019 PLAN

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PROGRESS SINCE THE 2019 BICYCLE & PEDESTRIAN MASTER PLAN:

1. **Developed the Pedestrian Safety Action Plan.**
The Pedestrian Safety Action Plan provides specific actions and strategies that prioritize corridors using a data-driven process. Guided by land use context and supported by community input, the process recommends design improvements to meet statewide performance targets.

2. **Completed a statewide level of traffic stress (LTS) analysis.**
LTS analyses quantify the experience of bicyclists, facilitating the prioritization of the most impactful projects at the district, county and municipal levels. Accessibility analyses built on LTS evaluate low-stress networks to identify the opportunities for creating safe and comfortable connections to destinations.
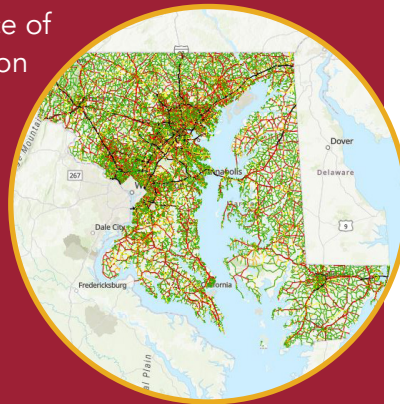
3. **Increased Bikeways annual funding to $3.8 million for FY21-24.**
MDOT's Kim Lamphier Bikeways Netork Program funding support bicycle transportation infrastructure improvements acrsos the state. The program funds increased by 90 percent between FY21 and FY24. These funds, in addition to the funds from other state and federal sources, support planning, design and construction of bicycle infrastructure.

4. **Conducted an analysis of pedestrian access around fixed rail transit stations.**
The analysis utilized a network-based approach to understand areas within one-half mile of stations that are accessible to pedestrians. The resulting dashboard identifies opportunities for new pedestrian infrastructure and illustrates the expected impact on station accessibility.

5. **Funded bicycle count programs in Montgomery County and Baltimore City.**
The bicycle counters in Montgomery County and Baltimore City collect reliable bicycle volume data to help counties and cities identify infrastructure needs.

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6. Promoted walking through the creation of WALKTOBER.
October is now an annual month of promotions, events and webinars to spread the word about the safety, health and commuting options supported by Maryland's pedestrian-focused programs and initiatives. WALKTOBER is a joint effort between MDOT and partner agencies.

7. Developed a Planning Level Cost Estimating Tool for Bikeways Infrastructure Projects.
This easy-to-use tool was developed by MDOT in partnership with the Baltimore Regional Transportation Board's Bicycle and Pedestrian Advisory Group to help local jurisdictions plan for bicycle infrastructure projects and provide consistency across estimates prepared by different entities. The tool includes guidance for a range of different bicycle facility types, including in-roadway and separated bikeways.

8. Bikes on MARC Trains.
On June 1, 2021, the Maryland Transit Administration (MTA) began allowing passengers to bring full-size bicycles aboard all MARC Trains. The service expanded the existing accommodation of full-size bicycles on the Penn Line to also include the Brunswick and Camden lines. All scheduled trains feature at least one car with two first-come, first-served bicycle racks available at no additional charge. MTA has maximized the number of bike racks that can be provided for the current fleet. MTA is currently exploring ways to provide additional racks to meet demand.

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9. **Established a Maryland Pedestrian Subcommittee.**
    The Maryland Pedestrian Subcommittee was established in 2021 as a subcommittee of the Maryland Bicycle and Pedestrian Advisory Committee. The subcommittee shares data and best practices around pedestrian issues, promotes walking and pedestrian activities and reviews and informs state and local pedestrians plans and projects.

10. **Vision Zero.**
    In 2019, Maryland enacted a Vision Zero law with the goal of zero motor vehicle-related fatalities or serious injuries by 2030. The legislation also elevated a Vision Zero program within MDOT. Zero Deaths Maryland provides graphics, videos, social media plans and other highway safety resources to help Maryland communities move towards zero vehicle-related fatalities or serious injuries.
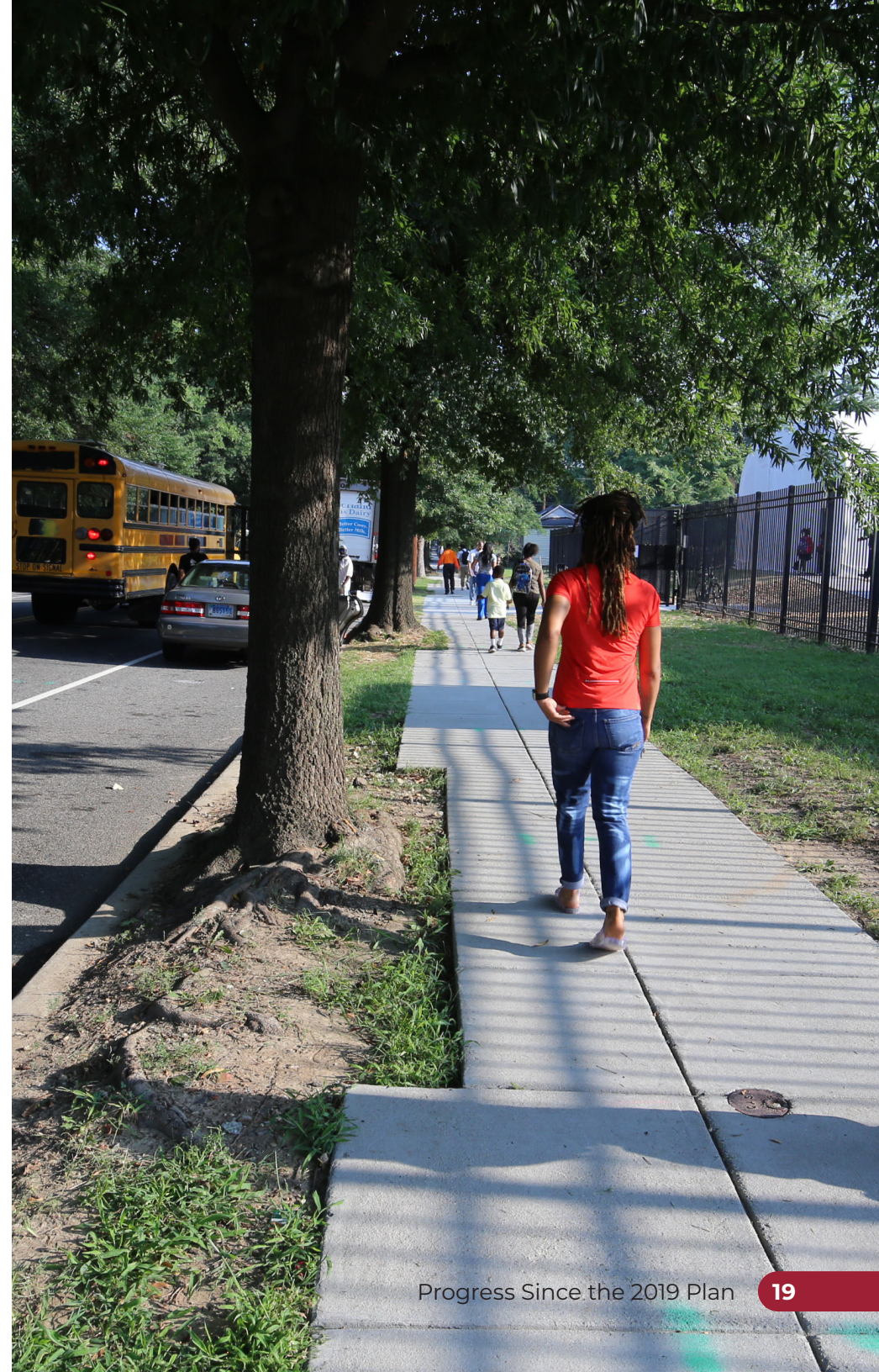
CHAPTER 3

STATE OF ACTIVE TRANSPORTATION IN MARYLAND

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TRENDS FOR WALKING, BIKING & MICROMOBILITY

A TIME OF CHANGE

The ways people travel and the trips they take changed substantially since the 2019 BPMP. Through the COVID-19 pandemic, people's perception towards public space changed dramatically, and there were measurable changes in how people valued open space and the use of right-of-way for active living. Data showed substantial increases in walking and biking, and towns and cities sought pilot opportunities to reallocate roadway space for active living.

According to Baltimore City DOT's 2021 Slow Streets Survey, 64 percent of respondents report walking more and 30 percent report biking more during COVID-19.

In a post-COVID world, there continues to be a shift towards greater flexibility in some job sectors for part- or full-time remote work. This trend is changing how the state's transportation infrastructure is used.

DISRUPTORS CONTINUE TO INFLUENCE HOW WE TRAVEL

Since the 2019 BPMP, advances in micromobility have expanded the active transportation landscape beyond walking and biking. The continued evolution of micromobility devices, including e-scooters, e-bikes and shared mobility programs (e.g., bike share), have forced jurisdictions in Maryland to tackle new questions around mobility, policy and equity.

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What is a Safe System Approach?

According to the US Department of Transportation, a Safe System Approach works by proactively addressing safety concerns to prevent crashes from happening in the first place. A Safe System Approach incorporates the following principles:

- **Death and Serious Injuries are Unacceptable -** a Safe System Approach prioritizes the elimination of crashes that result in deaths and serious injuries.

- **Humans Make Mistakes -** People will inevitably make mistakes and decisions that can lead or contribute to crashes, but the transportation system can be designed and operated to accommodate certain types and levels of human mistakes, and avoid death and serious injuries when a crash occurs.

- **Humans are Vulnerable -** Human bodies have physical limits for tolerating crash forces before death or serious injury occurs; therefore it is critical to design and operate a transportation system that is human-centric and accommodate physical, human vulnerabilities.

- **Responsibility is Shared -** All stakeholders–including governments at all levels, industry, non-profit/advocacy, researchers, and the general public–are vital to preventing fatalities and serious injuries on our roadways.

- **Safety is Proactive -** Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards.

- **Redundancy is Crucial -** Reducing risks requires that all parts of the transportation system be strengthened, so that if one part fails, the other parts still protect people.

Source: https://www.transportation.gov/NRSS/SafeSystem

FOCUS ON SAFETY

Addressing safety needs for all transportation users is a priority. Nationally, there has been a shift from traditional highway safety practices to a Safe System Approach that acknowledges human mistakes and vulnerability to build safer transportation networks. Similar to national patterns, Maryland's pedestrian and bicycle fatalities have been rising steadily. The state's 2023 Pedestrian Safety Action Plan (PSAP) and 2021-2025 Strategic Highway Safety Plan (SHSP) highlighted key areas of focus for safety in the state and provides specific actions and strategies to reverse the urgent safety issues in Maryland.

BETWEEN 2010 AND 2021, MARYLAND HAS SEEN

A 21% INCREASE IN PEDESTRIAN FATALITIES

WALKING AND BIKING RATES INCREASE DURING THE COVID-19 PANDEMIC

THE SAFE SYSTEM APPROACH VS. TRADITIONAL PRACTICES

Traditional	Safe System
• Prevent crashes	• Prevent deaths and serious injuries
• Improve human behavior	• Design for human mistakes/limitations
• Control speeding	• Reduce system kinetic energy
• Individuals are responsible	• Share responsibility
• React based on crash history	• Proactively identify and address risks

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MOVING TOWARDS CONTEXT DRIVEN DESIGN

The state's design guidance is adapting to the changing ways people travel. The Maryland State Highway Administration (SHA) 2020 Context Driven Guide: Access and Mobility for All Users provides context-sensitive design guidance for addressing issues for all users across Maryland's six built environment contexts. This data-driven approach, backed by a context driven design philosophy, recognizes the complex nature of transportation systems that must balance competing needs of different users and activities.

A DATA-DRIVEN APPROACH TO PLANNING

The following pages present data and metrics that paint a picture of walking, biking and micromobility in Maryland. These datasets are a resource for assessing needs, opportunities and changes over time as Maryland's multimodal systems change and grow to reflect collaboration and investment.

Bicycling Level of Traffic Stress
— 5 - Bicycles Prohibited
— 4 - Strong & Fearless
— 3 - Enthused & Confident
— 2 - Interested But Concerned
— 1 - Almost Everyone
— Shared Use Paths

0   20   40 Miles

FIGURE 4: **Bicycling Level of Traffic Stress**

3.1 Bicycle Infrastructure

Level of Traffic Stress

Level of Traffic Stress (LTS) measures how comfortable or stressful a roadway is to ride a bicycle on. It is calculated based on several roadway characteristics, including:

◆ bicycle infrastructure,

◆ speed limit, and

◆ traffic volume/number of lanes.

Maryland uses LTS data to assess the connectivity of its bicycle network and identify where and how the connectivity can be improved.[1] As a computer-based model, the LTS score and subsequent bicycle network analysis will be calculated annually for reporting purposes. The annual reporting will account for new or improved bicycle facilities, changes in speed limit, traffic volumes or other factors which will affect the LTS score. MDOT is currently updating the state's bicycle facility inventory which will affect LTS scores for those roadways. LTS must also be understood in the context of its limitations, detailed in the methodology.

22,373 MILES
OF LTS 1 STREETS

3,595 MILES
OF LTS 2 STREETS

1   To read more about MDOT's use of LTS, see: https://www.mdot.maryland.gov/OPCP/MDOT_LTS_Metadata_Methodology_Full.pdf.

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A lower LTS score corresponds with a more comfortable bicycling experience. Scores one through four indicate the types of users who may be comfortable biking on a road segment, where roads with a score of one are suitable for "almost everyone," and roads with a score of four are only suitable for "strong and fearless" bicyclists. A score of five represents roads where bicycle traffic is specifically prohibited, such as limited access highways.

Figure 4 and the BPMP mapping app depict Maryland's road network symbolized by LTS scores. While high-stress roads seem most prevalent in the densest areas of Maryland surrounding metropolitan Washington, DC and Baltimore, closer inspection tells a different story. For example, while Baltimore's road network contains many high-stress segments, evaluating the Baltimore Metro area (Figure 5) reveals a complementary network of low-stress segments offering lower-stress, albeit oftentimes more circuitous routes. In contrast, key connections through more rural areas of Maryland often lack complementary low-stress segments.

FIGURE 5: **Baltimore Metro Area Level of Traffic Stress**

Bicycling Level of Traffic Stress

- —— 5 - Bicycles Prohibited
- —— 4 - Strong & Fearless
- —— 3 - Enthused & Confident
- —— 2 - Interested But Concerned
- —— 1 - Almost Everyone
- —— Shared Use Paths

0   10   20 Miles

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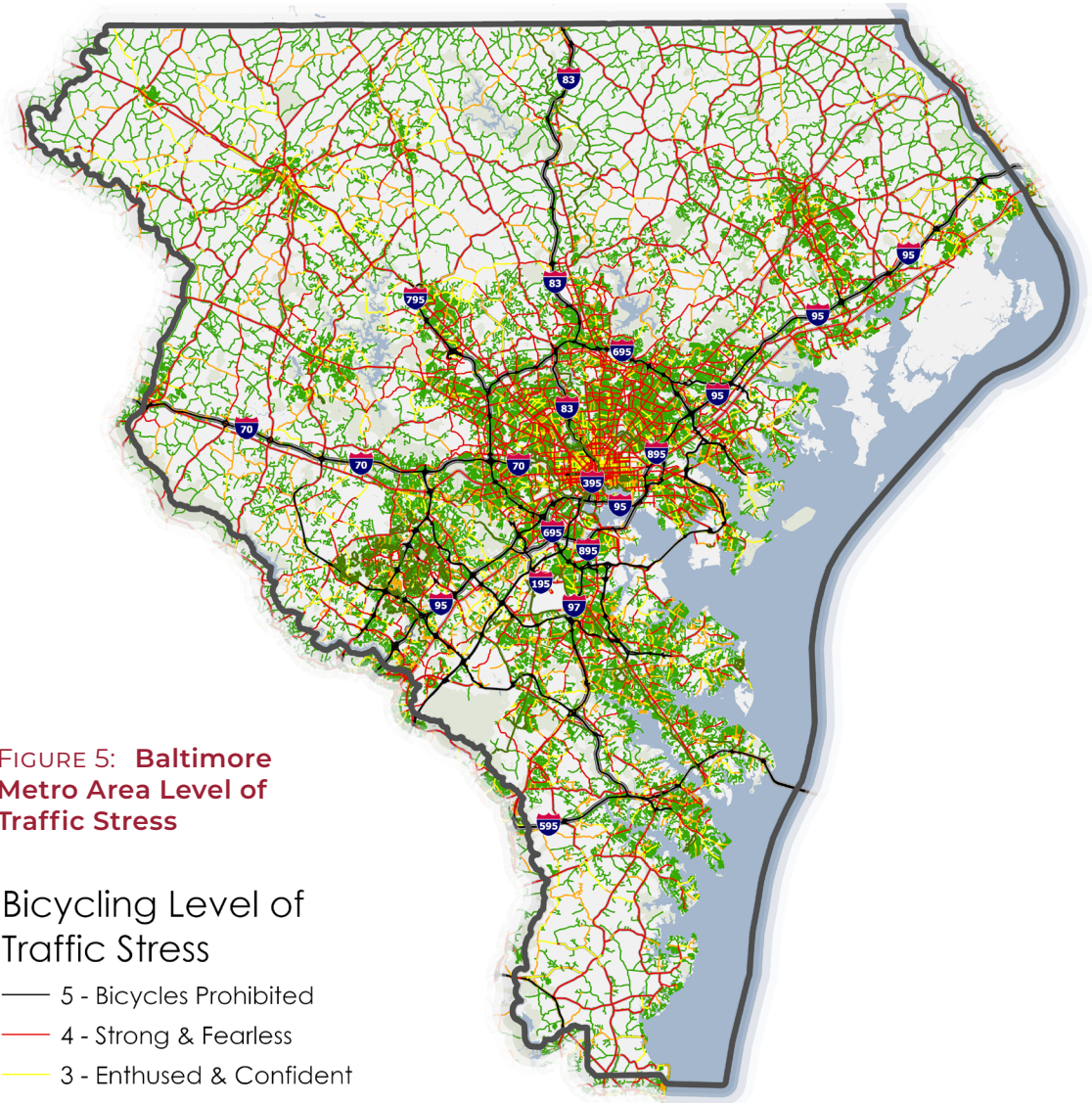
Bicycling Accessibility

While LTS (Figure 4) is useful for understanding network connectivity, it does not provide information about the destinations, people and jobs accessible by bicycle versus a comparable-distance car trip. To provide a more complete picture of needs, MDOT uses a Bicycling Accessibility Index that combines LTS with destinations such as employment locations, shopping districts, schools and neighborhoods able to be reached using low-stress infrastructure. Unlike LTS (which MDOT assigns to physical road segments), MDOT assigns Bicycling Accessibility scores to hexagons, uniformly sampling the state's transportation network.

Figure 6 depicts Bicycling Accessibility scores using a grid of hexagons to represent geographies across the state; higher scores denote areas where a higher proportion of destinations, people and jobs are accessible by bicycling for five miles (approximately 30-minutes) from the hexagon along low-stress streets. Lower accessibility scores denote areas where a smaller proportion of destinations are reachable within five miles of low-stress bicycling.

Destinations and people are more accessible by bicycle in areas with dense development. The highest levels of accessibility are found in the Washington, DC and Baltimore metropolitan areas. Nevertheless, reflecting MDOT's commitment to improving accessibility throughout the state, smaller pockets of high bicycle accessibility exist throughout Maryland.

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Bicycling Accessibility

Low Stress Network
- High
- Moderate - High
- Moderate
- Low - Moderate
- Low
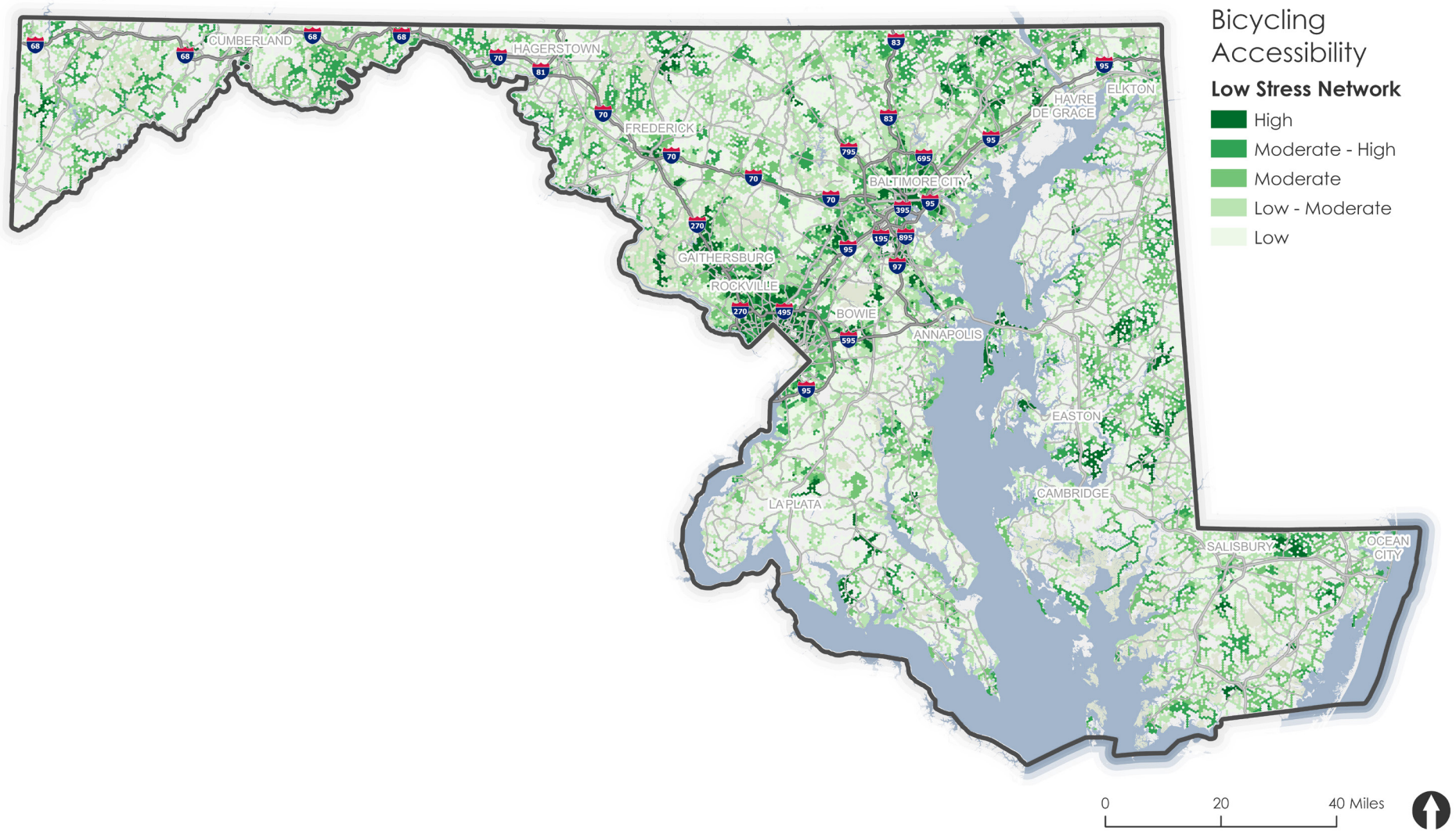
FIGURE 6: **Bicycling Accessibility**

3.2 Pedestrian Infrastructure

State of Sidewalk, Trail and Shared Use Path Infrastructure

A significant contribution to MDOT's commitment to safe and accessible active transportation infrastructure is the 2023 Pedestrian Safety Action Plan (PSAP). The study uses safety and other data to identify areas of need and prioritize specific state highway corridors and strategies for improving their connectivity and safety for pedestrians statewide.

Currently, no single dataset inventories sidewalks, crosswalks and other pedestrian facilities statewide. Figure 7 and the BPMP mapping app depict regularly maintained statewide data. The SHA ADA Database documents ADA compliance along state roadways; in addition to the sidewalks mapped, this database includes information on curb ramps and driveway crossings. Similarly, MDOT maintains a database of shared use paths. Finally, the Maryland Department of Natural Resources (MDDNR) maintains data relating to Maryland's parks and other open space, including natural surface trails that are not necessarily ADA-accessible. See Table 2 for a discussion of these infrastructure types.

913 MILES
OF STATE AND LOCAL SIDEWALK INVENTORIED

Six jurisdictions maintain geospatial sidewalk data:

- Anne Arundel County (2017),
- Baltimore City (2022),
- Frederick County (2019),
- Howard County (2022),
- Montgomery County (2022), and
- Prince George's County (2020).

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Pedestrian Infrastructure

— Documented ADA Compliant Sidewalks
— DNR Natural Surface Trails
— Shared Use Paths

69%
OF RESIDENTS LIVE WITHIN A HALF-MILE OF A SHARED USE PATH.

Updates to the One Maryland One Centerline (OMOC) network, currently underway, plan to incorporate sidewalk data from across the state. According to SHA, the OMOC Program is a collaborative effort between federal, state and local entities to create an authoritative, statewide roadway dataset. MDOT's Environment and Sustainable Transportation (EST) Program is evaluating the feasibility of a statewide sidewalk dataset that would be conflated to OMOC data and maintained statewide. The purpose of this effort is to review data that jurisdictions across Maryland collect and how other entities map sidewalks to identify best practices and a realistic methodology for counties. Ultimately, this will lead to the development of a methodology and other recommendations for MDOT and stakeholders to build and maintain sidewalk data. Adding pedestrian data to OMOC will make it easier to track improvements to the pedestrian network over time and facilitate asset management and safety assessments.

FIGURE 7: **Sidewalk, Trail and Shared Use Path Infrastructure**

3.3 Demographics & Equity Indicators

PRIORITIZING SOCIAL EQUITY IN ACTIVE TRANSPORTATION INVESTMENTS

Reflecting MDOT's commitment to promoting equity through infrastructure investments, the BPMP's project prioritization framework incorporates several measures intended to address social and economic disparities. In accordance with current federal guidance, MDOT developed an index reflecting four key characteristics:

1. current disadvantage,
2. historical disadvantage,
3. geographic isolation, and
4. population density.

Together, these indicators establish a framework for:

◆ prioritizing improvements based on the expected significance of their impact on affected communities; and

◆ targeting active transportation infrastructure investments to benefit historically marginalized communities.

Redressing Longstanding Disadvantage: Justice40

Though the definitions have evolved over the years, numerous USDOT indicators address equity. Recently, the Biden Administration re-emphasized the United States' commitment to social equity and environmental justice through the Justice40 Initiative.

Justice40 ensures that "40 percent of benefits from Federal grants, programs and initiatives flow to disadvantaged communities. This will address decades of underinvestment and bring resources to communities most impacted by climate change, pollution and environmental hazards."

The Justice40 interim implementation guidance identifies disadvantaged areas and prioritizes their residents for federal investment. MDOT's equity scoring is based on indicators developed for the Justice40 initiative.

CALCULATING THE EQUITY NEED INDEX

MDOT determined an area's equity need using an equally weighted index (Figure 8 and the BPMP mapping app). The Equity Need Index scoring process determines whether each census tract in Maryland is a currently disadvantaged community, a historically disadvantaged community, or a rural area. Since this prioritization framework considers bicycle and pedestrian improvements, population density serves as a fourth factor, ensuring the index adequately emphasizes areas most suited to active transportation.

The Equity Need Index provides a means of prioritizing investments based on an investment's significance to the surrounding communities. Appendix C describes the four component measures in more detail, including their correspondence to existing federal funding program eligibility, to help MDOT link project proposals with potential future funding.

Low density areas generally score lower and high density areas generally score higher on the Equity Need Index. This pattern is seen in both large metropolitan areas and dense small towns. More dense settlement includes greater potential for economic, educational and public health disparities captured in the component disadvantage index scores. Similarly, greater population density indicates better active transportation suitability, further elevating these areas' scores.

High Equity Need Index scores cluster in the areas around Baltimore and Washington, DC. However, some small towns along the Eastern Shore, including Salisbury, Denton and Easton, score higher on the index, not only because of their relatively high population density, but also because they have fewer economic opportunities compared to the state's major metropolitan areas.

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Prioritization Index

Equity Need
- Low
- Low - Moderate
- Moderate
- Moderate - High
- High

Washington-Baltimore Combined Statistical Area

0   20   40 Miles

FIGURE 8: **Equity Need Index**

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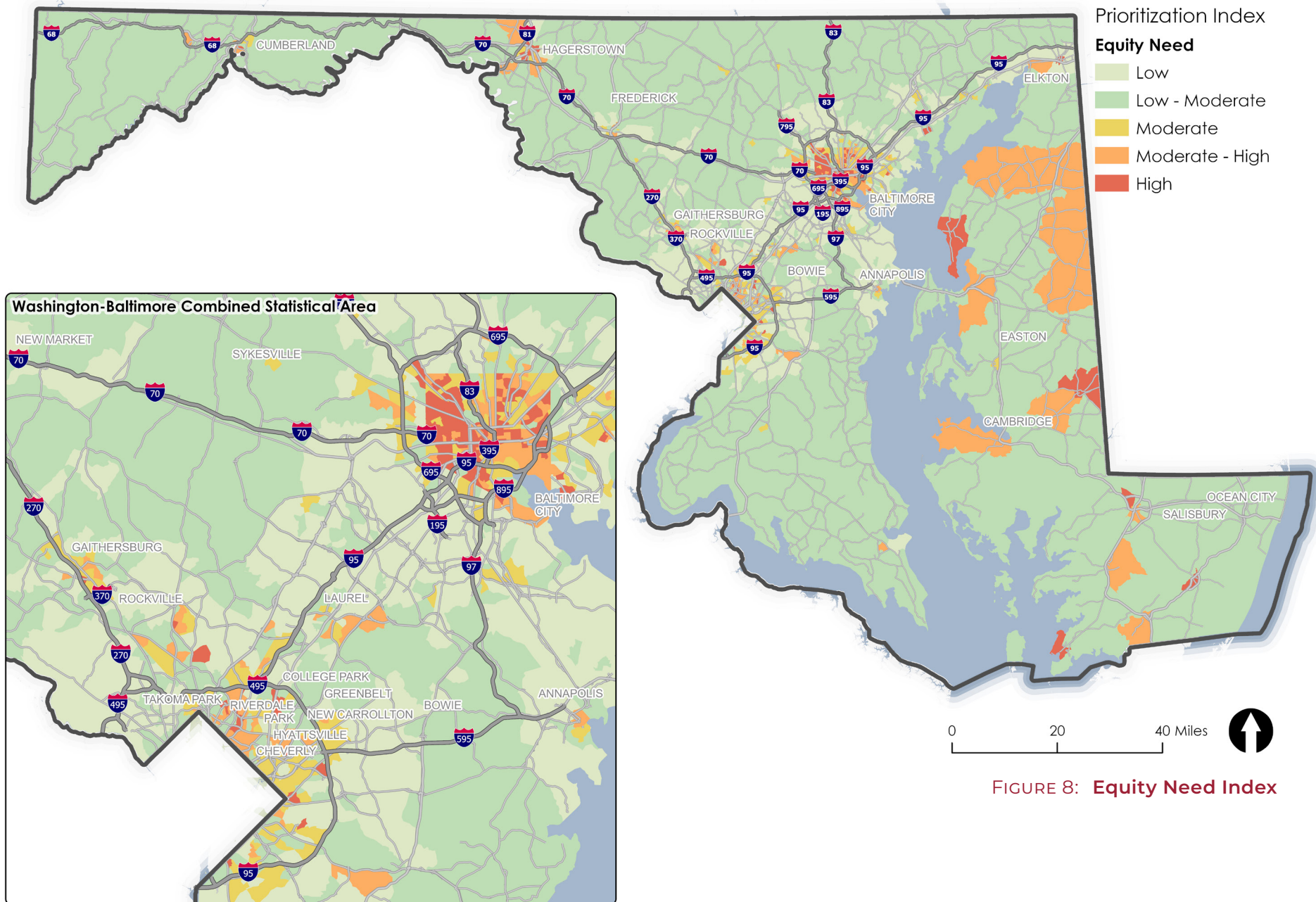
3.4 Bicycle Network Priority Areas

MDOT conducted a bicycle network gap analysis by comparing Bicycling Accessibility and Equity Need Index scores (Figure 9 and the BPMP mapping app). The result suggests areas with the highest equity need and lowest bicycle accessibility (highlighted in the legend) as those most likely to gain from bicycle network improvements.

BALTIMORE METRO

Within the Baltimore Metro region, Baltimore City's gridded street network becomes increasingly irregular approaching the municipal boundary, decreasing road connectivity and contributing to higher traffic on arterial roads. As a result, these areas have higher traffic stress and lower accessibility. Several of Baltimore's outer neighborhoods also qualify as Areas of Persistent Poverty. For more information on Areas of Persistent Poverty, see Appendix C. Development of the Baltimore Greenway Trails Network and accompanying low-stress connections provides an opportunity to address critical gaps in these priority areas. In contrast, the inner ring of the Baltimore suburbs has lower equity needs and higher bicycle accessibility than the City's outer areas and the areas located farther into Baltimore County. Additionally, parts of Annapolis have high equity need and low bicycle accessibility, compounding challenges created by road network limitations due to the Chesapeake Bay's small, irregularly shaped peninsulas.

WASHINGTON, DC, METRO

Many of the suburbs surrounding Washington, DC have low equity need and high bicycle accessibility. However, a few high equity need and low bicycle accessibility areas in Prince George's County would benefit greatly from bicycle infrastructure improvements. Specifically, there are areas to the east and southeast of Washington, DC, as well as areas farther to the northwest, that should be prioritized for bicycle infrastructure improvements. Though located along the periphery of Washington, DC, their auto-oriented land use patterns and irregular road networks result in high-stress arterial roads that isolate vulnerable road users. Development of planned Capital Trails Network infrastructure addresses many critical gaps in this area, leveraging shared-use paths to create low-stress connections. Providing active transportation infrastructure in these communities promotes connectivity and safety in historically disadvantaged communities.

EASTERN SHORE

The Eastern Shore generally has lower levels of bicycle accessibility, except for Cambridge, Easton, Elkton and Salisbury, where the more gridded settlement patterns promote walking and bicycling. Generally, the sparse population of small developments along the Eastern Shore means that many roads are critical arterial connections, which increases their LTS. This region includes several areas characterized by a high equity need and low bicycle accessibility, some of which include Areas of Persistent Poverty. The region between Easton and Elkton contains several smaller areas that can be prioritized, including one Area of Persistent Poverty. There are also Areas of Persistent Poverty in Cambridge, Elkton, Salisbury and some of the areas south of Salisbury. The areas surrounding Cambridge, Ocean City and Salisbury are likely to benefit from improved bicycle infrastructure.

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Figure 9: **Bicycle Network Gap Analysis**
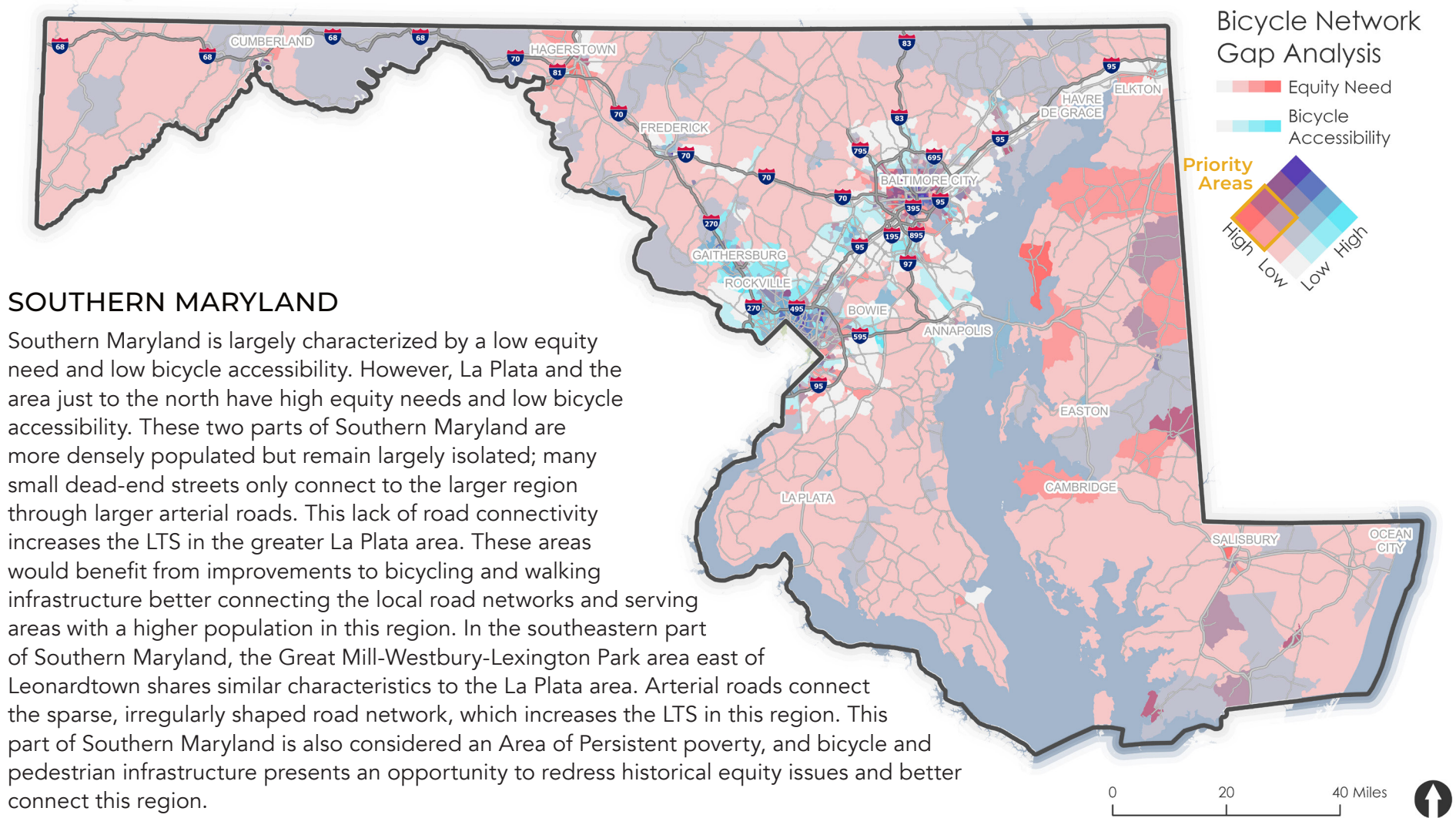
SOUTHERN MARYLAND

Southern Maryland is largely characterized by a low equity need and low bicycle accessibility. However, La Plata and the area just to the north have high equity needs and low bicycle accessibility. These two parts of Southern Maryland are more densely populated but remain largely isolated; many small dead-end streets only connect to the larger region through larger arterial roads. This lack of road connectivity increases the LTS in the greater La Plata area. These areas would benefit from improvements to bicycling and walking infrastructure better connecting the local road networks and serving areas with a higher population in this region. In the southeastern part of Southern Maryland, the Great Mill-Westbury-Lexington Park area east of Leonardtown shares similar characteristics to the La Plata area. Arterial roads connect the sparse, irregularly shaped road network, which increases the LTS in this region. This part of Southern Maryland is also considered an Area of Persistent poverty, and bicycle and pedestrian infrastructure presents an opportunity to redress historical equity issues and better connect this region.

WESTERN MARYLAND

In Western Maryland, the Cumberland and Hagerstown areas have high equity needs and low bicycle accessibility. Both cities have several Areas of Persistent Poverty. While the more gridded settlement patterns in this region help connect different parts of their respective communities, rural and suburban communities outside of the cities often have limited connection to the road system, reducing their walking and bicycling accessibility. The rest of Western Maryland generally has lower equity needs and lower bicycle accessibility.

20%
SCHOOL COVERAGE

School age children are vulnerable users of the transportation sytem with limited transportation options. School coverage assesses the number of schools within 0.5 miles of each Census block.

25%
POPULATION DENSITY

Population density provides an indicator of network density and latent demand for walking and biking. Population is assessed using 2020 Decennial Census data at the block level.

20%
TRANSIT COVERAGE

Effective transit systems depend on first- and last-mile walking and biking connections. Transit coverage assesses the number of transit stops within 0.25 miles of each Census block.

10%
ZERO CAR HOUSEHOLDS

The inclusion of households without access to a car reflects the need for high quality walking and biking infrastructure where people have limited transportation options. Zero car households are assessed at the block level using American Community Survey (ACS) data.

25%
EMPLOYMENT DENSITY

Employment density provides an indicator of network density and latent demand for walking and biking. Employment density is assessed using 2019 Longitudinal Employer-Household Dynamics (LEHD) origin-destination data assigned to the block level.

FIGURE 10: **Short Trip Opportunity Area Criteria Weighting**

3.5 Short Trip Opportunity Areas

The Short Trip Opportunity Areas (STOA) methodology, originally developed in response to Maryland statutory mandates related to identification and designation of Bicycle and Pedestrian Priority Areas, highlights areas with greater potential for active transportation trips. For the BPMP, Maryland updated the STOA analysis using the most recent state and US Census block-level data available.

The methodology identifies areas with short trip potential based on population density, employment density, zero car households, transit coverage and school coverage. Their respective weights, depicted in Figure 10, align with the 2019 BPMP.

The STOAs (Figure 11 and the BPMP mapping app) highlight urban cores, town centers and high activity corridors throughout the state. As a planning tool, STOAs guide investment and policy conversations at the state, regional and local levels and respond to Complete Streets and Bicycle and Pedestrian Priority Area policies. The MTP finds that Maryland has one of the highest rates of working from home (24 percent in the U.S. Census, American Community survey, 2021 1-Year Estimate). While work-from-home trends continue to evolve, people living and working in the same place means that enhancing STOAs is important for achieving equitable and sustainable communities and mode shift objectives.

COMMUTER MODE SHARE
0.3% BIKE
2.0% WALK

57%
HIGHER BICYCLING ACCESSIBILITY SCORES IN SHORT TRIP OPPORTUNITY AREAS

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Short Trip Opportunity Areas

Potential for Short Trips

Moderate
High
Very High

Washington-Baltimore Combined Statistical Area

FIGURE 11: **Short Trip Opportunity Areas**

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3.6 Statewide Safety Trends

Vulnerable Roadway Users (2016-2021)

Figure 12 and the BPMP mapping app depict the density of non-fatal crashes involving pedestrians and bicyclists in Maryland and the location of each fatal crash from 2016 to 2021. The map shows that most crashes occur in more densely populated areas, as would be expected. However, some less-populated areas have crash rates that are disproportionate to their population size. This is potentially attributable to higher driving speeds in these areas.

Statewide Pedestrian & Bicyclist Crashes (2016-2021)

- Fatal Crashes

Non-Fatal Crash Density

- 61+ Per Square Mile
- 41 - 60 Per Square Mile
- 31 - 40 Per Square Mile
- 21 - 30 Per Square Mile
- 11 - 20 Per Square Mile
- 6 - 10 Per Square Mile
- 1 - 5 Per Square Mile

0   20   40 Miles
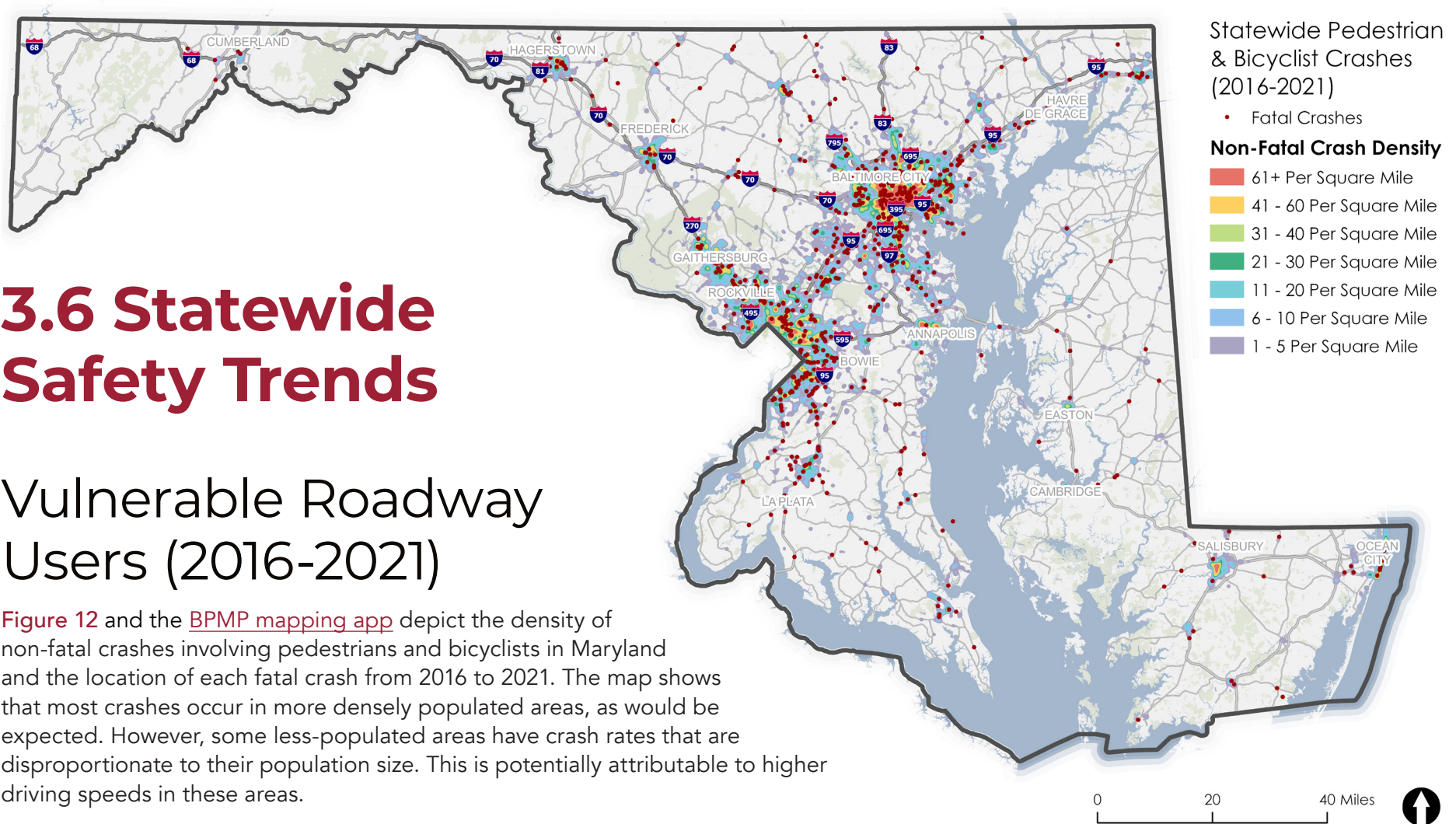
FIGURE 12: **Statewide Pedestrian & Bicyclist Crashes (2016-2021)**

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Pedestrian Safety

Pedestrian safety remains a concern and a critical challenge to ensuring the equity of Maryland's transportation system. The number of pedestrian involved crashes and statewide vehicle miles traveled (VMT) remained relatively consistent from 2016 to 2019. In 2020, Maryland's VMT drastically decreased during the COVID-19 pandemic. While the overall volume of pedestrian crashes also decreased, the number of pedestrian fatalities increased from 126 to 137, reflecting an increase in crash severity. In 2020 and 2021, pedestrian serious injuries[1] and fatalities accounted for 18 percent and 19 percent of all pedestrian crashes, respectively.

FIGURE 13: **Pedestrian Crashes in Maryland (2016-2021)**

FIGURE 14: **Percent of Pedestrian Crashes Resulting in Serious Injury or Fatal Injury (2016-2021)**
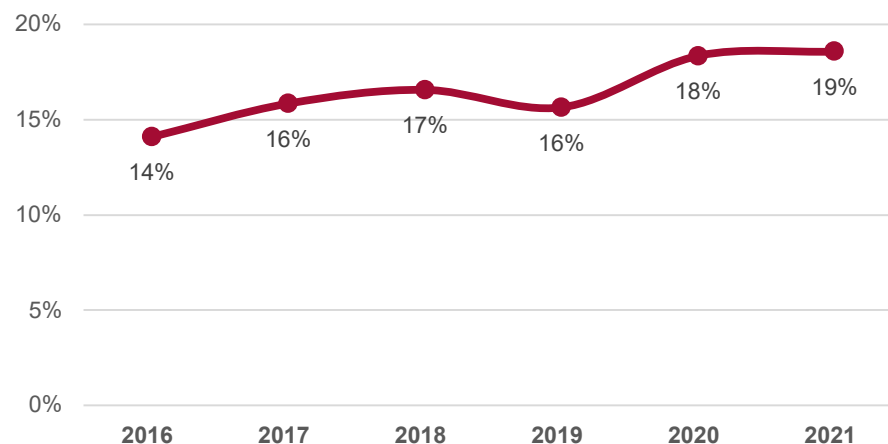
FIGURE 15: **Pedestrian Serious Injuries and Fatalities in Maryland (2016-2021)**

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1   A serious injury is any injury, other than a fatal injury, which prevents the injured from walking, driving, or normally continuing the activities they were capable of performing before the injury occurred.
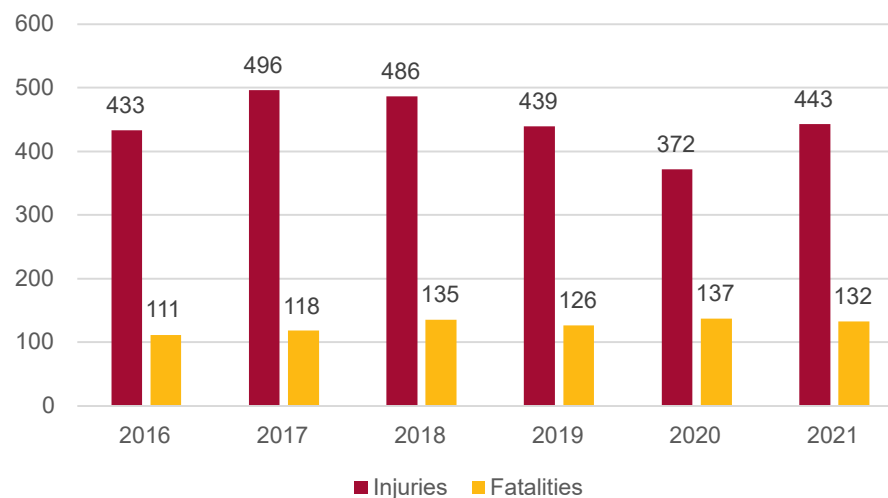
FIGURE 16: **Bicycle Crashes in Maryland (2016-2021)**
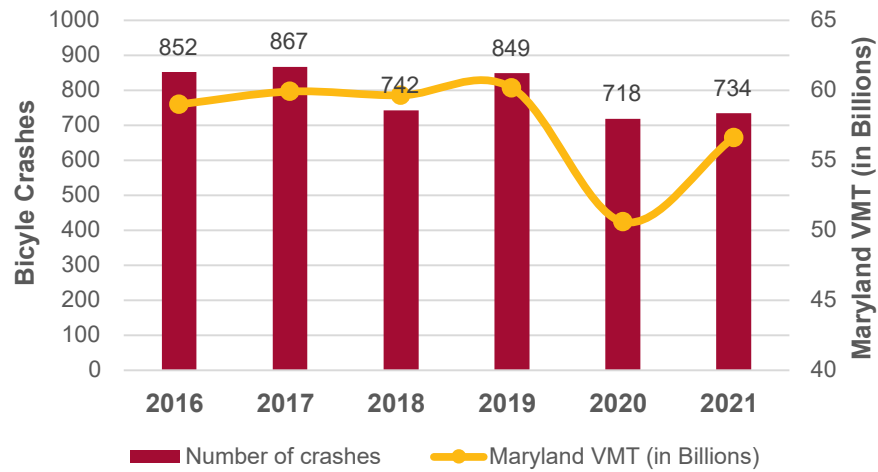
Bicyclist Safety

Though the overall number of crashes involving bicyclists and bicyclist fatalities varied over the past six years, bicyclists remain vulnerable on Maryland's roadways. Bicyclist fatalities declined from 2016 to 2018 before increasing drastically from 2018 to 2020. In 2016 and 2020, Maryland documented 16 fatalities, compared to 11 or fewer in all previous years since 2008. Even with fewer vehicles on the roadways in 2020, the state still reported the most fatalities since 2016. During this period, the proportion of bicycle crashes resulting in serious injuries or fatalities remained fairly consistent, ranging from 9 to 12 percent of all bicycle crashes.

FIGURE 17: **Bicyclist Serious Injuries and Fatalities in Maryland (2016-2021)**
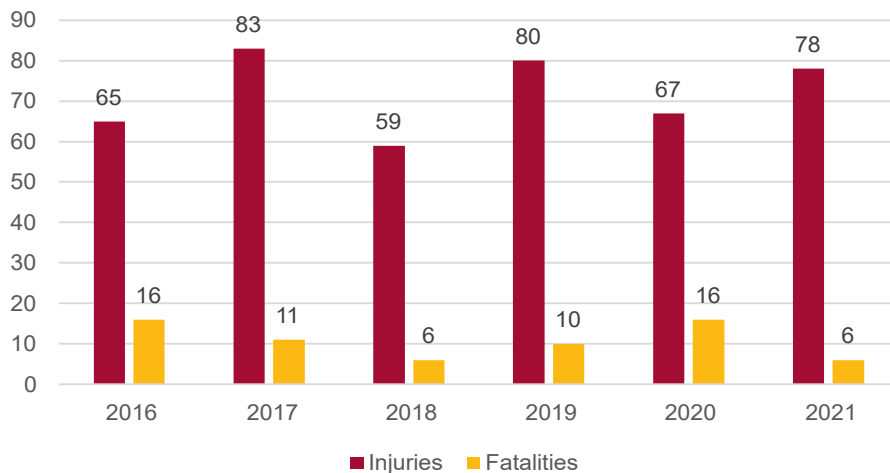
FIGURE 18: **Percent of Bicycle Crashes Resulting in Serious or Fatal Injury (2016-2021)**
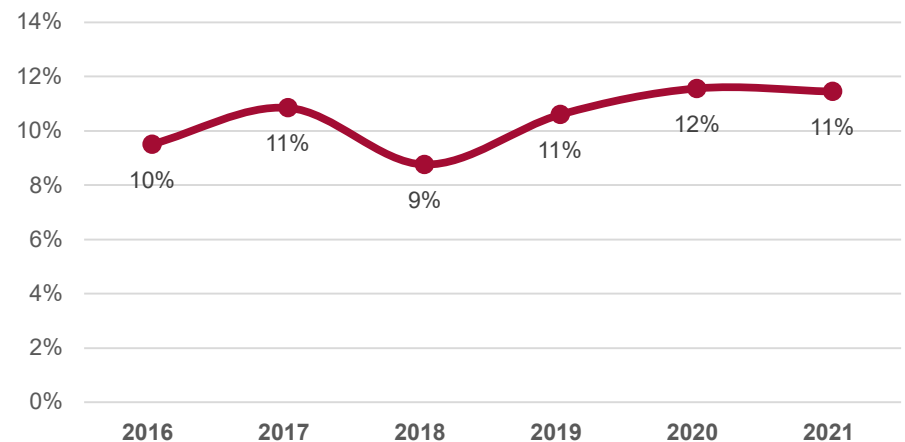
3.7 State of Emerging Technology

Opportunities & Constraints

Bike share, e-scooters and other micromobility systems have recently emerged as crucial elements of the transportation landscape. Since the launch of the first bike share system in 2008, more than half a billion trips have been taken on shared scooters and bikes in the United States.[1] Micromobility became a more appealing transportation option for many Americans following the onset of the COVID-19 pandemic and has also helped increase transportation access in many urban and suburban communities.

Several cities and counties in Maryland have micromobility programs, including both dockless and docked options. Dockless vehicles (e.g., e-scooters) do not need to be parked at a bike rack or other designated location, whereas docked vehicles (e.g., Capital Bikeshare bikes) need to be parked at designated locations. Table 1 highlights the municipalities in Maryland with micromobility programs and their key characteristics.

OPERATING STRUCTURES

Most micromobility programs operate as public-private partnerships between operators and local governments. This requires cooperation between operators and local governments to maintain equitable access, promote the safety of riders and non-riders and ensure transportation demand is met.

Many local governments, such as the City of Baltimore, choose to issue annual permits to micromobility operators. The permitting structure allows local governments to maintain control of the program and adjust permit requirements as needed. Other municipalities, like the City of Annapolis, enter into single operator agreements through which a sole operator provides all of the City's micromobility services.

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1   National Association of City Transportation Officials (NACTO).

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EQUITY REQUIREMENTS

As micromobility programs continue to emerge and evolve over time, opportunities exist for local governments to promote equity through spatial distribution and equity plan requirements. Spatial distribution requirements dictate where vehicles can and cannot be deployed. The Baltimore Dockless Vehicle Program designates Deployment Districts and Equity Zones. Operators must maintain both minimum and maximum percentages of e-scooters and e-bikes in the designated Deployment Districts and deploy vehicles to designated Equity Zones each morning. The deployment requirements promote the accessibility and reliability of micromobility devices in all parts of the City.

Equity plans include low-income, cash payment and non-smartphone plans, allowing users to rent vehicles at discounted rates or in more accessible ways. Baltimore City and Montgomery County offer equity plans.

FIGURE 19: **Trends in Micromobility Use (2019-2021)**
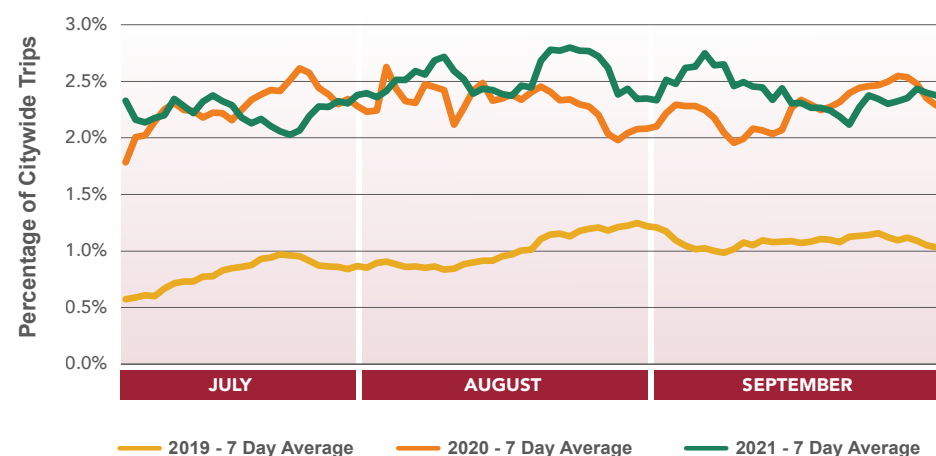
Left: Baltimore Bike Share Bicyclist southbound on Maryland Avenue. Photo courtesy Elvert Barnes, wikimedia

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USING MICROMOBILITY DATA

Shared micromobility devices feature GPS, allowing operators to track vehicle location. Local governments can use this data to evaluate existing bicycle infrastructure as well as identify infrastructure needs. For example, following the installation of a bicycle lane on Covington Street in Baltimore, e-scooter and e-bike trip data indicated that the installation of the bicycle lane prompted a shift of trips to the new facility from adjacent high-stress streets. The increase in the share of trips to a lower-stress bicycle facility indicated that riders prefer to use safe and comfortable infrastructure when it is available and that riders will even go slightly out of their way to access it.[1]

Micromobility data can also inform local planning efforts. For example, several streets with the highest shared e-scooter and e-bike ridership in Baltimore do not have bicycle facilities. These streets will be considered for infrastructure recommendations in the forthcoming Baltimore Bike Master Plan Update. The data also shows where riders are going and how ridership and use of micromobility change over time. For example, ridership data from Baltimore showed the percentage of e-scooter trips to transit increased in 2020 and 2021, even when the number of citywide e-scooter trips decreased.

Personally owned folding e-Scooters and e-Bikes under 50 lbs are permitted on MTA.
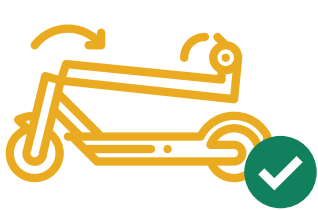
Folding e Scooters

≤50 lbs.

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1   Baltimore Dockless Vehicle Program Annual Evaluation Report 2021.

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PROGRAM NAME	CITY/ COUNTY	PROGRAM START DATE	VEHICLE TYPE(S)	LEVEL OF REGULATION	OPERATING STRUCTURE	EQUITABLE DISTRIBUTION REQUIREMENTS	EQUITY PLANS AVAILABLE	DATA SHARING REQUIREMENTS
Annapolis Shared Micromobility Program	Annapolis, MD	2022	E-scooters	City	**Service contract – single operator**	Yes	Not required by regulations	Yes
Anne Arundel County Micromobility Program	Anne Arundel County, MD	2023	E-scooters/ e-bikes	County	**Service contract – single operator**	Not required by regulations	Low-income	Not required by regulations
Aberdeen Dockless Scooter Pilot	Aberdeen, MD	2022	E-scooters	City	**Service contract – single operator**	Not required by regulations	Low-income	Not required by regulations
Baltimore Dockless Vehicle Program	Baltimore, MD	2019	E-scooters/ e-bikes/ adaptive vehicles	City	**Permit – 2-3 operators, renewed annually**	Yes	Low-income, non-smartphone, cash payment plans	Yes
Howard County E-Scooter Sharing Pilot Program	Howard County, MD	Pilot program no longer operational	E-scooters	County	**Permit – Single operator, renewed annually**	Yes	Non-smartphone, cash payment plans	Yes

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1   Micromobility programs adjust often. This table shows a snapshot from 2023.

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PROGRAM NAME	CITY/ COUNTY	PROGRAM START DATE	VEHICLE TYPE(S)	LEVEL OF REGULATION	OPERATING STRUCTURE	EQUITABLE DISTRIBUTION REQUIREMENTS	EQUITY PLANS AVAILABLE	DATA SHARING REQUIREMENTS
Montgomery County Dockless E-scooter Pilot Program Expansion	Montgomery County, MD	2019	E-scooters	County	**Memorandum of Understanding –** multiple operators	Not required by regulations	Cash payment plans	Yes
Scooter/Bike Share Pilot Program	City of College Park, MD; University of Maryland; Town of University Park, MD	2019	E-scooters/ e-bikes	City/ University	**Service contract (VeoRide) –** single operator	Not required by regulations	Not required by regulations	Not required by regulations
Capital Bikeshare	Montgomery County, MD; Prince George's County, MD	2010	Docked bikes	City/County	**Service contract –** single operator	Yes	Non-smart phone, cash payment plans	Not required by regulations

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CHAPTER 4

RECOMMENDED POLICY, PROGRAMS & GUIDANCE FOR IMPLEMENTATION

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4.1 Building a Statewide Active Transportation Network through Complete Streets

The state continues to refine policy, programs, guidance and funding mechanisms to support the implementation of critical active transportation infrastructure on state roadways. Building a robust active transportation network through Complete Streets also requires extensive collaboration and coordination with local jurisdictions. This chapter summarizes some of the key recommendations that facilitate implementation, including:

◆ establish a Complete Streets Policy,

◆ develop Bicycle Facility Selection Guidance,

◆ develop resources to plan and build out pedestrian infrastructure near transit stations,

◆ identify tools to measure pedestrian accessibility,

◆ update the Statewide Trail Plan, and

◆ develop guidance for the future of micromobility, dockless vehicles and other technology.

MARYLAND'S FRAMEWORK FOR IMPLEMENTING COMPLETE STREETS

What are Complete Streets?

USDOT defines Complete Streets as streets designed and operated to enable safe use and support mobility for all users, including people of all ages and abilities, regardless of whether they are traveling as drivers, pedestrians, bicyclists or public transportation riders. The concept of Complete Streets encompasses many approaches to planning, designing and operating roadways and rights-of-way for all users. These approaches vary based on the actual or planned context of the environment being served by the transportation system.

Complete Streets & Vision Zero Policies

In 2012, SHA established its first Complete Streets policy. Since then, MDOT embraced a Vision Zero approach and committed to eliminating all traffic fatalities and serious injuries on Maryland roadways by 2030. Maryland's local jurisdictions have embraced varying forms of Vision Zero, Complete Streets policies and a Safe System Approach to prioritize implementing projects that promote multimodal access on Maryland's roadways. However, despite these policy initiatives and implementation efforts, the magnitude of change needed has resulted in slow realization, and complete multimodal systems are rare in Maryland.

Context Driven Design

SHA developed a projected planning and implementation framework, Context Driven, to substantially advance Maryland's Vision Zero goal and the recommendations of the 2019 BPMP. The Context Driven implementation framework includes the:

1. Pedestrian Safety Action Plan,

2. Context Driven Guide,

3. Context Driven Toolkit,

4. Case Studies,

5. Education and Outreach, and

6. Web Portal.

Maryland's Pedestrian Safety Action Plan (PSAP): SHA completed a statewide analysis of existing conditions and determined, based on crash data and other factors, where pedestrian and bicycle safety improvements are needed most.

The Context Driven Guide: SHA prepared a set of classifications for Maryland roads showing a range of land use contexts and typical conditions with recommended approaches to balance access and mobility when designing roads, bikeways and sidewalks.

Context Driven Toolkit: SHA launched an online guide for practitioners to use when planning and designing a roadway system using context driven principles.

Case Studies: SHA will develop examples to share implementation experiences and report on actual safety benefits of projects built.

Education and Outreach: SHA prioritizes communication to staff, partner agencies and the public to build awareness and expand the use of the Context Driven framework within and outside the organization.

Context Driven Web Portal: SHA maintains a one-stop shop where its partners and the public can access Maryland's Context Driven resources and get updates on SHA's progress.

The Context Driven planning and implementation framework prioritizes the development of a safe and effective multimodal transportation system based on the surrounding land use. The recommendations for implementing Complete Streets projects and building out the active transportation network focus on leveraging this framework to advance **Maryland's vision of a transportation system that addresses equity needs for non-automobile transportation access, safety needs for vulnerable roadway users and mode shift away from the automobile.**

Image Source: Pedestrian Safety Action Plan.

Recommended Policy, Programs & Guidance for Implementation

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LOCAL PARTNERSHIPS

To have a substantial impact on active transportation systems across Maryland, state agencies must proactively partner with local decision-makers to adopt a Safe System Approach in support of all planning and implementation processes that affect the built environment. This section outlines recommended tools, resources, data, policies and programs that can help local jurisdictions advance Complete Streets projects.

SIDEWALK AND SHARED USE PATH MAINTENANCE RESPONSIBILITIES

There are numerous funding sources available for the construction of sidewalks and shared use paths, both at the state and federal levels. Sidewalk and shared use path maintenance is more difficult to fund as few funding sources exist. Maintenance includes activities associated with keeping sidewalks and shared use paths in a state of good repair, including snow removal, leaf removal and repairs due to weathering and age. Complicating the maintenance issue, state law and policies restrict the State of Maryland from providing maintenance assistance.

Most Maryland local jurisdictions dictate that sidewalk maintenance is the responsibility of the adjacent property owner.

For sidewalks along Maryland state highways, the political subdivision in which the sidewalk is located is responsible for sidewalk maintenance and repairs, according to Maryland Annotated Code, Transportation Chapter, Title 8, Subtitle 6, Part IV, §8-630. This law places the burden of sidewalk maintenance on the local jurisdiction, a substantial responsibility in cases of lengthy sidewalks. Due to this law, State Highway Administration requires a memorandum of understanding (MOU) with local jurisdictions before initiating planning or design of sidewalks and shared use paths along state highways, limiting the effectiveness of dedicated funding sources.

During the BPMP stakeholder engagement process, sidewalk and shared use path maintenance was a main concern of local jurisdictions. Revisiting and updating the Maryland code to remove the maintenance responsibility from local jurisdictions was encouraged to provide a more equitable responsibility of asset management. Similarly, where local jurisdictions desired to use green pavement treatment for bicycle facilities across state roadways, current SHA policy dictates that the design, construction and maintenance of green pavement treatment is also the responsibility of the local jurisdiction. Revisiting and updating this policy was also encouraged by the local jurisdictions to align more with federal guidance of green treatment applications.

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STATEWIDE COMPLETE STREETS POLICY

In 2012, SHA adopted a Complete Streets Policy with the goal of increasing the safety and efficiency of roads by providing facilities for walking, biking and other community needs. Because half of pedestrian fatalities and two-thirds of pedestrian crashes are concentrated in the most urbanized areas, which account for less than four percent of the state's land area, SHA developed the Context Driven Guide to proactively account for the built environment and user characteristics. The Context Driven Guide provides a menu of treatments and safety countermeasures appropriate for the various environments throughout the state.

Developed separately, the Complete Streets Policy is not fully compatible with the recently developed Context Driven Guide. Further, existing policies guiding operations and design of state-maintained roads sometimes conflict with the goals and guidance of the Context Driven framework. To reinforce consistency and an effective Complete Streets policy direction, MDOT should create a state-level Compete Streets Policy consistent with the Context Driven framework that updates state design guidance to more progressive national best practice. The Policy should also include incentives for local jurisdictions to adopt their own Complete Streets policy, such as through the creation of a grant program.

For local jurisdictions without an existing Complete Streets policy, MDOT should create Complete Streets policy guidance for local partners with best practice examples including Multimodal Transportation Impact Analysis and Development Review approaches. When a Complete Streets policy and/or design guidance is in place, a framework should be developed for SHA to work with jurisdictions to apply the local guidance to state projects, especially if the local guidance is more proactive than state guidance.

COMPLETE STREETS GRANT PROGRAM

Maryland's Complete Streets Policy should include and be supported by a state grant program that includes incentives like technical assistance, funding and collaboration on development decisions. The grant program will support prioritizing and implementing both corridor and spot improvement projects through local partnerships. This funding program is already in statute so the state can direct future funds into the program. The grant program can be structured to incorporate many of the incentives and policy objectives outlined in a future update of the state's Complete Streets Policy.

BEST PRACTICES

Howard County's Complete Streets Policy

The Howard County Complete Streets Policy mandated training for County staff, their consultants and community members to cultivate an understanding of the Policy and revisions to the Design Manual.

"When this Design Manual was adopted, there were training sessions to ensure everybody was aware of the revisions. This helped our project managers, consultants and engineers implement the changes into their projects since they were knowledgeable on the content of the Design Manual."

Abdul Akbari, Chief of Bureau of Engineering, Transportation and Special Projects Division at the Department of Public Works | Howard County, Smart Growth America, Howard County (MD): A collaborative effort to create Complete Streets

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MODEL COMPLETE STREETS CORRIDORS PROGRAM ON THE STATE'S PRIORITY SAFETY CORRIDORS

As part of the development of SHA's PSAP, the state identified Areas of Need based on crash data, public input, equity metrics and STOAs. The Areas of Need include 23 priority safety corridors that would benefit the most from building specific countermeasure treatments to address safety needs for people walking and biking. A recommended action is to leverage the proposed Complete Streets Policy and a Safe System Approach for SHA to address priority corridors, starting with those that are most dangerous. This recommendation can be achieved through a Model Complete Streets Corridor Program, where the project goals focus on designing and implementing enhanced Complete Streets projects.

4.2 Building the Bicycle Network

Expanding Maryland's bicycle network will require a combination of (a) leveraging project opportunities along and across state roads and (b) working with local jurisdictions to implement supporting infrastructure on local roads. However, designers and local practitioners across the state are working with different understandings of priorities and what is considered an "appropriate" bicycle facility for a corridor's context. The following guidance leverages the state's Context Driven Guide, FHWA's Bikeway Selection Guide and Maryland's comprehensive LTS dataset to provide direction to practitioners on low-stress bike network planning and appropriate bicycle facility selection. A detailed version of this selection guidance is provided in Appendix D.

BICYCLE FACILITY SELECTION GUIDANCE

The selection of an appropriate bicycle facility is based on a design process that answers the key questions:

◆ Who is the user we are trying to design for given the context of the roadway?

◆ What is the best bicycle facility for that user based on the existing Level of Traffic Stress (LTS) of the corridor?

The facility selection process answers these questions using the Context Driven Guide and LTS database.

Automated bicycle counters document bicycle traffic levels.

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Low Stress Tolerance (larger portion of population) → High Stress Tolerance (smaller portion of population)

NON-BICYCLE	ALL AGES & ABILITIES (LTS 0)	INTERESTED BUT CONCERNED (LTS 1 & 2)	ENTHUSED & CONTFIDENT (LTS 3)	STRONG & FEARLESS (LTS 4)
Not interested in or unable to ride a bicycle.	These users, such as young children, have the lowest stress tolerance and need to be fully separated from traffic, such as on Rail Trails and Shared Use Paths.	These users have low stress tolerance and require routes that are low vehicle speed and volume or that have some sort of separation from vehicles to feel comfortable.	Rider who are enthused and confident are usually experienced and are comfortable riding in a range of traffic conditions and on-road facilities.	These users have a high tolerance for traffic stress and are willing to ride on roadways in most conditions, where permitted.

Adapted from FHWA Bikeway Selection Guide

USER TYPES

People riding bikes have varying degrees of tolerance for roadway conditions, which vary based on age, bicycling experience and/or sense of safety from motor vehicle traffic. Most people open to bicycling are willing to ride on low-stress corridors. Smaller portions of the population are composed of enthused and confident riders and strong and fearless riders; these groups have higher stress tolerance. A final group is not interested in or able to bike, regardless of the route quality (Figure 20).

4.3 Building the Pedestrian Network

RECOMMENDED PEDESTRIAN PROJECTS WITHIN RAIL AND TRANSIT WALKSHEDS

One component of the broader statewide effort to develop a safe and connected pedestrian network includes planning and implementing pedestrian improvements near rail transit and high-ridership bus stops. In 2021, MDOT conducted a walkshed assessment of 104 rail stations, which local jurisdictions can use to improve transit access in their communities. MDOT is also in the process of developing a statewide ADA and sidewalk inventory for local jurisdictions to use in planning and prioritizing pedestrian infrastructure. These data, along with technical assistance from the recommended Complete Streets Grant Program, can provide a detailed starting point for municipalities to plan and design spot and corridor-level pedestrian improvements in the walksheds of critical transit facilities.

MEASURING PEDESTRIAN ACCESSIBILITY TO GUIDE LOCAL PLANNING

MDOT is exploring a framework to prioritize areas for pedestrian access projects. This prioritization framework and accompanying tool present an opportunity to help local governments select projects based on indicators of need.

PRIORITIZATION METHODOLOGY

The prioritization methodology is summarized below. The detailed methodology can be found in Appendix E.

1. Identify the area with the greatest need for transportation investment based on:
   a. areas federally designated as Equitable Transportation Communities (ETCs),
   b. Areas of Persistent Poverty,
   c. areas of geographic isolation, and
   d. population density.

2. Prioritize the parts of the pedestrian network that are in most need of transportation improvements, using metrics such as:
   a. sidewalk availability,
   b. LTS, and
   c. crash history.

3. Select high-scoring network links (step 2) within highest areas of equity needs (step 1).

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CASE STUDY: HAGERSTOWN

In Western Maryland, Hagerstown features a compact downtown and a comprehensive network of low-stress streets. Reviewing the pedestrian improvement prioritization framework within areas of need identified by the Equity Need Index suggests areas where improvements to pedestrian infrastructure may be most impactful (Figure 21). Based on these results, new and/or enhanced pedestrian infrastructure surrounding the downtown area would have the largest impact on accessibility.

This example highlights the utility of the Equity Need Index and pedestrian improvement prioritization framework for local planning. Development of a web-based tool to display this information would allow local jurisdictions to examine their own information, consult with their communities and identify projects that would target underlying need for improved active transportation infrastructure.

State and Local Coordination

Hagerstown and Hagerstown/Eastern Panhandle Metropolitan Planning Organization have a proactive partnership with MDOT. Together, they completed a Bicycle & Pedestrian Priority Areas (BPPA) study in 2020. The study's recommendations included several safety and comfort opportunities, in particular along Route 40. The City is also seeking a Safe Routes to School grant to accomplish an intersection recommendation in the BPPA study. The study has served as a means to coordinate with and leverage SHA support to identify and begin implementing priority improvements.

Figure 21: **Pedestrian Project Area Prioritization Example, Downtown Hagerstown**

Pedestrian Improvement Need
- High
- Moderate
- Low

Existing Pedestrian Infrastructure
- Shared Use Paths
- Documented ADA Compliant Sidewalks

0   0.5   1 Miles
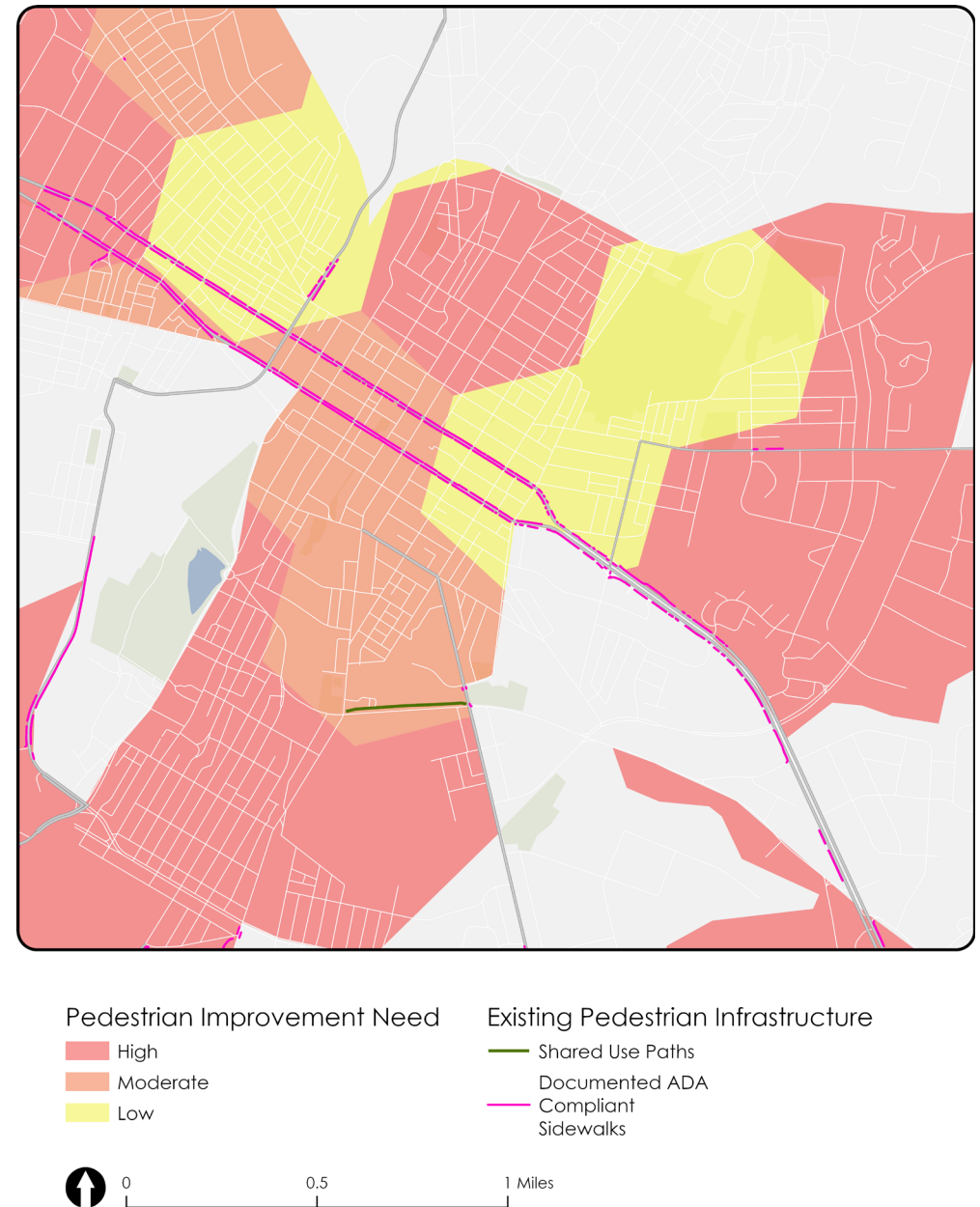
Left: Shared Use Path
Right: Recreational Trail

Left: Legacy Trail
Right: Natural Surface Trail

Recommended Policy, Programs & Guidance for Implementation

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4.4 Statewide Trail Network

Trails are a critical part of Maryland's low-stress bike and pedestrian network that are used for both transportation and recreation. The term "trail" encompasses multiple facility types as described in Table 2. While a shared use path is the standard for use by pedestrians, bicyclists and micromobility users, in park settings a recreational trail is often appropriate. Older facilities, known as legacy trails and paths, may not meet current accessibility guidelines and should be upgraded to shared use path standards as funds are available.

One example of a legacy trail is the C&O Canal Trail, located in the Chesapeake & Ohio Canal National Historical Park. The C&O Canal

Trail has a crushed stone surface and connects Washington, DC and Cumberland, MD. According to the National Park Service, "in 2016, the C&O Canal National Historical Park partnered with the Allegheny Trail Alliance (ATA) to assess the condition of the park's 184.5 miles of towpath." This assessment documented towpath conditions, including drainage issues, potholes, roots and other obstructions, and has been used to prioritize resurfacing efforts. The new towpath surface will be crushed run gravel, which facilitates drainage, and topped with stone dust, which creates a smooth surface for trail users. Resurfacing is ongoing and is being funded by the National Park Service, grants from FHWA through Transportation Alternatives, and the State of Maryland.

TABLE 2: **Summary of Trail Types and Definitions**

TRAIL TYPES	PRIMARY USE	DESCRIPTION	DESIGN GUIDANCE
Shared Use Path	Transportation, may be used by recreational users	Minimum 10-foot-wide paved or stable surface facility designed for two-way use by pedestrians with disabilities, bicyclists and micromobility device users. The maximum grade should be 5 percent or match the grade of the adjacent roadway (slope requirements still apply if located in an independent right-of-way).	AASHTO Guide for the Development of Bicycle Facilities
Recreational Trail	Recreation, may be used by bike commuters	Generally located within parks or recreational areas. Outdoor Accessibility standards for Outdoor Developed Areas permit steeper slopes than AASHTO standards for shared use paths. Minimum 36-inch-wide paved or stable surface facility designed for use by pedestrians with disabilities. Recreational trails may allow bicyclists, if sufficient width (preferred 10-foot width for two-way travel) is provided.	U.S. Access Board Guide to the ABA Accessibility Standards Chapter 10: Outdoor Developed Areas
Legacy Trails and Paths	Varies	Older facilities intended for use by pedestrians and bicyclists that do not meet accessibility standards due to slope or surface type and do not meet width minimums for use by bicyclists.	These facilities should be upgraded to shared use path standards as funds are available.
Natural Surface Trail	Recreation Only	Natural surface trails made of earth, dirt and rocks, designed for hiking and mountain biking. No minimum widths.	International Mountain Bicycling Association (IMBA) Trail Solutions Guide

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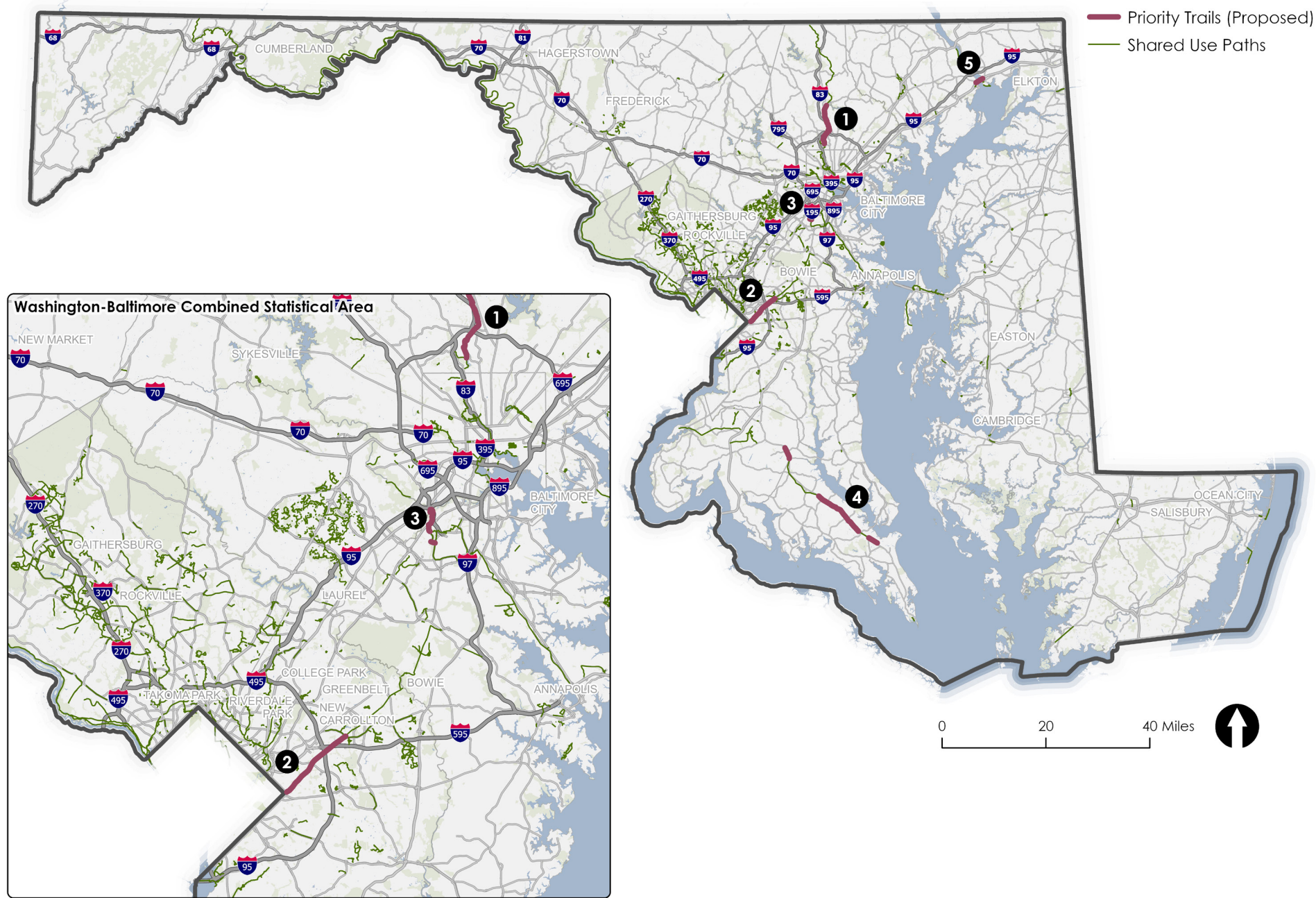MARYLAND DEPARTMENT
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UPDATE STATEWIDE TRAIL PLAN

In the 2009 Statewide Trails Plan, MDOT presented an inventory of approximately 780 miles of transportation trails with key gaps that were prioritized for future investment. Priority trails that were identified in that document that are not yet complete are shown in **Table 3**. Since 2009, additional planning for these facilities has occurred at the local level, as noted in the documentation column. **Figure 22** shows the statewide trail network and priority trails. While most 2009 Statewide Trail Plan priority projects have been completed, others remain as new trail network connections have been proposed. An updated statewide trail plan, focusing on trails that contribute to the state's transportation network, will help strategically close older gaps, improve inter-county connectivity, and plan for newer trail initiatives. All trails included in **Table 3** will be addressed in the updated trail plan, alongside new trail proposals.

TABLE 3: Remaining 2009 Statewide Trails Plan Priority Projects

ID	NAME	DESCRIPTION	DOCUMENTATION	LOCATION
1	Jones Falls Trail to Torrey C. Brown Rail Trail	8.4-mile connection between the northern terminus of the Jones Falls Trail near Lake Roland Park and the southern terminus of the Torrey C. Brown Rail Trail in Ashland east of Hunt Valley. This would upgrade an on-road segment of the East Coast Greenway.	Feasibility Study underway	Baltimore County
2	WB&A Trail towards DC	6.5-mile connection between the current southern terminus of the WB&A Trail near MD 450 in Prince George's County along MD 704 to the Washington, DC city limits.	WB&A Trail Extension Feasibility Study completed June 2018	Prince George's County
3	BWI Trail to Patapsco Regional Greenway	7-mile connection between the BWI Hiker-Biker Trail to the proposed Patapsco Regional Greenway via the Stony Run Trail. This connection includes the following Patapsco Greenway segments: Ridge Road, Stony Run, Stony Run Crossing, I-95.	Patapsco Regional Greenway Plan completed 2018	Anne Arundel County
4	Three Notch Trail in Charles & St. Mary's	10.5-mile connection (Phase VII, VIII and IX) between FDR Boulevard in the south and Baggett Park in the north. Approximately 2-mile connection (Phase IVB) between MD 237/Chancellors Run Road in the north and MD 235/Three Notch Road in the south (future southern terminus). 2.5-mile connection between the current northern terminus of Three Notch Trail at Deborah Drive/the Charles County line through Hughesville to the intersection of MD 5 and Leonardtown Road (future northern terminus).	Three Notch Trail phasing documentation from St. Mary's County	Charles County St. Mary's County
5	Lower Susquehanna Greenway across Susquehanna River	A bridge over the Susquehanna River between Havre de Grace and Perryville.	Maryland Trails 2009, local plans for Cecil County, Harford County, Perryville, and Havre de Grace	Harford County Cecil County

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Priority Trails (Proposed)
Shared Use Paths

Washington-Baltimore Combined Statistical Area

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Recognizing the importance of developing a low-stress network in coordination with local active transportation planning efforts, the Statewide Trail Plan should be updated to:

- integrate local trail projects and transportation network plans,
- include longer distance routes and paths along with greater focus on specific infrastructure improvements,
- set forth procedures to prioritize new projects and coordinate trail network improvements across jurisdictions,
- identify existing trails that are in need of improvements to meet current standards,
- include (or cross reference) design guidance for all trail types,
- adopt access and lighting standards for transportation trail projects,
- establish a prioritization process for regionally significant trails that includes an equity measure,
- establish a clear railbanking process, and
- create opportunities for trail creation that promote the growth of trail-based economy and trail-oriented development.

CREATE A STATEWIDE TRAILS TEAM

Currently, the State of Maryland does not have a single entity that coordinates trail projects. Instead, these responsibilities rest with multiple offices within MDOT and MDDNR, as well as MPOs, counties and municipalities across the state. A Trails Team would serve as a liaison between these stakeholders, increasing coordination and helping local jurisdictions to advance trails with regional benefit. The Trails Team would also coordinate the update of the Statewide Trail Plan, and, upon adoption, prioritize and coordinate trail projects.

RAILBANKING IN MARYLAND

Many of Maryland's shared use paths are located along former rail corridors and were developed as "rail-to-trail" projects. Railbanking is a legal framework that supports the rails-to-trails process. MDOT's Office of Planning and Capital Programming (OPCP) monitors both public and privately owned railroad corridor property in the state. Many of these corridors are located in priority equity areas and could be leveraged as a valuable component of a low-stress bike network.

CURRENT PRACTICES

Current Maryland and federal law establishes a process for converting inactive rail corridors to shared use paths, also known as "railbanking." While this conversion is considered an interim use of the corridor unless and until rail service is reinstituted, it can continue for an indefinite period though the property will always be subject to the restoration of rail use should demand for freight service arise. The regulatory procedures and timelines involved in railbanking require close coordination between MDOT and a trail sponsor.

Railbanking guidance does not apply to trail projects along active rail lines, also known as "rails with trails." Agencies interested in rails with trails projects should review the Rails-with-Trails: Best Practices and Lessons Learned issued by the U.S. Department of Transportation (USDOT) in May 2021.

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In 2013, MDOT successfully railbanked approximately 53 miles of inactive rail corridor with the Surface Transportation Board (STB), extending between Clayton, Delaware and Easton, Maryland, including the rail branch line from the Town of Queen Anne, Maryland to Denton, Maryland (known as the Clayton-Easton Line). Approximately five miles of the Clayton-Easton Line have been converted into shared use paths for public use in the towns of Ridgely and Easton, Maryland. Additionally, the Maryland Department of Natural Resources (MDDNR) has leased a portion of the Clayton-Easton Line from MDOT through MTA for a shared use path. As of 2023, this project is under study by MDDNR.

Another example of railbanking is in the Town of Chestertown in Kent County, Maryland, which preserved an inactive rail line that extends from the town limits near Worton, Maryland, south to Chestertown, Maryland. On September 17, 2010, MTA and Chestertown entered into a 50-year agreement for the same segment, with a two-mile trail section extending through Washington College to Main Street in Chestertown, and along the spur known as the Strawboard Branch. The trail is known as the Wayne Gilchrest Trail.

For MDOT and the trail sponsor, railbanking the line allows MDOT to maintain ownership of the rail corridor, transfer liability to the trail sponsor and protect public use of the corridor against private reversionary real property claims. Under § 5-1010 of the Natural Resources Article of the Annotated Code of Maryland, MDDNR may acquire an interest from MDOT and sublease to a local government for interim use inactive railroad corridor property to be converted to public use trails. A detailed description of the railbanking process is included as Appendix F.

OPPORTUNITIES AND OBSTACLES

MDOT has an opportunity to partner with trail sponsors to convert state-owned assets into public walkability models that may compliment local master plan efforts. Potential opportunities along the MTA owned railroad corridor include the following:

- City of Cambridge, Dorchester County: Inactive rail segment beginning at Cedar Street and proceeding northeast to Bucktown Road at the Cambridge-Dorchester Regional Airport.

- Town of Hurlock, Dorchester County to the city limits of Cambridge: The rail corridor was recently embargoed with an opportunity starting at a point south of the Town of Hurlock near Perdue Farms, Inc. proceeding southwest to Bucktown Road at the Cambridge-Dorchester Regional Airport.

- Town of Centreville, Queen Anne's County: Beginning at Main Street to a point behind Queen Anne's County High School that may compliment Centreville's Comprehensive Plan.

- Frederick County from Monocacy Blvd. to North Glade Road: Frederick County and the City of Frederick are engaged in developing a trail alongside the active rail segment and negotiations are continuing to finalize the Trail Use Agreement with the County as trail sponsor.

- Town of Preston, Dorchester County: The inactive rail corridor beginning near MD 307 in the Town of Hurlock and proceeding north to the end of the line near Choptank Road in Preston, Maryland.

"Railbanking, established in 1983 as an amendment to Section 8(d) of the National Trails System Act, is a voluntary agreement between a railroad company and a trail sponsor to use an out-of-service rail corridor as a trail until a railroad might need the corridor again for rail service."

- Rails To Trails Conservancy

Railbanking efforts in Maryland also face obstacles which may include, but are not limited to:

◆ Finding a trail sponsor. In many jurisdictions, the local government does not have the capacity to serve as a sponsor, and non-profits do not exist to fill the role.

◆ Addressing concerns from potential trail sponsors in signing the STB Statement of Willingness to Assume Financial Responsibility.

◆ Handling community opposition to changing the use or appearance of the rail corridor that has been inactive, in some cases, for over 30 years. Some property owners along inactive rail corridors with mature trees may want the continued buffer the trees provide.

◆ Preventing unauthorized use of the corridors for hunting, dumping, motorized use, development or access to adjacent lands.

◆ Identifying whether current land uses may not support trail use, or whether the property is bisected by major highways.

◆ Identifying available grant funding to support planning, design, engineering and construction, which could be limited and competitive.

◆ Repairing obsolete bridges, which may require upgrades and significant associated costs, including coordination with applicable state and federal agencies.

◆ Repairing or building new bridges to connect disconnected sections over water bodies or roads, potentially at significant cost.

◆ Separating the active rail line from trail use may impose construction costs for rails-with-trails projects.

RECOMMENDATIONS FOR IMPLEMENTATION

◆ State agencies should evaluate avenues for state government to be a railbanking sponsor, which will require legislative action.

◆ MDOT should continue to evaluate active and inactive railroad corridors by working with local, regional and state stakeholders on trail plans to identify railbanking opportunities.

◆ MDOT should continue collaboration with local planning offices to encourage planning that includes rails-to-trails and rails-with-trails.

◆ Trail sponsors should identify local, state, and federal funding resources for planning, engineering, and construction.

◆ The trail sponsor should leverage public surveys and/or workshops to better understand the opinions of communities to convert inactive rail lines to trails.

4.5 Micromobility & Dockless Vehicle Recommendations

Several jurisdictions throughout Maryland have begun to incorporate emerging technology into active transportation by implementing or adapting to micromobility and shared vehicle programs. These programs can include docked vehicles as well as dockless vehicles, and the vehicle types are continuously evolving. At the time of this BPMP, the primary vehicle types in the market that are recommended for consideration in these programs, include:

| e-Scooters (Bird) | e-Bikes (Spin) | Docked Bike Share (Capital Bikeshare) | Adaptive Vehicles (MedMart) |

The two primary operating structures for shared micromobility programs are the permit structure and the service contract/memorandum of understanding structure. These structures are summarized in (Table 4).

TABLE 4: Primary Micromobility Operating Structures

PERMIT STRUCTURE	SERVICE CONTRACT/MEMORANDUM OF UNDERSTANDING STRUCTURE
• Allows for multiple providers to operate in a geographic area. • Allows for annual revisions to permit conditions. • Typically issued through a competitive application process.	• Typically, only allows a single provider to operate in a geographic area. • Provider is selected through a procurement process and typically enters into a multi-year contract.

Based on lessons learned from local implementation and best practices, MDOT has developed a framework for a Model Micromobility Permit & Program structure to guide local jurisdictions in implementing a program suitable to their community needs. The guidance incorporates best practices for permits and program structures, data tracking tools and equity metrics and practices. This framework is available in Appendix G.

CHAPTER 5

GOALS, OBJECTIVES & RECOMMENDATIONS

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Goals, Objectives & Recommendations

> **Vision: Maryland will provide safe and convenient active transportation supporting equitable access for all.**

The BPMP identifies the following goals and objectives to guide state support for bicycle and pedestrian activity in Maryland. The goals and objectives support the state's priorities to:

◆ address equity needs and provide convenient, safe and affordable access to transportation in underserved areas,

◆ improve safety on the transportation network, especially for Vulnerable Roadway Users (VRUs), and

◆ encourage mode shift away from single-occupancy vehicles to active transportation modes.

Table 5 presents the BPMP's goals and objectives, along with recommendations to achieve those goals and objectives and progress measures. Some recommendations are related to multiple goals and are listed alongside each relevant objectives. Several of the recommended strategies and actions require establishing new policies and programs. **Bolded recommendations** are short-term actions that should be completed within five years. Identified actions that were completed as part of the development of the BPMP are denoted by a green check. Appendix H lists federal and state funding sources that can support the implementation of the recommendations.

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Equitable & Sustainable Communities – Leverage active transportation investments for building sustainable, equitable and resilient communities.	Expand access to realize the economic and health benefits of bicycling and walking.	**Create a Complete Streets Grant Program administered by MDOT for local roads.**	Miles of Complete Streets projects completed.	
		Develop Complete Streets Policy to help better inform Context Driven Guidelines.		
		Update SHA's sidewalk/shared use path policy and tracking system to align with local goals and partnerships, including the creation of an ADA and sidewalk inventory.	Miles of sidewalk/shared use paths and ADA improvements tracked.	
		Create shared mobility operational structure guidance to assist local jurisdictions with limited resources.	Expanded guidance for jurisdictions without current shared mobility programs.	✓
		With Board of Education (BOE) support, create guidance for the development of school walkshed network action plans and provide training and technical assistance to participating schools.	Creation of walkshed analysis guidance.	
		Create an e-bike rebate program.	Number of rebates provided.	
			Geographic distribution of rebate recipients.	
	Develop biking and pedestrian facilities and programs to promote transportation and recreation.	**Create a Complete Streets Grant Program administered by MDOT for local roads.**	Miles of Complete Streets projects completed.	
		Create a Trails Team within MDOT to coordinate trail planning, design, construction and maintenance being carried out by MDOT, MDDNR and local agencies	Miles of trails constructed.	
		Expand the Trail Town Program[1] to promote economic development and active tourism.		
		Update the Statewide Trails Plan.		

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[1]   The Trail Town Program leverages outdoor tourism to foster community development; learn more at: https://www.trailtowns.org.

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Equitable & Sustainable Communities – Leverage active transportation investments for building sustainable, equitable and resilient communities.	Use equity metrics and communication best practice to prioritize Complete Streets planning, project development and implementation in disadvantaged communities.	Make equity data metrics available to modal staff and local partners.	Number of projects and level of funding invested in areas of need.	✓
		Provide training to MDOT staff and municipal planners on using metrics and effective engagement, including SHA's Public Involvement Handbook (PIH) for planning, decision-making and prioritizing state and local projects.	Number of people participating in project development processes.	
		Establish internship program partnering with the Maryland Board of Education and organizations like Bicycle Corporation of America to locate and develop training of youth in bicycle maintenance, repair and manufacturing.	Number of students participating in training programs in bicycle safety, repair and maintenance, systems planning and maintenance.	
Safety – Improve the safety of active transportation travel through infrastructure and resource development.	Improve education, enforcement, evaluation and training to support safe driving, biking and walking.	Establish a Safe System and Complete Streets planning and design approach in collaboration with local agency and private sector partners on Priority Corridors identified in the Pedestrian Safety Action Plan (PSAP).	Volume and severity of crashes involving active transportation users.

Number of local partners/staff trained. | |
| | | Provide training on Complete Streets and Vision Zero principles and programs to local implementing partners, including staff with responsibilities related to planning, project development and design, development review and maintenance responsibilities. | | |
| | | Develop Rules of the Road Guidance for e-bikes and shared mobility. | | ✓ |

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Safety – Improve the safety of active transportation travel through infrastructure and resource development.	Reduce the number of bicycle and pedestrian lives lost and injuries sustained on Maryland's transportation system.	**Adopt a state-level Complete Streets Policy that includes incentives for local jurisdictions to adopt their own Complete Streets policies.**	Number of jurisdictions with an adopted Complete Streets policy, Bicycle Pedestrian Master Plan, Multimodal Transportation Impact and Development Review guidance, and/or staff trained in Complete Streets planning, design, operations and maintenance.	
		Establish a Model Complete Streets Corridors Program focused on planning approaches to prioritize and implement Complete Streets designs on State roadways, including considerations for operations and maintenance.	Number of Complete Streets Projects implemented through the Complete Streets Grant Funding Program.	
		Encourage local jurisdictions to adopt a Complete Streets Policy and pursue Complete Streets Grant Program funding for local roads, as well as through existing grant programs[1].	Number of Multimodal Projects implemented through all MDOT discretionary grant programs.	
		Prepare a Bicycle Facility Selection Guide to complement the Context Driven Guide, to support analysis of land use context when selecting bicycle facility types.	Miles of low-stress bicycle facilities constructed.	✓
		Determine active transportation traffic volumes to better assess risk.	Conduct active transportation traffic volume counts on Pedestrian Safety Action Plan (PSAP)/Complete Streets corridors.	
			Conduct bicycle and pedestrian counts before and after all projects.	

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1 Maryland jurisdictions are eligible for two competitive grants programs that support bicycle and pedestrian infrastructure. The Transportation Alternatives (TA) Program is a federal program that provides formula funds for the design and construction of sidewalks, bikeways and trails. The Kim Lamphier Bikeways Network Program is a state-funded grant program for the planning, design and construction of bicycle transportation projects. As a state fund, Bikeways funding can be used to match the federal Transportation Alternatives Program funding to maximize local dollars.

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Safety – Improve the safety of active transportation travel through infrastructure and resource development.	Reduce the number of bicycle and pedestrian lives lost and injuries sustained on Maryland's transportation system.	Establish a Safe System and Complete Streets planning and design approach in collaboration with local agency and private sector partners on Priority Corridors identified in the Pedestrian Safety Action Plan (PSAP).	Volume and severity of crashes involving active transportation users.	
		Update Bicycle Policy & Design Guidelines based on Complete Streets Policy and national best practices.	Adoption of new guidelines and policies.	
		Update Maryland's Green Treatment and Maintenance Policy to reflect national best practices.		
Process – Better integrate active transportation and micromobility considerations in project and program procedures.	Improve access to data and decision-making tools to support effective and inclusive planning for all Maryland communities.	Require state agencies to use the Context Driven Guide for projects and update classifications and practice examples emerging from projects.	Number of projects that use Context Driven Guide.	
		Encourage MDOT project managers to contribute examples to adapt and update the Context Driven Guide to reflect emerging best practices and user needs.	Number of staff and consultants trained in Context Driven decision-making approach.	
		Encourage state and local planning partners to use the Bicycling Accessibility analysis to plan, identify and prioritize projects.	Miles of low-stress bicycle facilities constructed.	
		Create a statewide active transportation travel model to assess project impact on low-stress network connectivity; provide applicable guidance and training for state staff.	Number of projects filling pedestrian network gaps constructed.	
			Number of projects filling bicycle low stress network gaps constructed.	

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Process – Better integrate active transportation and micromobility considerations in project and program procedures.	Improve access to data and decision-making tools to support effective and inclusive planning for all Maryland communities.	**Develop statewide Railbanking Policy and implementation guidance.**	Miles of inactive rail corridors railbanked for rails-to-trails projects. Miles of rails-to-trails projects completed.	✓
		Update Context Driven Guide to consider existing bicycle and pedestrian volumes, future land use and risk exposure. Documentation should also include guidance on design features to avoid in contexts with higher walking and biking propensity (e.g., slip lanes).	Revision to Context Driven Guide.	
	Create tools to facilitate the development and delivery of more efficient, effective and equitable projects.	Promote projects that fill gaps in existing active transportation networks.	Miles of gaps identified and mitigated.	
		Create Complete Streets Policy guidance for local partners with best practice examples including Multimodal Transportation Impact Analysis and Development Review approaches.	Number of jurisdictions with adopted Complete Streets Policy and Multimodal Transportation Impact Analysis requirements and Development Review guidance.	✓
		Prepare a Bicycle Facility Selection Guide that draws on the Context Driven Guide.	Miles of low-stress bicycle facilities constructed.	✓
		Update SHA's Access Permits Process to include Multimodal Access Criteria and mitigation solutions best practice.	Number of access permits granted where multimodal access criteria was applied.	
		Update the Maryland Manual on Uniform Traffic Control Devices (MUTCD) - 2011 Edition to align with multimodal best practices.	Adoption of new standards and guidelines.	
		Create a Trails Team to oversee and coordinate implementation of trail projects.	Miles of trails constructed.	
		Work with the Pedestrian Safety Task Force to identify issues and opportunities and vet ideas and initiatives.	Number of solutions/projects implemented.	
		Conduct a Complete Streets project implementation audit with partner jurisdictions to document case studies of procedures, challenges, and successes.	Complete Streets Implementation Guide for local jurisdictions.	

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Process – Better integrate active transportation and micromobility considerations in project and program procedures.	Improve maintenance and operations protocols to support safe active transportation access.	**Revisit and update capital and maintenance policies and mandates related to sidewalks and shared-use paths within State Highway Administration rights-of-way.**	Miles of bicycle facilities, trails and sidewalk maintained on state roads.	
		Develop guidance for best practices to maintain bicycle and pedestrian facilities.		
Connections – Encourage short- and long-distance active transportation trips through better-connected networks.	Leverage investment in planned routes to support the creation and use of safer, lower-stress routes for biking and walking for people of all abilities	Identify locations on state roads that act as gaps or barriers in local low-stress bicycle and pedestrian networks.	Miles of low-stress bicycle facilities constructed. Miles of sidewalk constructed.	
		Update LTS and Bicycling Accessibility analyses following the construction of new infrastructure.		
		Update the "Bike Route" sign policy using the Maryland MUTCD to reduce sign clutter and direct users to appropriate routes.		
		Coordinate network implementation by leveraging bicycle traffic modeling.		

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GOAL	OBJECTIVE	RECOMMENDATIONS	PROGRESS MEASURES	ADDRESSED BY PLAN
Connections – Encourage short- and long-distance active transportation trips through better-connected networks.	Leverage investment in planned routes to support the creation and use of safer, lower-stress routes for biking and walking for people of all abilities.	**Update State Trail Plan and identify implementation actions.**	Adoption of wayfinding standards or guidance.	✓
		Develop approach to better direct users to appropriate routes.	Number of rail corridors preserved or trail-enhanced.	
		Provide rail-banking and rails-with-trails assistance.	Adoption of State Trail Plan.	
		Coordinate with utility companies and railroads in developing a Trail Access Policy.	Adoption of a Trail Access Policy.	
	Improve bicycling and walking accessibility to transit facilities.	Implement Rail Transit Station Walkshed recommendations.	Number of stations improved.	
		Identify and prioritize high-use bus stops that are not ADA-compliant to receive ADA accessibility improvements.	Short-distance mode shift in Short Trip Opportunity Areas.	
		Identify and mitigate gaps in the sidewalk network near bus stops.		
	Improve bicycle and micromobility access at transit facilities and in new development.	Develop bike parking guidelines, based on the Association of Pedestrian & Bicycle Professionals Bike Parking Guidelines, that promote parking at transit hubs, on MARC services, and include guidance for accommodating e-bikes and micromobility devices. Establish bike parking requirements for private development.	Adoption of new standards and guidelines.	

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CONCLUSION

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The 2050 BPMP provides recommendations for building safe active transportation networks to counter pedestrian and bicyclist fatalities and address changing travel patterns and technologies. The BPMP builds on the success of SHA's recently completed Pedestrian Safety Action Plan (PSAP) and the federally required Vulnerable Roadway Users Safety Assessment (VRUSA). While the PSAP and VRUSA focus on infrastructure improvements, the BPMP focuses on short- and long-term policy and practice recommendations to improve safety, mobility, and access.

The BPMP is an action-oriented document that will encourage walking and biking infrastructure investment through the establishment of programs, policies, guidance and resource-sharing. During the planning process, the five key takeaways detailed below emerged as the driving action items.

BIKE FACILITY GUIDANCE

Recognizing that not all people have the same ability to bike with traffic, Maryland needs a low-stress bicycle network to serve users of all ages and abilities. Building Maryland's bicycle network and supporting short trip opportunities will require leveraging both state and local roadways and crossings. This BPMP presents bicycle facility selection guidance, drawing on the LTS analysis and Context Driven Guide, to align the bicycle facility selection process with land use and anticipated change.

STATEWIDE TRAIL PLAN AND TRAILS TEAM

Recognizing the critical role trails play in statewide low-stress walking and biking networks, this BPMP calls for creating a dedicated Trails Team to oversee and coordinate trail project implementation. While significant progress has been made towards implementing priority projects from the 2009 Statewide Trails Plan, this BPMP recommends updating the Statewide Trail Plan to close the remaining gaps while planning for new opportunities and integrating local efforts. The Trails Team will coordinate with the modal agencies to develop and implement an updated Trail Plan. To support this initiative, the BPMP has begun the process of developing statewide Railbanking Policy and implementation guidance to better prepare for rail-trail opportunities.

COMPLETE STREETS POLICY & PROGRAM

MDOT has taken strong action to improve the safety and accessibility of active transportation modes through the SHA PSAP and Context Driven initiatives and the Strategic Highway Safety Plan (SHSP). Supporting these initiatives, the BPMP calls for MDOT to widen the application of and update the Complete Streets Policy adopted by SHA in 2012. The policy will reinforce consistency throughout MDOT.

MDOT should also establish supporting programs to implement a Safe System Approach and Complete Streets. A Complete Streets Program can support planning that prioritizes Complete Streets design principles and PSAP improvements on state and local roadways.

PEDESTRIAN FACILITY INVENTORY

While MDOT has made a concerted effort to inventory existing bicycle facilities, a statewide ADA and sidewalk inventory is needed to better understand pedestrian networks and accessibility. The walkshed analysis of 104 rail transit stations illustrated the potential planning applications of a statewide pedestrian inventory. MDOT is investigating how pedestrian network elements, such as sidewalks, crosswalks, sidewalk ramps and signals can be integrated into the One Maryland One Centerline (OMOC) linear referencing system.

Because pedestrian network elements can be more challenging to document, a collaborative effort between state, regional and local agencies is recommended to meet this challenging data exercise. Walking and biking facility inventories are integral components to building a safe and accessible multimodal transportation network for all users. This data will help MDOT to address historical trends and plan improvements for the future.

MAINTENANCE AND PERMITTING POLICIES AND PRACTICES

Maryland's commitments coming out of this BPMP will require a concerted interdepartmental effort and streamlined coordination with and support for/from local partners. Complete Streets design principles and active transportation considerations should be part of every project coming out of MDOT. As such, this BPMP includes recommendations to update historic maintenance and permitting policies and maintenance legislation and to develop facility maintenance best practice guidance. To ensure ongoing safety and system quality, any change to MDOT maintenance responsibilities would require commensurate funding increases.

Conclusion

Everyone in Maryland should have access to the benefits of comprehensive active transportation networks, regardless of age or ability. Being able to use active transportation such as walking and biking to reach everyday destinations has numerous safety, health, economic and environmental benefits for Maryland's residents and communities.

The 2050 BPMP establishes a pathway towards a safe, accessible, equitable and sustainable Maryland. This document includes recommendations and strategies to progress the implementation of walking and biking infrastructure in both state and local jurisdictions. The network, policy and program recommendations actively support the MTP's overarching guiding principles:

◆ Enhance Safety & Security

◆ Deliver System Quality

◆ Environmental Stewardship

◆ Serving Community & Economy

The BPMP is also directly in line with Maryland's 2031 Greenhouse Gas Emissions Reduction Plan goal to reduce greenhouse gas emissions by 60 percent from 2006 levels by 2031 through mode shift. MDOT will progress the recommendations of the 2050 BPMP to improve safety and process; achieve better-connected networks; and build sustainable, equitable and resilient communities.

The recommendations coming out of this planning process result from collaboration with agency partners and are informed by input from the public. Continued coordination and partnership across MDOT Modal Administrations is essential to the success of this plan. MDOT will track progress towards achieving the goals of the BPMP and report progress through the touchpoints of the annual Attainment Report and the Maryland Bicycle and Pedestrian Advisory Committee (MBPAC).

MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION

2050

MARYLAND

Statewide Bicycle & Pedestrian Master Plan

Wes Moore
Governor

Aruna Miller
Lt. Governor

Paul Wiedefeld
MDOT Secretary

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Statewide Bicycle
& Pedestrian Plan

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Appendices

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January 2024

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Appendices

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Appendix A

Technical Advisory Group & Stakeholder Acknowledgments

MARYLAND

Statewide Bicycle & Pedestrian Master Plan

January 2024

The 2050 BPMP could not have been developed without the expertise and insights of a variety of state, regional, and local stakeholders. The Plan was developed in coordination with the Maryland Bicycle and Pedestrian Advisory Committee (MBPAC) throughout the process. In addition, the team was guided by a Technical Advisory Group (TAG).

MBPAC Members	Contact Person
MBPAC Chair	Jon Morrison
MBPAC Member / State Representative	Bong Delrosario*, Maryland Department of Disabilities
MBPAC Member / State Representative	Kristi Pier, Maryland Department of Health
MBPAC Member / State Representative	Andrew Mengel*, Kat Midas, Maryland Department of Natural Resources
MBPAC Member / State Representative	Brooks Phelps, Maryland Department of Planning
MBPAC Member / State Representative	Kandese Holford*, Maryland Department of Transportation-TSO
MBPAC Member / State Representative	Eli Glazier*, Maryland-National Capital Park and Planning Commission
MBPAC Member / State Representative	Gabriel Rose, Maryland Department of Education
MBPAC Member / State Representative	Lt Laura Beck, Maryland State Police
MBPAC Member / Citizen Baltimore Metropolitan Area	Matthew Hendrickson, Pierre Stewart
MBPAC Member / Citizen Eastern Shore	Patti Stevens
MBPAC Member / Citizen Southern Maryland	Marshall Edwards
MBPAC Member / Citizen Washington Metropolitan Area	Jim Titus, John Wetmore
MBPAC Member / Citizen Western Maryland	Steve Green
MBPAC Member / Citizen Mobility Impaired Representative	Marian Vessels
MBPAC Member / Citizen At Large Representative	Nigel Samaroo*, Steve Friedman, Antoine RJ Wright

*Member is also part of the TAG

Organization	TAG Member
Baltimore City Mayor's Office	Graham Young
Bikemore	Jed Weeks
Baltimore Metropolitan Council (BMC)	Charlene Mingus
City of Salisbury	William White
East Coast Greenway Alliance	Daniel Paschall
Eastern Shore Land Conservancy	Owen Bailey
Hagerstown/Eastern Panhandle Metropolitan Planning Organization (HEPMPO)	Matt Mullenax
Howard County Office of Transportation	Chris Eatough
Maryland Department of Planning	David Cotton
Maryland Department of Disabilities	Bong Delrosario*
Maryland Department of Natural Resources	Andrew Mengel, Kat Midas*
MBPAC Member / Bike Maryland	Nigel Samaroo*
Maryland Transit Authority (MTA) Office of Planning	Patrick McMahon
Motor Vehicle Administration (MVA) Highway Safety Office	Cynthia Spriggs
MDOT Office of Planning and Capital Programming	Francine Waters
State Highway Administration (SHA) Office of Highway Development	Jared Paper-Evers
SHA Office of Planning and Preliminary Engineering (OPPE) Regional and Intermodal Planning Division (RIPD)	
SHA OPPE RIPD	Eric Beckett
SHA OPPE RIPD	Molly Porter
SHA OPPE RIPD	Cheryl Ladota
Maryland-National Capital Park and Planning Commission (MNCPPC), Montgomery County	Eli Glazier*
SHA District 3 Montgomery County	Joseph Moges
Metropolitan Washington Council of Governments (MWCOG)	Michael Farrell

*Member is also part of the MBPAC

TECHNICAL ADVISORY GROUP & STAKEHOLDER ACKNOWLEDGMENTS

In addition to the TAG, the Plan drew on a series of conversations with the following stakeholder groups: transit agencies, bicycle and pedestrian advocacy, local departments of transportation, public works, and the other stakeholders impacted by the BPMP's implementation.

Organization	Participant
Maryland Transit Administration (MTA)	Dan Reagle, David Johnson, Patrick McMahon
Frederick County Transit	Jamie McKay
Maryland Department of Transportation (MDOT)	Nate Evans, Francine Waters, Molly Porter
Washington Area Bicyclist Association (WABA)	Peter Gray, Seth Grimes, Paul Daisey
Bike AAA	Jon Korin
Rails to Trails, Baltimore	Quinton Batts
Baltimore County, Maryland	Mitchell Phillips, Jesse Bialek, Anthony Russell
Frederick County, Maryland	Mahmoud Helal
Howard County, Maryland	Christopher Eatough, David Cookson
Montgomery County, Maryland	Matt Johnson, Andrew Bossi, Marciela Cordova
Maryland-National Capital Parks and Planning Commission (MNCPPC)	Eli Glazier
Prince George's County, Maryland	Jahid Russel
	Shilpa Shenvi

Finally, MDOT is thankful to the many residents who have highlighted opportunities for walking and biking in Maryland and guided the development the plan by attending meetings and events, responding to surveys, and contacting the project team.

Appendix B
Public Input Summary

Phase 1 - Public Input Summary

This section includes the complete results of the online public input survey conducted for Phase 1 of the BPMP. The survey was available from March 24, 2023, through May 5, 2023. A total of 647 responses were received.

Figure 1: The 2050 Maryland Bike and Ped Plan Online Survey Interface

WALKING PREFERENCES

Figure 2. Respondents' Purpose for Walking

When I walk it is to (Choose up to 3):
(620 respondents)

- Exercise or recreation — 94%
- For personal trips like groceries or shopping — 47%
- To work or school — 15%
- Get to transit — 26%
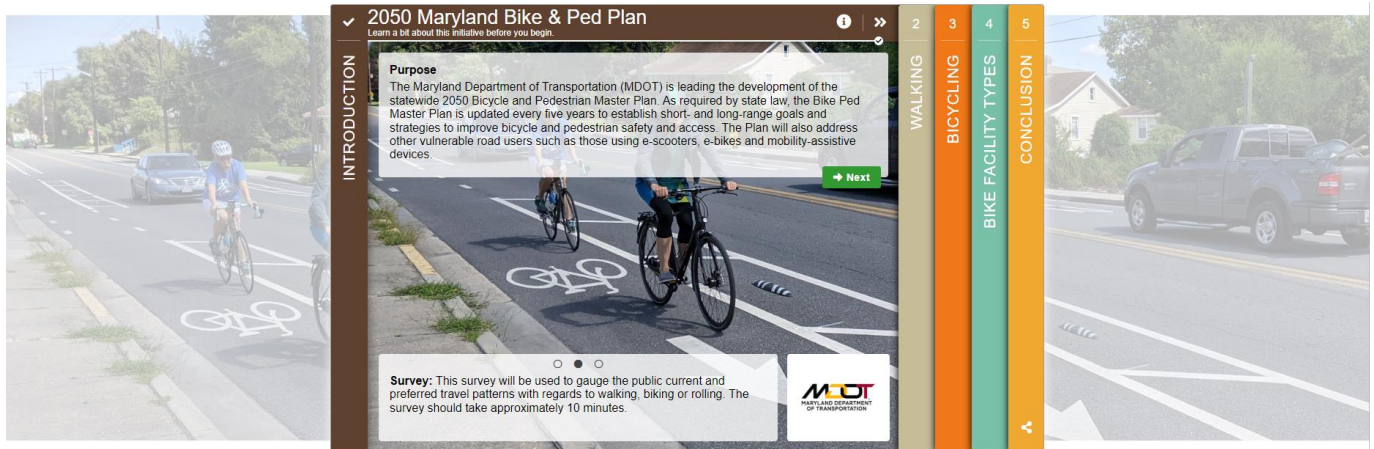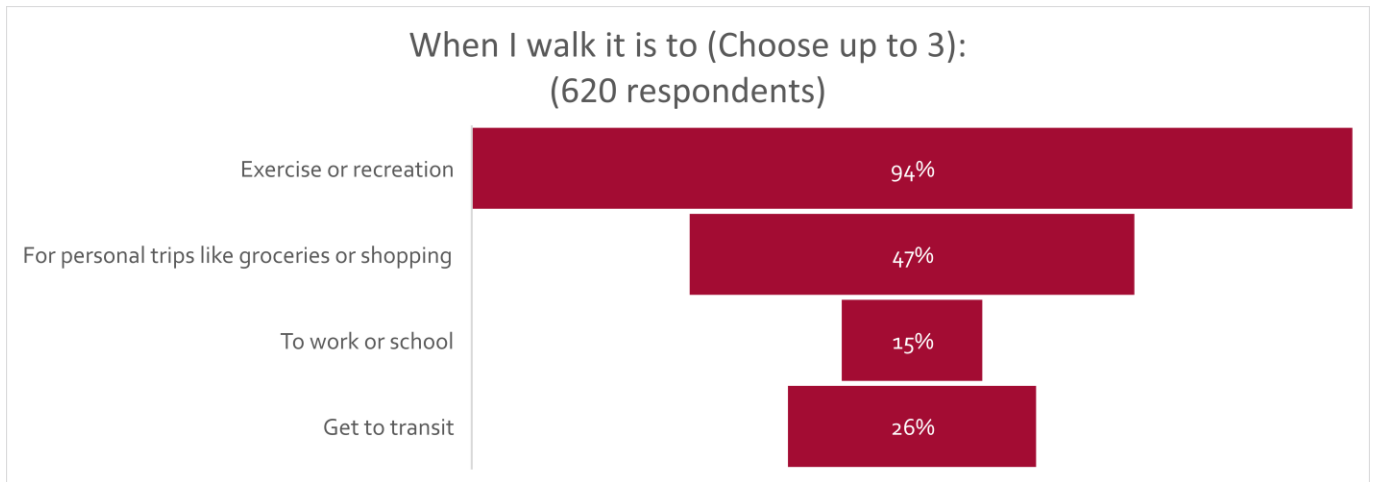
Figure 3. Why Respondents Chose Walking

The reasons I walk include (Choose up to 3):
(610 respondents)

Reason	Percentage
No other transportation options	6%
Walking is more convenient than other options	27%
For environmental and public health	43%
To connect to other transit services	13%
Exercise or recreation	84%
Improve or maintain personal health	70%
To save money	10%
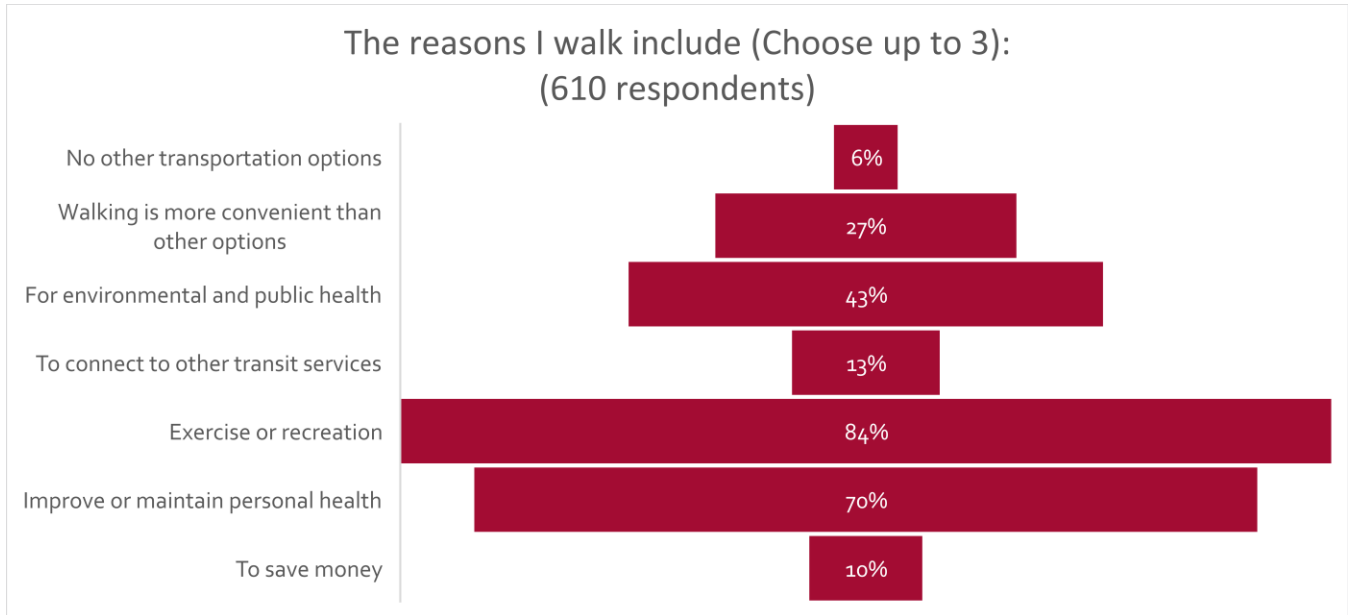
WALKING DISTANCE

Figure 4: Respondents' Walking Trip Length

What distance is your typical walking trip length (one-way)? (Choose one)
(610 respondents)

Distance	Percentage
Half mile to one mile (20-40 minutes)	32%
Less than 1/2 mile (Less than 20 minutes)	24%
More than 2 miles (more than 60 minutes)	13%
One to two miles (30-60 minutes)	29%
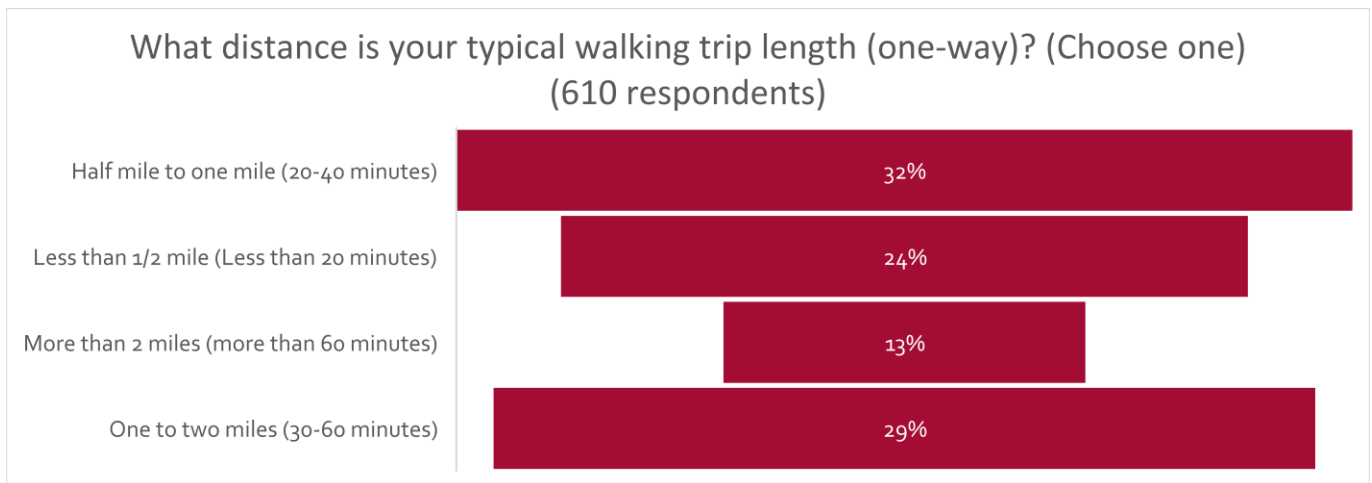
WALKING BARRIERS

Figure 5: Respondents' Reported Barriers to Walking More

What are the barriers that prevent you from walking more? (Choose up to 3) (584 respondents)

Barrier	Percent
Lack of sidewalks	55%
Health issues	7%
Distance/too far	21%
Hills/terrain	6%
Poor walkway conditions	40%
Concerns for personal safety	42%
Too much traffic	39%
Weather	25%
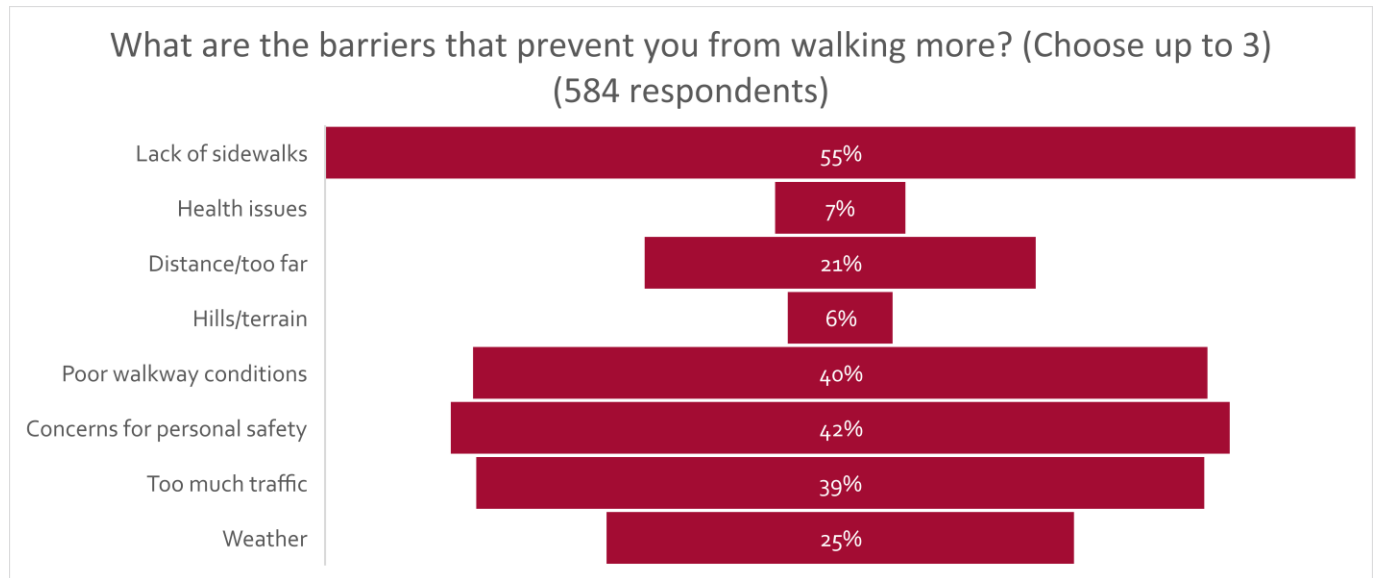
Figure 6: Respondents' Pedestrian Safety Recommendations

How can the state improve pedestrian safety? (Choose up to 3) (556 respondents)

Recommendation	Percent
Create more shared-use paths and wider sidewalks	81%
Increase enforcement of motor vehicle violations	41%
Expand safety analysis with destinations routing	28%
Provide more project funding and support	52%
Strengthen laws that protect vulnerable road users	39%

WALKING TRAVEL OPTIONS

Figure 7: Respondents' Use of Mobility Aids

Do you travel with any of the following (Choose all that apply)
(572 respondents)

- Mobility device (wheelchair, cane, rollator): 4%
- Companion/Personal Care Assistant (PCA)
- Service animal trained to provide assistance
- Prefer not to say
- No, I do not need these: 92%
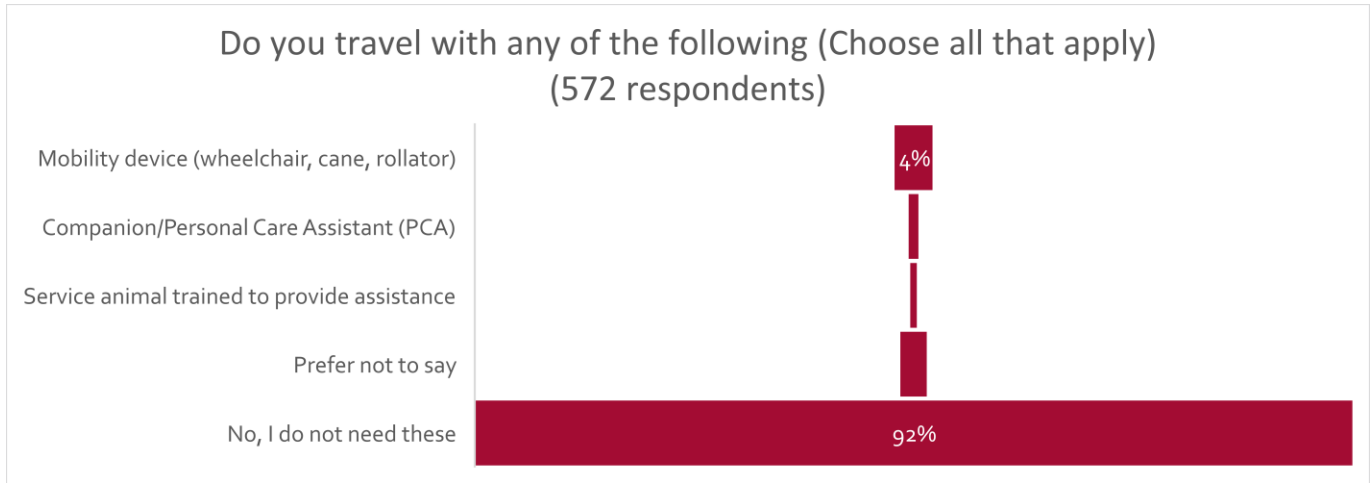
Figure 8: Respondents' Proximity to Retail Grocery

Do you have a grocery store (or convenience store with similar services) within approximately ½ mile of your home?
(580 respondents)

- Yes: 53%
- No: 47%
- Not sure
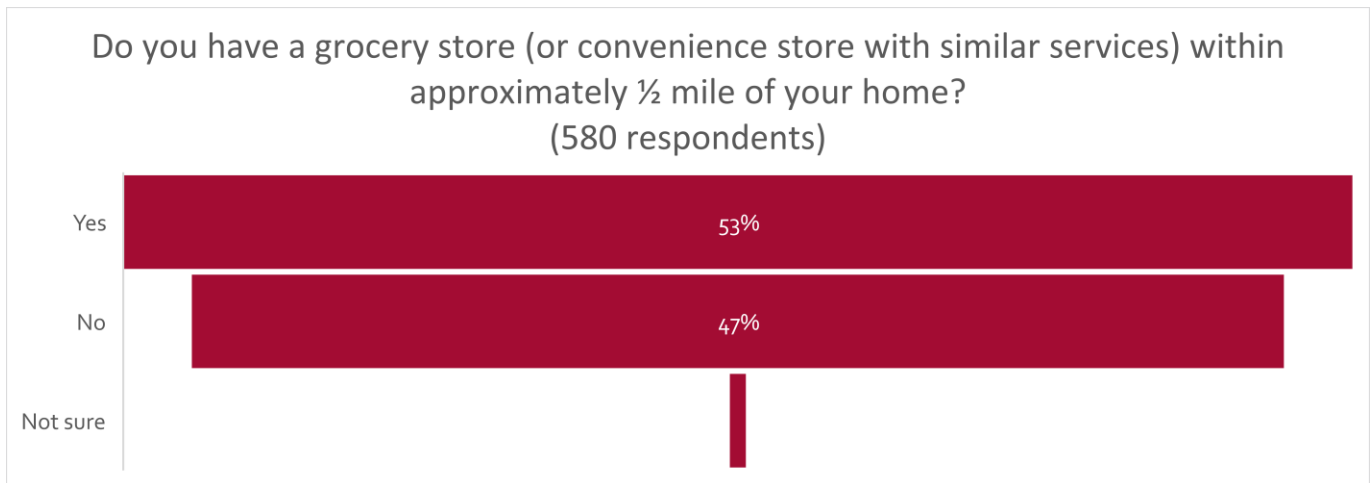
Figure 9: Respondents' Travel Patterns Relative to Retail Grocery Trips

If so, do you walk or bike?
(320 respondents)

- Walk: 65%
- Bike: 35%
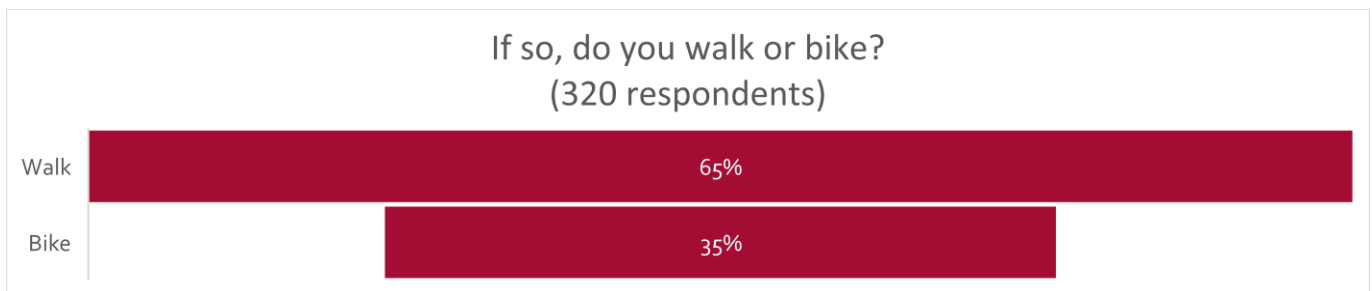
BIKING PREFERENCES

Figure 10. Respondents' Purpose for Biking

When I bike it is to (Choose up to 3): (520 respondents)

Exercise or recreation	93%
For personal trips like groceries or shopping	44%
To work or school	29%
Get to transit	13%
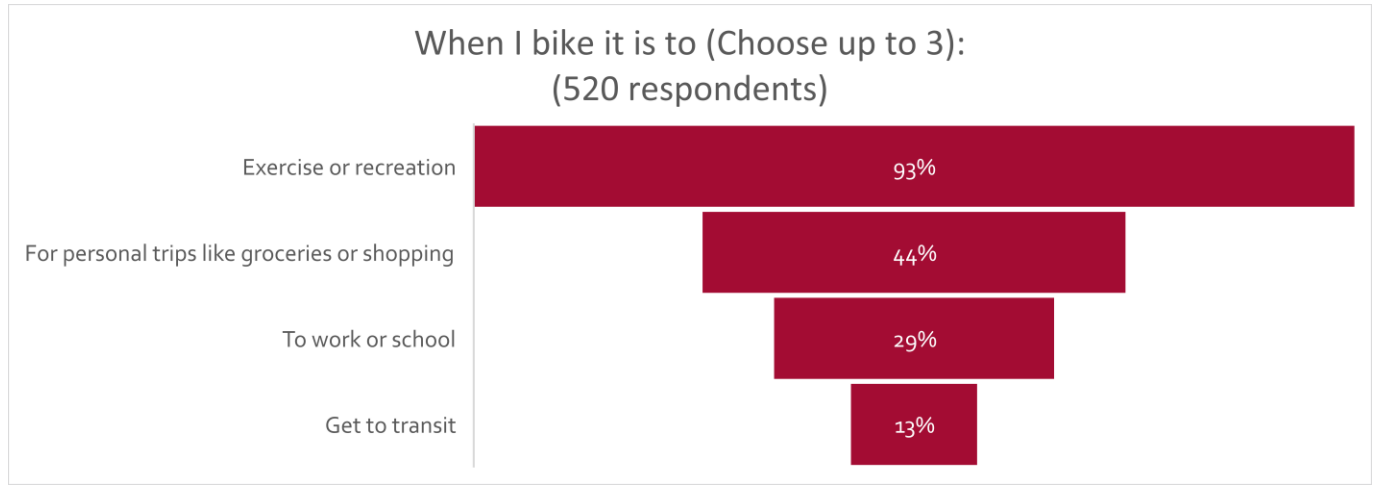
Figure 11. Why Respondents Choose Biking

The reasons I bike include (Choose up to 3): (518 respondents)

No other transportation options	4%
Biking is more convenient than other options	29%
Support environmental and public health	46%
Connect to other transit services	7%
Exercise or recreation	82%
Improve or maintain personal health	63%
Save money	13%

Figure 12: Respondents' Bicycling Preferences

With what cycling audience do you identify?
(538 respondents)

I bike in most traffic conditions	18%
I bike for many trips	9%
I would bike more with less traffic interaction	60%
I'm not interested in biking	13%

BIKING DISTANCE

Figure 13. Respondents' Biking Trip Length

What distance is your typical biking trip (one-way)? (Choose 1)
(506 respondents)

Between 2 and 5 miles	32%
Less than one mile	7%
More than 5 miles	41%
One to two miles	20%
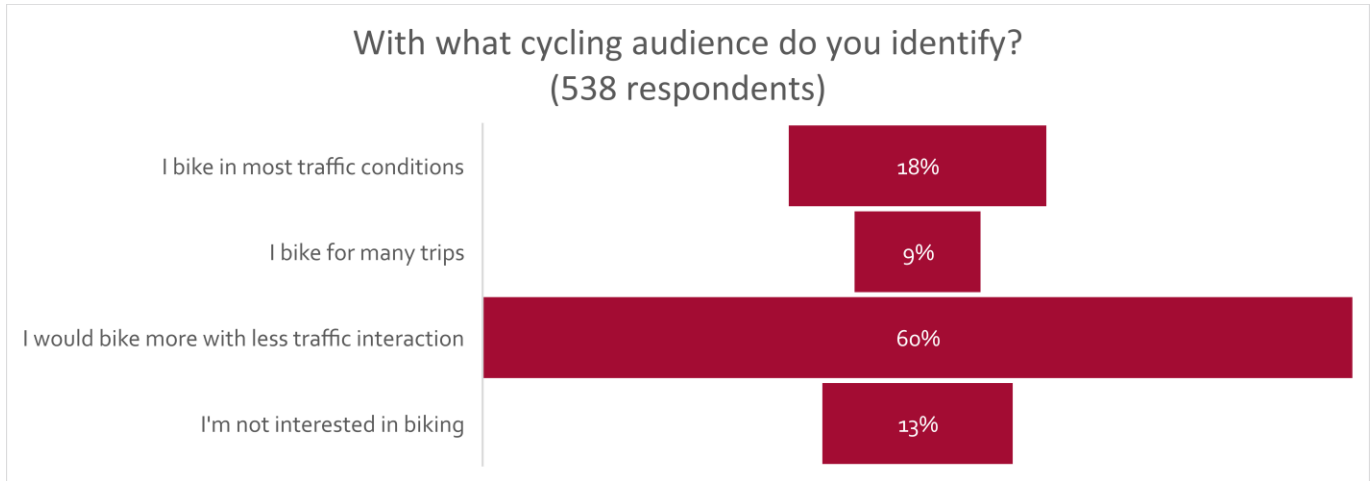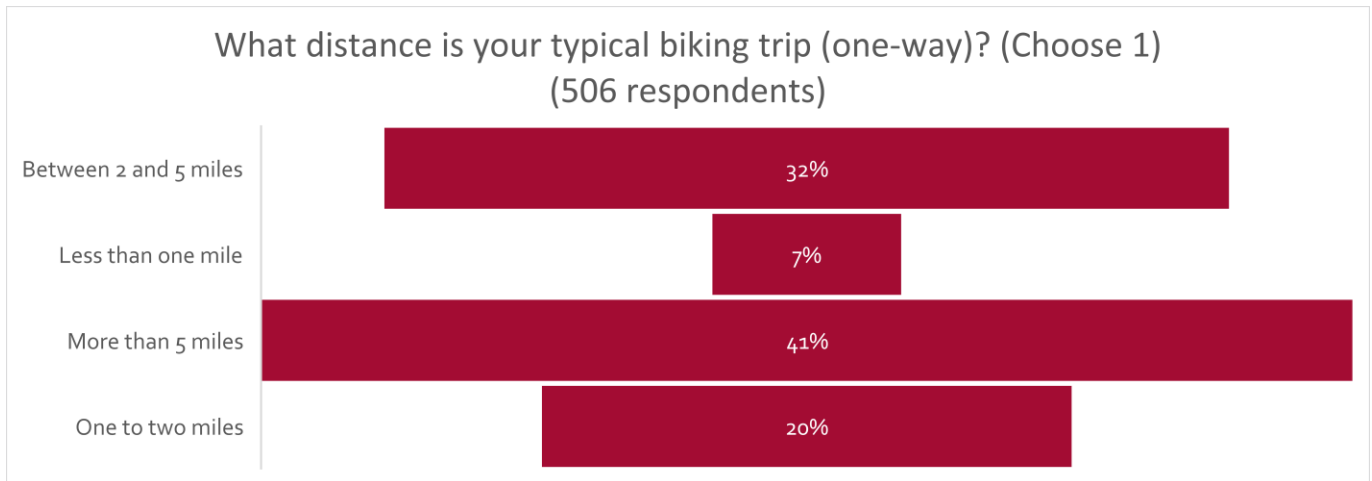
BIKING BARRIERS

Figure 14: Respondents' Reported Barriers to Biking More

What are the barriers that prevent you from biking more? (Choose up to 3) (534 respondents)

Barrier	Percentage
I have health issues	6%
I have personal safety or security concerns	41%
The terrain is too hilly or challenging	14%
Weather	23%
The distance is too far	9%
I do not feel safe biking on roads with traffic	74%
Lack of bike parking facilities where I'm going	39%
I am not interesting in biking	8%

Figure 15: Respondents' Biking Safety Recommendations

How can the state best improve bicycle safety? (Choose 1) (508 respondents)

Recommendation	Percentage
Create more shared-use paths, protected...	73%
Greater enforcement of motor vehicle...	15%
Provide more funding to implement projects	12%
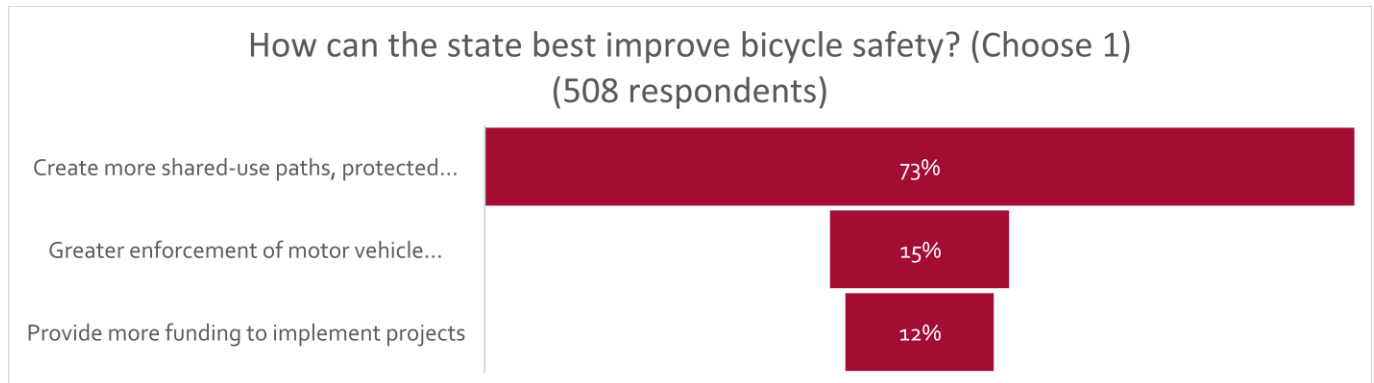
INCREASED RATES OF BICYCLING

Figure 16: Respondents' Ideas for Promoting Biking

What can the state do to increase rates of bicycling? (Choose up to 3)
(508 respondents)

Option	Percent
Create more shared-use paths, protected bike lanes	87%
Provide incentive to purchase e-bikes	29%
Provide more traffic enforcement	37%
Provide more funding to implement projects	62%
Eliminate driving incentives, parking allowances	32%
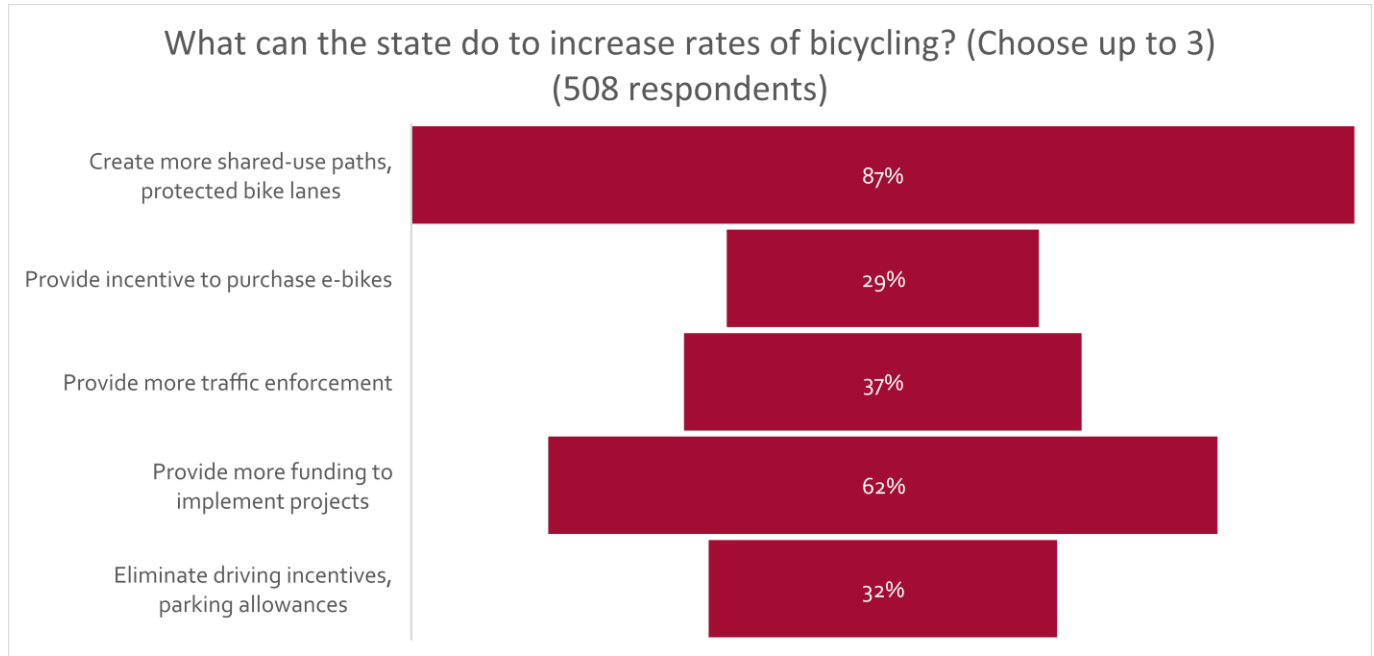
Figure 17: Respondents' Utilization of e-bikes and e-scooters

In the past five years, how often have you used an e-bike or e-scooter?
(531 respondents)

Option	Percent
Annually or a few times a year	15%
Daily	4%
I haven't used them and I do not intend to	34%
I haven't used them but I am interested	33%
Monthly	5%
Weekly or more than once a week	10%
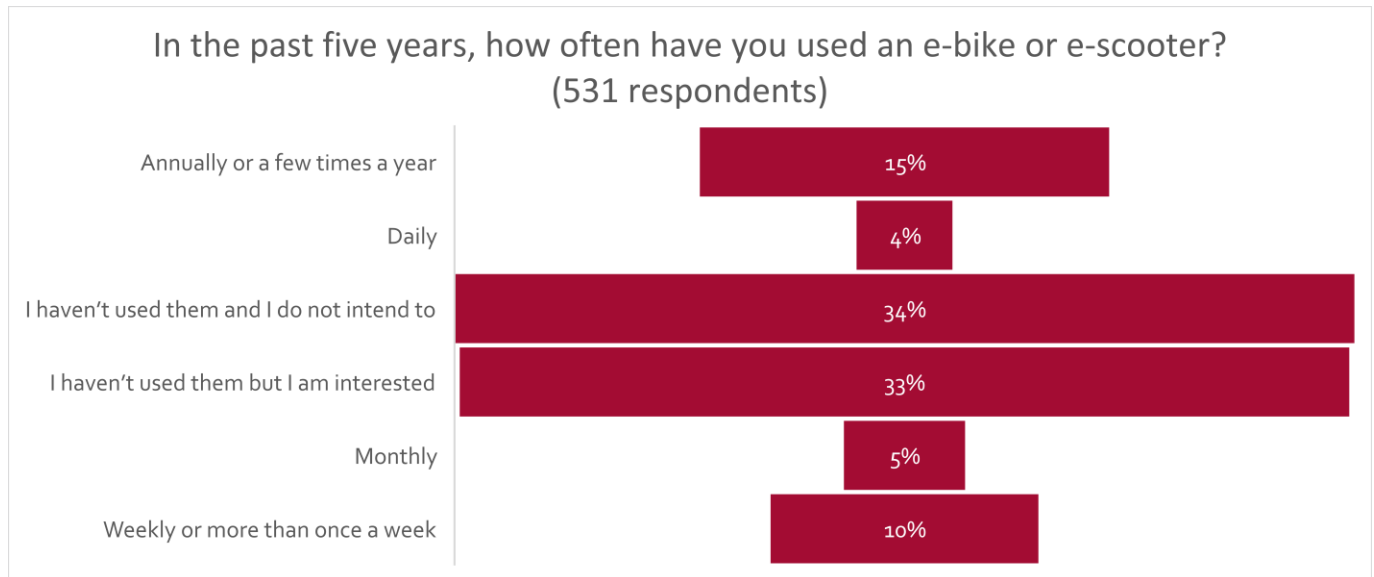
Figure 18: Respondents' Plan Regarding e-bike and e-scooter purchase

Do you plan on purchasing an e-bike or e-scooter within the next 5 years?
(522 respondents)

Response	Percent
No	34%
Not Sure	19%
Probably	15%
Probably Not	16%
Yes	15%
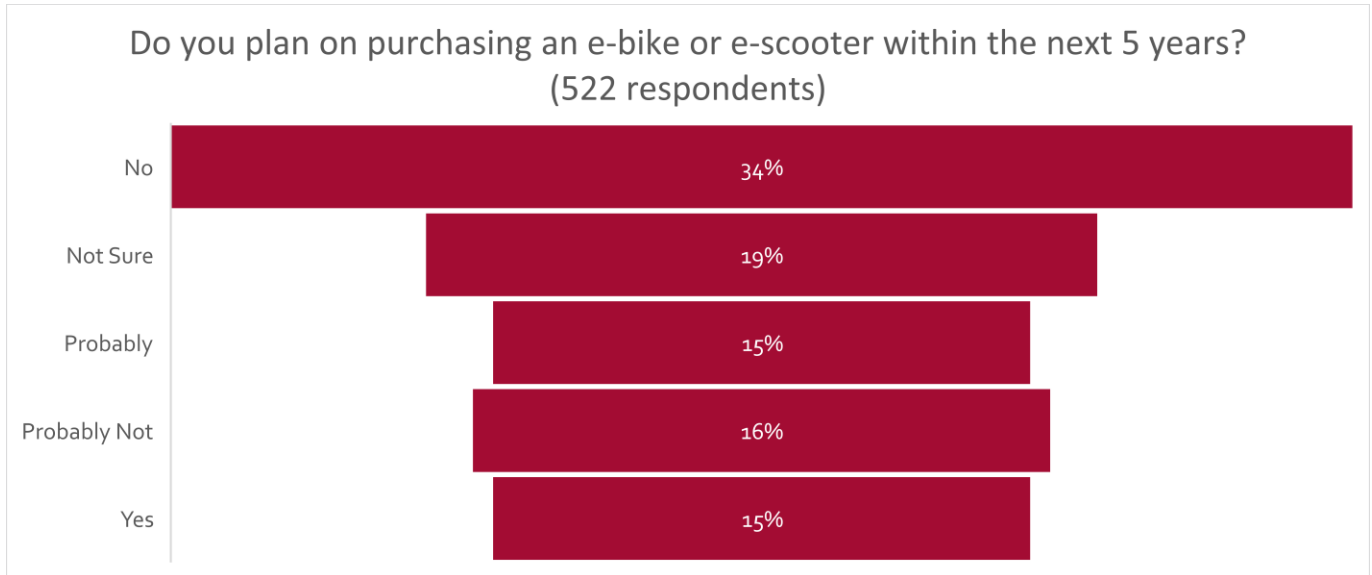
MICROMOBILITY

Figure 19: Respondents' Use of Micromobility Devices

I use the following on a regular basis:
(394 respondents)

Device	Percentage
Bicycle	91%
E-Scooter	6%
Skateboard	
Unicycle	
Motorized wheelchair	
E-bike	20%
Segway	
E-skateboard	
E-unicycle	
Other electronic personal mobility devices	
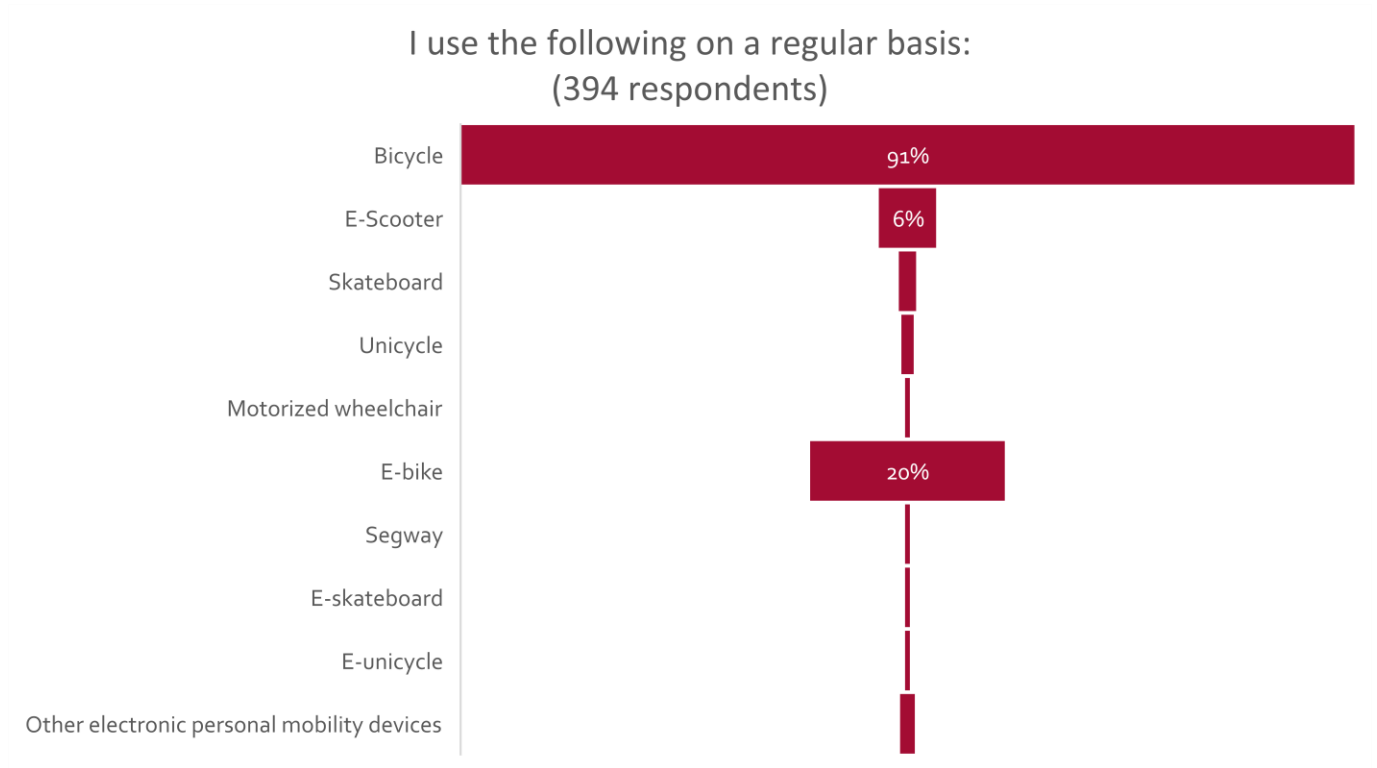
IF YOU USE A DEVICE OTHER THAN THOSE LISTED ABOVE, PLEASE LIST THE DEVICE BELOW.

- Autocycle
- Big Wheel
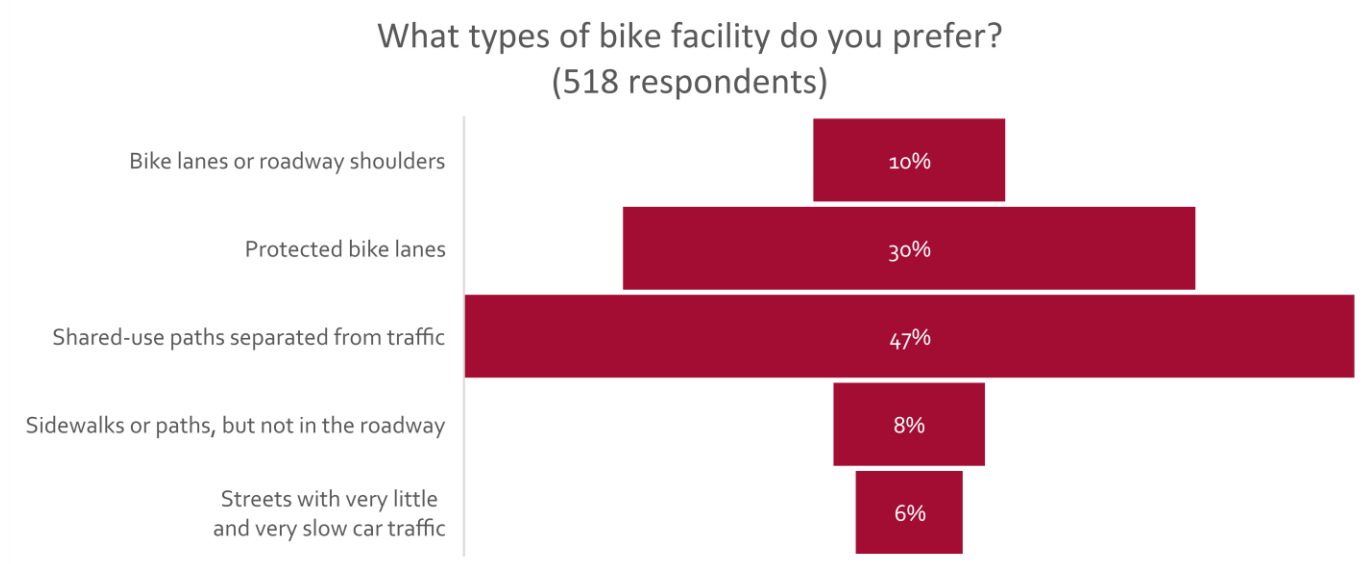- Cargo bike to take kids (non-e-bike)
- E-trike
- Family cargo e-trike
- Inline skates
- Tandem bicycle
- Manual wheelchair
- Moped
- Motorcycle, gas powered scooter
- Motorcycle
- Roller skates
- Walking

MARYLAND DEPARTMENT OF TRANSPORTATION

BIKE FACILITY TYPES

Figure 20: Respondents' Facility Preferences

What types of bike facility do you prefer?
(518 respondents)

Facility	Percentage
Bike lanes or roadway shoulders	10%
Protected bike lanes	30%
Shared-use paths separated from traffic	47%
Sidewalks or paths, but not in the roadway	8%
Streets with very little and very slow car traffic	6%

DEMOGRAPHICS

Figure 21: Respondents' Ages (Phase 1)

What is your age?
(543 respondents)

Age	Percentage
16-24	2%
25-34	11%
35-44	21%
45-54	19%
55-64	23%
65-74	18%
75+	5%
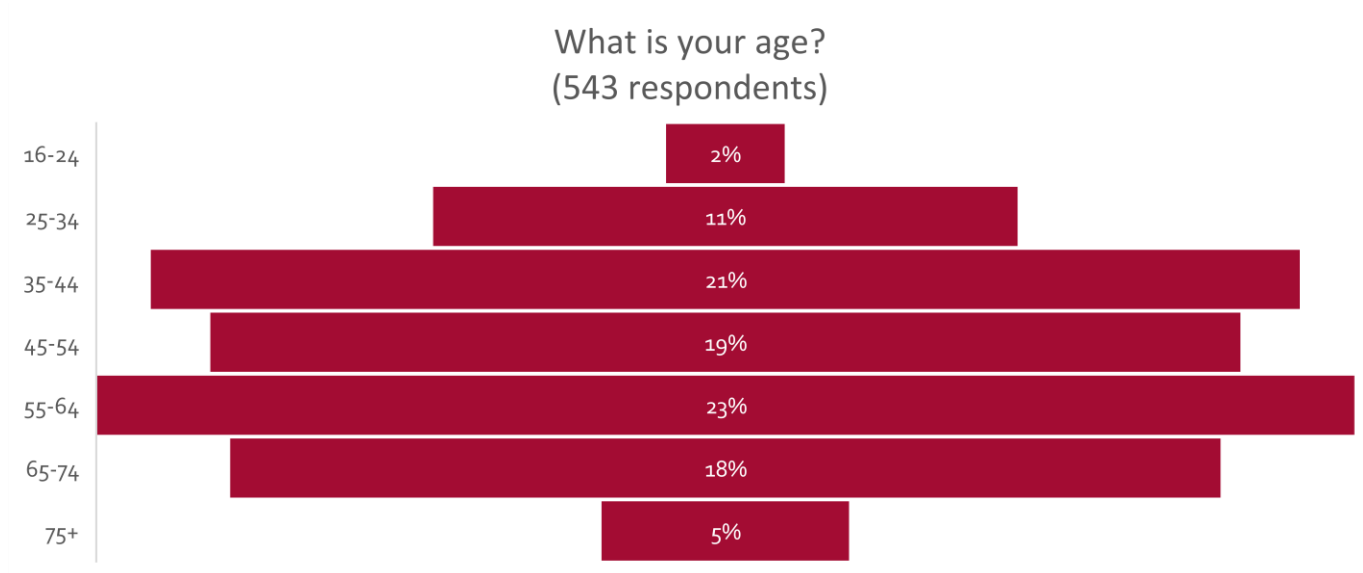
Figure 22: Respondent's Genders (Phase 1)

What is your gender identiy?
(517 respondents)

Female	50%
Male	47%
Non-binary	
Prefer not to say	2%
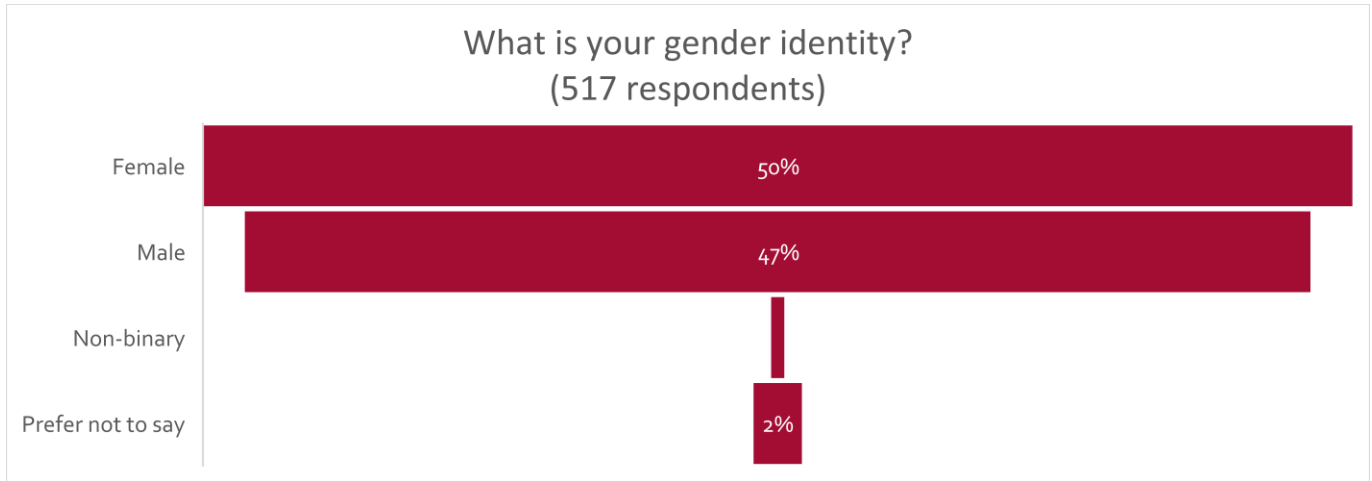
Figure 23: Respondents' Races/Ethnicities (Phase 1)

What is your race/ethniciy?
(526 respondents)

American Indian or Alaska Native	
American Indian or Alaska Native, Caucasia...	
Asian	4%
Asian, Caucasian or White	
Black or African American	5%
Caucasian or White	83%
Caucasian or White, American Indian or...	
Caucasian or White, Asian	
Caucasian or White, Hispanic or Latino	
Caucasian or White, Native Hawaiian or...	
Caucasian or White, Other	
Hispanic or Latino	
Hispanic or Latino, Caucasian or White	
Native Hawaiian or Other Pacific Islander	
Other	3%
Other, Caucasian or White, Asian	

Figure 24: Respondents' Annual Household Income (Phase 1)

What is your annual household income?
(509 respondents)

Income	Percent
$10,000-$19,999	
$100,000-149,999	44%
$20,000-$24,999	
$25,000-$29,999	
$30,000-$34,999	1%
$35,000-$39,999	2%
$40,000-$44,999	2%
$45,000-$49,999	3%
$50,000-$74,999	12%
$75,000-$99,999	12%
Less than $10,000	
Prefer not to say	22%
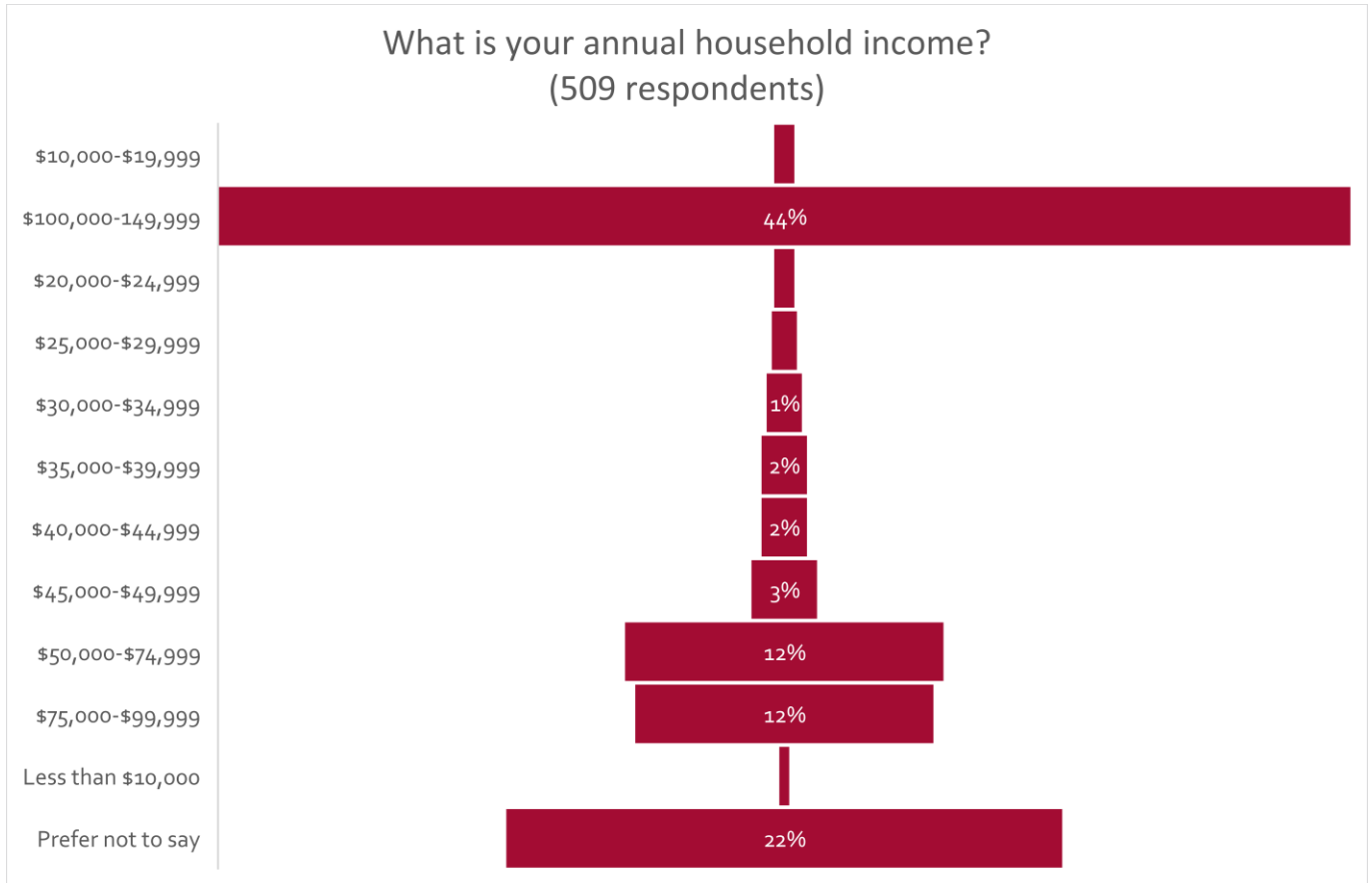
Figure 25: Respondents' Primary Language (Phase 1)

What is your primary language?

Language	Percent
American Sign Language	
English	96%
French	
Other Asian Languages	
Other Language	
Prefer not to say	
Spanish or Spanish Creole	
Tagalog	
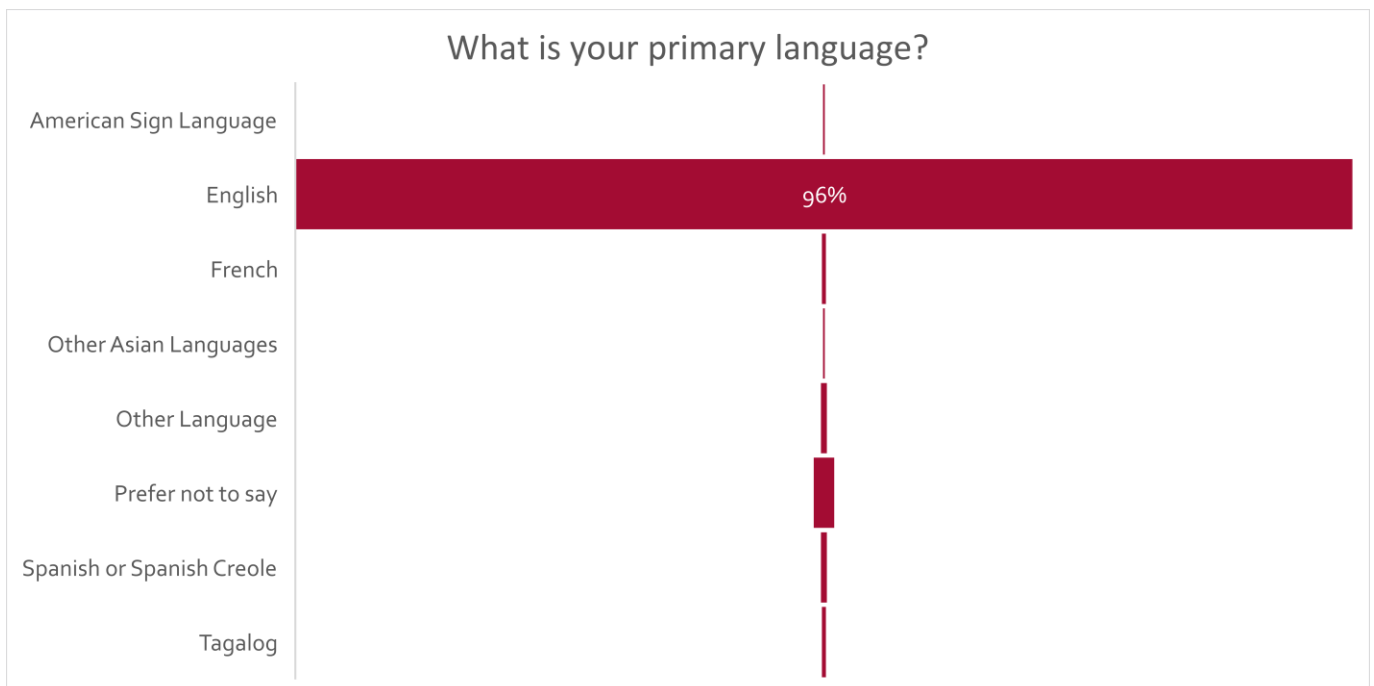
Figure 26: Respondent's Home Zip Code (Phase 1)

Number of Responses
- 1 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21+
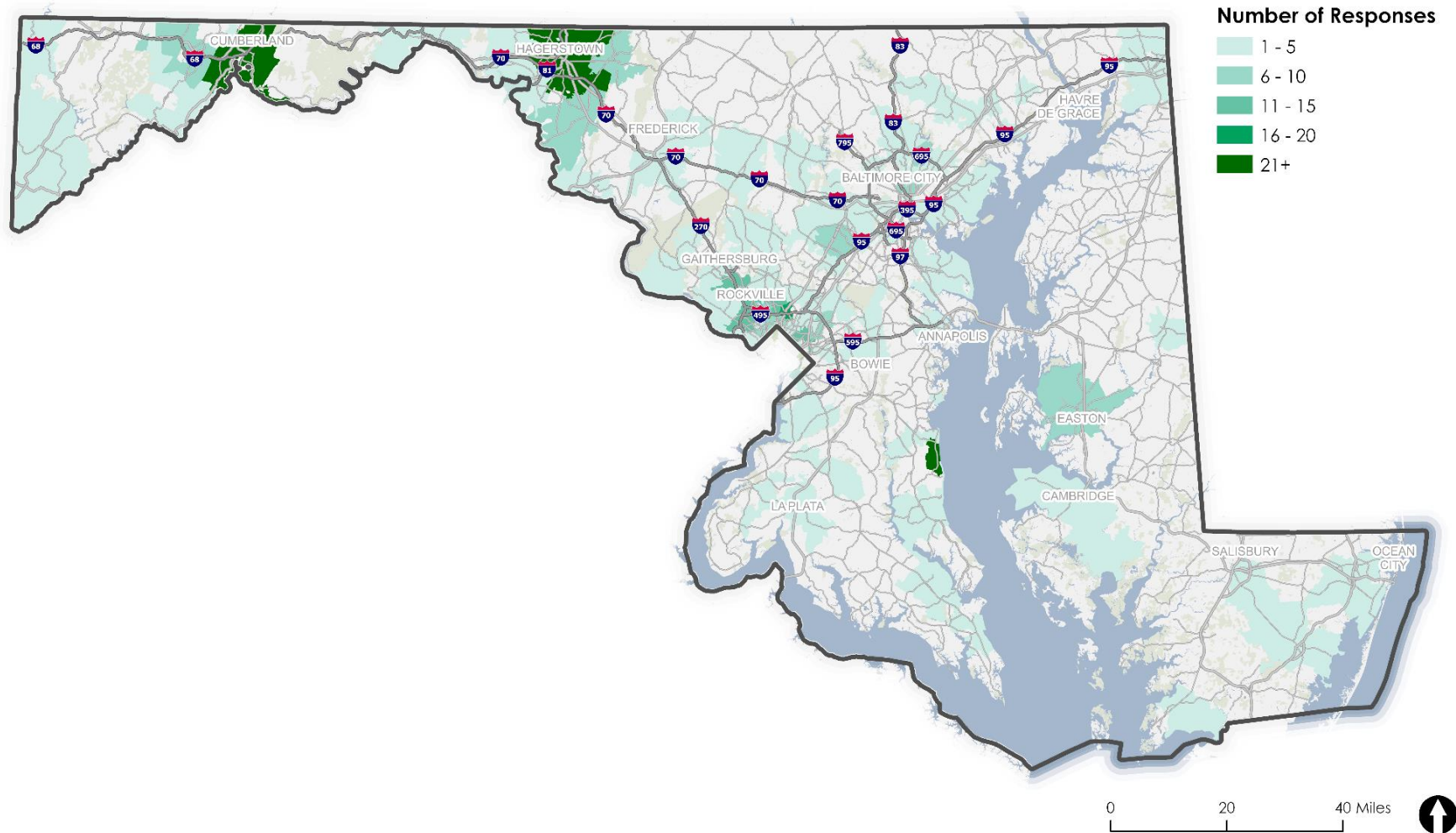
Phase 2 – Public Input Summary

This section includes the results of the public input surveys administered during Phase 2 of the project, once a draft of the 2050 BPMP was available for review. This included a survey requesting feedback on the BPMP, and a survey collecting demographic information. The surveys were available from September 8, 2023, through November 20, 2023.

PLAN CONTENTS SURVEY

This section includes the results of the survey addressing the contents of the BPMP. A total of 107 responses were received.

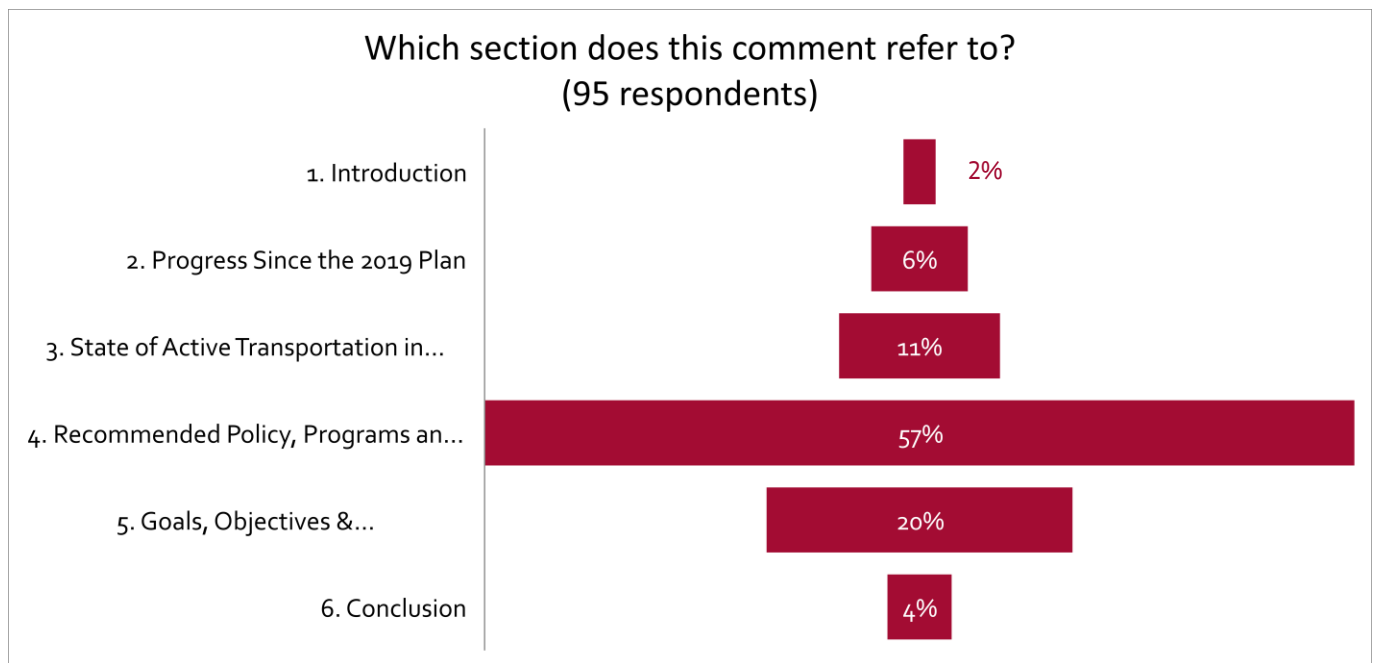*Figure 27: Comments Received by ection*

Which section does this comment refer to? (95 respondents)

- 1. Introduction — 2%
- 2. Progress Since the 2019 Plan — 6%
- 3. State of Active Transportation in... — 11%
- 4. Recommended Policy, Programs an... — 57%
- 5. Goals, Objectives &... — 20%
- 6. Conclusion — 4%

Figure 28. Comments Received by Page Number

Which page does this comment refer to?
(82 respondents)
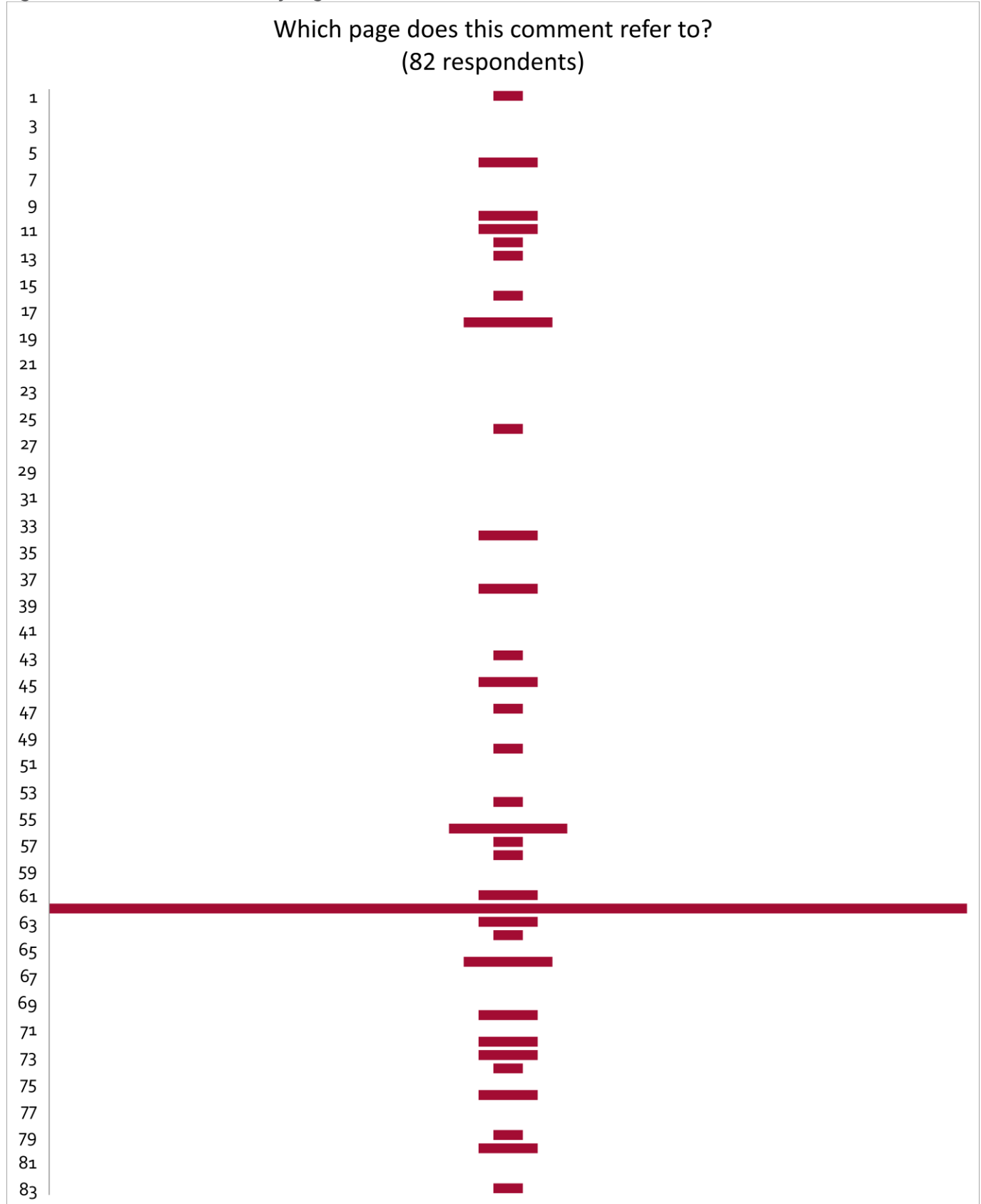
Figure 29: Respondent's Overall Opinion of Draft BPMP

Please share your overall opinion of the Bicycle and Pedestrian Master Plan
(101 respondents)

Requires Significant Work	17%
Needs Minor Edits	12%
Neutral	12%
Good So Far, Needs Slight Tweaks	46%
Excellent	14%
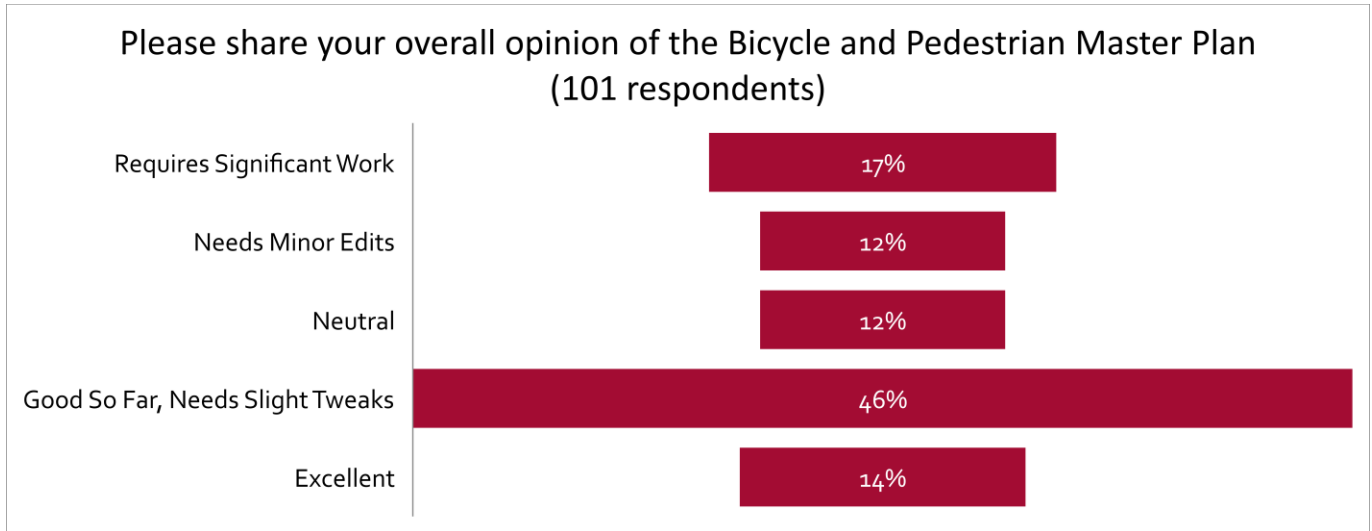
Figure 30. Respondents' Interest in Future Updates

Would you like to share your email for future updates and correspondence ?
(107 respondents)

Yes	75%
No	25%
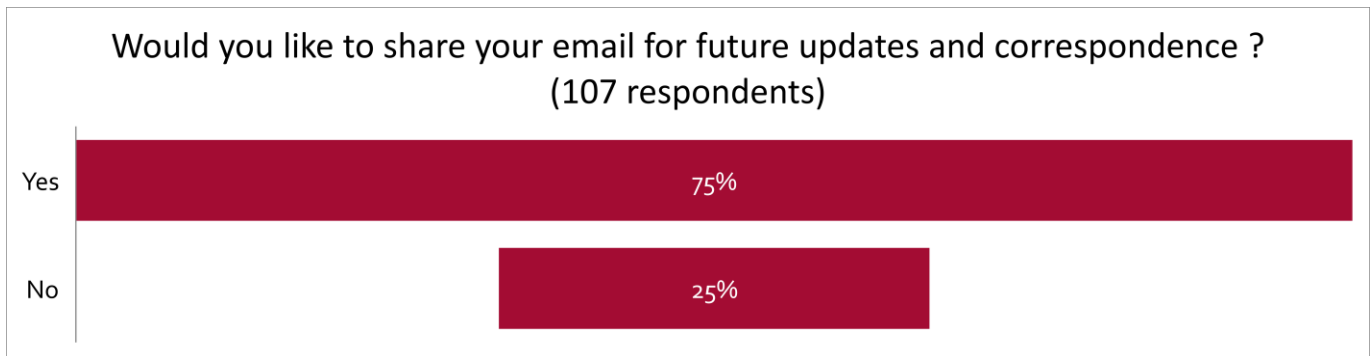
DEMOGRAPHICS

This section includes the results of the demographics survey. A total of 18 responses were received.
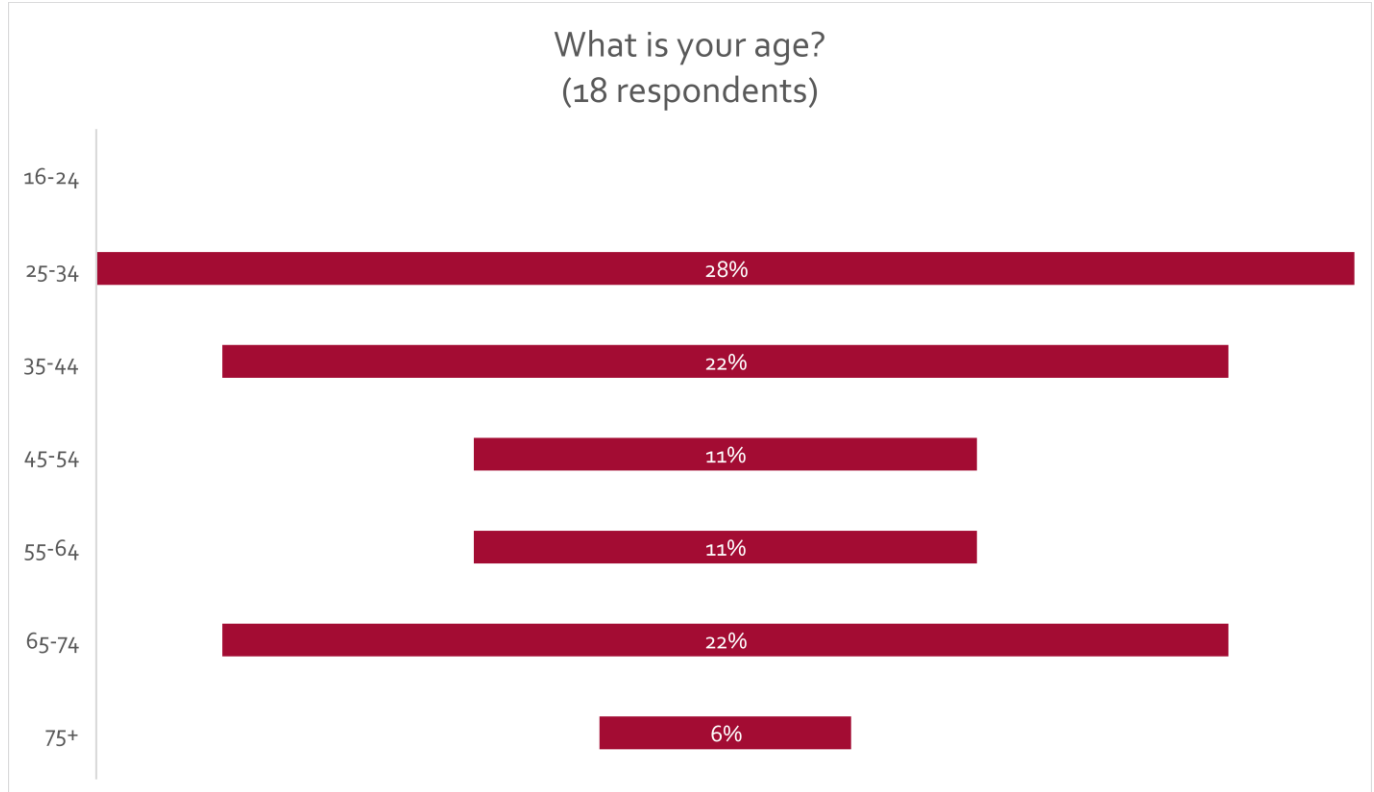
Figure 31: Respondents' Ages (Phase 2)

What is your age?
(18 respondents)

Age	Percent
16-24	
25-34	28%
35-44	22%
45-54	11%
55-64	11%
65-74	22%
75+	6%

Figure 32: Respondents' Genders (Phase 2)

What is your gender identity?
(18 respondents)

Gender	Percent
Female	22%
Male	67%
Non-binary	
Prefer not to say	11%
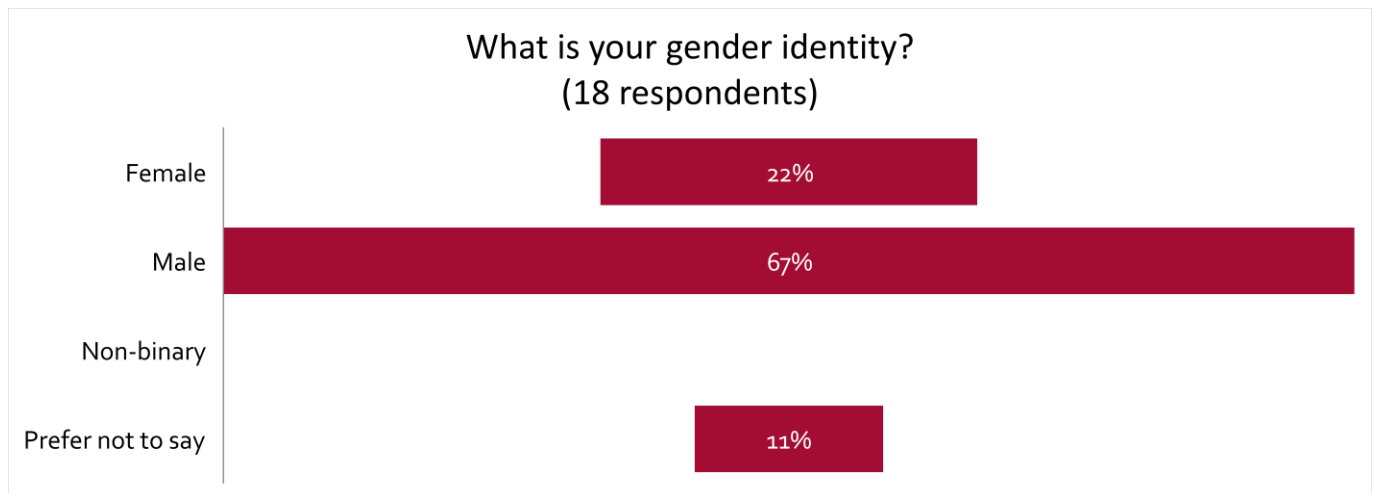
Figure 33: Respondents' Races/Ethnicities (Phase 2)

What is your race/ethnicity?
(18 respondents)

- American Indian or Alaska Native
- American Indian or Alaska Native,...
- Asian
- Asian, Caucasian or White — 6%
- Black or African American — 6%
- Caucasian or White — 67%
- Caucasian or White, American Indian o...
- Caucasian or White, Asian
- Caucasian or White, Hispanic or Latino
- Caucasian or White, Native Hawaiian o...
- Caucasian or White, Other — 6%
- Hispanic or Latino
- Hispanic or Latino, Caucasian or White — 6%
- Native Hawaiian or Other Pacific...
- Other
- Other, Caucasian or White, Asian
- Prefer not to say — 11%

Figure 34: Respondents' Annual Household Income (Phase 2)

What is your annual household income?
(18 respondents)

- Less than $10,000
- $10,000-$19,999
- $20,000-$24,999
- $25,000-29,999
- $30,000-34,999
- $35,000-39,999 — 6%
- $40,000-44,999
- $45,000-$49,999
- $50,000-$74,999 — 22%
- $75,000-$99,999 — 11%
- $100,000-$149,999 — 22%
- More than $150,000 — 28%
- Prefer not to say — 11%
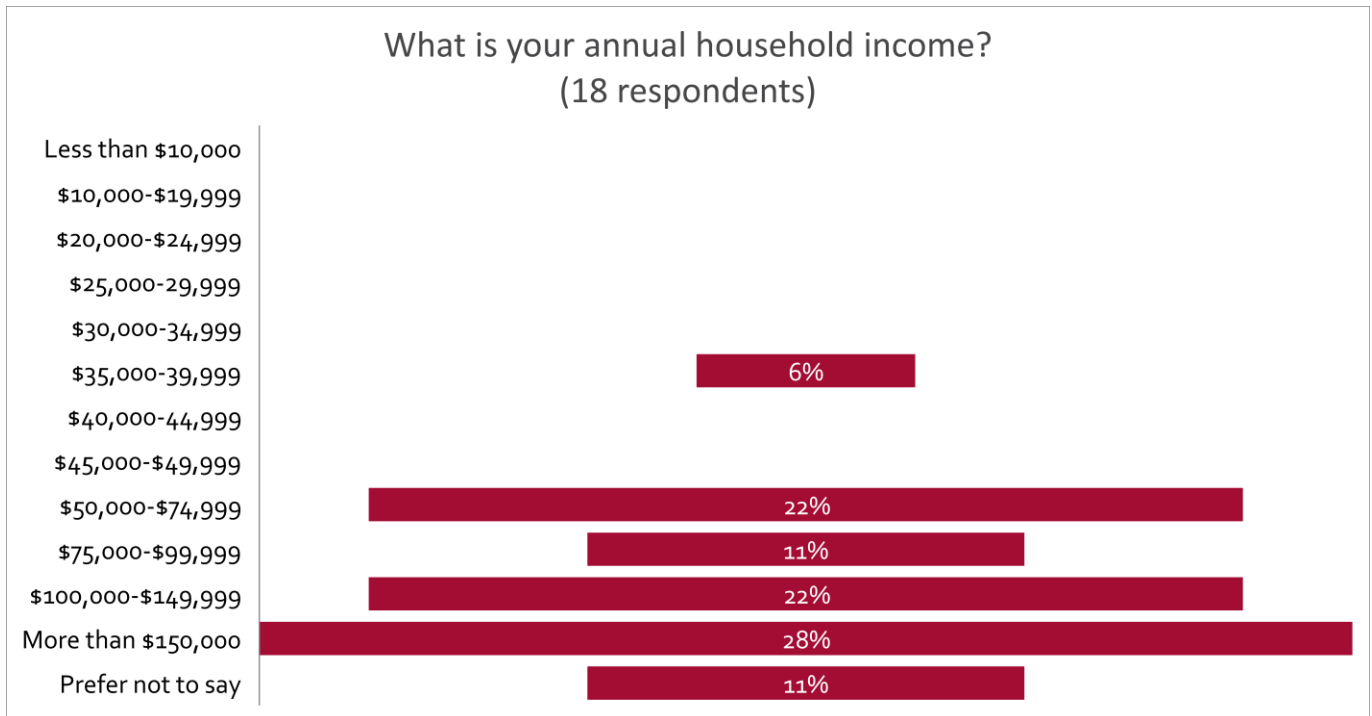
Figure 35: Respondents' Primary Language (Phase 2)

What is your primary language?
(18 respondents)

- American sign language
- English — 94%
- French
- Other Asian languages
- Other Language — 6%
- Spanish or Spanish Creole
- Tagalog
- Prefer not to say

MARYLAND
Statewide Bicycle
& Pedestrian Plan
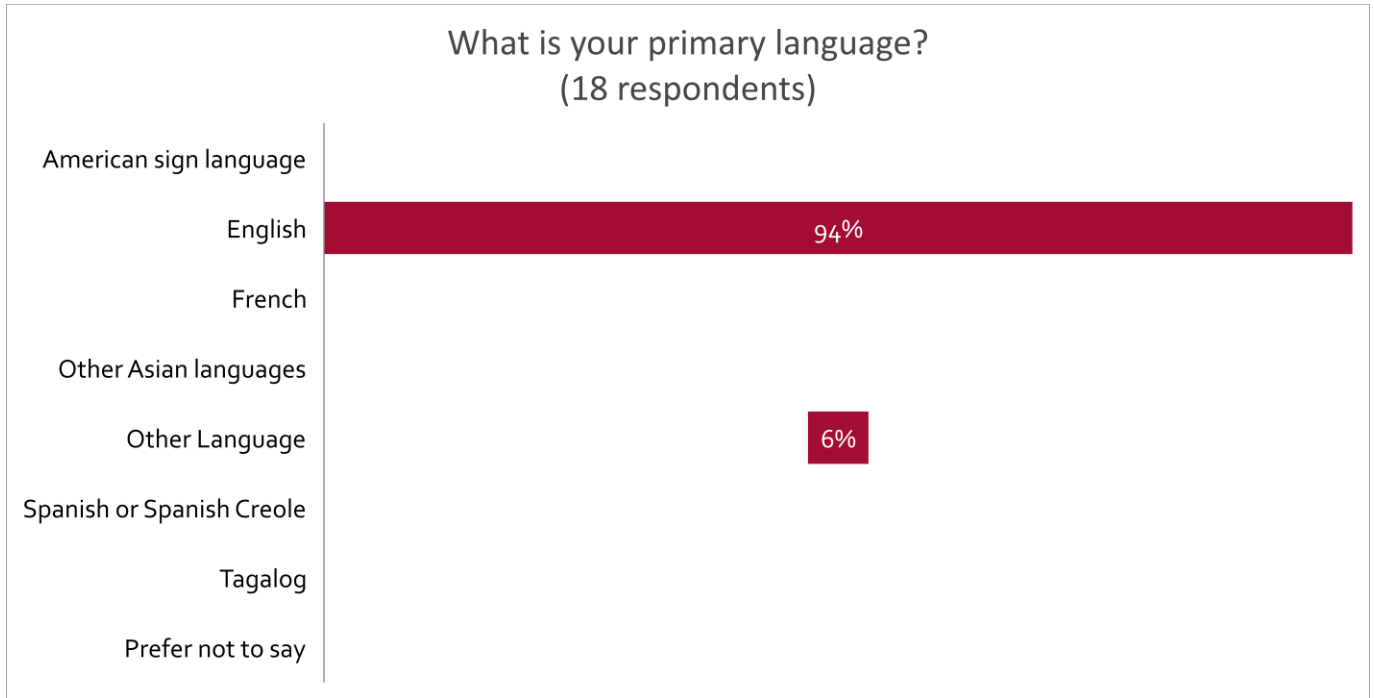
Figure 36: Respondent's Home Zip Code (Phase 2)

Number of Responses
1
2
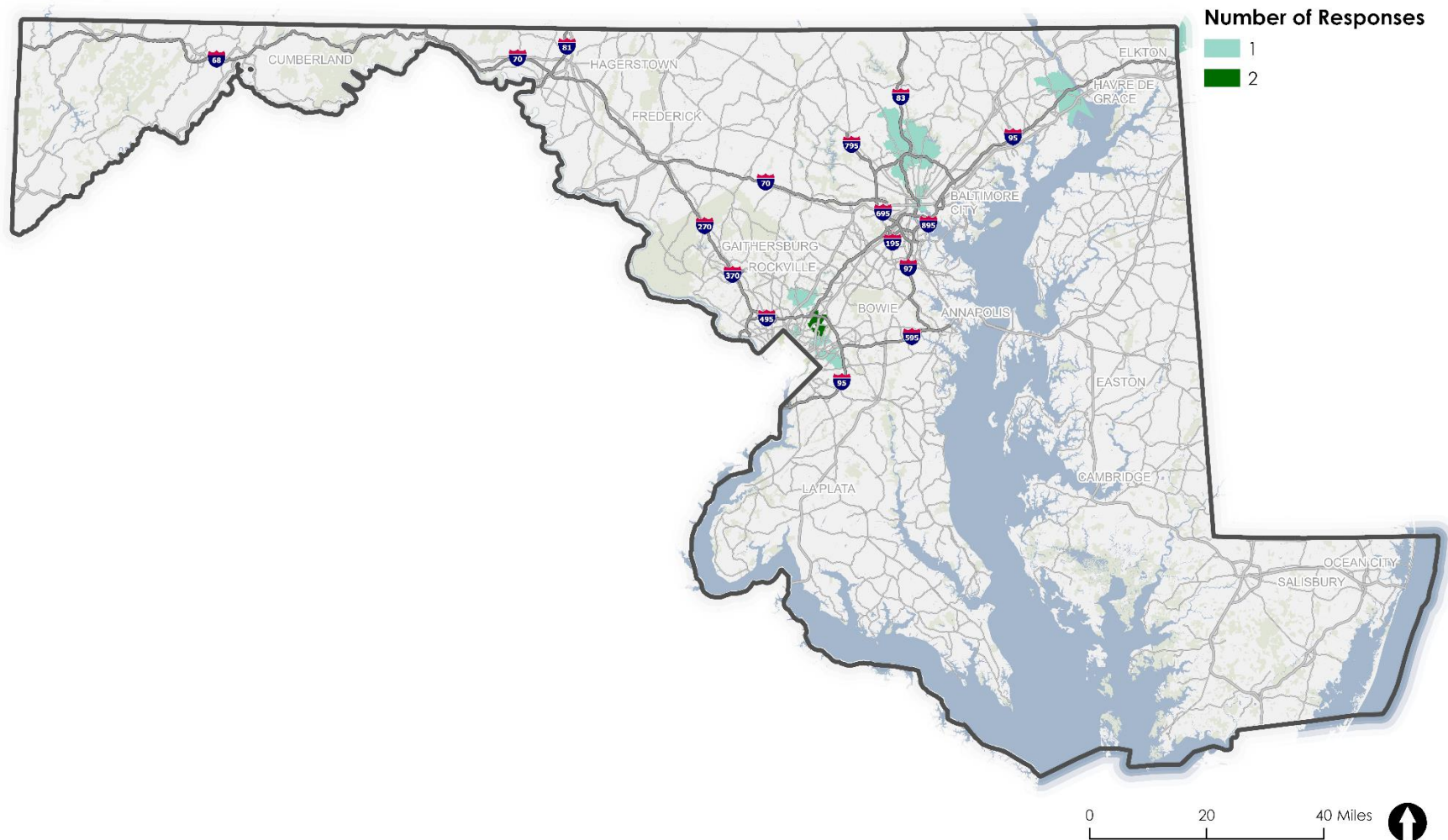
Appendix C

Equity Needs Index Methodology

Prioritizing Social Equity in Active Transportation Investments

Reflecting MDOT's commitment to promoting equity through infrastructure investments, the BPMP's project prioritization framework incorporates several measures intended to address social and economic disparities. In accordance with current federal guidance, MDOT developed an index that reflects an interest in four primary area characteristics:

1. current disadvantage,
2. historical disadvantage,
3. geographic isolation, and
4. population density.

Together, these indicators establish a framework for:

- prioritizing improvements based on the expected significance of their impact on affected communities; and
- targeting active transportation infrastructure investments to benefit historically marginalized communities.

Calculating the Equity Need Index

MDOT determined an area's equity need using an equally weighted index (**Figure 1** and the BPMP mapping app). The Equity Need Index scoring process determined whether each census tract in Maryland is a currently disadvantaged community, a historically disadvantaged community, or a rural area. Since this prioritization framework considers bicycle and pedestrian improvements, population density serves as a fourth factor, ensuring the index adequately emphasizes areas most suited to active transportation.

The Equity Need Index provides a means of prioritizing investments based on an investment's significance to the surrounding communities. The following sections describe the four component measures in more detail, including their correspondence to existing federal funding program eligibility definitions, to help MDOT link project proposals with potential future funding.

Figure 1: Equity Index Scoring
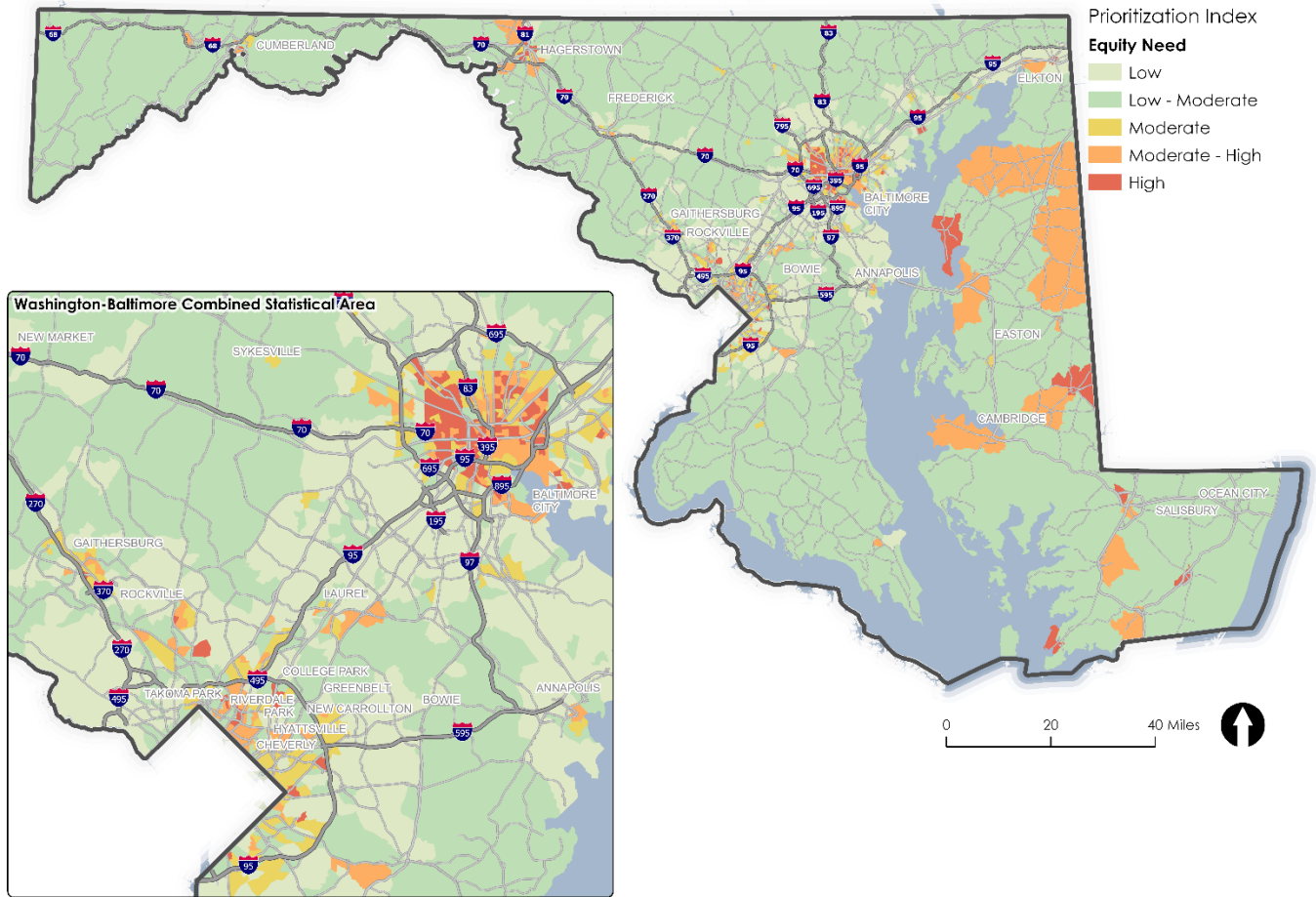
Current Disadvantage: USDOT Disadvantaged Areas and Communities

Interim guidance, issued by the US Office of Management and Budget (OMB) for the Justice40 initiative, requires federal agencies to identify census tracts that qualify as disadvantaged for purposes of the agency's programs. The USDOT issued subsequent interim guidance for identifying these disadvantaged areas and communities (DACs), using 22 indicators grouped across six categories[1], including:

- **Transportation access disadvantage:** communities and places that spend more, and take longer, to get where they need to go.
- **Health disadvantage:** communities associated with adverse health outcomes, disability and environmental exposures.
- **Environmental disadvantage:** communities with disproportionately high levels of certain air pollutants and a high potential presence of lead-based paint in housing units.
- **Economic disadvantage:** areas and populations with high poverty, low wealth, few local jobs, low homeownership, low educational attainment and high inequality.
- **Resilience disadvantage:** communities vulnerable to hazards caused by climate change.
- **Equity disadvantage:** communities with a high proportion of persons (age 5+) who speak English "less than well."

USDOT USED THE FOLLOWING STEPS TO IDENTIFY DACs:

1. Normalized scores for each variable are assigned to each census tract.
2. Variables are reclassified, assigning a value of one to census tracts in the top 50th percentile of disadvantage; tracts not meeting this threshold receive a score of zero[2].
3. Scores for each category are summed by census tract.
4. A census tract is considered transportation disadvantaged if it has a score of four or higher.

MDOT identified census tracts in Maryland as DACs if USDOT designated them as such (**Figure 2** and the BPMP mapping app). Most urban DACs occur in the areas around Baltimore and Washington, DC, as well as near Hagerstown. Rural DACs cluster in areas along the Eastern Shore. The DAC designation highlights the fact that poverty, low economic accessibility, environmental exposure and poor health outcomes are not associated with a particular settlement pattern in Maryland.

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[1] To learn more about how USDOT defines DACs for its purposes, see:
https://www.transportation.gov/priorities/equity/justice40/transportation-disadvantaged-census-tracts-historically-disadvantaged.

[2] For the resilience category, a tract is assigned a value of one (1) if it is in the top 75th percentile of disadvantage.

Figure 2: Disadvantaged Areas and Communities in Maryland
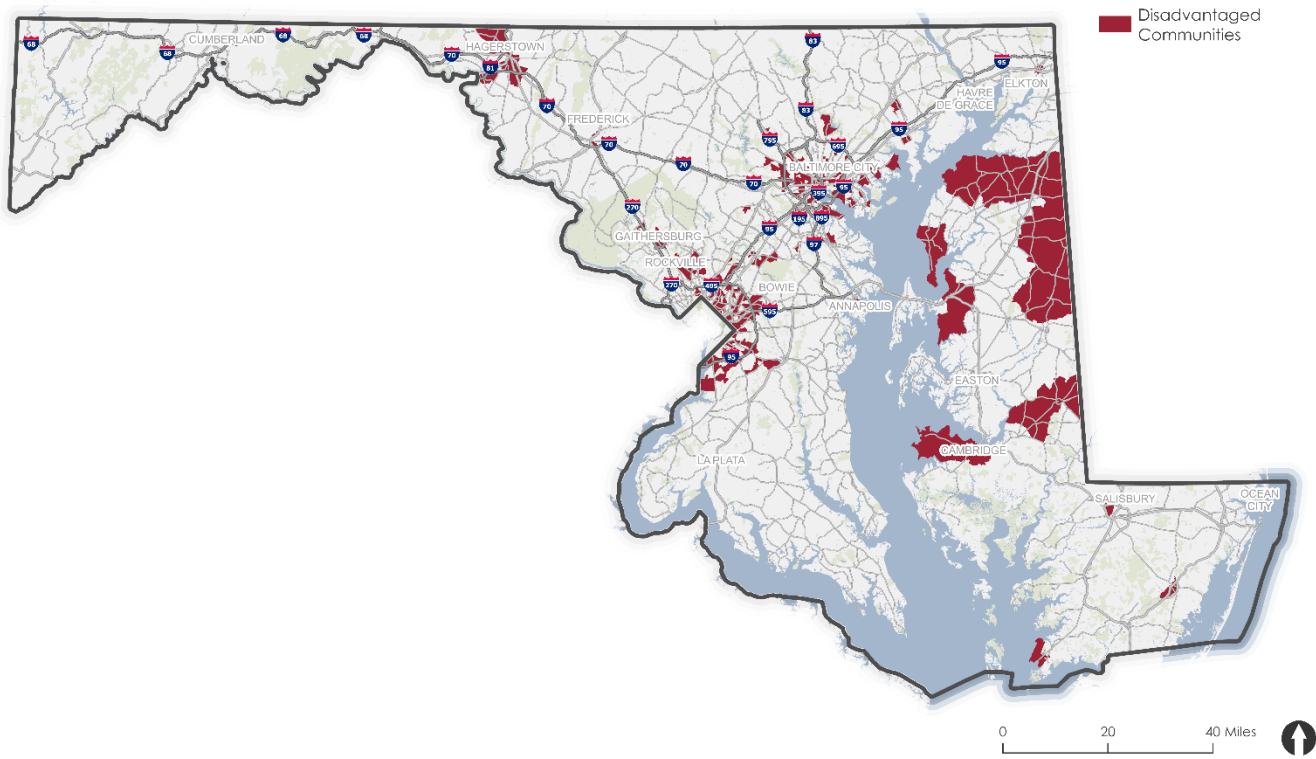
Historical Disadvantage

While DACs identify tracts that are disadvantaged according to the latest available information about places and people who live there, areas where disadvantage has persisted over time demand the greatest investments now. The Infrastructure Investment and Jobs Act of 2022 defined Areas of Persistent Poverty for the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grant program[3]. A project is located in an Area of Persistent Poverty if:

1. The County in which the project is located consistently had greater than or equal to 20 percent of the population living in poverty in all three of the following datasets: a. The 1990 decennial census;
    a. The 2000 decennial census; and
    b. The 2021 Small Area Income Poverty Estimates; OR
2. The Census Tract in which the project is located has a poverty rate of at least 20 percent as measured by the US Census Bureau's American Community Survey (ACS) five year estimates for 2014-2018; OR
3. The project is located in any territory or possession of the United States[4].

While Areas of Persistent Poverty are defined specifically for the RAISE program, the Federal Transit Administration (FTA) also administers a competitive grant program to assist Areas of Persistent Poverty[5]. Authorized for $20 million in FY2023, this program awards grants for planning, engineering, technical and financial projects eligible under 49 USC 53; the federal share of awarded projects is not less than 90 percent of the total project cost.

MDOT identified counties and census tracts as Areas of Persistent Poverty if USDOT designated them as such (**Figure 3** and the BPMP mapping app). The majority of Areas of Persistent Poverty are in the Baltimore area. Other areas include the rural towns of Cumberland and Hagerstown, as well as near Chestertown, Federalsburg and Salisbury on the Eastern Shore.

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[3] RAISE was originally conceived as the Transportation Investment Generating Economic Recovery (TIGER) program, and then as the Better Utilizing Investments to Leverage Development (BUILD) program. For more information about the RAISE program, see: https://www.transportation.gov/RAISEgrants.

[4] For more information about how USDOT determines eligibility for the RAISE grant program, see: https://www.transportation.gov/RAISEgrants/raise-app-hdc.

[5] For more information on the FTA Areas of Persistent Poverty Program, see: https://www.transit.dot.gov/grant-programs/areas-persistent-poverty-program.

Figure 3: Areas of Persistent Poverty
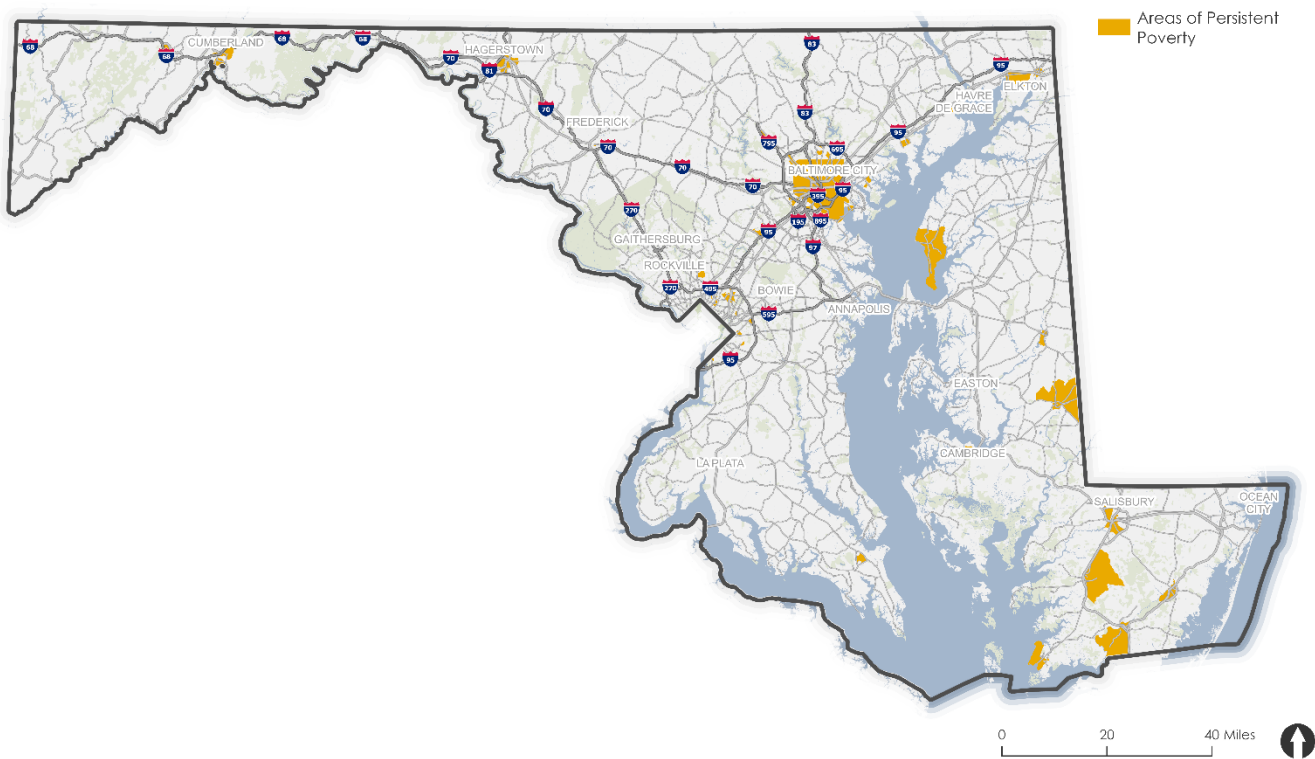
Geographical Isolation

The United States remains challenged by the provision of adequate resources to both urban centers and rural areas. Funding policy for transportation infrastructure has been dictated by these issues for decades[6]. Critically, long distances and low population densities make rural areas expensive places to provide social services; moreover, they generate less local tax revenue, meaning they cannot make up for social service gaps that may exist.

Table 1: USDOT Definitions of Rural[7]

		PROGRAM	DEFINITION OF RURAL
MODAL ADMINISTRATION	Federal Transit Administration (FTA)	Passenger Ferry Program & Ferry Service for Rural Communities	Located outside of a census-designated urbanized area with a population of less than 50,000 persons.
		Low or No Emission Vehicle Program	
		Innovative Coordinated Access and Mobility Pilot Program (ICAM)	
		Bus and Bus Facilities	
	Federal Railroad Administration (FRA)	Consolidated Rail Infrastructure and Safety Improvements (CRISI)	
		Railroad Crossing Elimination	
	Federal Highway Administration (FHWA)	Advanced Transportation Technologies & Innovation (ATTAIN)*	
	Office of the Secretary (OST)	Strengthening Mobility and Revolutionizing Transportation (SMART)	Located outside of a census-designated urbanized area with a population of less than 50,000 persons. The SMART program also has a set-aside for midsize communities (between 50,000 & 400,000 persons).
		Transportation Infrastructure Finance and Innovation Act (TIFIA)	Located outside of a census-designated urbanized area with a population of 150,000 or more.
		Rebuilding America's Infrastructure Sustainably and Equitably (RAISE)	Located outside of a census-designated urbanized area with a population of 200,000 or more.
		Infrastructure for Rebuilding America (INFRA)	
		Rural Surface Transportation Grant (Rural)	

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[6] For a historical discussion, see: Kirk, Robert S. "The Highway Funding Formula: History and Current Status." Washington DC: Congressional Research Service, May 20, 2019. https://crsreports.congress.gov/product/pdf/R/R45727/3.

[7] Reproduced from: https://www.transportation.gov/rural/eligibility.

To accommodate different definitions of rural (**Table 1**) in its identification of geographically isolated census tracts, MDOT assigned census tracts a preliminary score based on USDOT designations (**Table 2**). Greater geographic isolation corresponds with higher scores. While all areas scoring above zero qualify for funding from at least one of the above programs that can be used for active transportation projects, this classification allows for the identification of the most geographically isolated areas.

Table 2: Preliminary Equity Scores for Rural Designations

RURAL DESIGNATIONS	PRELIMINARY SCORE
Census tracts in urban areas with greater than 400,000 people	0
Census tracts in urban areas with between 200,000 and 400,000 people	1
Census tracts in urban areas with between 150,000 and 200,000 people	2
Census tracts in urban areas with between 50,000 and 150,000 people	3
Census tracts in urban areas with less than 50,000 people	4
Census tracts outside of urban areas	5

The most urbanized areas are in and between the major metropolitan areas of Baltimore and Washington, DC, following the I-95 corridor and spreading east towards Annapolis and Prince George's County (**Figure 4** and the BPMP mapping app).Areas along the Eastern Shore that cross the 50,000 person threshold include Salisbury, Ocean City and Chester; these areas would qualify for FHWA's Strengthening Mobility and Revolutionizing Transportation (SMART) program as well as most FTA and FRA programs that distinguish by settlement pattern.

Figure 4: Urban Areas
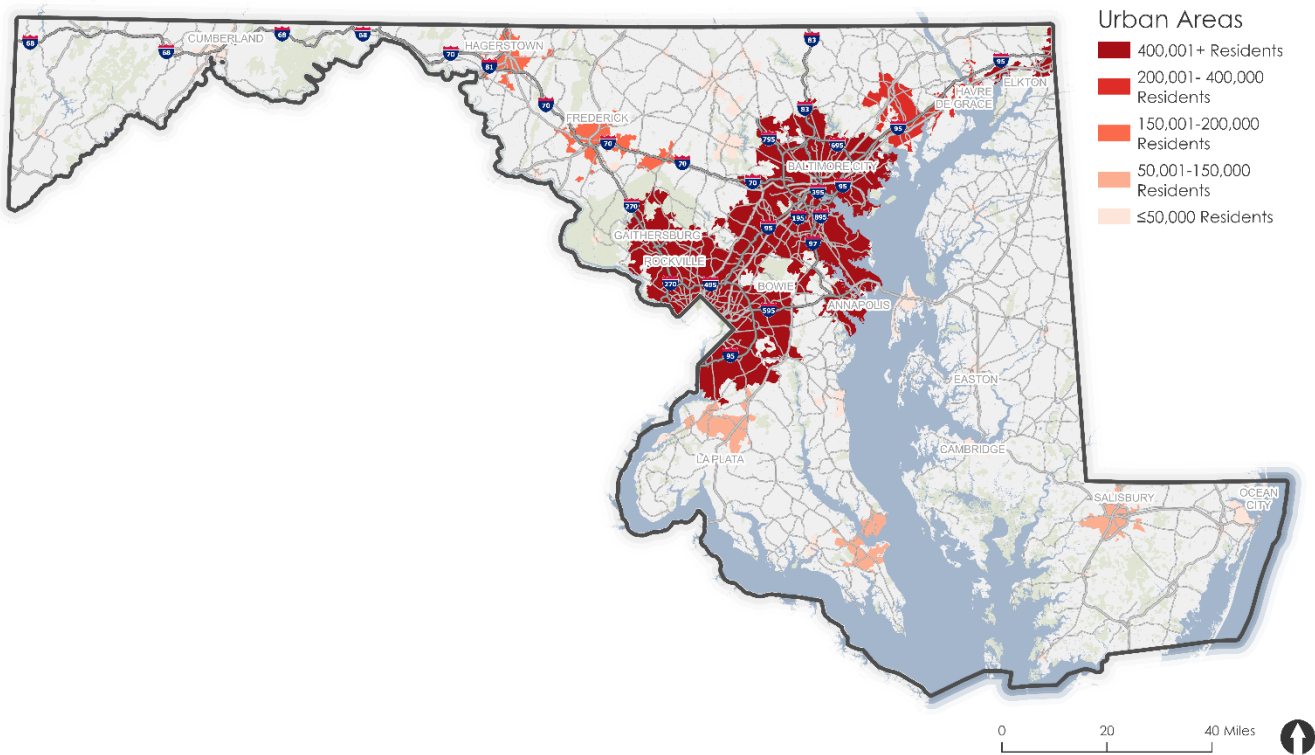
Population Density

Active transportation suitability depends in part on population and settlement density. If destinations are too far away, walking and bicycling become less feasible transportation options; conversely, active transportation investments in high-density areas facilitate more trips for more people. Accordingly, MDOT's Equity Need Index considers population density to ensure the prioritization of projects in denser areas that inherently support walking and bicycling. MDOT used a quantile classification scheme to assign census tracts along a range from 'Low' to 'High' based on their population density.

Low population density characterizes most of Maryland (**Figure 5** and the BPMP mapping app).The densest places tend to be urban, and so the metropolitan areas between and including Baltimore and Washington, DC are obvious candidates for continued active transportation investment. However, compact small towns and cities like Hagerstown, Frederick, Salisbury and Easton also stand out as higher density areas.

Figure 5: Population Density
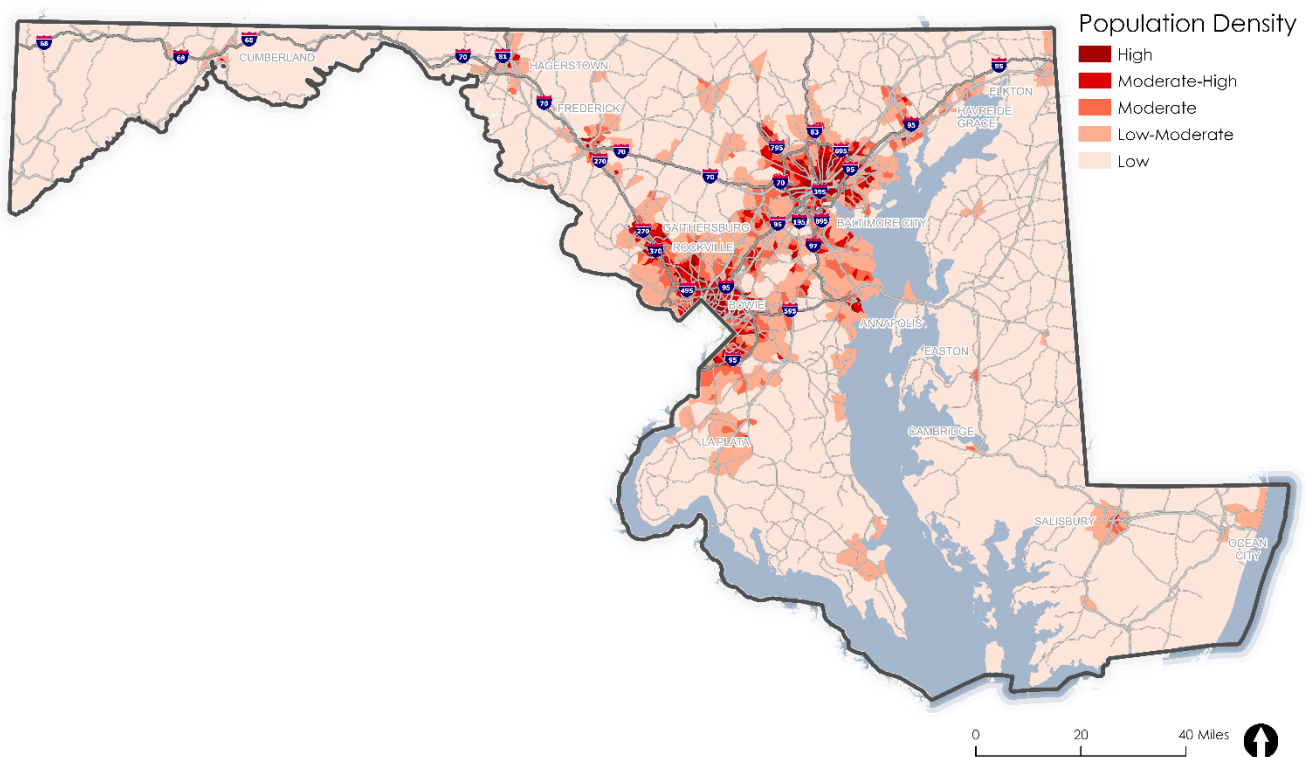
Appendix D

Bicycle Facility Selection Guidance

BICYCLE FACILITY SELECTION DRAFT GUIDANCE

Expanding Maryland's bicycle network will require a combination of (a) leveraging project opportunities along and across state roads and (b) working with local jurisdictions to implement supporting infrastructure on local roads. However, designers and local practitioners across the State are working with different understandings of priorities and what is considered an "appropriate" bicycle facility for various contexts.

The following guidance leverages the State's *Context Driven Guide*, FHWA's *Bikeway Selection Guide*, and Maryland's comprehensive Level of Traffic Stress (LTS) dataset to provide direction to practitioners on low-stress bike network planning and appropriate bicycle facility selection. The selection of an appropriate bicycle facility is based on a design process that answers the key questions:

- **Who is the user we are trying to design for given the context of the roadway?**
- **What is the best bicycle facility for that user based on the existing Level of Traffic Stress (LTS) of the corridor?**

The Facility Selection Process outlined in **Figure 1** answers these questions using the Context Driven Guide and LTS database.

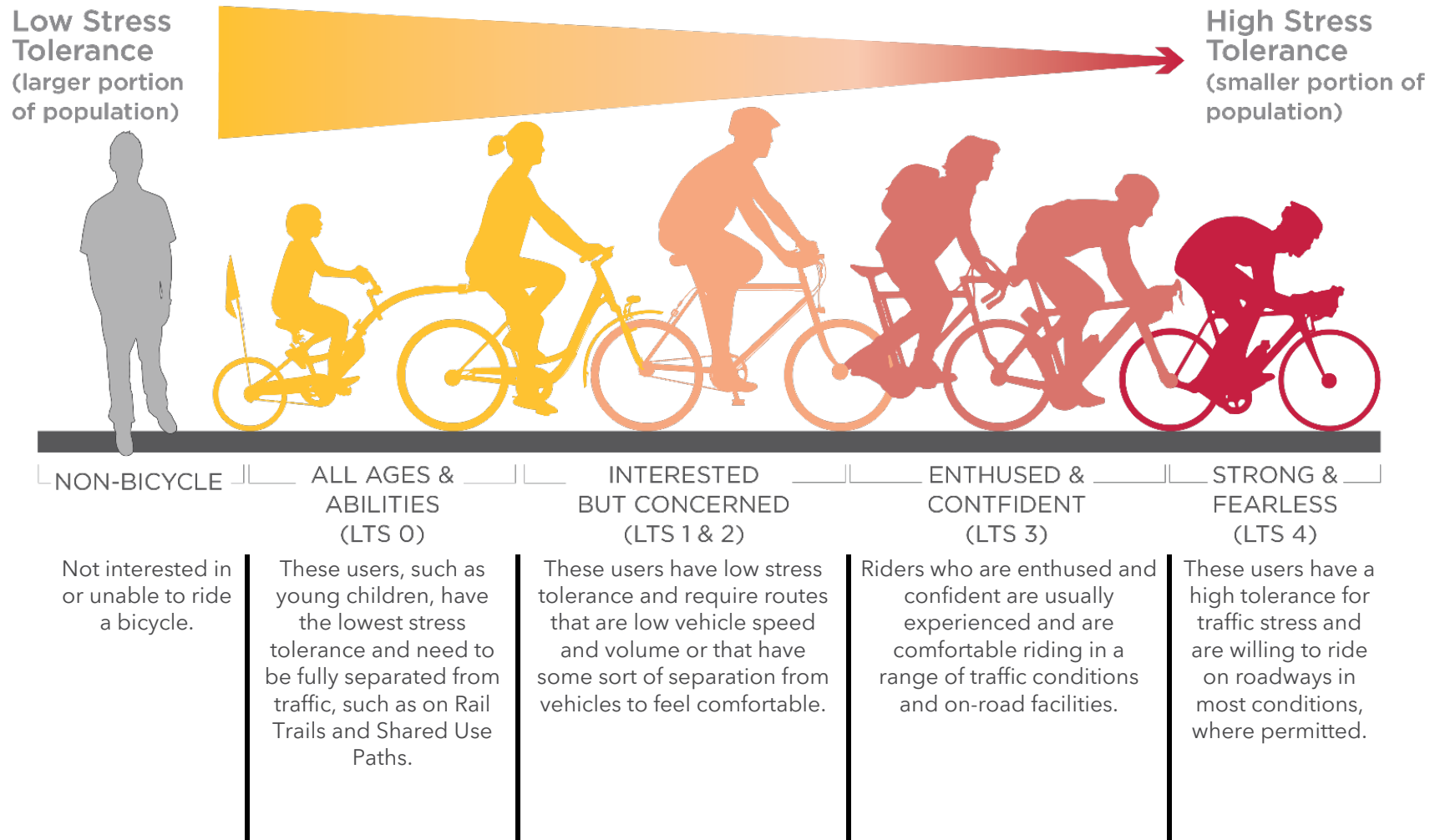Figure 1: Bicycle Facility Selection Process
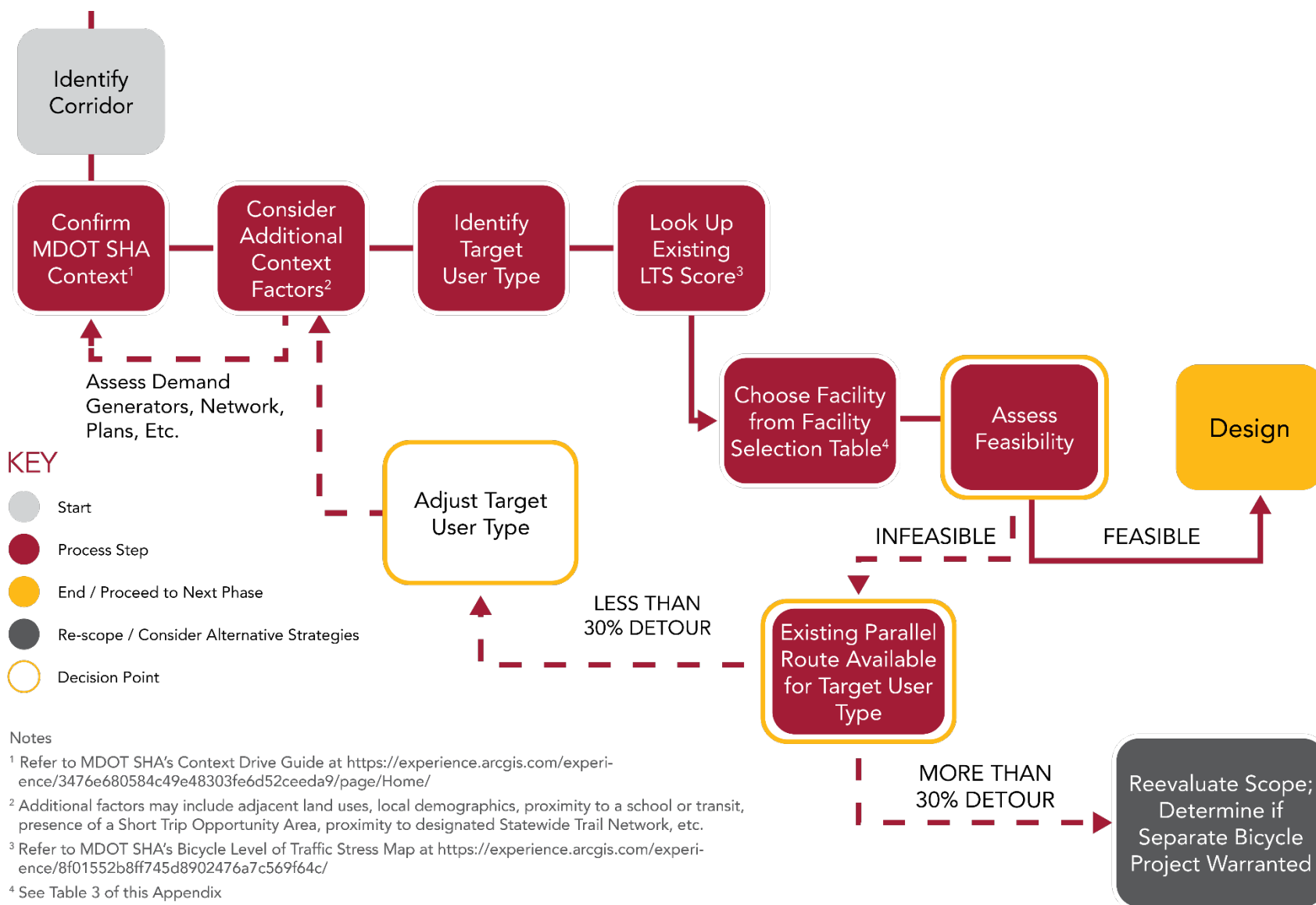
USER TYPES

People riding bikes have varying degrees of tolerance for roadway conditions, whether based on age, bicycling experience, or sense of safety from motor vehicle traffic. Most people open to bicycling are willing to ride a bike on low-stress corridors. Smaller portions of the population are composed of enthused and confident riders and strong and fearless riders; these groups have higher stress tolerance. The final group of the population is not interested in or able to bike, regardless of the route quality (**Figure 2**).

MARYLAND DEPARTMENT
OF TRANSPORTATION

BICYCLE FACILITY SELECTION GUIDANCE

Figure 2: Types of Bicyclists

Low Stress Tolerance (larger portion of population)				**High Stress Tolerance** (smaller portion of population)
NON-BICYCLE	ALL AGES & ABILITIES (LTS 0)	INTERESTED BUT CONCERNED (LTS 1 & 2)	ENTHUSED & CONTFIDENT (LTS 3)	STRONG & FEARLESS (LTS 4)
Not interested in or unable to ride a bicycle.	These users, such as young children, have the lowest stress tolerance and need to be fully separated from traffic, such as on Rail Trails and Shared Use Paths.	These users have low stress tolerance and require routes that are low vehicle speed and volume or that have some sort of separation from vehicles to feel comfortable.	Riders who are enthused and confident are usually experienced and are comfortable riding in a range of traffic conditions and on-road facilities.	These users have a high tolerance for traffic stress and are willing to ride on roadways in most conditions, where permitted.

Adapted from FHWA Bikeway Selection Guide (2019)

IDENTIFYING A TARGET USER TYPE

The Target User Type is the expected typical rider that designers should strive to accommodate through facility selection that meets their needs and tolerance level. The Target User Type is informed by the land use context, as defined in SHA's *Context Driven Guide*, which aligns roadway design with adjacent land use context, and is not to be based on an evaluation of existing users. The Target User Type will vary according to the immediate context along the corridor. There are many different roadway and land use contexts in Maryland, and these contexts often change along the same corridor.

Denser contexts with multiple land uses, such as Urban Core and Urban Center, readily enable short walking and biking trips, allowing people to get to work, school, community services, or any number of other trips. Bicycle facilities in these contexts should be designed with slower roadway speeds and high-quality biking facilities to accommodate a larger cross section of user types.

As contexts become less dense (as in Suburban and Rural), roadways typically have higher speeds and longer distances between destinations, resulting in fewer riders in the All Ages and Abilities and Interested but Concerned categories and a higher threshold of infrastructure needed to accommodate these types of riders. The Bicycle Facility Selection Guidance focuses on roadway corridors and is intended to be supplemented with concurrent build-out of Maryland's State Trail Network for off-street connections that cater to All Ages and Abilities riders in suburban and rural contexts. The contexts defined in the *Context Driven Guide* are:

- Urban Core
- Urban Center
- Traditional Town Center

- Suburban Activity Center
- Suburban
- Rural

Figure 3: Relationships between Contexts, Access, and Mobility
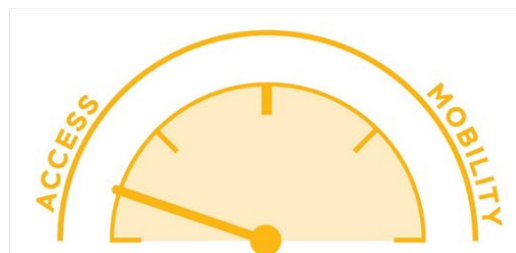
Once the context is identified and confirmed through an understanding of area zoning and master plans, the Target User Type may be selected. The Target User Type represents the expected audience for the context but should not preclude designing for a more inclusive cross section of the population. **Table 1** highlights the minimum Target User Type that should be considered in each MDOT SHA context.

Table 1: Target User Type by MDOT SHA Context

MDOT SHA Context	Minimum Target User Type
Urban Core	All ages and abilities
Urban Center	All ages and abilities
Traditional Town Center	Interested but concerned
Suburban Activity Center	Interested but concerned
Suburban	Interested but concerned
Rural	Enthused and confident

ADDITIONAL CONTEXT FACTORS

These Target User Types are the starting point for determining the appropriate bicycle facility. Additional Context Factors, such as adjacent land uses, local demographics, the proximity of schools or transit, presence of a STOA, or connections to the state trail network, should be considered and will indicate if it is appropriate to design for a more inclusive user type (e.g., from Interested but Concerned to All Ages and Abilities).

Because roadway conditions and land use contexts in Maryland can vary along the length of a corridor, the Target User Type may also change.

For example, a corridor in a rural context may pass through a small town or an industrial area. Accordingly, context-based planning requires an understanding of existing land uses and potential development to ensure infrastructure meets existing needs and promotes the development of a comprehensive network of safe and comfortable active transportation facilities.

As another example, the streets surrounding a public elementary school may be classified as a Rural context. However, the Enthused and Confident rider is an inappropriate Target User Type for any facility near the school due to the potentially high latent demand of school-aged riders who would make use of the facility. Planners and designers must take into consideration any prevailing context factors that warrant the selection of a Target User Type other than that suggested by Table 1. Providing access for the most users will require a systems-based approach, combining the local network with the more direct and connected arterial routes.

Additional Context Factors

The target user type is generally defined by the MDOT SHA Contexts. However, within a context area, it may be desirable to design bicycle facilities for riders with lower stress tolerance (e.g., a more inclusive subset of the total population) based on the following considerations.

- **Local demographics:** Characteristics of the local population should be taken into consideration, including the proportion of population that are children, seniors, people with disabilities, or zero car households.
- **Adjacent land uses:** The types of adjacent land uses should be considered, especially those that are frequented by vulnerable populations such as health care centers, playgrounds and parks, or community centers, or those that generate higher volumes of local trips, such as grocery stores or high-frequency transit stops.
- **Safe Routes to School and Safe Route for Seniors:** Corridors that are part of Safe Routes for students or seniors should be designed for a more inclusive user group.
- **Short Trip Opportunity Area:** Corridors that are within a Short Trip Opportunity Area may merit designing for a more inclusive user group. While the SHA Contexts largely capture the existing land use characteristics, STOAs add another layer of nuance and help reflect areas of latent demand.
- **Statewide Trail Network:** A corridor on or connecting to the Statewide Trail Network should be designed for a more inclusive user group.
- **Local Policies, Plans, or Standards:** Any relevant policies, planning documents, or design standards of the local jurisdiction should be considered when selecting the Target User Type and facility type.

Once the Target User Type is identified, the next step in selecting a bicycle facility is to understand how people biking experience the existing corridor.

LEVEL OF TRAFFIC STRESS

The decision to ride a bike can strongly rely on how comfortable someone will feel making the trip by bike. Generally, individuals only opt to bicycle when they feel safe doing so. MDOT has developed a statewide Bicycle Level of Traffic Stress (LTS) dataset that represents a high-level assessment of how a person biking is likely to experience any roadway in Maryland (**Figure 4** and the BPMP Plan Mapping webpage).

Each road and shared use path in Maryland is given an LTS score from 0 to 5 that reflects its relative suitability for bicyclists of varying levels of skill and experience (**Table 2**). The lower the LTS score, the more inviting the bicycle facility is to a broad cross section of the population.

The LTS method[1] is a "weakest link" approach, meaning that a route, including intersections and crossings, must be fully low-stress to be a feasible route for a low-tolerance rider. As state roads tend to have higher vehicular volumes and speeds than local roadways, they frequently function as high-stress barriers to low-stress network connectivity. Providing low-stress crossings of state roads can close small gaps, connecting islands of low-stress streets and expanding the low-stress network.
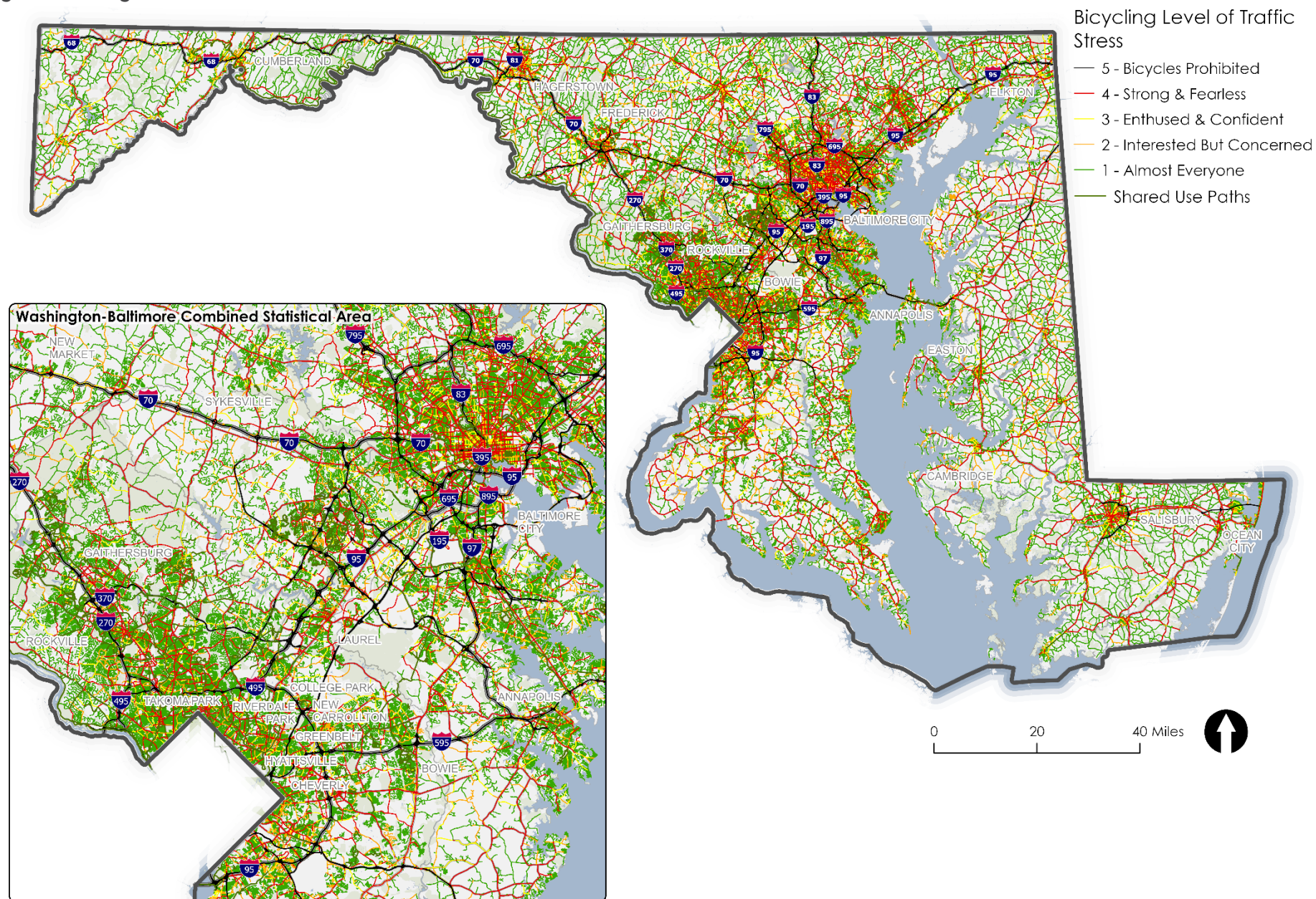
Table 2: Relationship between MDOT LTS and Target User Type

LTS	User Type
0	All ages and abilities
1	Interested but concerned
2	
3	Enthused and confident
4	Strong and fearless
5	Bicycle Access Prohibited

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[1] MDOT's LTS methodology is based on the metrics established by the Mineta Transportation Institute (MTI) Report 11-19 "Low-Stress Bicycling and Network Connectivity (May 2012), additional criteria refined by Dr. Peter G. Furth (June 2017), and Montgomery County's Revised Level of Traffic Stress.

Figure 4: Existing Statewide Level of Traffic Stress

Bicycling Level of Traffic Stress

— 5 - Bicycles Prohibited
— 4 - Strong & Fearless
— 3 - Enthused & Confident
— 2 - Interested But Concerned
— 1 - Almost Everyone
— Shared Use Paths

Washington-Baltimore Combined Statistical Area

0   20   40 Miles

BICYCLE FACILITY SELECTION

The statewide LTS score describes how a person biking is likely to experience a corridor today but does not specify what type of facility (if any) ought to be implemented in the future. Once an appropriate Target User Type is identified and an understanding of the existing corridor LTS has been obtained, the next step in the Facility Selection Process is to identify the type or types of facilities and design strategies that will allow the Target User Type to ride a bike safely and comfortably on the corridor. The Bicycle Facility Selection table (

Table 3) provides guidance on selecting the appropriate type of bicycle facility for the corridor. Generally, roadways with higher existing LTS scores have higher traffic volumes and speeds and require greater separation for users to feel safe and comfortable.

If it is not feasible to achieve the necessary facility for the Target User Type, the project should determine if there is an alternative route, either existing or feasible to create, that would accommodate the Target User Type without detouring users by more than 30% of the original trip length. If such a parallel route is available or achievable, it is acceptable to adjust the Target User Type on the original corridor by one level (e.g., from *Interested but Concerned* to *Enthused and Confident*). If no such parallel route is available, however, potentially reconsider the project scope or reevaluate bicycle aspects and determine if a separate bicycle project is warranted.

Using the Bicycle Facility Selection Table

Table 3 is used to select the minimum appropriate bicycle facility type for a given context, Target User, and existing level of traffic stress. The Target User column is based on the relationships listed in Table 1. Additional Context Factors should be referenced to determine if the more inclusive Target User option is appropriate (e.g., All Ages & Abilities instead of Interested but Concerned in the Traditional Town Center contexts). Practitioners should reference the MDOT LTS dataset to look up the existing level of traffic stress. The proposed minimum appropriate bicycle facilities listed in the table are a starting point for design discussions. Protected or separated facilities are not always necessary on roads that already have low LTS (e.g., 0 or 1). However, where the project scope and roadway characteristics allow, protected or shared use path facilities are always preferred. In some instances, two facilities are listed. The higher-comfort facility should be prioritized where feasible. Refer to additional considerations in **Table 4** Roadway Characteristic Factors for Facility Selection for further guidance.

Table 3: Bicycle Facility Selection

Context	Target User**	Existing Level of Traffic Stress of Corridor* — Minimum Appropriate Bicycle Facility					
		0	1	2	3	4	5
Urban Core	All Ages & Abilities	Preserve existing separation or facility	Bicycle boulevard treatments such as traffic calming, wayfinding, and sharrows. LTS 1 corridors should still be considered for context-dependent higher quality facilities, e.g., Bike Lanes, Buffered or Protected Bike Lanes, or Shared Use Paths	Buffered or Protected Bike Lane***	Shared Use Paths or Protected Bike Lanes***	Shared Use Paths or Protected Bike Lanes***	Limited Access – Shared Use Path Separated from Roadway or Identify Parallel Route
Urban Center	All Ages & Abilities	Preserve existing separation or facility		Bike Lane or Buffered Bike Lane***	Shared Use Paths or Protected Bike Lanes***	Shared Use Paths or Protected Bike Lanes***	
Urban Center	Interested but concerned	Preserve existing separation or facility		Protected bike lanes	Shared Use Paths or Protected Bike Lanes***	Shared Use Paths or Protected Bike Lanes***	
Traditional Town Center	All Ages & Abilities	Preserve existing separation or facility		Bike Lane or Buffered Bike Lane***	Shared Use Paths or Protected Bike Lanes***	Shared Use Paths or Protected Bike Lanes***	
Traditional Town Center	Interested but concerned	Preserve existing separation or facility		Shared Use Path or Protected Bike Lane***	Shared Use Path or Protected Bike Lane***	Shared Use Paths or Protected Bike Lanes***	
Suburban Activity Center	Interested but concerned	Preserve existing separation or facility		Bike Lane or Buffered Bike Lane***	Buffered Bike Lane	Protected Bike Lane	
Suburban Activity Center	Enthused and confident	Preserve existing separation or facility		Bike Lane or Buffered Bike Lane***	Buffered Bike Lane	Protected Bike Lane	
Suburban	Interested but concerned	Preserve existing separation or facility		Shared Use Path or Protected Bike Lane***	Shared Use Path or Protected Bike Lane***	Shared Use Paths or Protected Bike Lanes***	
Suburban	Enthused and confident	Preserve existing separation or facility		Buffered Bike Lane	Protected Bike Lanes	Shared Use Paths or Protected Bike Lanes***	
Rural	Enthused and confident	Preserve existing separation or facility	Preserve existing separation or facility	Preserve existing separation or facility	Wide Shoulder	Buffered Bike Lane	
Rural	Strong & Fearless	Preserve existing separation or facility	Preserve existing separation or facility	Preserve existing separation or facility	Wide Shoulder	Wide Shoulder	

*Consider whether there are projected increases in traffic volumes on the corridor. Refer to MDOT's LTS methodology to determine if a higher LTS should be used to anticipate future conditions.

Refer to Additional Context Factors to determine if bicycle facility should be selected for a more inclusive user group. In constrained conditions, it may be appropriate to downgrade the Target User by one level (refer to **Figure 1 Bicycle Facility Selection Process).

***Refer to Roadway Characteristics Factors for additional considerations related to facility selection.

Legend:
- Preserve existing separation
- Use bicycle boulevard treatments including traffic calming, wayfinding, and sharrows
- Wide Shoulder
- Bike lane or buffered bike lane
- Buffered bike lane
- Buffered or protected bike lane
- Protected bike lane
- Shared use paths or protected bike lanes
- Limited access

ROADWAY CHARACTERISTICS FACTORS

The characteristics of the roadway influence facility selection. Key factors include the presence of curbside parking and truck volumes. In some contexts, the density of driveways or curb cuts, transit activity, or pedestrian and commercial activity must also be factored into design decisions. Furthermore, the existing curb-to-curb width of the roadway and available right-of-way will also impact design decision-making.

Table 4 lists considerations for choosing the appropriate facility type for the target user group.

Table 4 Roadway Characteristic Factors for Facility Selection

TARGET USER TYPE	SELECTION CHOICE	ROADWAY CHARACTERISTICS & CONSIDERATIONS
All Ages & Abilities	Shared Use Path or Protected Bike Lanes	When pedestrian activity is high, a protected bike lane may be more appropriate than a shared use path. Corridors with frequent driveways present another scenario where a protected bike lane may be more appropriate than a shared use path.
Interested but Concerned	Bike Lane or Buffered Bike Lane	On low speed and low volume roads, conventional bike lanes are only appropriate for the Interested but Concerned group of riders. Whenever possible, bike lanes should be installed adjacent to the curb. If the bicycle facility must be installed adjacent to curbside parking, a buffer is necessary to deter riding the door zone. If the corridor is a truck route (greater than 10 percent heavy vehicles), a buffered bike lane is more appropriate.
Enthused & Confident	Bike Lane or Buffered Bike Lane	If the corridor is a truck route (greater than 10% heavy vehicles), a buffered bike lane is more appropriate.
Interested but Concerned	Buffered or Protected Bike Lane	In all cases, physical separation in the form vertical elements, (e.g., curb, landscaped buffer, flex posts, parked vehicles, or grade separation) should be prioritized. When there is curbside parking, potential conflicts with parking turnover can be mitigated by installing a protected bike lane against the curb, with parking adjacent to the bike lane as a parking-protected bike lane. In this case, careful consideration must be given to providing adequate sight distance between cyclists and drivers at intersections and driveways, as well as accessibility for people getting from vehicles to the sidewalk. If it is not possible to achieve a parking-protected bike lane, buffers should be provided to deter riding in the door zone. If the corridor is a truck route (greater than 10% heavy vehicles), a protected bike lane is more appropriate than a buffered bike lane.

Irregularities or changes to the cross section of a corridor can present challenges when deciding whether a facility is feasible, and addressing these challenges requires decision-making regarding design trade-offs. **Table 5** describes common challenges and approaches.

Table 5: Common Bike Facility Design Scenarios and Approaches

Scenario	Approach
Bus stops along bike route	Where possible, floating bus islands allow for physical separation of the bike lane from the bus stop; pedestrian accommodations must include space for queuing, landing zones, and high visibility crossings across the bike lane. Bus stops that require mixing with the bike facility are not low stress. When necessary, clearly mark bus-bike mixing areas.
Bike facility adjacent to on-street parking	Consider removal or consolidation of parking. If parking is maintained, provide a buffer to give people biking more space to maintain distance away from the door zone. If there is high parking turnover, consider a parking-protected bike lane.
Bike facility crosses numerous commercial driveways or unsignalized intersections	Clearly mark conflict areas with pavement markings. Design high-volume commercial driveways as intersections.
Cross section pinch points	If the typical corridor cross section has a pinch point (i.e., an area where the road's cross section is narrower than the typical cross section), narrowing travel lanes should be considered before narrowing the bike facility and bike facilities should still be designed to minimum dimensions. If an appropriate bicycle facility cannot be designed and the pinch point creates a gap in the low-stress facility, then the facility cannot be considered low stress. The Bicycle Facility Selection Flowchart should be revisited.
Intersection approaches and crossings	In the past, many bike facility designs have ended at intersection approaches because of the addition of vehicle turning lanes. A lack of bike facility continuity results in critical gaps in the low-stress bicycle network. To continue the level of facility needed for the Target User Type all the way through the intersection, protected bike lanes and shared use paths should be designed with protected intersections. Bike lanes and buffered bike lanes should be extended through the intersection with high visibility pavement markings and be designed in conjunction with traffic calming measures to reduce vehicle turning speeds. Travel lanes may need to be narrowed to accommodate extending the bike facility up to and through the intersection. Refer to NACTO's *Don't Give Up at the Intersection guidance*.[2]

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[2] https://nacto.org/publication/dont-give-up-at-the-intersection/dedicated-intersections/

# Appendix E
Pedestrian Accessibility Index Methodology

Overview

The Plan provides policy, programmatic, process, and data-sharing strategies that will help localities implement pedestrian safety and accessibility improvements. At the state-wide level, the Plan has developed an Equity Need Prioritization Index (**Figure 1**) to guide investment. At the local level, more detail is needed to help jurisdictions identify and develop meaningful projects. This document outlines an example methodology for use by localities in the planning and implementation of pedestrian improvements within rail transit walksheds and high-ridership bus stops. In 2021, MDOT conducted a walkshed assessment of 104 rail stations. Likewise, the Central Maryland Regional Transit Plan compiled and identified high ridership bus stops throughout the state, many of which have pedestrian connectivity challenges. MDOT is also in the process of developing a state-wide ADA and sidewalk inventory for local jurisdictions to use in planning and prioritizing pedestrian infrastructure. These data, along with technical assistance from the Complete Streets Grant Program, can provide a detailed starting point for local municipalities to complete small area plans for spot and corridor level countermeasures to critical rail and bus stops.

Figure 1: Equity Index Scoring
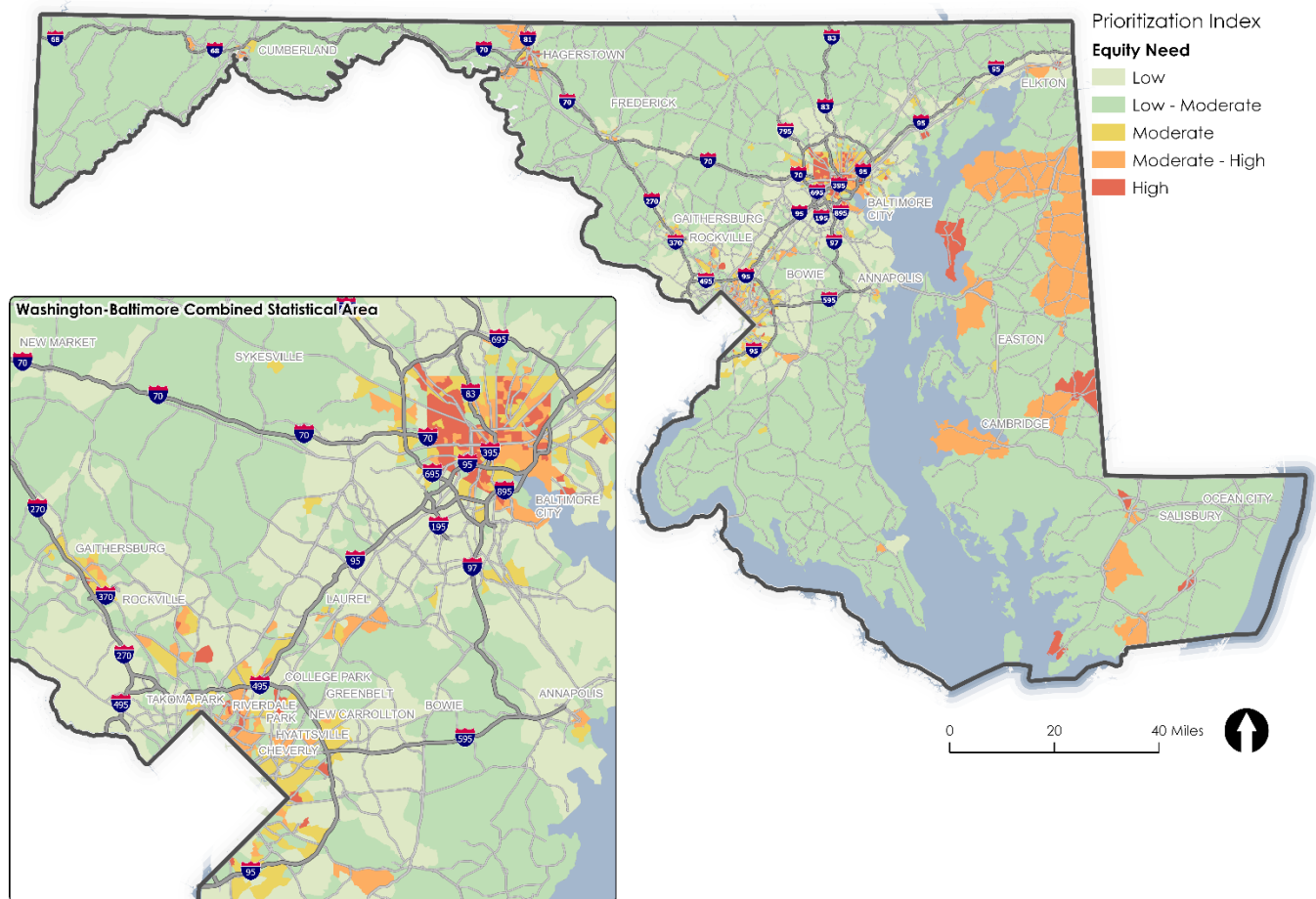
Measuring Pedestrian Accessibility to Guide Local Planning

MDOT is working to provide local communities and their governments with sufficient resources and effective tools for planning pedestrian improvements. MDOT has adopted Vision Zero, a Complete Streets Policy, and a Safety System Approach as part of a commitment to progressing pedestrian safety. Maryland has a vision of a transportation system that addresses equity needs for non-automobile transportation access, safety needs for vulnerable roadways users and supports reduction in vehicle miles traveled (VMT). Reflecting MDOT's commitment to ensuring that safety improvements and the benefits of greater access accrue to people who need them most, the agency proposes a two-stage approach to prioritizing areas for pedestrian access projects. The two parts work together in a sequence to first identify regions of greatest concern, and then prioritize smaller areas with low pedestrian connectivity and heightened safety risk. This prioritization provides a framework for local governments to target projects in areas where community characteristics and infrastructure conditions indicate the greatest need.

AREA PRIORITIZATION METHODOLOGY

The first step in the prioritization process is to identify areas with the greatest need for transportation investment. The Equity Need Index (**Figure 1)** serves this role.

NETWORK PRIORITIZATION METHODOLOGY

In tandem with the area prioritization, MDOT developed an approach to identifying parts of the pedestrian network most in need of transportation improvements. The methods for this analysis focused on a pedestrian's fundamental transportation experience: using sidewalk infrastructure derived from OpenStreetMap and safety considerations (measured in non-fatal crashes per square mile using the latest statewide safety data), MDOT measured how easily a person could walk for thirty minutes in any direction from a uniform distribution of control points throughout the state. Each small area around each control point was then rated by the number of other points the walker could reach. MDOT then clipped this to the equity areas prioritized in the previous step, to focus improvements in areas where, all things being equal, improvements would expand active travel access to the greatest number of in-need people and greatest number of economic opportunities. At the same time, these interventions would occur in places where safety is a greater concern for active transportation users.

Rather than producing a single network or some other comprehensive statewide picture, this method identifies small areas that would maximize benefits to pedestrians, but allows space for local jurisdictions to select the best individual locations and projects in conjunction with the communities they represent.

Appendix F
Railbanking Process

Railbanking Process

1. **Railroad Right-of-Way and Real Property Tracking**
   MDOT's Office of Planning and Capital Programming (OPCP) monitors both State and privately owned railroad corridor property in the State.
   a. Pursuant to § 7-901 of the Transportation Article of the Annotated Code of Maryland, MDOT and MTA may acquire any railroad corridor property that has been abandoned in the State and shall have a right of first refusal to acquire any railroad corridor property a railroad company intends to sell or otherwise dispose of in the State.
   b. If an inactive railroad corridor is privately owned, the railroad company may railbank the property by entering into an Interim Trail Use Agreement (TUA) with a trail sponsor without MDOT interaction other than notification according to State law.
   c. If the railroad corridor is already State-owned, MDOT may share information with local partners to identify which railroad corridor property may need railbanking protections.

2. **Rail-to-Trail Project Identification**
   A local planning document identifies an inactive or in some cases an active rail corridor as a potential location for a future trail or shared use path.

3. **Sponsor Identification**
   a. Section 5-1010 of the Natural Resources Article of the Annotated Code of Maryland provides MDDNR the right to request interim trail use on any railroad corridor property acquired under §7-901 of the Transportation Article of the Annotated Code of Maryland. A determination between MDOT and MDDNR staff will conclude whether any particular railroad corridor property is "considered suitable" for recreational trails. MDDNR may also agree to defer the trail sponsorship role to another local jurisdiction if it determines to be in its best interest.
   b. MDOT and the trail sponsor shall collaborate with the applicable railroad company and relevant regulatory agencies throughout the railbanking process, however, the trail sponsor is the primary advocate for the future facility. The overall process could take up to a year.

4. **Statement of Willingness to Assume Financial Responsibility (SWAFR)**
   On behalf of the railroad company or otherwise as owner of the property, MDOT presents a SWAFR to the trail sponsor for the intention of developing a trail. A SWAFR is a statement by the trail sponsor that must be filed with the Surface Transportation Board (STB) to assume full responsibility for managing the railroad corridor and any legal liability arising out of the transfer or use of the right-of-way (unless the sponsor is immune from liability, in which case it need only indemnify the railroad against any potential liability).

5. **Rail Operator Outreach and Coordination**

   On behalf of the trail sponsor, MDOT contacts the railroad company to discuss the proposed trail use project to abandon any "common carrier" rights they hold. This would allow the railroad company to transfer general maintenance and liability costs to the trail sponsor. If the railroad company agrees, it will file with the STB the applicable filing to abandon their "common carrier" rights. The STB filing is available for review and public comment. If approved, MDOT or Trail Sponsor are permitted to file another STB active for interim trail use.

6. **Trail Sponsor Files Regulatory Action for Interim Trail Use and SWAFR with STB**

   The trail sponsor files an official proposed action requesting the STB approve the inactive rail property placed into interim trail use with the supportive SWAFR. STB will provide a public notification period for comment to identify any interests from shippers or carriers. STB will file a response based on their findings.

7. **MDOT Clearinghouse Process**

   The Clearinghouse Process requires MDOT to advertise the rail corridor to MDOT modes, other state agencies, and applicable jurisdictions in a phased process to ensure there is no need for or interest in the corridor. The full Clearinghouse Process takes approximately 5 to 6 months to complete.
   a. First, MDOT undertakes an internal review to determine if the corridor is required for current or future MTA transit use. (Duration: about 30 days)
   b. Second, the MDOT modes - the Maryland Aviation Administration, Maryland Port Administration, State Highway Administration, Motor Vehicle Administration, and Maryland Transportation Authority – review and comment if their agency has an interest in obtaining the property for their use. (Duration: 30-60 days)
   c. Third, the Maryland Department of Planning undergoes a similar process with numerous state agencies and local jurisdictions, including a review and comment period. (Duration: about 75 days)

8. **Trail Use Agreement (TUA)**

   If the railroad corridor property is State-owned, once the STB grants approval to railbank and the Clearinghouse Process is completed, MTA and the trail sponsor negotiate and enter into a long-term TUA, which allows the trail sponsor to remove the tracks, ties, and other rail infrastructure to construct and maintain the trail. All TUA's must reiterate the property is subject to the restoration of active railroad service, outlining which parties are responsible for which costs. A TUA could take the form of a lease, license, or agreement. It must provide for sufficient insurance guarantees if required. The Trail Use Agreement may be presented to the Maryland Board of Public Works for approval, if deemed appropriate. The STB is notified when a TUA has been executed, thus closing the STB process.

9. Trail Funding, Design, and Construction

The trail sponsor shall be responsible for obtaining all necessary approvals, and shall be responsible for all aspects, including costs of the design and construction of the trail. To date, the STB has not stipulated a timeframe to convert the rails into trails.

Figure 1: Outline of Railbanking Process for Successful and Unsuccessful Processes
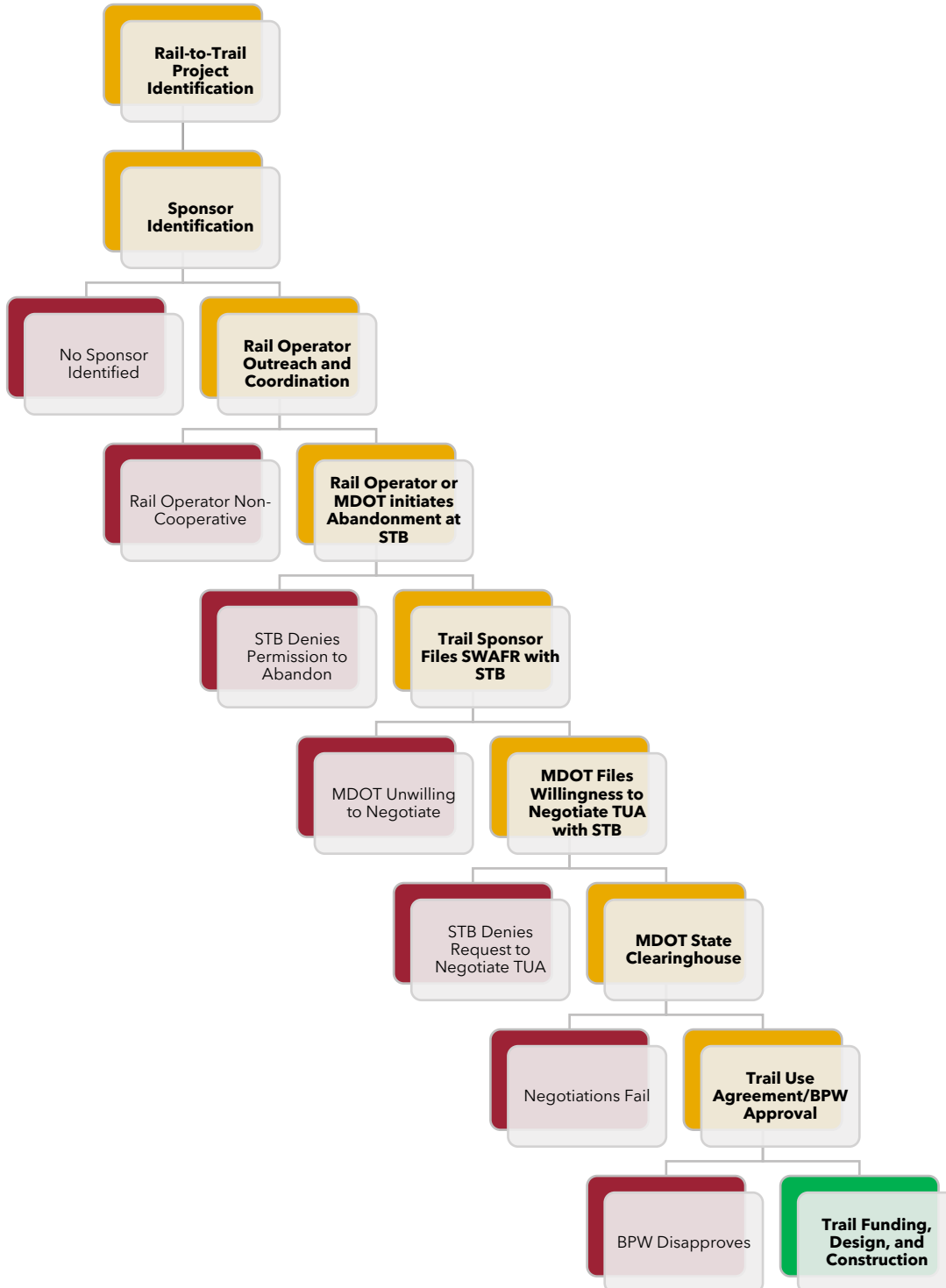
POTENTIAL LIMITATIONS

The trail sponsor may not have the capacity to sign and adhere to the responsibilities of the SWAFR without permitting approval from Maryland agencies, including but not limited to:

- Applicable state agency permits to remove rails, ties, and ballasts.
- Maryland Historic Trust determination that the rail corridor or any aspect of the line, including buildings or bridges, is deemed historic.

Sample SWAFR

Trail Sponsor
Proposed Railbanking of MTA-Owned [track]
Location
Date

Statement of Willingness to Assume Financial Responsibility

In order to establish interim trail use and rail banking under 16 U.S.C. 1247(d) and 49 CFR 1152.29 with respect to the right-of-way owned by _____ (Railroad) and operated by _____ (Railroad), _____ (Interim Trail Sponsor) is willing to assume full responsibility for: (1) Managing the right-of-way, (2) any legal liability arising out of the transfer or use of the right-of-way (unless the sponsor is immune from liability, in which case it need only indemnify the railroad against any potential liability), and (3) the payment of any and all taxes that may be levied or assessed against the right of way. The property, known as _____ (Name of Branch Line), extends from railroad milepost _____ near _____ (Station Name), to railroad milepost _____, near _____ (Station name), a distance of _____ miles in [County(ies), (State(s)]. The right-of-way is part of a line of railroad proposed for abandonment in Docket No. STB AB _____ (Sub-No. _____). A map of the property depicting the right-of-way is attached.

_____ (Interim Trail Sponsor) acknowledges that use of the right-of-way is subject to the sponsor's continuing to meet its responsibilities described above and subject to possible future reconstruction and reactivation of the right-of-way for rail service. A copy of this statement is being served on the railroad(s) on the same date it is being served on the Board.

Name, Title   Date

Sample Notice of Intent to Discontinue Rail Service

Notice of Intent to Discontinue Rail Service

Title 49 – Transportation; Part 1152 – Abandonment and Discontinuance of Rail Lines and Rail Transportation Under 49 U.S. C. 10903; Title 49 – Transportation. Subtitle B – Other Regulation Relating to Transportation. Chapter X – Surface Transportation Board. Subchapter B – Rules of Practice.

STB NO. AB ___(SUB-NO. ___)

NOTICE OF INTENT TO ABANDON OR TO DISCONTINUE SERVICE

(NAME OF APPLICANT) GIVES NOTICE THAT ON OR ABOUT (INSERT DATE APPLICATION WILL BE FILED WITH THE BOARD) IT INTENDS TO FILE WITH THE SURFACE TRANSPORTATION BOARD, WASHINGTON, DC 20423, AN APPLICATION FOR PERMISSION FOR THE ABANDONMENT OF (THE DISCONTINUANCE OF SERVICE ON), A LINE OF RAILROAD KNOWN AS ___ EXTENDING FROM RAILROAD MILEPOST NEAR (STATION NAME) TO (THE END OF LINE OR RAIL MILEPOST) NEAR (STATION NAME), WHICH TRAVERSES THROUGH UNITED STATES POSTAL SERVICE ZIP CODES (ZIP CODES), A DISTANCE OF ___ MILES, IN [COUNTY(IES), STATE(S)]. THE LINE INCLUDES THE STATIONS OF (LIST ALL STATIONS ON THE LINE IN ORDER OF MILEPOST NUMBER, INDICATING MILEPOST LOCATION). THE REASON(S) FOR THE PROPOSED ABANDONMENT (OR DISCONTINUANCE) IS (ARE) ___ (EXPLAIN BRIEFLY AND CLEARLY WHY THE PROPOSED ACTION IS BEING UNDERTAKEN BY THE APPLICANT). BASED ON INFORMATION IN OUR POSSESSION, THE LINE (DOES) (DOES NOT) CONTAIN FEDERALLY GRANTED RIGHTS-OF-WAY. ANY DOCUMENTATION IN THE RAILROAD'S POSSESSION WILL BE MADE AVAILABLE PROMPTLY TO THOSE REQUESTING IT. THIS LINE OF RAILROAD HAS APPEARED ON THE SYSTEM DIAGRAM MAP OR INCLUDED IN THE NARRATIVE IN CATEGORY 1 SINCE (INSERT DATE).

THE INTEREST OF RAILROAD EMPLOYEES WILL BE PROTECTED BY (SPECIFY THE APPROPRIATE CONDITIONS). THE APPLICATION WILL INCLUDE THE APPLICANT'S ENTIRE CASE FOR ABANDONMENT (OR DISCONTINUANCE) (CASE IN CHIEF). ANY INTERESTED PERSON, AFTER THE APPLICATION IS FILED ON (INSERT DATE), MAY FILE WITH THE SURFACE TRANSPORTATION BOARD WRITTEN COMMENTS CONCERNING THE PROPOSED ABANDONMENT (OR DISCONTINUANCE) OR PROTESTS TO IT. THESE FILINGS ARE DUE 45 DAYS FROM THE DATE OF FILING OF THE APPLICATION. ALL INTERESTED PERSONS SHOULD BE AWARE THAT FOLLOWING ANY ABANDONMENT OF RAIL SERVICE AND SALVAGE OF THE LINE, THE LINE MAY BE SUITABLE FOR OTHER PUBLIC USE, INCLUDING INTERIM TRAIL USE. ANY REQUEST FOR A PUBLIC USE CONDITION UNDER 49 U.S.C. 10905 (§ 1152.28 OF THE BOARD'S RULES) AND ANY REQUEST FOR A TRAIL USE CONDITION UNDER 16 U.S.C. 1247(D) (§ 1152.29 OF THE BOARD'S RULES) MUST ALSO BE FILED WITHIN 45 DAYS FROM THE DATE OF FILING OF THE APPLICATION. PERSONS WHO MAY OPPOSE THE ABANDONMENT OR DISCONTINUANCE BUT WHO DO NOT WISH TO PARTICIPATE FULLY IN THE PROCESS BY APPEARING AT ANY ORAL HEARINGS OR BY SUBMITTING VERIFIED STATEMENTS OF WITNESSES, CONTAINING DETAILED EVIDENCE, SHOULD FILE COMMENTS. PERSONS INTERESTED ONLY IN SEEKING PUBLIC USE OR TRAIL USE CONDITIONS SHOULD ALSO FILE COMMENTS. PERSONS OPPOSING THE PROPOSED ABANDONMENT OR

DISCONTINUANCE THAT DO WISH TO PARTICIPATE ACTIVELY AND FULLY IN THE PROCESS SHOULD FILE A PROTEST. PROTESTS MUST CONTAIN THAT PARTY'S ENTIRE CASE IN OPPOSITION (CASE IN CHIEF) INCLUDING THE FOLLOWING:

(1) PROTESTANT'S NAME, ADDRESS AND BUSINESS.

(2) A STATEMENT DESCRIBING PROTESTANT'S INTEREST IN THE PROCEEDING INCLUDING:

(I) A DESCRIPTION OF PROTESTANT'S USE OF THE LINE;

(II) IF PROTESTANT DOES NOT USE THE LINE, INFORMATION CONCERNING THE GROUP OR PUBLIC INTEREST IT REPRESENTS; AND

(III) IF PROTESTANT'S INTEREST IS LIMITED TO THE RETENTION OF SERVICE OVER A PORTION OF THE LINE, A DESCRIPTION OF THE PORTION OF THE LINE SUBJECT TO PROTESTANT'S INTEREST (WITH MILEPOST DESIGNATIONS IF AVAILABLE) AND EVIDENCE SHOWING THAT THE APPLICANT CAN OPERATE THE PORTION OF THE LINE PROFITABLY, INCLUDING AN APPROPRIATE RETURN ON ITS INVESTMENT FOR THOSE OPERATIONS.

(3) SPECIFIC REASONS WHY PROTESTANT OPPOSES THE APPLICATION INCLUDING INFORMATION REGARDING PROTESTANT'S RELIANCE ON THE INVOLVED SERVICE [THIS INFORMATION MUST BE SUPPORTED BY AFFIDAVITS OF PERSONS WITH PERSONAL KNOWLEDGE OF THE FACT(S)].

(4) ANY REBUTTAL OF MATERIAL SUBMITTED BY APPLICANT.

IN ADDITION, A COMMENTING PARTY OR PROTESTANT MAY PROVIDE A STATEMENT OF POSITION AND EVIDENCE REGARDING:

(I) INTENT TO OFFER FINANCIAL ASSISTANCE PURSUANT TO 49 U.S.C. 10904;
(II) ENVIRONMENTAL IMPACT;
(III) IMPACT ON RURAL AND COMMUNITY DEVELOPMENT;
(IV) RECOMMENDED PROVISIONS FOR PROTECTION OF THE INTERESTS OF EMPLOYEES;
(V) SUITABILITY OF THE PROPERTIES FOR OTHER PUBLIC PURPOSES PURSUANT TO 49 U.S.C. 10905; AND
(VI) PROSPECTIVE USE OF THE RIGHT-OF-WAY FOR INTERIM TRAIL USE AND RAIL BANKING UNDER 16 U.S.C. 1247(D) AND § 1152.29.

A PROTEST MAY DEMONSTRATE THAT: (1) THE PROTESTANT FILED A FEEDER LINE APPLICATION UNDER 49 U.S.C. 10907; (2) THE FEEDER LINE APPLICATION INVOLVES ANY PORTION OF THE RAIL LINE INVOLVED IN THE ABANDONMENT OR DISCONTINUANCE APPLICATION; (3) THE FEEDER LINE APPLICATION WAS FILED PRIOR TO THE DATE THE ABANDONMENT OR DISCONTINUANCE APPLICATION WAS FILED; AND (4) THE FEEDER LINE APPLICATION IS PENDING BEFORE THE BOARD.

WRITTEN COMMENTS AND PROTESTS WILL BE CONSIDERED BY THE BOARD IN DETERMINING WHAT DISPOSITION TO MAKE OF THE APPLICATION. THE COMMENTING PARTY OR PROTESTANT MAY PARTICIPATE IN THE PROCEEDING AS ITS INTERESTS MAY APPEAR.

IF AN ORAL HEARING IS DESIRED, THE REQUESTER MUST MAKE A REQUEST FOR AN ORAL HEARING AND PROVIDE REASONS WHY AN ORAL HEARING IS NECESSARY. ORAL HEARING REQUESTS MUST BE FILED WITH THE BOARD NO LATER THAN 10 DAYS AFTER THE APPLICATION IS FILED.

THOSE PARTIES FILING PROTESTS TO THE PROPOSED ABANDONMENT (OR DISCONTINUANCE) SHOULD BE PREPARED TO PARTICIPATE ACTIVELY EITHER IN AN ORAL HEARING OR THROUGH THE SUBMISSION OF THEIR ENTIRE OPPOSITION CASE IN THE FORM OF VERIFIED STATEMENTS AND ARGUMENTS AT THE TIME THEY FILE A PROTEST. PARTIES SEEKING INFORMATION CONCERNING THE FILING OF PROTESTS SHOULD REFER TO § 1152.25.

WRITTEN COMMENTS AND PROTESTS, INCLUDING ALL REQUESTS FOR PUBLIC USE AND TRAIL USE CONDITIONS, SHOULD INDICATE THE PROCEEDING DESIGNATION STB NO. AB ___ (SUB-NO. ___) AND MUST BE FILED WITH THE CHIEF, SECTION OF ADMINISTRATION, OFFICE OF PROCEEDINGS, SURFACE TRANSPORTATION BOARD, WASHINGTON, DC 20423-0001, NO LATER THAN (INSERT THE DATE 45 DAYS AFTER THE DATE APPLICANT INTENDS TO FILE ITS APPLICATION). INTERESTED PERSONS MAY FILE A WRITTEN COMMENT OR PROTEST WITH THE BOARD TO BECOME A PARTY TO THIS ABANDONMENT (OR DISCONTINUANCE) PROCEEDING. A COPY OF EACH WRITTEN COMMENT OR PROTEST SHALL BE SERVED UPON THE REPRESENTATIVE OF THE APPLICANT (INSERT NAME, ADDRESS, AND PHONE NUMBER). EVERY COMMENT OR PROTEST SHALL BE FILED WITH THE BOARD WITH A CERTIFICATE OF SERVICE. EXCEPT AS OTHERWISE SET FORTH IN PART 1152, EACH DOCUMENT FILED WITH THE BOARD MUST BE SERVED ON ALL PARTIES TO THE ABANDONMENT PROCEEDING. 49 CFR 1104.12(A)

THE LINE SOUGHT TO BE ABANDONED (OR DISCONTINUED) WILL BE AVAILABLE FOR SUBSIDY OR SALE FOR CONTINUED RAIL USE, IF THE BOARD DECIDES TO PERMIT THE ABANDONMENT (OR DISCONTINUANCE), IN ACCORDANCE WITH APPLICABLE LAWS AND REGULATIONS (49 U.S.C. 10904 AND 49 CFR 1152.27). NO SUBSIDY ARRANGEMENT APPROVED UNDER 49 U.S.C. 10904 SHALL REMAIN IN EFFECT FOR MORE THAN 1 YEAR UNLESS OTHERWISE MUTUALLY AGREED BY THE PARTIES (49 U.S.C. 10904(F)(4)(B)).

APPLICANT WILL PROMPTLY PROVIDE UPON REQUEST TO EACH INTERESTED PARTY AN ESTIMATE OF THE SUBSIDY AND MINIMUM PURCHASE PRICE REQUIRED TO KEEP THE LINE IN OPERATION. THE CARRIER'S REPRESENTATIVE TO WHOM INQUIRIES MAY BE MADE CONCERNING SALE OR SUBSIDY TERMS IS (INSERT NAME AND BUSINESS ADDRESS). PERSONS SEEKING FURTHER INFORMATION CONCERNING ABANDONMENT PROCEDURES MAY CONTACT THE SURFACE TRANSPORTATION BOARD OR REFER TO THE FULL ABANDONMENT OR DISCONTINUANCE REGULATIONS AT 49 CFR PART 1152. QUESTIONS CONCERNING ENVIRONMENTAL ISSUES MAY BE DIRECTED TO THE BOARD'S OFFICE OF ENVIRONMENTAL ANALYSIS.

A COPY OF THE APPLICATION WILL BE AVAILABLE FOR PUBLIC INSPECTION ON OR AFTER (INSERT DATE ABANDONMENT APPLICATION IS TO BE FILED WITH BOARD) AT EACH AGENCY STATION OR TERMINAL ON THE LINE PROPOSED TO BE ABANDONED OR DISCONTINUED [IF THERE IS NO AGENCY STATION ON THE LINE, THE APPLICATION SHALL BE DEPOSITED AT ANY AGENCY STATION THROUGH WHICH BUSINESS FOR THE LINE IS RECEIVED OR FORWARDED (INSERT NAME, ADDRESS, LOCATION, AND BUSINESS HOURS)]. THE CARRIER SHALL FURNISH A COPY OF THE APPLICATION TO ANY INTERESTED PERSON PROPOSING TO FILE A PROTEST OR COMMENT, UPON REQUEST.

AN ENVIRONMENTAL ASSESSMENT (EA) (OR ENVIRONMENTAL IMPACT STATEMENT (EIS), IF NECESSARY) PREPARED BY THE OFFICE OF ENVIRONMENTAL ANALYSIS WILL BE SERVED UPON ALL PARTIES OF RECORD AND UPON ANY AGENCIES OR OTHER PERSONS WHO COMMENTED DURING ITS PREPARATION. ANY OTHER PERSONS WHO WOULD LIKE TO OBTAIN A COPY OF THE EA (OR EIS) MAY CONTACT THE OFFICE OF ENVIRONMENTAL ANALYSIS. EAS IN THESE ABANDONMENT PROCEEDINGS NORMALLY WILL BE MADE AVAILABLE WITHIN 33 DAYS OF THE FILING OF THE APPLICATION. THE DEADLINE FOR SUBMISSION OF COMMENTS ON THE EA WILL GENERALLY BE WITHIN 30 DAYS OF ITS SERVICE. THE COMMENTS RECEIVED WILL BE ADDRESSED IN THE BOARD'S DECISION. A SUPPLEMENTAL EA OR EIS MAY BE ISSUED WHERE APPROPRIATE.

Appendix G
Model Policies & Program Frameworks

Model Complete Streets Policies

EXISTING COMPLETE STREETS POLICIES

Table 1 compares elements of MDOT's current Complete Streets policy to other relevant policies. These include one of MDOT's local partners, Howard County, Maryland, whose policy has been nationally recognized for its comprehensiveness[1]. The table also includes comparisons to the North Carolina DOT (NCDOT) and Massachusetts DOT (MassDOT), state-level peer agencies. While MassDOT does not have a stated policy, it does have a statewide Complete Streets Funding Program that encourages municipalities to pass local Complete Streets policies and provides a framework for writing effective policies.

Table 1: Complete Streets Policies Comparison

Existing Complete Streets Policy Examples	MDOT Agency: SHA (2012)	Maryland County: Howard County (2019)	Peer Agency: NCDOT (2019)	Policy Guidance: MassDOT
Defines vision	✓	✓	✓	✓
Defines scope, e.g., which transportation projects the policy applies to	✓	✓	✓	✓
Clarifies phases of projects the policy applies to		✓		✓
Defines exceptions	✓	✓	✓	✓
Defines how to choose between conflicting or competing needs		✓		
Emphasizes network approach		✓		✓
Requires engagement and clarifies coordination		✓		✓
Defines appropriate design guidelines	✓	✓	✓	✓
Addresses context sensitivity		✓		✓
Includes performance measures	✓	✓		✓
Outlines implementation process	✓	✓	✓	✓

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[1] Smart Growth America's *Best Complete Streets Policies 2023*, https://smartgrowthamerica.org/best-complete-streets/

COMPLETE STREETS POLICY FRAMEWORK

A successful Complete Streets policy will include direct language and detailed direction to support the implementation of projects throughout Maryland that adhere to Complete Streets principles. Similar to model policies, such as the Howard County Complete Streets policy (HCCSP), the policy should include the following elements, tailored to MDOT. Where applicable, language from the HCCSP is included to demonstrate how these elements can be effectively incorporated.

Vision

Define a vision specific to Complete Streets that aligns with MDOT's broader vision to **provide safe and convenient active transportation that supports equitable access for all.** An effective policy vision will be explicit, direct, and inspire state and local decision makers to be guided by the policy.

> *"To ensure that Howard County is a place for individuals of all backgrounds to live and travel freely, safely, and comfortably, public and private roadways in Howard County shall be safe and convenient for residents of all ages and abilities who travel by foot, bicycle, public transportation or automobile, ensuring sustainable communities Countywide." - Council Resolution 35-2016.*

Plans, Projects & Project Phases

The policy should clearly define which types of projects the policy applies to and the appropriate stages and decisions of a project's planning and development. A model Complete Streets policy will:

- Apply to all MDOT projects, including those of the modal administrations.
- Address all project phases, including area and project planning, design, new construction, reconstruction, maintenance, operations, and permit review.
- Clarify that the policy applies to users of all modes, ages, and abilities, including people walking, biking, and using transit, micromobility, and assistive mobility devices, in addition to operators of private and freight vehicles.
- Ensure identification and prioritization of positive impacts to under-resourced communities during each stage of planning, design, operations, and maintenance using metrics such as those established in Howard County's Equity Emphasis Areas.

> *"Every transportation project, whether new or retrofit, capital improvement, or subdivision and land development." - HCCSP*

Exceptions

The policy should define clear instances where exceptions to the policy are appropriate. For example, Complete Streets accommodation is not necessary along limited access highways where people are not allowed to walk or bike. However, for such a project, Complete Streets should still be incorporated in planning and design stages to understand the area network impact implications, and the potential to improve crossings and local connectivity. The policy should also outline exceptions or a process for requesting an exception to align with MDOT guidance, such as SHA's Context Driven Guide.

"Exceptions may be considered for approval when the project (either capital or developer) involves: i. An accommodation that is not necessary on corridors where specific user groups are prohibited; ii. A justifiable absence of current and future need exists and is not recommended in any existing planning documents; iii. A project of equivalent scope and schedule exists or is already programmed for funding within the next five years to provide connectivity for all users; or iv. Cost of accommodation or degree of impact is grossly disproportionate to the need or probable use." - HCCSP

Competing Needs

The policy should provide explicit language on how competing needs should be inventoried and addressed to support decisions that align with the policy vision and other agency goals and priorities. Given the ways Complete Streets and networks function, solutions in constrained environments with competing needs may require creating parallel network connections on local roads.

"Safety shall be the highest priority; particularly safety for the most vulnerable street users (pedestrians, bicyclists, children, seniors, and people with additional accessibility needs)." - HCCSP

Network Approach

The policy should emphasize the need for a network approach, such that land use and transportation agencies in the state are moving proactively towards a set of safe and logical networks for all modes and users. The policy should acknowledge inherent tradeoffs such that not all streets will provide the same level of accommodation for every mode, but that each mode and users of all ages and abilities will have safe, comfortable, and convenient mobility at the network level.

"Every street does not necessarily need to provide separate accommodations for every mode, but a network should be in place so that likely trips can be made by walking, biking, and taking public transit, as well as driving." - HCCSP

Engagement

The policy should specify the critical role of engagement with the public, stakeholders, and partner agencies and jurisdictions. Engagement is necessary for successful Complete Streets project implementation because it is the means through which implementors can ensure projects are understood by potentially impacted people and neighborhoods as they are designed to address the needs of all modes and user types. Howard County prepared a Community Engagement Plan for Transportation Projects that is specifically focused on Complete Streets projects, with an emphasis on serving traditionally under-resourced communities.

"Regular engagement should occur prior to the planning and design of specific capital projects. For each capital project within the scope of this policy, input shall be sought from affected stakeholders prior to setting the scope and budget of the project.

Resources should be allocated to proactive efforts to interact with the community to identify and communicate their experience regarding existing transportation facilities and identify areas of need and opportunity. At a minimum, this should be tied to the annual Complete Streets report or preparation of the County's MDOT priority letter." - HCCSP

Design Guidelines

The policy should specify design guidelines and best practice approaches to be used in the development of Complete Streets projects. The design guidelines and approaches should reflect national Complete Streets best practices and the most up to date MDOT documents. MDOT documents could include:

- Context Driven Guide
- Bicycle Facility Selection Guidance
- Updated Bicycle Design Guidelines
- Updated Maryland MUTCD
- Updated Access Permits Process

> *"Design of Complete Streets in Howard County shall draw on established state of the art street design guidelines including but not limited to national guidance from the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and the National Association of City Transportation Officials (NACTO)." - HCCSP*

Context Driven

The MDOT Complete Streets policy should ensure alignment of project designs with SHA Context Driven Guide. As transportation systems are more thoroughly evaluated through local area and corridor planning or where contexts are changed through new development, the initiative's Context Classification inventory map should also be updated. And, as tools and approaches are added to locations within the state, these should be featured as Maryland-based examples for performance tracking and use in Complete Streets training and application.

Performance Measures

The policy should establish performance measures that will allow MDOT to track the success of the Complete Streets policy. These could include:

- Number of jurisdictions with adopted Complete Streets ordinances, active transportation plans, and multimodal transportation impact and development review guidance.
- Staff trained in Complete Streets planning, design, operations, and maintenance.
- Number of Complete Streets projects implemented.

> *"Performance measures shall be used to track Complete Streets implementation progress, prioritize projects, and evaluate designs. Evaluating Complete Streets Projects: A Guide for Practitioners by AARP, Smart Growth America, and the National Complete Streets Coalition provides guidance for municipalities implementing*

Complete Streets policies. The performance measures listed below fit into several categories as listed in the guide and prioritized by Howard County stakeholders: access, equity/safety (tied), public health, place, and economy." – HCCSP

Performance measures are also needed at the project level. These measures permit the evaluation of project alternatives with a multimodal lens. They also permit the prioritization of candidate projects to ensure that projects that incorporate Complete Streets principles, particularly those in underserved communities, are prioritized. An example of this approach is Howard County's Transportation Improvement Prioritization System (TIPS).

Implementation Process

The policy should outline the various responsibilities of jurisdictions and agencies, and implementation processes related to planning, design, and implementation, as well as updating guidance, and education and training for design practitioners and maintenance offices. Tracking and reporting system enhancements for the purposes of updating data sets, coordinating with partners, and informing users and communities of change are important to address. The Policy should include incentives for local jurisdictions to adopt their own Complete Streets policies and programs. As part of a Complete Streets Program, MDOT should provide direct support to incentivize localities, such as technical assistance and grant funding. These initiatives can include multimodal transportation impact requirements and multimodal development review guidance to ensure that private investment promotes active transportation choices in new communities and a more complete active transportation network.

Framework for Model Micromobility Permit & Program Structure

MDOT has developed a framework for a model Micromobility Permit & Program Structure to guide local jurisdictions implementing programs suitable to their communities' needs. The guidance incorporates best practices for permitting and program structures, data tracking, and equity metrics and practices to ensure access to micromobility by the broadest range of users, especially those with the greatest need.

PERMITS & PROGRAM STRUCTURES

There are two primary operating structures that are being adapted in Maryland based on contexts, needs and resources of host communities: **permit structures** and **service contracts**.

A **permit structure** is preferable if a local jurisdiction is seeking:

- Long-term partnership with vendors and the ability to introduce different vehicle types as needed.
- Flexibility to revise the conditions of the permit regularly.
- Ability to evaluate vendors based on metrics and conditions outlined in the permit; and
- Discretion to determine vendors that best meet the jurisdiction's needs based on a competitive application process or other permitting mechanism.

A **service contract** is preferable if a local jurisdiction is looking to:

- Introduce micromobility to the community.
- Develop a pilot program or trial period for specific vehicle types.
- Learn about operational strategies and available vendors; and
- Refine strategic program goals.

DATA TRACKING TOOLS

Mobility Data Specification (MDS) is an Application Programming Interface (API) for transmitting anonymous information about vehicles and trips from a micromobility vendor to a local jurisdiction. Most local jurisdictions with micromobility programs require vendors to provide vehicle and trip data to the local jurisdiction through MDS. Local jurisdictions then use the transmitted data to enforce policies, to monitor vendor performance, and to plan accommodation improvements.

Several programs in Maryland have data sharing requirements including Baltimore's Dockless Vehicle Program and Annapolis' Shared Micromobility Program.

EQUITY METRICS

There are two types of equity metrics to consider: **spatial requirements** and **social requirements**.

Spatial requirements dictate where vehicles can and cannot be deployed. Local jurisdictions should consider how vehicles are distributed throughout the jurisdiction and if they are distributed equitably.

Policies or permit conditions can be implemented to ensure equitable distribution. For example, Baltimore requires vendors to deploy no less than 5% and no more than 25% of their fleet to each of the nine deployment districts defined by Baltimore City Department of Transportation between 5:00 a.m. and 9:00 a.m. each day This policy ensures the vehicles are distributed throughout Baltimore and vehicles are available for commuters every morning.

Social requirements ensure plans or options to increase access to micromobility are available to qualifying community members. Local jurisdictions should consider providing:

- Low-income plans – plans that provide discounted ride rates for e-scooter, e-bikes, and bikeshare to individuals with qualifying incomes or who receive another form of government assistance.
- Non-smartphone options – options that allow individuals to rent vehicles without a smartphone. Options include text-to-unlock plans.
- Cash payment options – options that allow individuals who do not have credit or debit cards to prepay for rides using cash.
- Adaptive vehicles – vehicles that accommodate individuals with disabilities or mobility challenges, such as an electric wheelchair or electric tricycle.

Equity metrics should be monitored with targeted data collection and evaluated transparently. In 2022, the National Institute for Transportation and Communities (NITC) published Mobility for the People: Evaluating Equity Requirements in Shared Micromobility Programs that summarizes micromobility equity metrics in the United States and provides useful information on monitoring and evaluating equity metrics. The National Association of City Transportation Officials (NACTO) also published the Shared Micromobility Permitting, Process, and Participation and Guidelines for Regulating Shared Micromobility which includes helpful tools for local jurisdictions developing micromobility programs. Additionally, local jurisdictions can reference the University of Oregon's US Micromobility Equity Requirements Database for best practice examples.

Rules of the Road Framework for E-Bikes and Shared Mobility

As new transportation technologies and modes emerge, infrastructure elements such as sidewalks, shared use paths, trails, and on-street bike facilities are being tasked with accommodating an evolving set of needs. **Table 2** summarizes current permitted uses on various multimodal facilities as specified by the 2019 Maryland Code of Transportation Subtitle 5. Pedestrians' Rights and Rules and Subtitle 12. Operation of Bicycles and Play Vehicles.

ADDITIONAL BEST PRACTICES

Bicycles, e-scooters, and e-bikes should be ridden in bicycle facilities when available and on the right side of the vehicle travel lane when there is no bike lane. If motor vehicle speeds are higher than 30 MPH, riders may prefer to ride on the sidewalk if the local ordinance allows. When riding on the sidewalk, bicycles, e-scooters, and e-bikes should yield to pedestrians and ride slowly to prevent conflicts among users.

Table 2: Modal Uses on Various Facilities

Modes	Sidewalk	Shared Use Path	Trail[2]	Bike Lane
Pedestrian	Permitted.	Permitted.	Permitted.	Typically, not appropriate. Pedestrians may walk along the edge of the roadway where a sidewalk is not provided.
Bicycle	Prohibited but may be allowed by local ordinance.	Permitted.	Permitted.	Permitted.
E-bike	Prohibited. E-bikes may be permitted by local ordinance.	Permitted. E-bikes may be prohibited by local ordinance.	E-bikes may be prohibited by local ordinance on natural surface trails. Prohibited on State Park trails, and other areas not designated for motorized vehicles, regardless of trail width or surface (paved, gravel, natural surface). Permitted on the Torrey C. Brown Rail Trail and the Western Maryland Rail Trail (Class 1 only)[3]. Permitted on the Columbia Association pathways (Class 1 only)[4].	Permitted. E-bikes may be operated where bicycles are allowed to travel unless prohibited by local ordinance.
E-scooter	Permitted but may be prohibited by local ordinance.	Permitted.	Prohibited on State Park trails, and other areas not designated for motorized vehicles, regardless of trail width or surface (paved, gravel, natural surface).	Permitted.
Electric Personal Assistive Mobility Device	Permitted.	Permitted.	Permitted.	Permitted.

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[2] Natural surface trails and State Park trails
[3] Maryland State Park Policies - Statewide
[4] Columbia Association Rules & Regulations

Appendix H

Funding Sources

Maryland
Statewide Bicycle
& Pedestrian Plan

Table 1 includes federal and state funding programs that can be used for active transportation projects. The program names are linked to additional information.

Table 1: Federal and State Funding Programs

Federal Programs	Department
Rivers, Trails, and Conservation Assistance Program (RTCA)	USDOI NPS
Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT)	USDOT
Congestion Mitigation and Air Quality Improvement Program	USDOT
Federal Lands Access Program (FLAP)	USDOT
INFRA Grants	USDOT
National Scenic Byways Program	USDOT
Railroad Rehabilitation & Improvement Financing	USDOT
RAISE Discretionary Grants	USDOT
Reconnecting Communities Pilot Program Areas of Persistent Poverty Program	USDOT
Safe Streets and Roads for All Grants	USDOT
Active Transportation Infrastructure Investment Program	USDOT FHWA
Federal Lands and Tribal Transportation Programs	USDOT FHWA
Highway Safety Improvement Program	USDOT FHWA
National Highway Performance Program	USDOT FHWA
Railway-Highway Crossing Program	USDOT FHWA
State Planning and Research	USDOT FHWA
Surface Transportation Block Grant Program	USDOT FHWA
Tribal Transportation Program	USDOT FHWA
Tribal Transportation Program Safety Fund (TTPSF)	USDOT FHWA
Transit Oriented Development	USDOT FTA
Maryland Programs	Department
Community Development Programs	DHCD
Community Legacy Program	DHCD
Community Parks and Playgrounds	DNR
Program Open Space	DNR
Kim Lamphier Bikeways Network Program	MDOT
Maryland Highway Safety Office Safety Grants	MDOT MVA
Bicycle and Pedestrian System Preservation Programs Fund 33 - Sidewalk Reconstruction for Pedestrian Access	MDOT SHA
Bicycle and Pedestrian System Preservation Programs Fund 79- New Sidewalk Construction for Pedestrian Access	MDOT SHA
Bicycle and Pedestrian System Preservation Programs Fund 88 - Bicycle Retrofit	MDOT SHA
Recreational Trails Program	MDOT SHA
Safe Routes to Schools	MDOT SHA
Transportation Alternative Program	MDOT SHA
Maryland Heritage Areas Program	MHT

MARYLAND DEPARTMENT OF TRANSPORTATION