



BALTIMORE COUNTY

BICYCLE & PEDESTRIAN MASTER PLAN



Acknowledgments

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1

INTRODUCTION

About the Plan

What inspired this Plan?

Enhancing bicycling and walking in Baltimore County will strengthen the local economy, promote healthy and active lifestyles, and expand regional tourism. The County's commitment to strengthen and expand bicycle and pedestrian infrastructure improvements in Baltimore County has its roots in the 2010 Baltimore County Master Plan. It called for the creation of a new county-wide plan focused on enhancing the County's pedestrian and bicycle networks to expand transportation choices; create more opportunities for physical activity; and make it easier and more appealing for people to use active transportation instead of personal vehicle trips in order to reduce emissions associated with driving and to reduce congestion throughout the County. This in turn led to the adoption of

two plans: the Eastern Pedestrian and Bicycle Access Plan (2006) and Western Pedestrian and Bicycle Access Plan (2012).

What will this Plan do?

The Baltimore County Bicycle and Pedestrian Master Plan will provide an update to these two plans and will reflect changing development patterns and increased enthusiasm around active transportation in the County.

This Plan identifies the policy and physical barriers to complete streets and active transportation; provides new policies; and delivers prioritized bike and pedestrian improvement projects for the County.

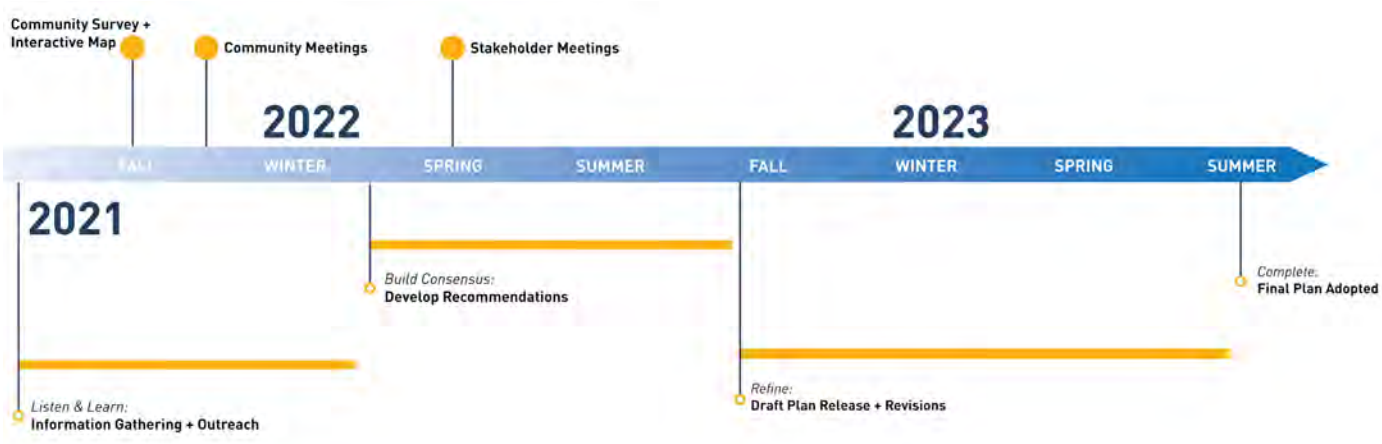


Figure 1. Timeline for plan development

"I would love to be able to bike places instead of drive, so I hope some of the changes in this survey are implemented!"
- Public Comment

VISION STATEMENT

“Baltimore County will consist of an active transportation network that is safe and accessible to improve the quality of life and health for users of all ages, abilities, and demographics.”

**Create Economic Growth**

Recognize the economic benefits of pedestrian and bicycle-friendly communities to attract people and businesses.

**Ensure Equity**

Provide accessibility and affordability for all ages, abilities, and areas with greatest need.

**Increase Safety**

Decrease bicycle and pedestrian fatalities and injuries.

GOALS**Enhance Public Health**

Increase individual activity by improving access to active transportation and outdoor recreations.

**Expand Access & Connectivity**

Create a connected walkable and bikeable network to be accessed by all active transportation users.

**Collaborate with Partners**

Create internal and external partnerships.

**Protect the Environment**

Encourage mode shift to reduce emissions and plan for green infrastructure that enhances user safety and comfort.

Figure 2. Project goals

Plan Framework

This planning process was broken into a number of sequential steps, shown in Figure 2:

- **Establish Plan vision and goals**
- **Document existing conditions**
- **Identify roles and responsibilities of key partners to implementation**
- **Prioritize recommendations**

Throughout the planning process, input was collected from community members and

stakeholders around the County. This was particularly crucial in developing the Plan's vision and goals, shown in Figure 2.

The vision is the aspirational statement for Baltimore County and declaration of priorities. The goals represent specific targets needed to accomplish the vision. Performance measures were established to help the County monitor progress towards achieving the plan's goals and provide an evaluation mechanism.

Setting the Stage

Baltimore County is a place unlike anywhere else in Maryland. The County's landscape is varied: from dense urban areas, to spread out suburbs, to sparse rural development. It is the second largest county in Maryland in terms of land area, with 682 square miles of pastures, parks, housing complexes, and employment centers. The County's large size and diverse landscapes were considered in the development of the both the Eastern and Western Baltimore Pedestrian and

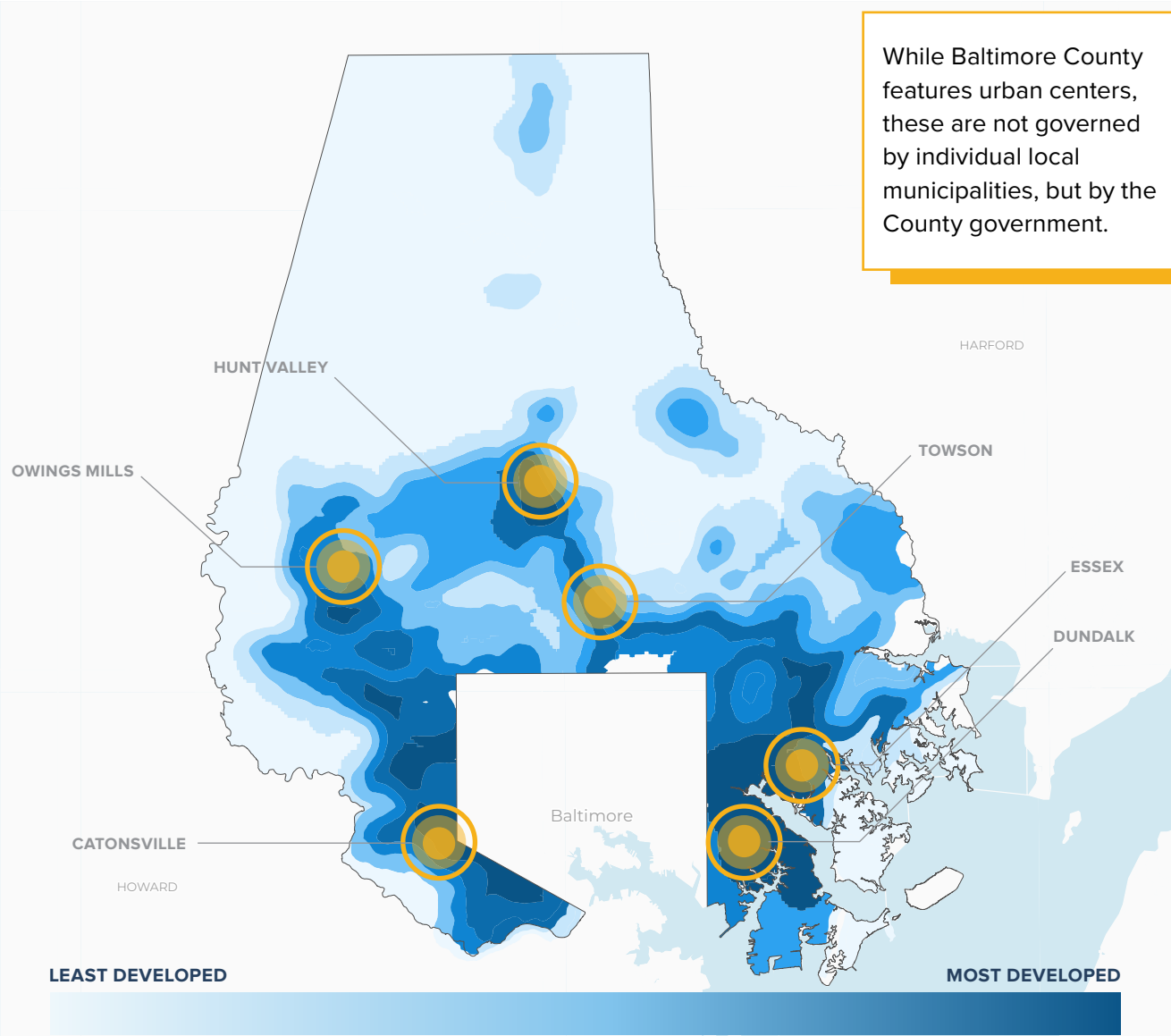
Bicycle Access Plans and have informed the recommendations of this plan. Both roadway characteristics and land use and development context influences the selection of the types of active transportation networks and facilities that will be the most appropriate for a particular area, be it urban, suburban, or rural within the County. The map in Figure 4 illustrates where those different development patterns are found in Baltimore County using generalized County land use data.

Activity Centers

Baltimore County was developed as a series of small villages. In the 1960s and 70s, during the period of suburban development, the population in Baltimore County grew significantly and the small village centers were transformed into bustling destinations for people to live, work, and shop. In Figure 3 you can see how Towson, one of Baltimore County's activity centers, densified over time. All of the activity centers are in need of more places for people to safely and comfortably walk and bike.



Figure 3. The changing landscape of Towson, one of the County's urban centers



While Baltimore County features urban centers, these are not governed by individual local municipalities, but by the County government.

Natural	Rural	Suburban	Urban
Natural areas are undeveloped park, forest, and conservation areas.	Rural areas are sparsely populated and feature pastures, forests, and agriculture.	Suburban areas are primarily made up of single-family detached homes.	Urban areas feature a mix of commercial, office, and residential spaces.

Figure 4. Development intensity in Baltimore county

Benefits of Active Transportation

Active transportation is human-powered transportation such as walking, bicycling, using wheelchairs/mobility devices, skateboarding, and more. Using these modes increases mobility options and provides safety, health, environmental, and economic development benefits.

The Mobility Factor

The Concern:

In metropolitan areas like the Baltimore region, over 32 percent of daily travel happens during congested roadway conditions. Annual delay per person has reached an average of 36 hours per year, costing each driver over \$900 in lost wages and wasted fuel.¹

Active Transportation Benefit:

Studies have shown that half of the trips taken in the U.S. can be completed in a 20-minute bike ride and a quarter of trips can be completed in a 20-minute walk.²

The Safety Factor

The Concern:

People walking and biking are disproportionately impacted by fatal traffic crashes. Pedestrians make up just 2% of crashes from 2015 to 2021 in Baltimore County, but 32% of fatal crashes. Bicyclists make up 0.5% of total crashes, and 5% of fatal crashes. 96% of bicyclist-involved crashes in Baltimore County occurred on road segments without existing bike facilities. For more details see *Appendix A*.

Active Transportation Benefit:

Providing walkways separated from the travel lanes can help prevent up to 88% of “walking along roadway” crashes. And a 2012 study estimates streets with protected bike lanes saw 90% fewer injuries per mile than those with no bike infrastructure.³

The Health Factor

The Concern:

Obesity-related health care costs are estimated at \$160 billion per year. 33.5% of Baltimore County residents are obese (MD-IBIS, 2019 BRFSS Data), with 65.9% of Baltimore County residents being overweight and obese.

Active Transportation Benefit:

Residents of walkable communities are 2.4 times as likely to meet physical activity guidelines compared to those who do not live in walkable neighborhoods.⁴

Environmental Stability

The Concern:

Transportation consumes about 30 percent of the total energy consumed in the U.S. in an average year, and about 2/3 of this amount is used by motor vehicles. In suburban communities like Baltimore County, transportation comprises as much as 50 percent of a household’s total energy consumption.⁵

Active Transportation Benefit:

Reducing the total number of automobile trips saves energy and helps to improve the environment. By 2050, if even just 7% more of all American commute trips were made by bike and foot, we could avoid around 5 gigatons of carbon emissions.⁶

Thriving Economy

The Concern:

The average Baltimore-area household spent 17.1 percent of its budget on transportation, not significantly different from the national average of 16.8 percent. Of the \$13,255 in annual transportation expenditures in the area, 91.4 percent was spent buying and maintaining private vehicles; this compared to the national average of 92.4 percent.⁷

Active Transportation Benefit:

Increased walking and biking rates result in lower transportation costs for individuals and families; increased property values; savings for cities from less wear and tear of streets; and a potential boost to tourism.⁸

2

EXISTING CONDITIONS

Existing Conditions Overview

An existing conditions analysis was performed to better understand trends and issues for people walking and biking. This section of the document provides information on analyses that were conducted to take a closer look at current walking and biking conditions in Baltimore County. Results of these analyses informed the development of recommended improvements to enhance safety and connectivity that are described in Chapter 4: Recommended Network. The diagram in Figure 5 provides an overview of the analyses conducted and what they tell us about the region.

For an interactive review of existing conditions data, visit the StoryMap on Baltimore County's [Pedestrian and Bicycle Planning and Implementation](https://www.baltimorecountymd.gov/departments/public-works/traffic/pedestrianbicycle/) website (https://www.baltimorecountymd.gov/departments/public-works/traffic/pedestrianbicycle/).

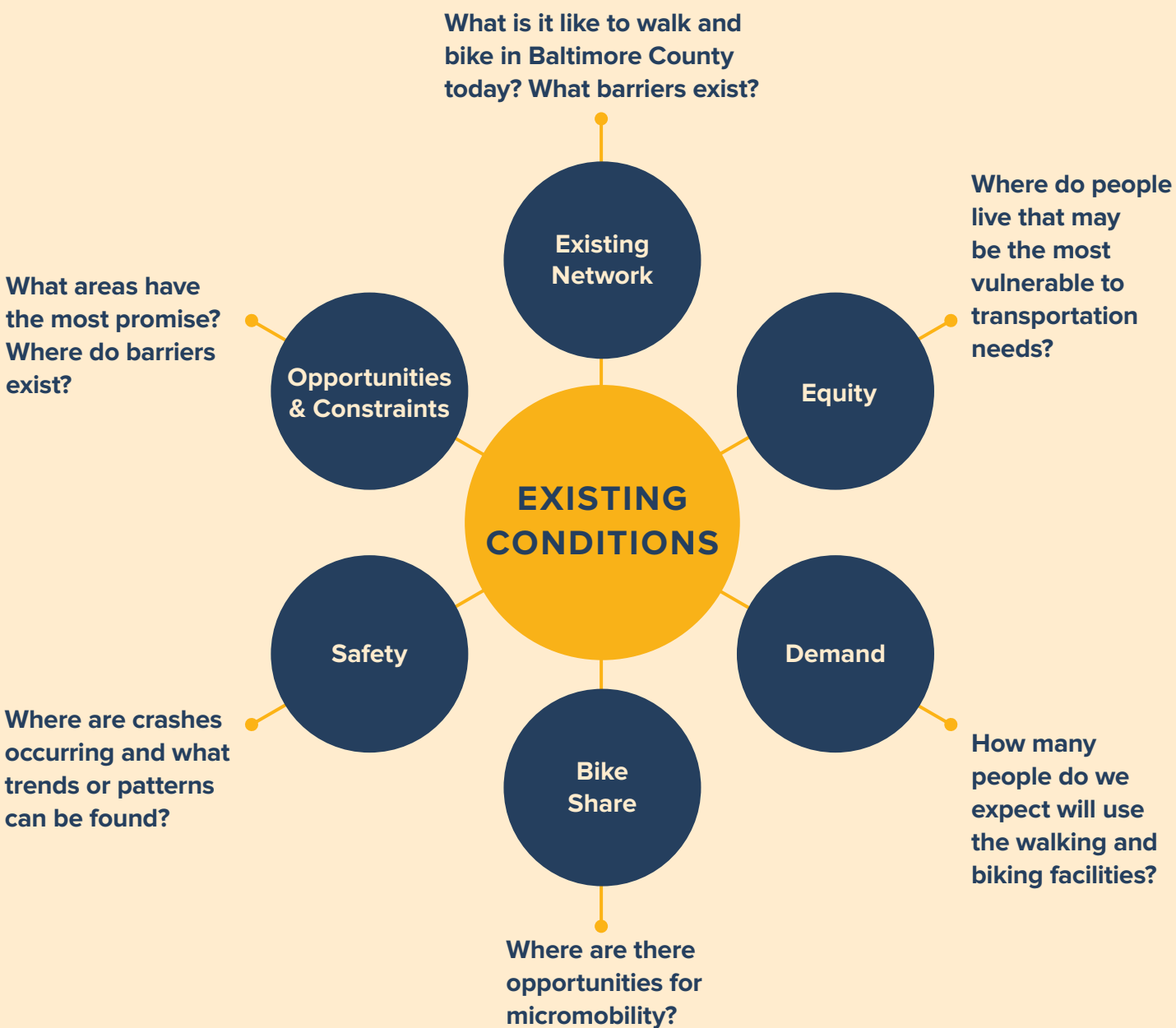


Figure 5. Summary of existing conditions reviews

Existing Bicycle and Pedestrian Network

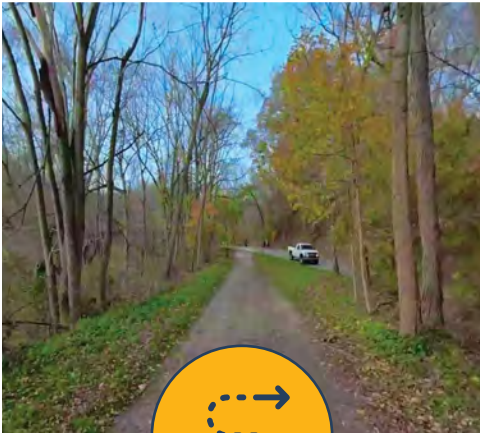
Baltimore County's active transportation network includes a range of different facility types, summarized in Figure 6. The maps that follow show where on-street bike facilities, trails for walking and biking, and sidewalks exist in the County today. This includes roads maintained by the State of Maryland as well as by Baltimore County. As a key destination and trip generator, Baltimore City's bikeway network is included to highlight opportunities to connect with the City's multimodal facilities.

Today Baltimore County has...



About 15 miles of bicycle lanes:*

- District 1: 8 miles
- District 2: 0 miles
- District 3: 0 miles
- District 4: 0 miles
- District 5: 1 miles
- District 6: 4 miles
- District 7: 1 miles



About 145 miles of trails and shared use paths:

- District 1: 16 miles
- District 2: 1 mile
- District 3: 61 miles
- District 4: 17 miles
- District 5: 45 miles
- District 6: 0 miles
- District 7: 5 miles



About 2,448 miles of sidewalks:

- District 1: 388 miles
- District 2: 340 miles
- District 3: 245 miles
- District 4: 388 miles
- District 5: 372 miles
- District 6: 384 miles
- District 7: 331 miles

*Only existing bike lanes are included in this calculation. There are additional mileage per district of signed bike routes.

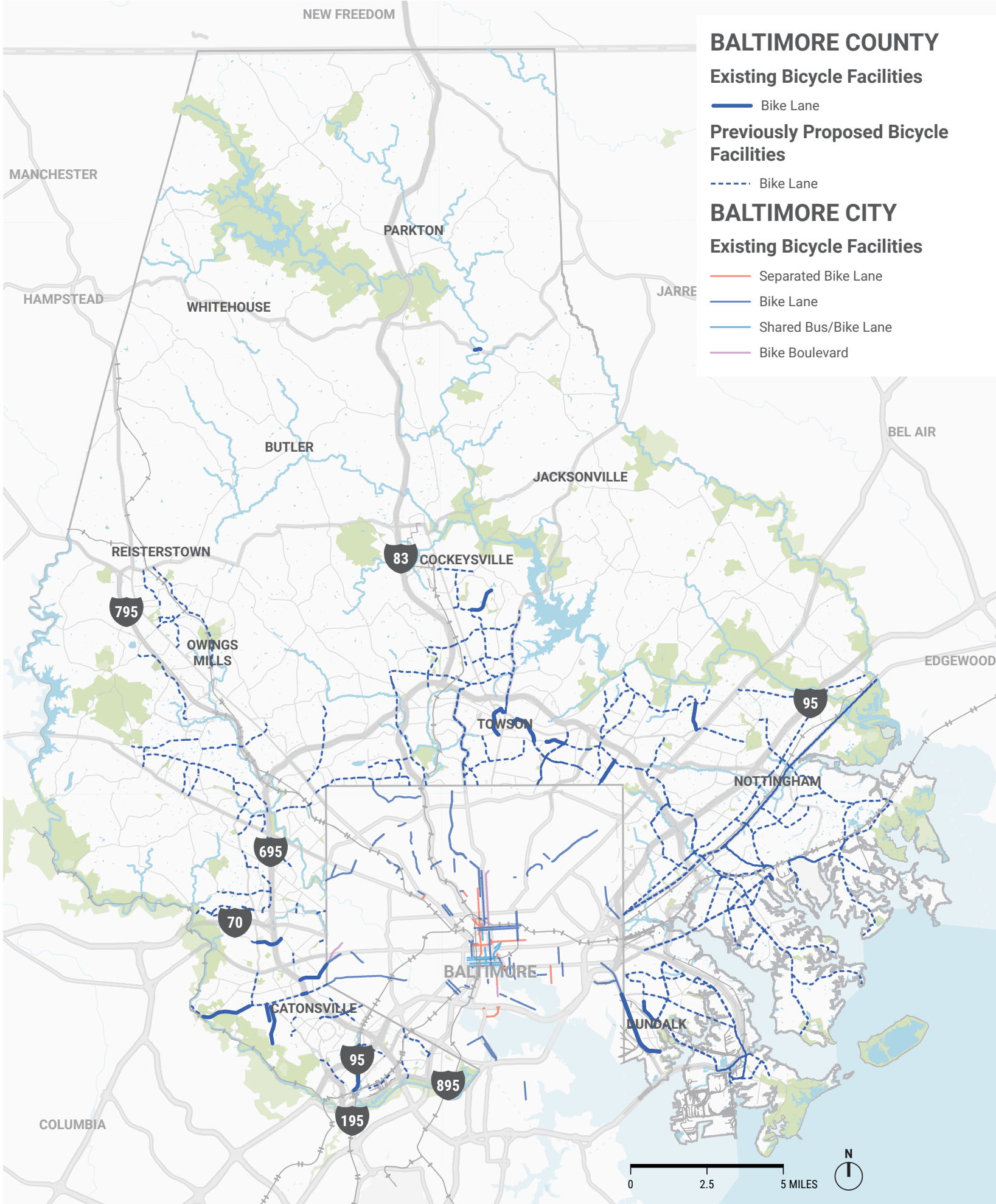


Figure 6. Existing on-street bicycle network in Baltimore County (See the Appendix C for district-scale maps)

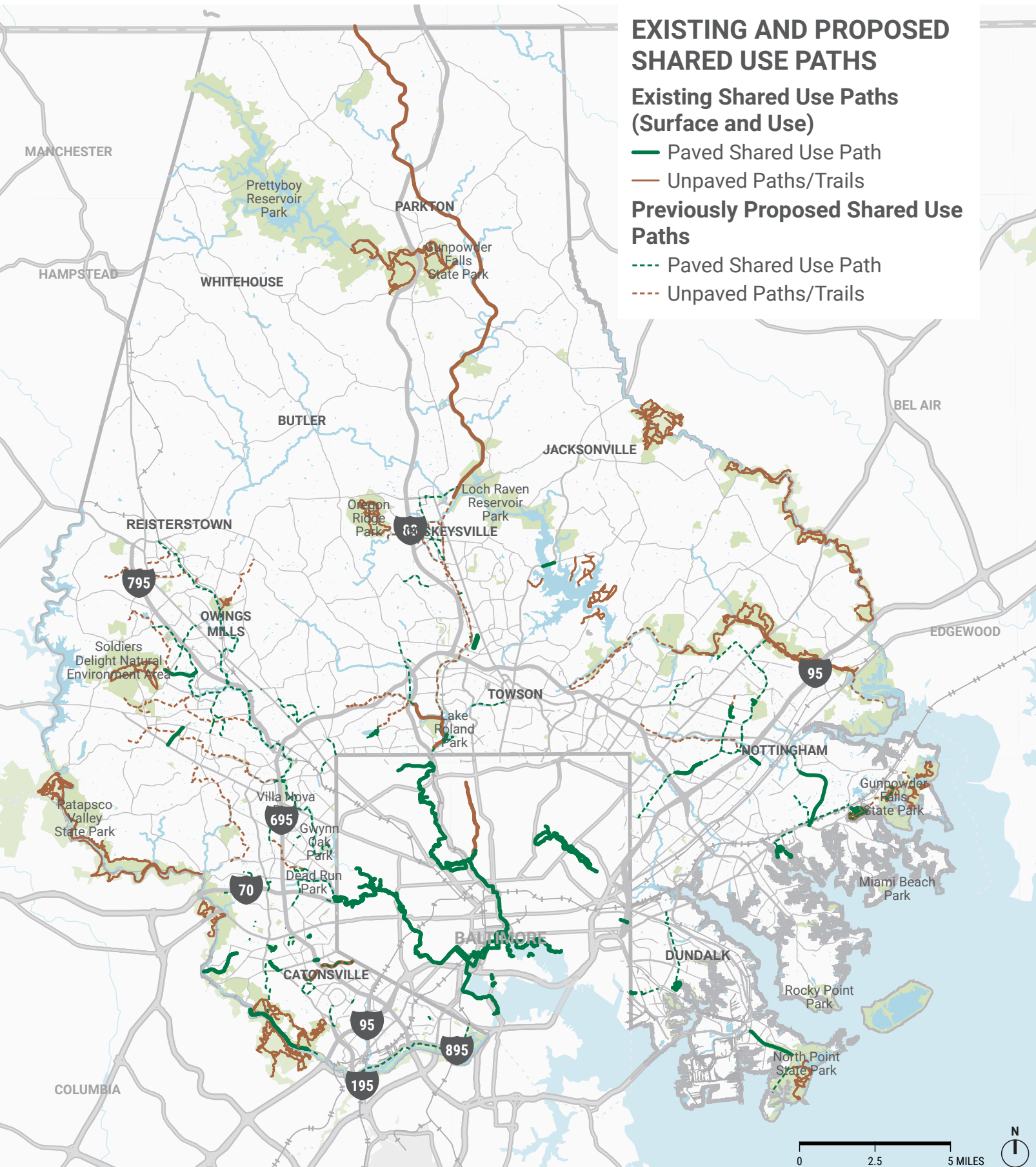


Figure 7. Existing trail network in Baltimore County

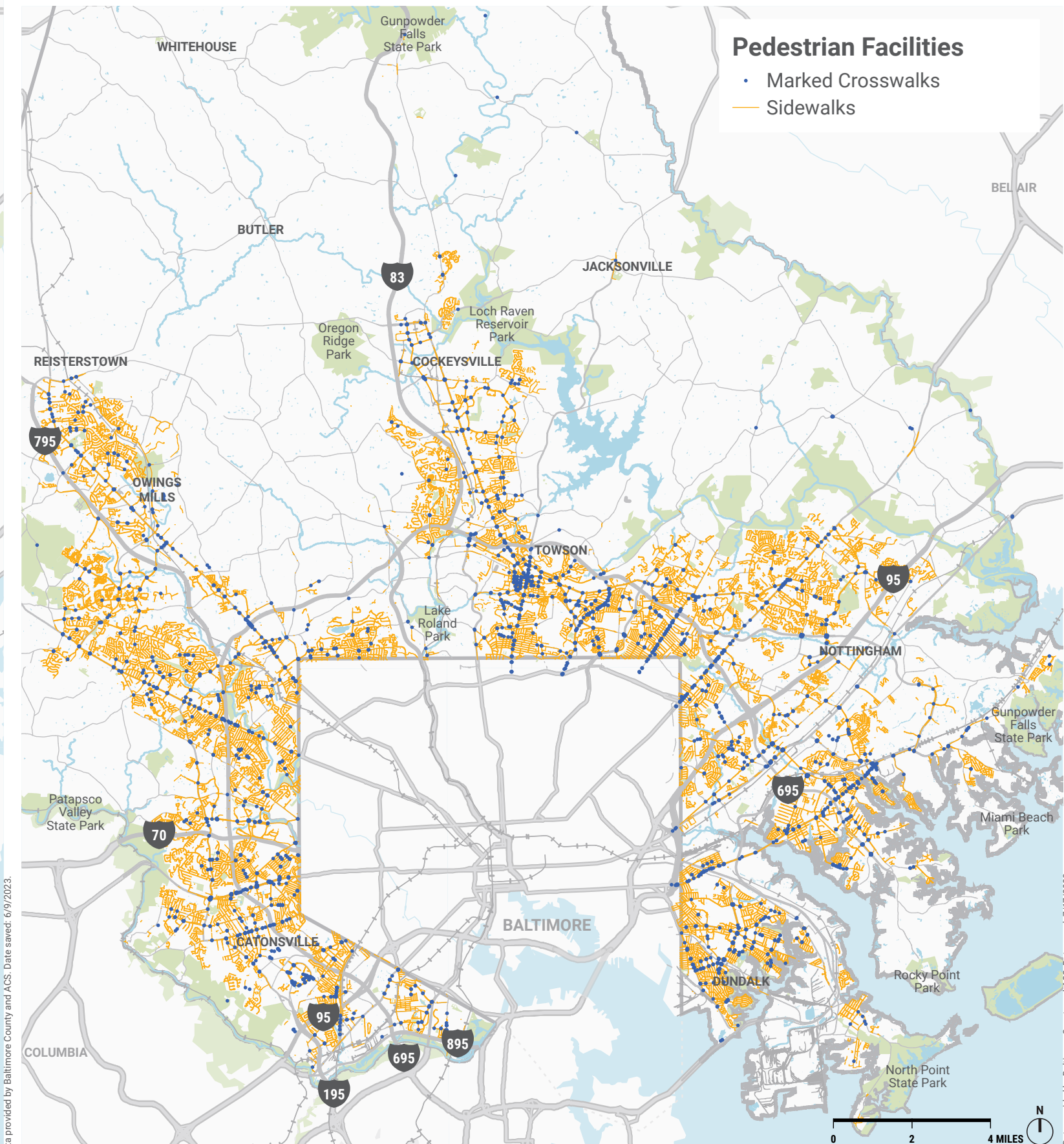


Figure 8. Existing pedestrian network in Baltimore County

Data provided by Baltimore County and ACS. Date saved: 6/9/2023.

Data provided by Baltimore County and ACS. Date saved: 7/17/2023.

State Roadways

MDOT SHA is responsible for the construction and maintenance of state roads in Baltimore County. Changes to these roadways are planned, funded, and implemented through processes that are separate from Baltimore County's bicycle and pedestrian planning efforts.

While state-maintained roadways are not included in the recommendations in this plan, ongoing coordination with MDOT SHA is essential to create a truly comprehensive bicycle and pedestrian network in Baltimore County. The County should continue to consider and promote active transportation improvements on MDOT SHA roadways by focusing on the actions below.



- **Planning Coordination**
 - » Baltimore County will continue to coordinate with the state on bicycle and pedestrian plans and projects, including the 2050 Maryland Bicycle & Pedestrian Plan, the Context Driven initiative, and the Pedestrian Safety Action Plan.
- **Implementation Priorities**
 - » Each year the Maryland Department of Transportation publishes a Priority Letter that identifies specific multimodal projects, initiatives and improvements within each county that should be included as a priority in the Consolidated Transportation Program. Baltimore County will continue to work with MDOT to coordinate County priorities with state funding. Chapter 7 (pages 84 and 85) provide more detailed information on County coordination with MDOT SHA priorities.
- **Project Design**
 - » State highways usually provide connections across Baltimore County and can carry larger amounts of traffic at higher speeds. Including these roads in the active transportation network requires facility designs that ensure the safety of all users. It is important for the County to be involved in the design of these facilities.

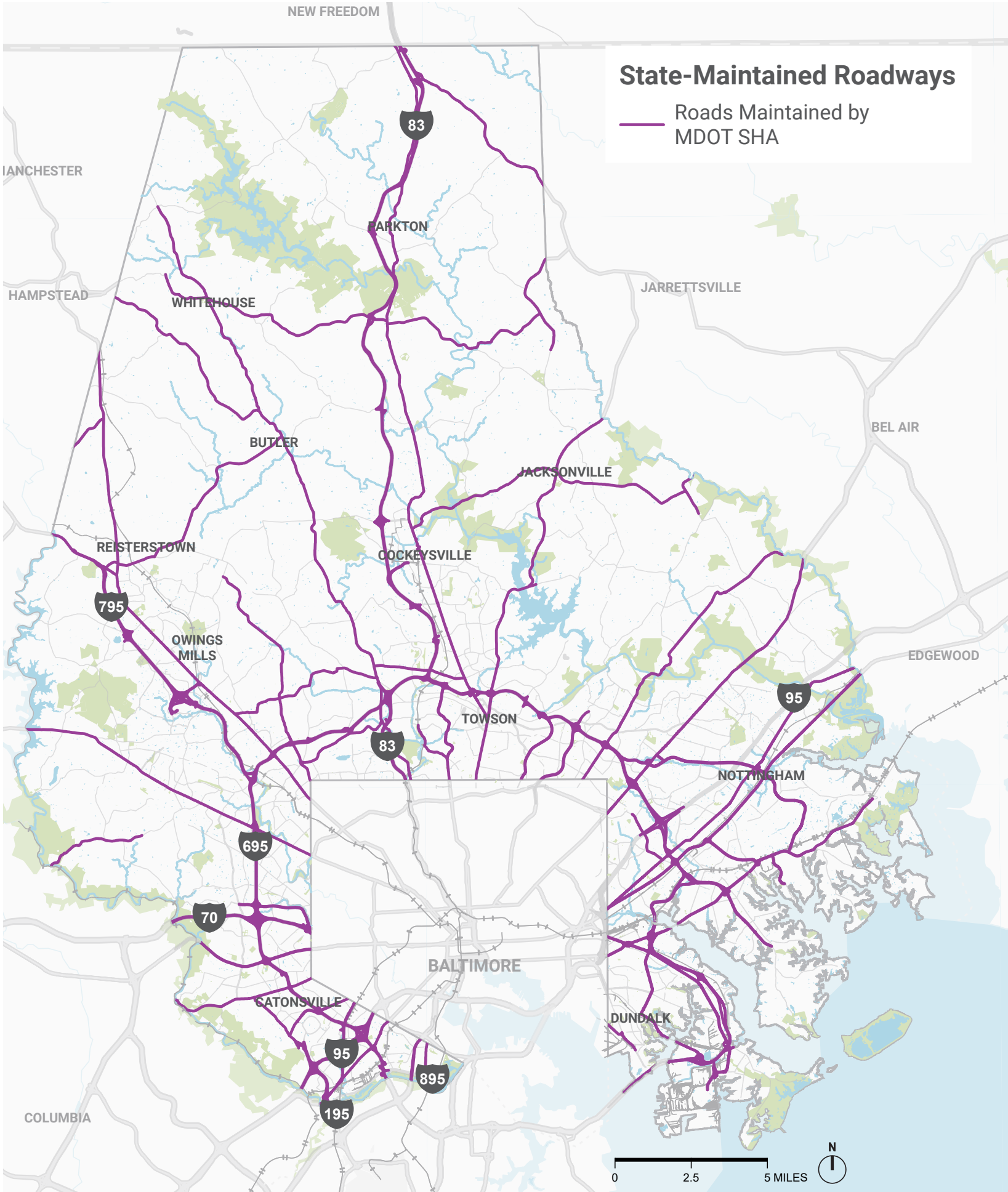


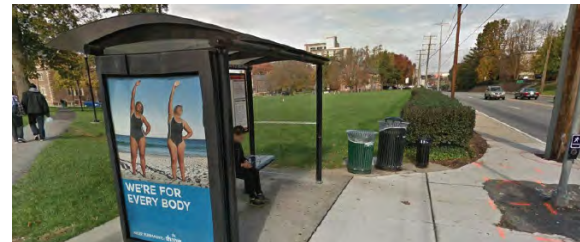
Figure 9. State-maintained road network in Baltimore County

Active Transportation Opportunities

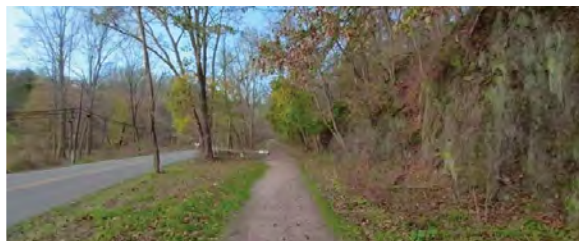
Baltimore County has great examples of best practice design for active modes. There is potential to build upon this strong foundation to further enhance safety and user comfort by introducing treatments like buffered or separated bike facilities. In more rural areas of the County, there are opportunities to help improve safety and ridership for users within these areas by considering wayfinding, signage, and connectivity enhancements.



Crosswalk with pavement markings and signal in Towson Town Center. Markings, signs, and signals at crosswalks increase safety for pedestrians.



Shelter area at bus stop near Towson University. These pedestrian amenities are great protection from weather conditions.



The NCR trail provides a fun and safe way for pedestrians and cyclists to travel within rural areas of the County.



Streets designed for slow speeds in Towson provide a comfortable and enjoyable environment for pedestrians.



Crosswalk with pedestrian refuge island outside the Catonsville Branch of the Baltimore County Public Library system. This gives those who are visiting the library a safe way to cross the street.



Multi-modal hub at the Lutherville Station Shopping Center provides pedestrians and cyclists connections to MTA buses and light-rail.

Active Transportation Constraints

Baltimore County consists of numerous arterial and rural roadways that are active transportation barriers. High speeds and heavy traffic are found on arterial roadways, many roads have little to no shoulder, and winding rural roads can be treacherous for both drivers and active transportation users.



Traffic along Hwy 140 causes safety issues for pedestrians and cyclists using unbuffered sidewalks.



'Share the Road' signage found in rural area on the steep, winding, and narrow Hwy 25.



Lack of pedestrian crossing infrastructure and narrow, unbuffered sidewalk on arterial roadway in Pikesville.



Sidewalk along a Pikesville commercial corridor has not yet been improved to ADA standards.



Unsafe sidewalk conditions along US-1. Parked cars block sidewalks, possibly forcing pedestrians or cyclists to use the street to continue their trips.



Major intersection at MD-43 and White Marsh Blvd with pedestrian crossing signals missing from some crossing legs.

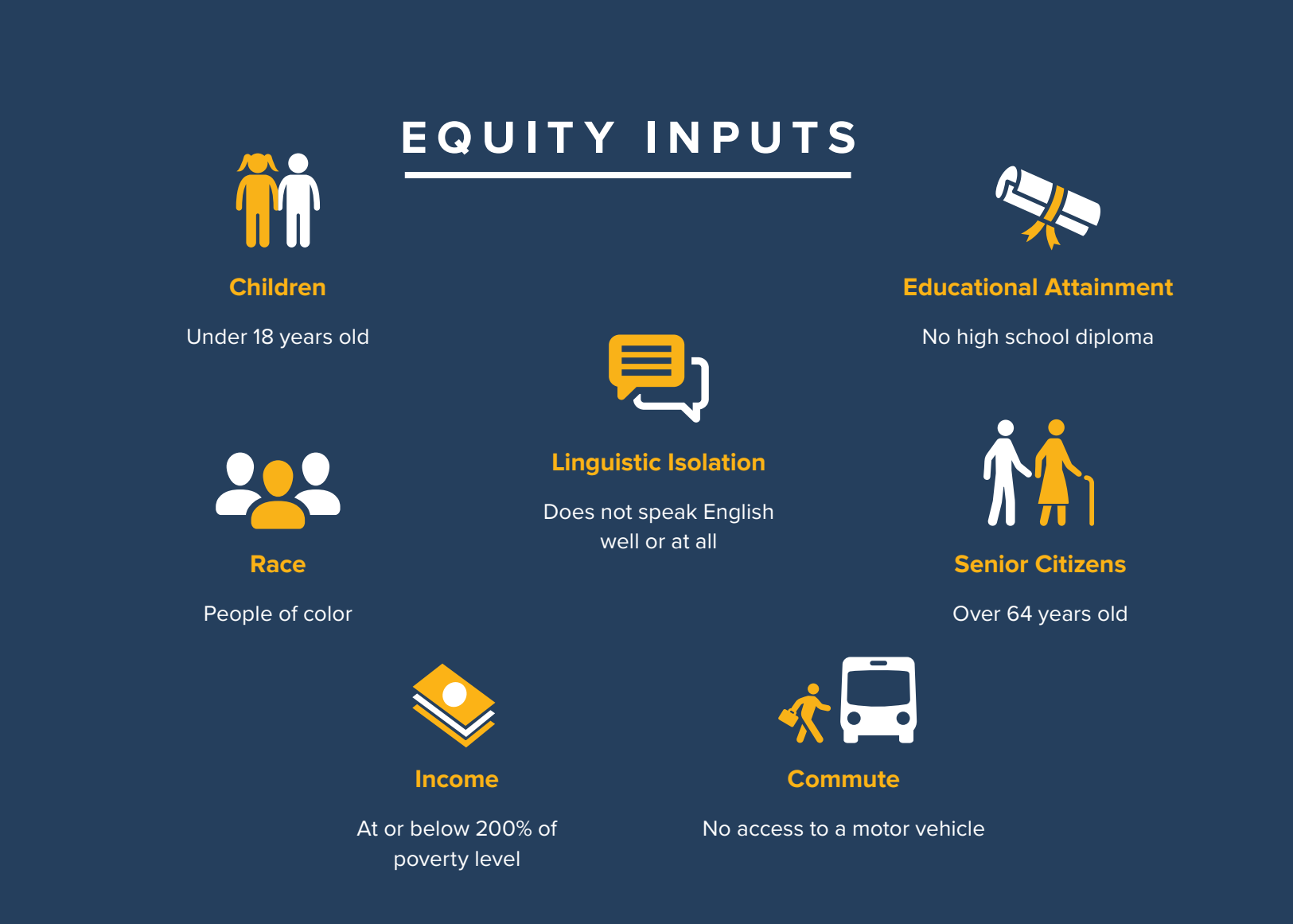


Figure 10. Data inputs that informed the equity analysis

Equity Analysis

Without access to a full range of transportation options, people can have a hard time getting to work, shopping, visiting a doctor, going to school, or connecting with others. While all communities offer a variety of ways to get around, not everyone has equal access to a wide range of convenient, safe, and affordable means of transportation. Uneven distribution of active transportation infrastructure can provide health, safety, mobility, and economic benefits for some segments of a population, while increasing hardships for others. Barriers to securing transportation needs may vary depending on geography and demographics.

Locating concentrations of disadvantaged populations can be the first step in identifying and prioritizing those needs.

The equity analysis map in Figure 11 was created by mapping a wide range of demographic data that has been summarized into composite equity analysis results. The map shows areas of highest equity need are located around Sparrows Point and Owings Mills, with other high equity need areas being largely concentrated around the boundary of Baltimore City. See Appendix A: Equity Analysis Methodology + Results Memo for further details on this Equity Analysis.

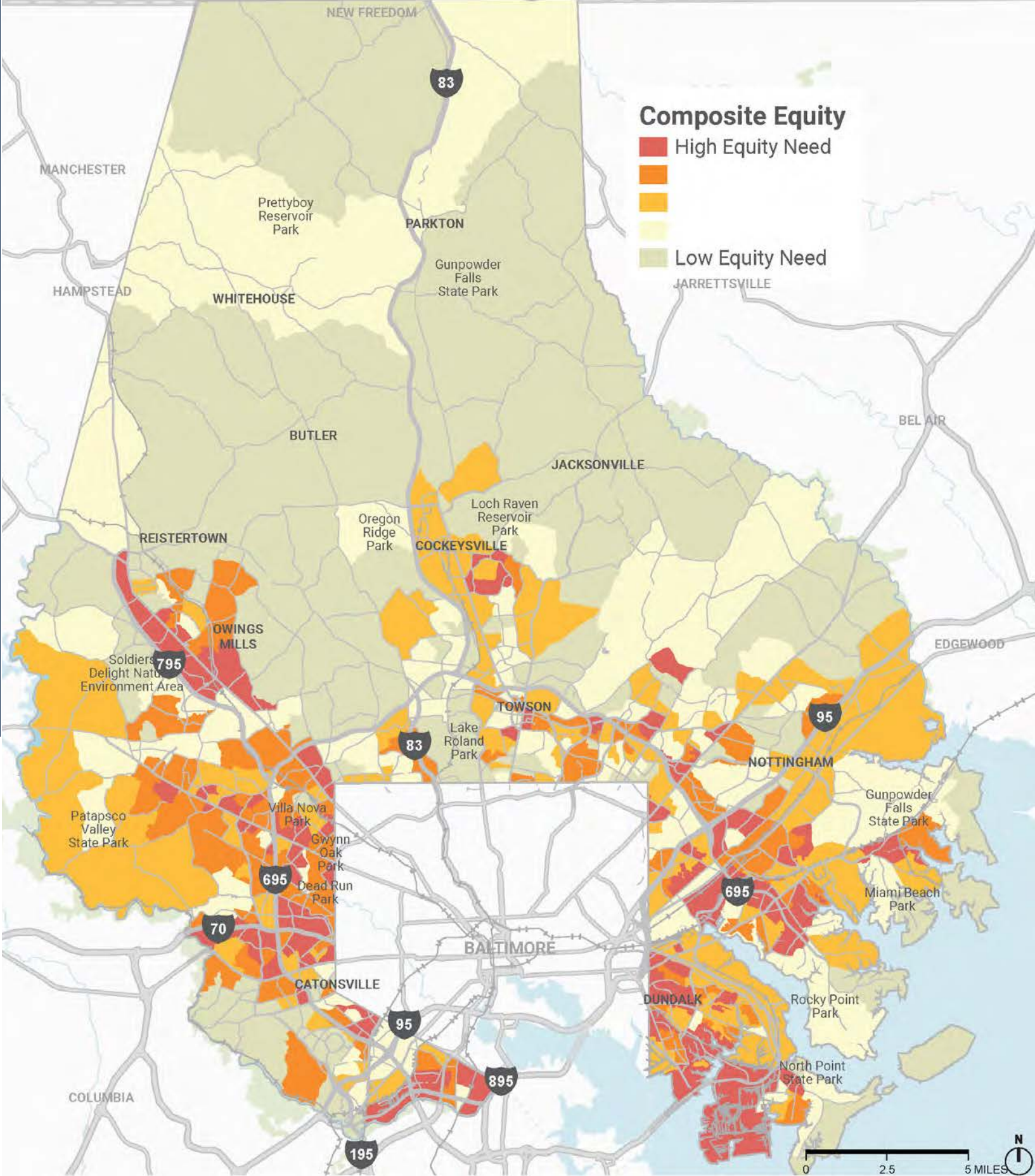


Figure 11. Equity composite map

DEMAND INPUTS



Where People Play

Trails and Parks are attractions and generators of pedestrian and biking activity.



Where People Shop

Retail shopping areas are attractions for walking and biking. Places where people can complete errands, such as banks, are also generators of pedestrian and bicycling trips.



Where People Live

People are likely to walk and bike near their homes for recreation or to visit nearby friends and family.



Where People Work

Higher densities of workers can mean greater numbers of people walking and biking.



Where People Learn

High numbers of people walk and bike to school. This can be because it is more enjoyable, to avoid school pick-up or drop-off congestion, or because they don't have access to a personal vehicle.



Where People Take Transit

All transit trips start or end with a walking trip.

Figure 12. Data inputs that informed the demand analysis

Demand Analysis

The demand analysis will help the County identify areas of potential demand for active transportation. This type of demand is often expressed as where people live, work, play, shop, learn, take transit, and access community services. A composite demand score will summarize the geographic distribution of active transportation demand in Baltimore County. The results of this analysis were used to help inform and prioritize recommendations in chapter 4.

The demand analysis map in Figure 13 was created by mapping a wide range of destination-based data that has been summarized into composite demand analysis results. The map shows that the areas with the highest demand concentrations are located in Towson, Cockeysville, Dundalk, Catonsville, Owings Mills, Woodlawn, and Rosedale. See Appendix A: Demand Analysis Methodology + Results Memo for further detail on this Demand Analysis.

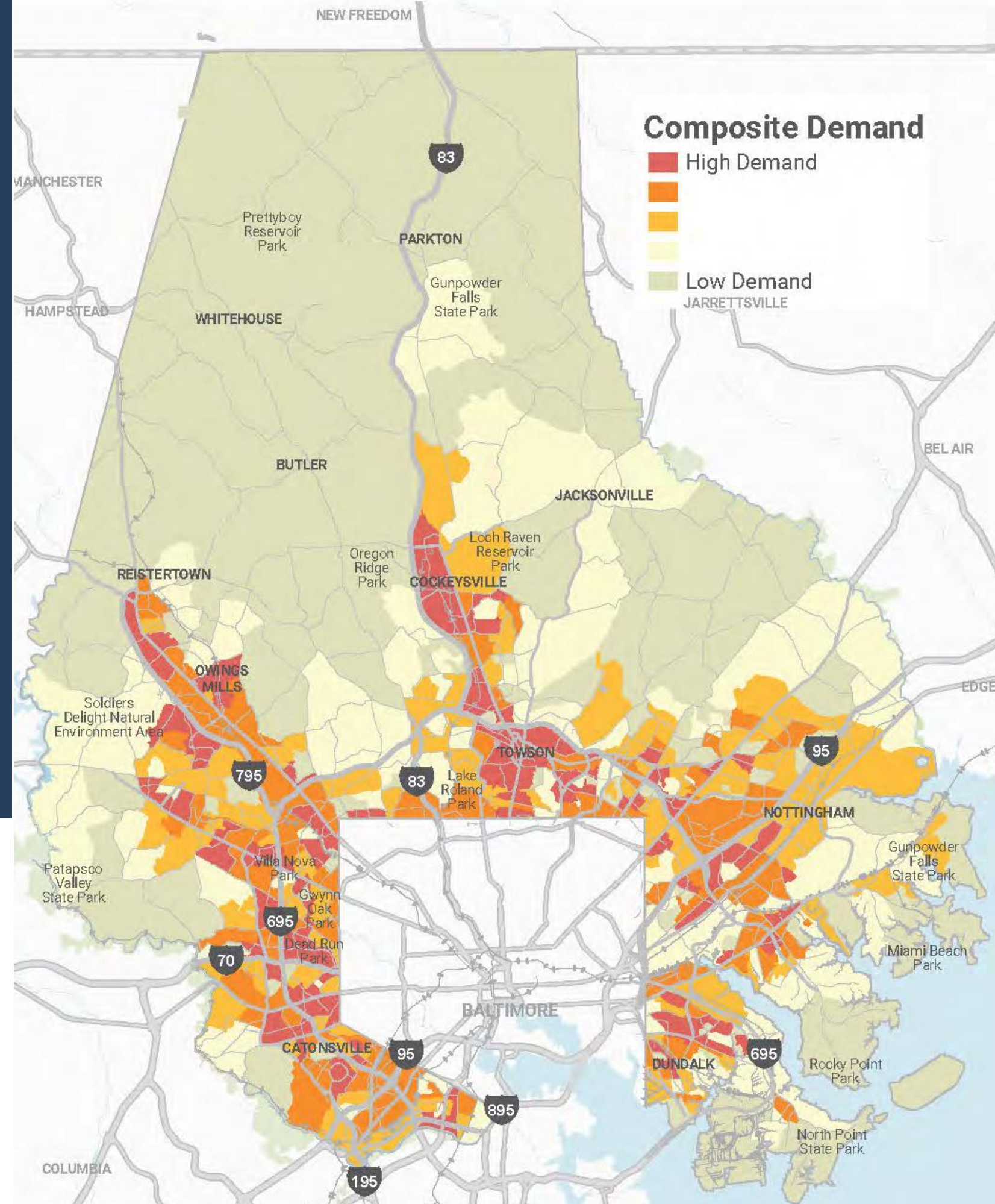


Figure 13. Demand composite map

Safety Analysis

The safety analysis looked at both crash locations and crash trends in Baltimore County. Between January 2015 and June 2021, there were 100,137 crashes. The maps in Figures 15 to 17 show where those crashes occurred for each mode. Findings from the analysis underscore that people walking and biking are indeed the most vulnerable road users. Crash hot spots for all modes are concentrated in Baltimore County's urban centers. Fortunately, there is a positive downward trend in crashes across all modes during the years studied. See Appendix A: Safety and Crash Memo for further detail on the Safety Analysis.

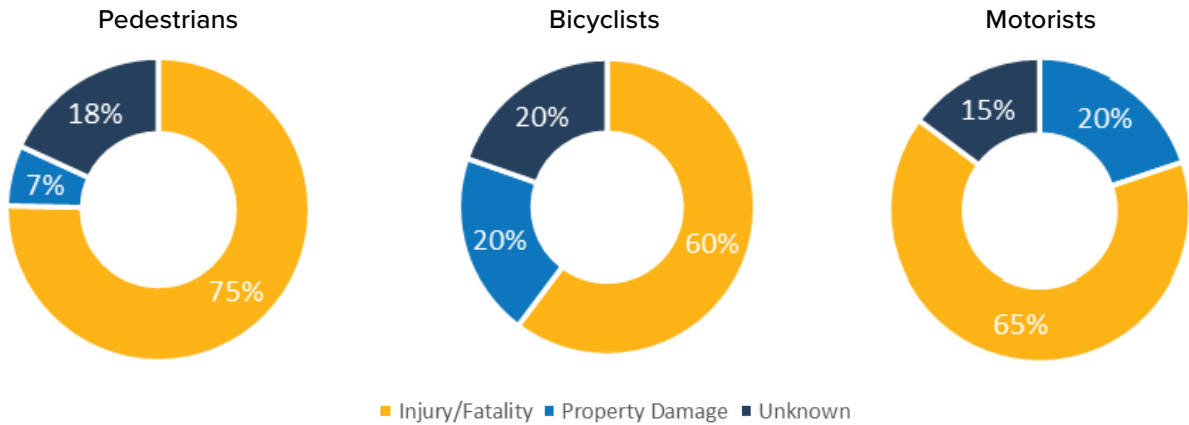


Figure 14. Crash trends by mode

- While bicyclists and pedestrians make up a small percentage of total crashes, they are overrepresented in fatal crashes. **Pedestrians are involved in just 2% of all crashes and 32% of fatal crashes. Bicyclists make up 0.5% of all crashes and 5% of all fatal crashes.**
- **Three out of four pedestrians involved in a traffic crash are killed or injured. Three out of five bicyclists involved in a crash are killed or injured.**
- Areas with the highest need face disproportionate rates of pedestrian crashes. **Though the block groups with the highest need make up just 20% of the county population, they were involved in 43% of pedestrian crashes and 37% of bicyclist crashes.**
- **32% of bicyclist involved crashes occur on proposed bike facilities, compared with 4% of bicyclist crashes on existing facilities.** This suggests both a need for these bicycle facilities and also the effectiveness of existing facilities at keeping cyclists safe.
- **35% of pedestrian involved crashes occur after dark.** Given that people are more likely to walk during the day, this suggests that walking at night is more dangerous than walking during the daytime.

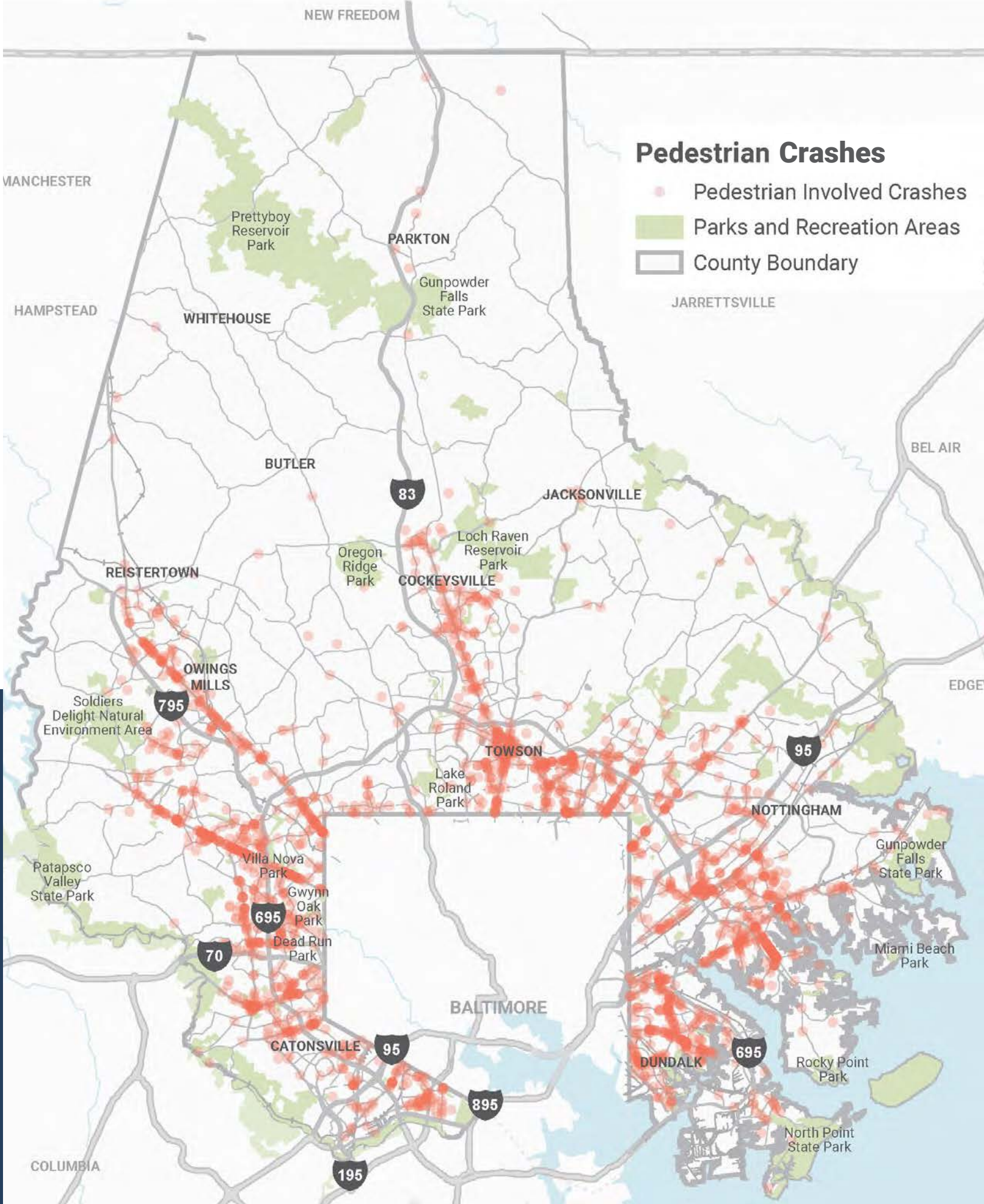


Figure 15. Pedestrian crashes

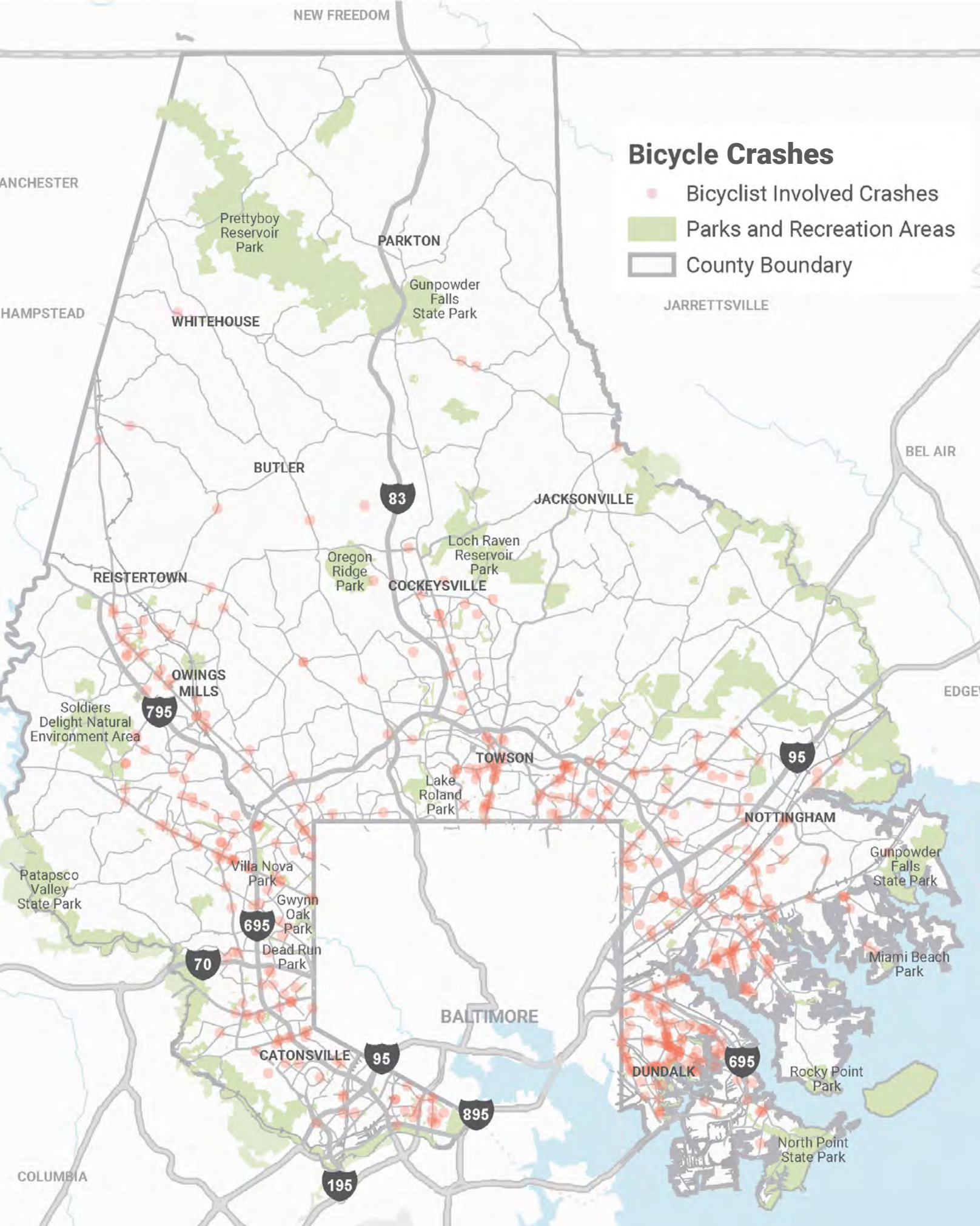


Figure 16. Bicyclist crashes

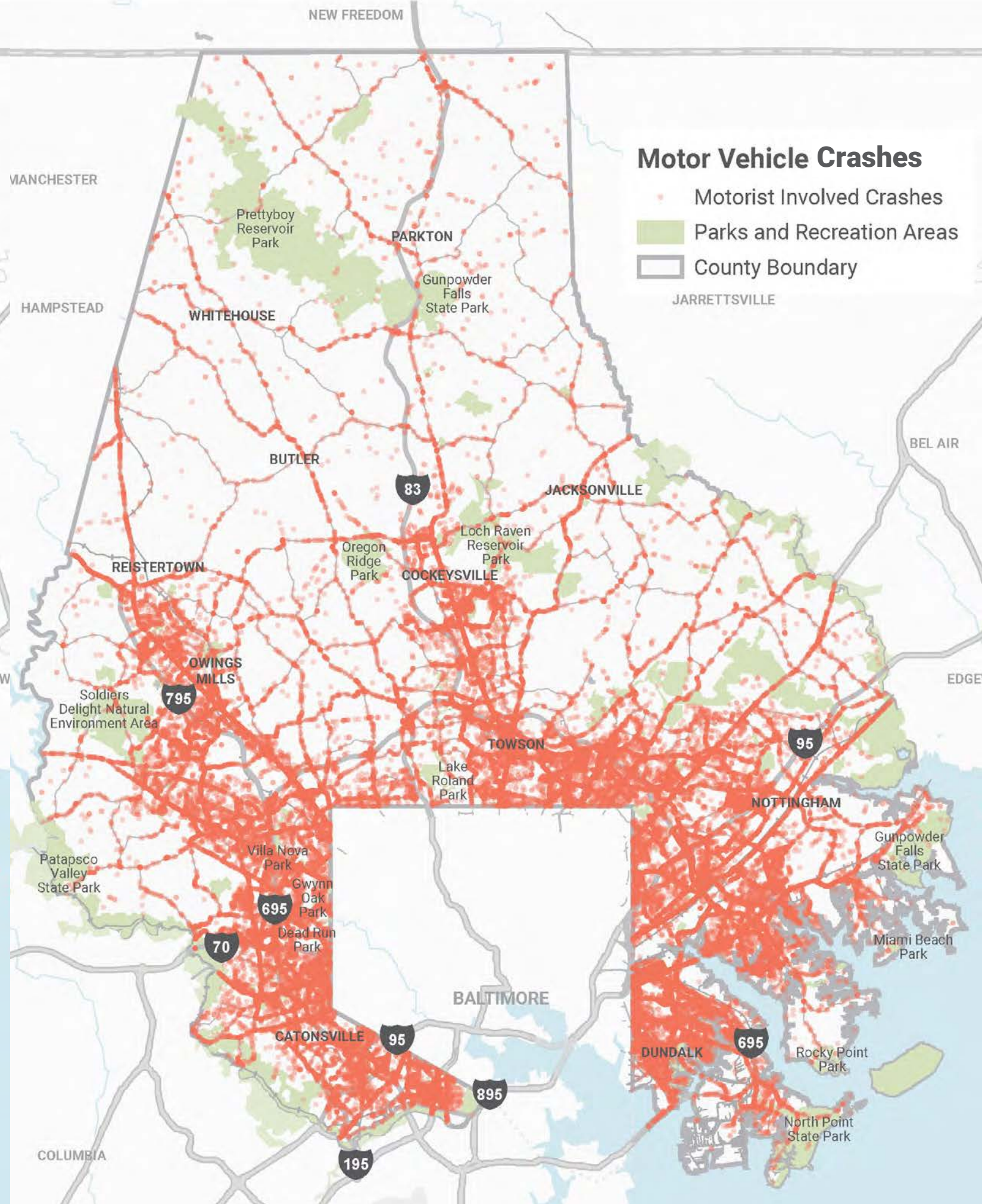


Figure 17. Motorist crashes

Shared Mobility

Shared mobility programs are designed to provide cost effective, environmentally friendly, and convenient travel options for short trips. Such shared mobility programs, often referred to as "micromobility," usually consist of a fleet of free-floating ("dockless") bikes or electric scooters (e-scooters) that are available for short-term rentals via a smartphone app.

Baltimore County municipal code (§ 18-2-605) prohibits motorized scooters (which includes e-scooters) from operating on any public roads, highways, or sidewalks. Today's dockless micromobility programs make heavy use of e-scooters, which means that many providers cannot provide service in Baltimore County under existing County laws. However, the maps in Figures 19 to 21 show where in the region there may be demand to support shared mobility programs.

Figure 18 shows the top tier of the composite demand analysis from page 24. The demand score displays concentrations of popular destinations, and as such these areas will feature a greater density of shared mobility demand. Figure 20 shows where shared mobility can provide a link to transit, and Figure 21 demonstrates how the number and location of Universities and Colleges in the county could stimulate demand for micromobility.

To provide shared mobility options for residents, the County would need to pass an electric scooter ordinance and launch a shared mobility pilot program. See Chapter 7 for more information on these recommendations.

BENEFITS OF SHARED MOBILITY



First/Last Mile Connections

Shared mobility systems expand the areas people can travel in a short period of time, and can supplement public transit networks by the providing first or last mile mobility between a transit stop and the traveler's destination.



Recreation + Health

Shared mobility systems get more people on bikes and scooters, which can be a healthier and more enjoyable way to travel.



Economic Development

Shared mobility can generate business by improving access.

DEMAND FOR SHARED MOBILITY

While shared mobility is not currently permitted in Baltimore County, there are a number of popular destinations where shared mobility could be utilized. This includes commercial districts, healthcare facilities, universities, and neighborhoods adjacent to Baltimore City.

Figure 19. Shared mobility demand

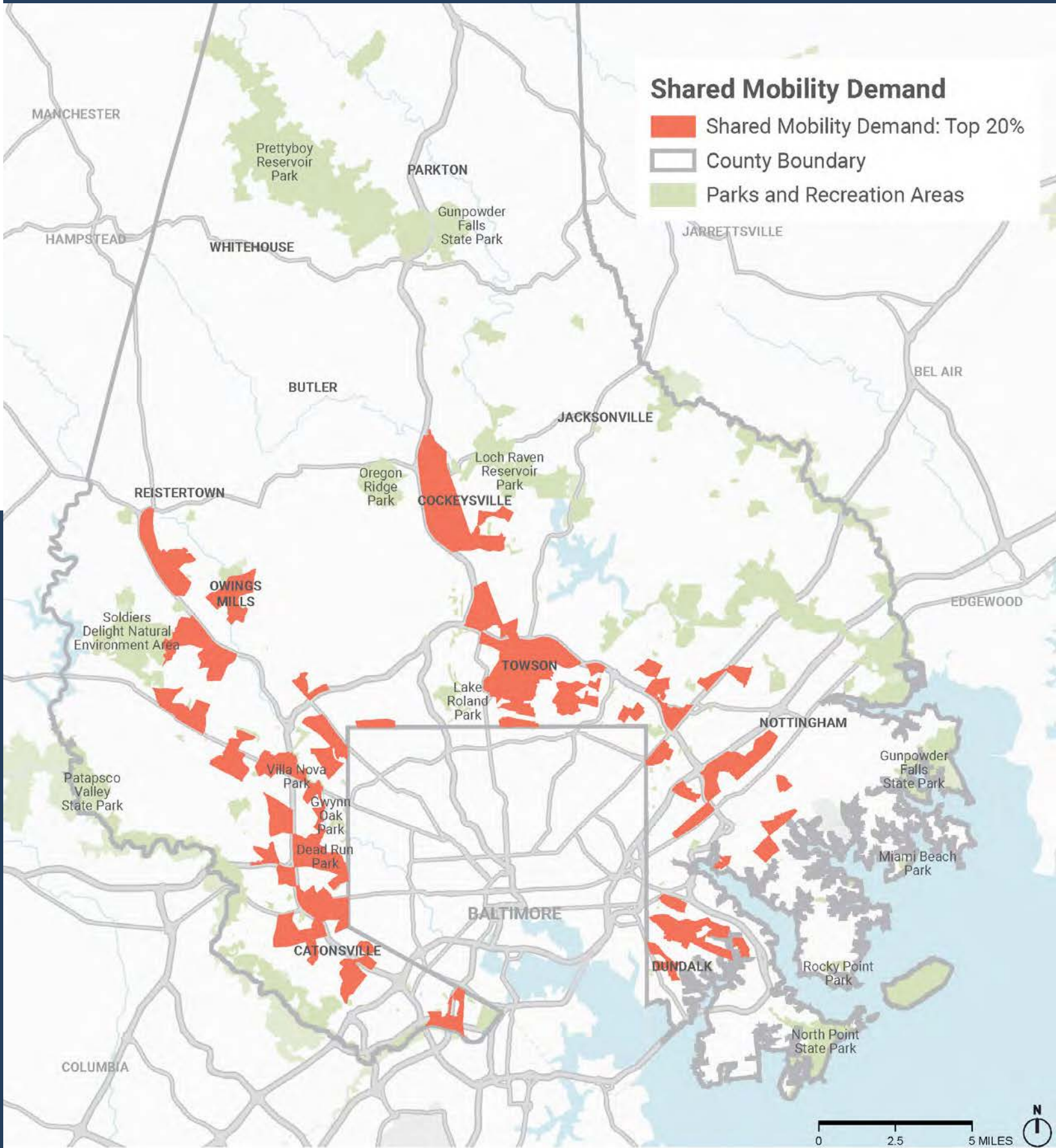
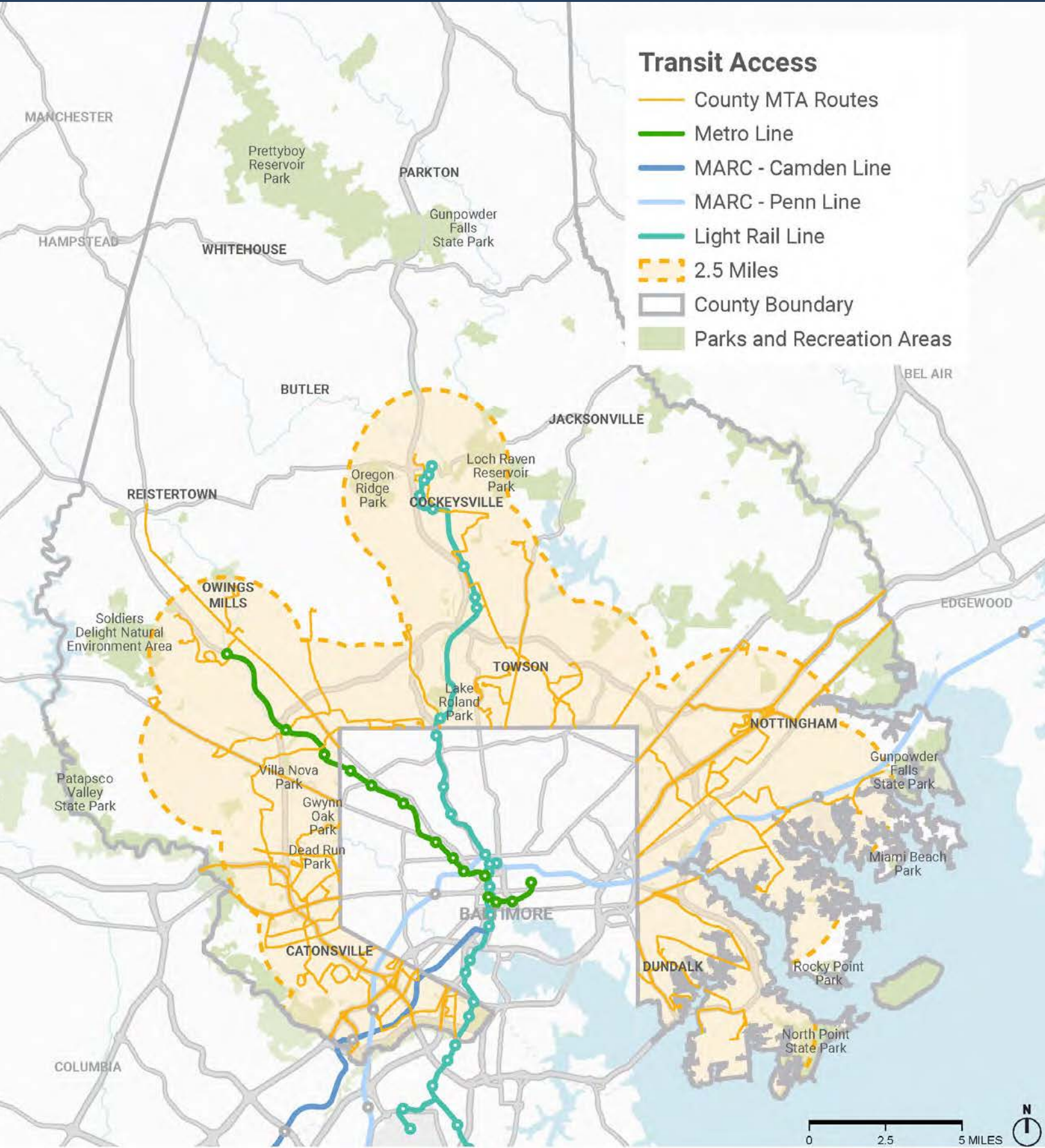


Figure 18. Benefits of shared mobility

FIRST/LAST
MILE TRANSIT
CONNECTIONS

Shared mobility is particularly effective at enhancing access to public transit. The map below shows a 2.5 mile buffer around high frequency bus stops and rail stops in Baltimore County.

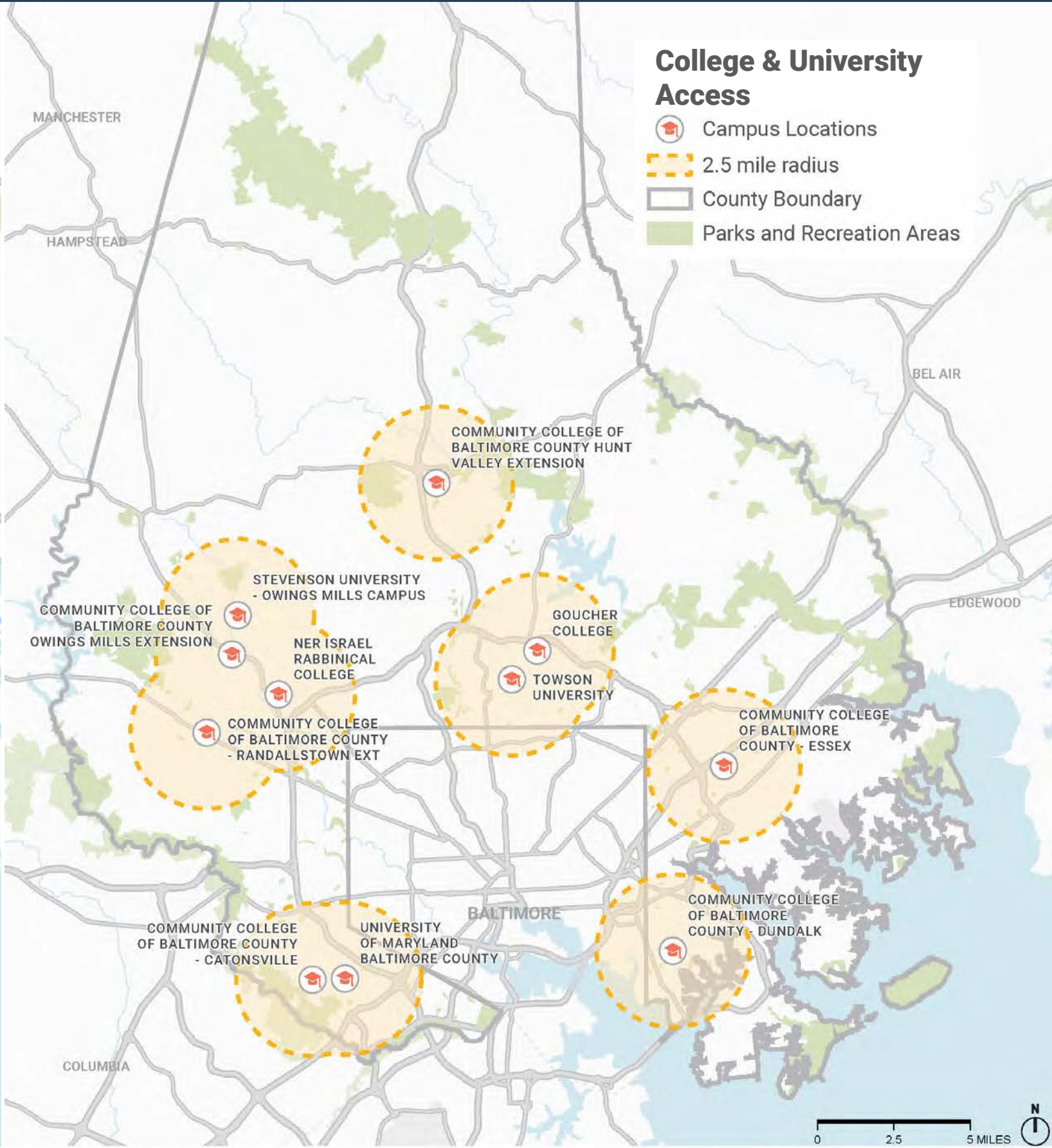
Figure 20. First/last mile transit connections



MEETING
UNIVERSITY
DEMAND

Baltimore County is home to a number of higher education institutions, where shared mobility could be enjoyed by students and faculty members alike. This map shows university campus locations in Baltimore County.

Figure 21. Higher education bikeshare demand





3

COMMUNITY INPUT

Community Input Overview

Public involvement has played a valuable part in developing this Plan. A series of virtual workshops, pop-up events, an online survey, and an interactive web map were developed to give community members a wide range of platforms and opportunities to share their needs and ideas for creating a connected, safe, and equitable bicycle and pedestrian network in Baltimore County. Public feedback highlighted the challenges and barriers experienced by people using active transportation within and through the County and brought suggestions to the forefront. Key themes and takeaways are summarized in this chapter.

7 Pop-up Events were held, one in each Council District.

Pop-up Events

3 virtual meetings were held for public input.

Virtual Public Workshops

HOW DID WE REACH PEOPLE?

470 locations for improvements were identified by the public on the interactive web map.

Interactive Web Map

1,292 on-line survey responses were collected.

Online Survey

Figure 22. Public input opportunities

Key Themes from Public Engagement



A significant amount of residents do not feel safe walking and biking in Baltimore County.

Fear of injury by motor vehicle, lack of sidewalk, bike, or trail infrastructure, and far distances were some of the barriers identified that prevent users from walking or biking.



The primary reason to walk and bike in Baltimore County was for exercise and relaxation.

The top bicycle improvement that residents wanted to see in Baltimore County was the need for more shared-use paths or trails.

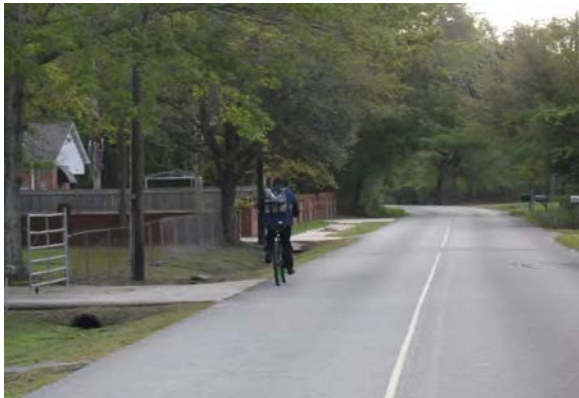


The top pedestrian improvement that residents wanted to see in Baltimore County was the improvement and development of more sidewalk infrastructure.



As pedestrians and bicyclists, residents wanted motorists to know about reducing speed when they are present, sharing the road in a safe manner, passing with a 3ft distance, and yielding and watching for them at crosswalks and intersections.

Motorists wanted pedestrians and bicyclist to know about obeying traffic regulations when cycling on a roadway, walking against traffic when walking on roadway, using crosswalks correctly, and stopping at traffic lights and stop signs.



The need for a connected bicycle and pedestrian network was a high priority, as well as improving safety for the County's most vulnerable users.



WHAT DID WE HEAR?



WHAT WE WILL DO?

Residents in Baltimore County want to see pedestrian and bicycle facilities separated or buffered from motor vehicle traffic to create a stress free and connected network for users of all ages and abilities.

Low Stress

- A low stress network is proposed to make walking and biking more comfortable and to reduce conflicts between people driving and people on foot or two wheels.
- The high comfort facilities that make up a low-stress network include shared use paths, sidewalks buffered from the street with trees and plants, separated bike lanes, and bicycle boulevards.

Many County residents called for a truly connected active transportation network that provides easy access to key destinations, like transit stops, shops, and recreation areas. This connected network would make people more likely to use active transportation modes more often.

Connectivity

- Prioritization of connections to key destinations to enhance active transportation accessibility.
- By removing gaps in sidewalks and bike facilities, an expanded network will help people who are already walking and biking often, and may motivate more people to try active modes.

Most residents in Baltimore County said they don't feel safe biking on County roads, many of which are arterials and rural roads.

Safety

- Implementation of the recommended network will improve bicycle and pedestrian safety.
- The range of recommended improvements will include infrastructure treatments and policy recommendations that have been documented to lower injury and fatality rates, encourage compliance with traffic laws, and provide educational opportunities for people walking, biking, and driving.

Connect the Jones Falls Trail to the Torrey C. Brown Trail.

-District 3 Resident

Please continue sidewalk on Stevenson from Autumn Dr. to Brooks Robinson. A sidewalk already exists south of here from Old Ct but stops for some reason at Autumn Dr. This will allow for much improved walkability in the area!

-District 2 Resident

Build a Baltimore County Extension to the Gwynns Falls Trail, first to Gwynns Oak Park and Woodburn Memorial Park.

-District 4 Resident

A protected bike lane connecting Old Ellicott City through Catonsville would make cycling traffic between the two safer.

-District 1 Resident

Portions of Harford Road in both the city and the county are bikeable. Just make the whole road bikeable.

-District 6 Resident

A bike lane on the road will help with the current problem of kids riding down the middle of the road because it is currently not wide enough for both

-District 7 Resident

Joppa Road is very wide and cars go very fast. Narrowing the street and adding protected bike lanes would do wonders for safety

-District 5 Resident

Figure 23. Suggestions from community members shared via the online survey



4

RECOMMENDED NETWORK

Network Approach

This chapter describes the expanded and improved active transportation network envisioned for roads in Baltimore County. This plan focuses on recommendations for roadways that Baltimore County can influence directly, so MDOT SHA roadways are excluded from the recommended active transportation network.

While trail recommendations connect and coordinate with park facilities wherever possible, specific trail network recommendations were not developed for Maryland Department of Natural Resources (DNR) property to avoid conflicts with DNR trail planning efforts.

The final network recommendations were informed by the existing conditions assessment and public input (Figure 24). This will set a framework for a connected, comprehensive network of complete street enhancements, low-stress on-street bikeways, and trail facilities for people of all ages and abilities. Sidewalk recommendations and general priorities are introduced in chapter 5, the policies and programs chapter, as sidewalk implementation requires not only identifying priority areas, but a revision of existing County policies.

Facility Selection

There are many types of bike facilities, some are more appropriate for certain contexts than others. Due to the variety of contexts in Baltimore County, the proposed network identifies where on-road bikeways should be prioritized but does not provide specific facility recommendations. Instead, facility selection should occur during the design of the project and should refer to established design guidance such as the Federal Highway

Administration’s (FHWA) Bikeway Selection Guide. Typically, a facility is chosen based on the speed and volume of the roadway as well as engineering judgment and stakeholder feedback. Separated bikeway facilities are typically recommended on streets with higher speeds and volumes, while bike lanes and bike boulevards may be appropriate for slower, lower volume streets.

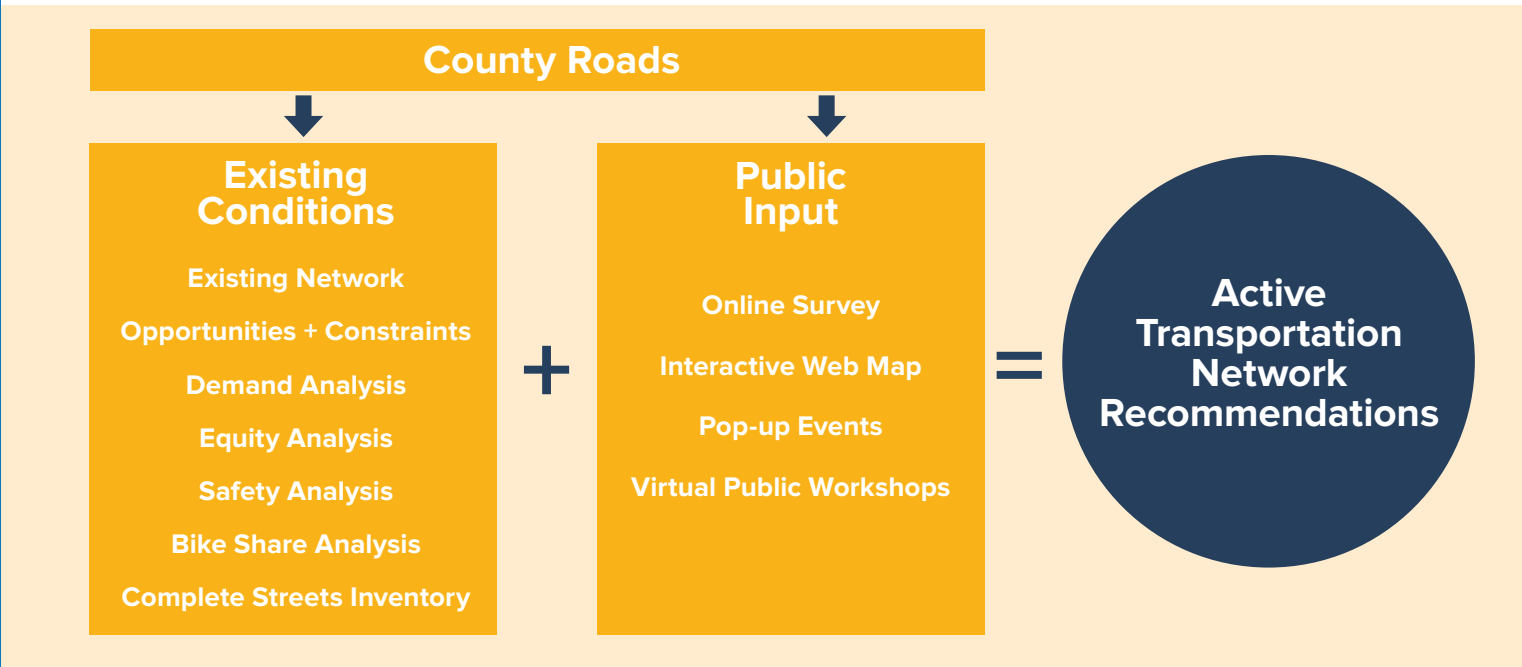
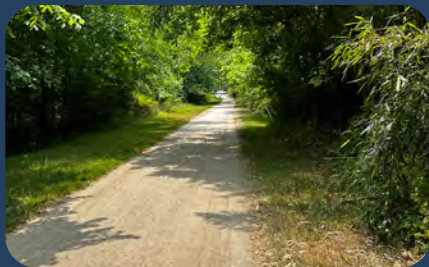


Figure 24. Active Transportation Network Development Process

Network Categories



TRAILS
In this plan, trails include paved shared-use and multi-use paths and off-road facilities for the sole use of people walking or biking.

COMPLETE STREETS

"Complete Streets" are roads that need a comprehensive review and additional analysis in order to prioritize the needs of people walking, biking, and using transit.



ON-ROAD BIKEWAYS
Depending on the context, on-road bikeways can include bike lanes, separated or buffered bikeways, as well as bicycle boulevards and sharrows.

LONG-TERM VISION

State roadways and projects identified in previous plans are included in this plan and referred to as "long term vision." These projects should be considered as implementation opportunities arise. See Appendix D for the full list of long-term recommendations.



COMMUNITY RECOMMENDATIONS
During the comment period, some stakeholders and residents requested additions to the plan's recommendations. These community recommendations are included separately from the data-driven network recommendations.

To browse recommended facilities in more detail, go to:
[Pedestrian and Bicycle Planning and Implementation](https://www.baltimorecountymd.gov/departments/public-works/traffic/pedestrianbicycle/)
(<https://www.baltimorecountymd.gov/departments/public-works/traffic/pedestrianbicycle/>).

- Recommended Facilities**
- Complete Street
 - On-Road Bikeway
 - Paved Shared Use Path
 - Unpaved Path/Trail
 - Community Recommendations

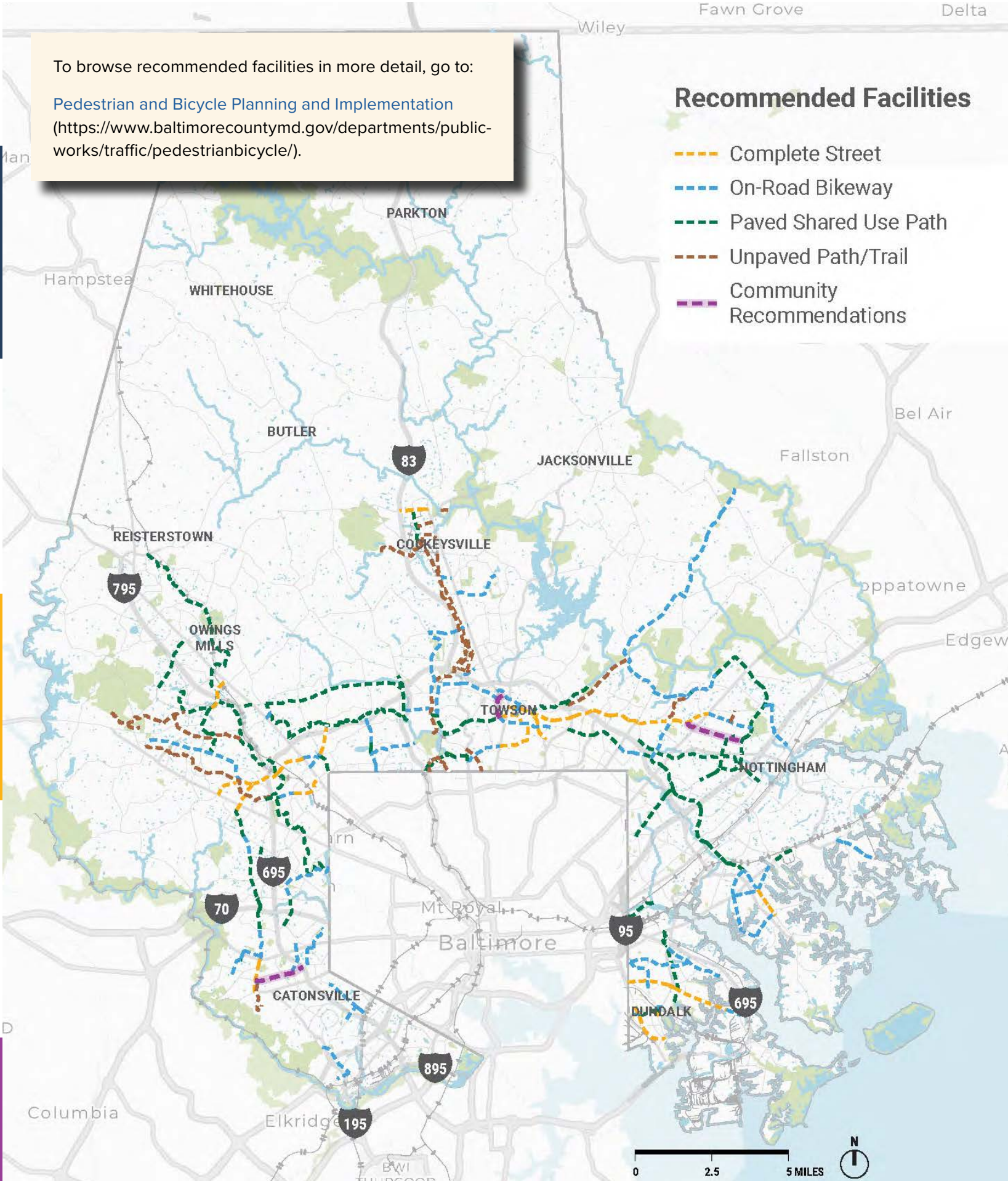


Figure 25. Map of network recommendations

The recommendations for Baltimore County include...



About 119 miles of shared use paths:



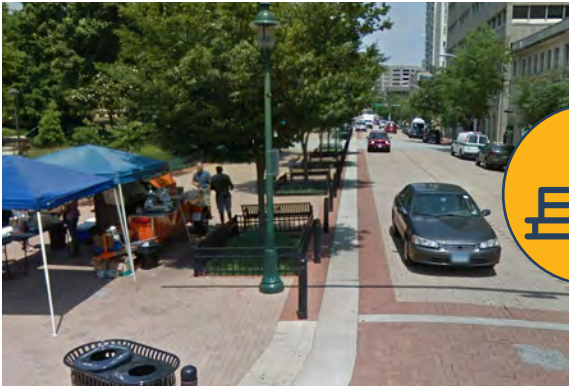
- District 1: 4 miles
- District 2: 36 miles
- District 3: 23 miles
- District 4: 21 miles
- District 5: 17 miles
- District 6: 13 miles
- District 7: 5 miles



About 70 miles of on-road bikeways



- District 1: 9 miles
- District 2: 13 miles
- District 3: 14 miles
- District 4: 5 miles
- District 5: 9 miles
- District 6: 8 miles
- District 7: 12 miles



About 33 miles of Complete Streets



- District 1: 1 mile
- District 2: 7 miles
- District 3: 2 miles
- District 4: 3 miles
- District 5: 4 miles
- District 6: 8 miles
- District 7: 9 miles



About 256 miles of long term projects:



- District 1: 39 miles
- District 2: 44 miles
- District 3: 32 miles
- District 4: 50 miles
- District 5: 31 miles
- District 6: 19 miles
- District 7: 41 miles

Recommended On-Road Bikeway Network

Description

The goal of the recommended on-road bikeway network is to provide connected and accessible biking options for users of all ages and abilities. A connected network with appropriate bicycle facilities is a critical part of achieving the Plan's vision of a safe, low stress network. Roadway modifications should be implemented in a way that enhances safety for all modes.

Today, there are about 15 miles of on-road bicycle facilities and this Plan identifies about 70 miles of new on-road facilities to build over time throughout the County, as shown in the map in Figure 26.

"Towson should be bicycle centric. This is a way to be innovative and take Towson to the next level of green, safety, and a safer community."

-Public Comment

Facility Types



Bike Lane



Bicycle Boulevard



Sharrows/Shared Lane



Separated Bike Lane



Buffered Bike Lane

Figure 26. Bicycle Facility Types

Recommended Trail Network

What Does the Recommended Trail Network Include?

The recommended trail network includes both existing trails that are in need of improvement and new trail projects. Trails are defined as off-street paths that are completely separated from the roadway and are typically shared by people walking and biking. These paths can be found in many different contexts: directly adjacent to a roadway, following creeks or railroads, or in parks or recreational areas. Today there are 33 miles of trail facilities in Baltimore County, and this Plan recommends 167 miles of new trails of all types.

Facility Types: Unpaved

Unpaved trails are found mostly in rural areas or parks in Baltimore County. These types of trails are usually operated by the Baltimore County Department of Recreation and Parks or the Maryland Department of Natural Resources. There are currently 24 miles of unpaved trails, and this plan recommends 64 miles of new unpaved trails.

Facility Types: Paved

Paved trails are used for recreation and can also provide an important transportation function. Paved trails are found mostly in suburban and urban areas within Baltimore County. These types of trails are operated by the Baltimore County Department of Public Works and Transportation. There are currently 9 miles of paved trails, and this plan recommends 103 miles of new paved trails.

"Off street trails are important. We need to establish links/connections between street and off street trails to create systems. Linking trails is critical."

-Public Comment



Unpaved trails provide opportunities for recreational activities like mountain biking.



Paved trails provide opportunities for pedestrians and bicyclists who are commuting for occupational or service based trips.

Creating the Spine

Northern Central Railroad Trail

The Northern Central Railroad Trail (NCR), officially known as the Torrey C. Brown Trail, is shown in Figure 27 and spans twenty miles from Hunt Valley to Baltimore County's border with Pennsylvania. This Plan includes new NCR connections to the Jones Falls Trail and the East Coast Greenway, which will add about 10 new miles of trails and help fulfill the vision of a "spine" trail that provides regional north-south connectivity and helps to close the gap in the East Coast Greenway.

Improvements to Existing Trails

In addition to the development of new trails to improve regional connectivity, improvements to existing unpaved trails are also recommended. As shown in the photo to the right, some of the existing trails are narrow, unpaved, and have connection points that do not meet accessibility standards. Widening, paving, and improving trail entrances through signage and curb ramps will make the off-street paths safer, more comfortable, and provide year-round access. Amenities such as lighting, benches, trash receptacles, drinking fountains, public art, and bike repair stations should also be considered. Actual improvements will vary and must reflect current policies and best practices.

It is also critical to preserve the natural environment and the original purpose of the trail. An inventory of existing trail segments that are incorporated into the recommended low stress network is needed to determine what segments should be considered and prioritized for future improvements.

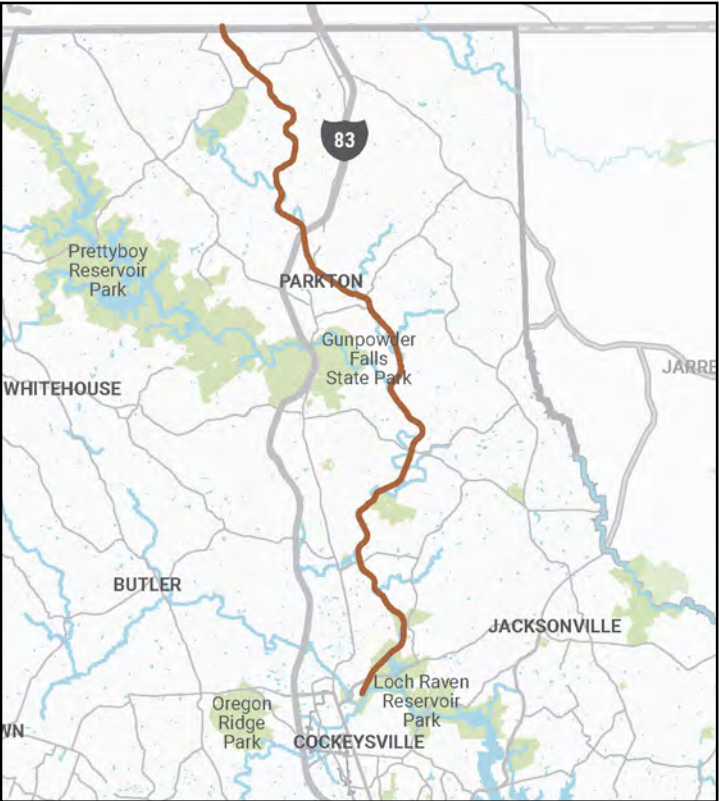


Figure 27. Northern Central Railroad Trail

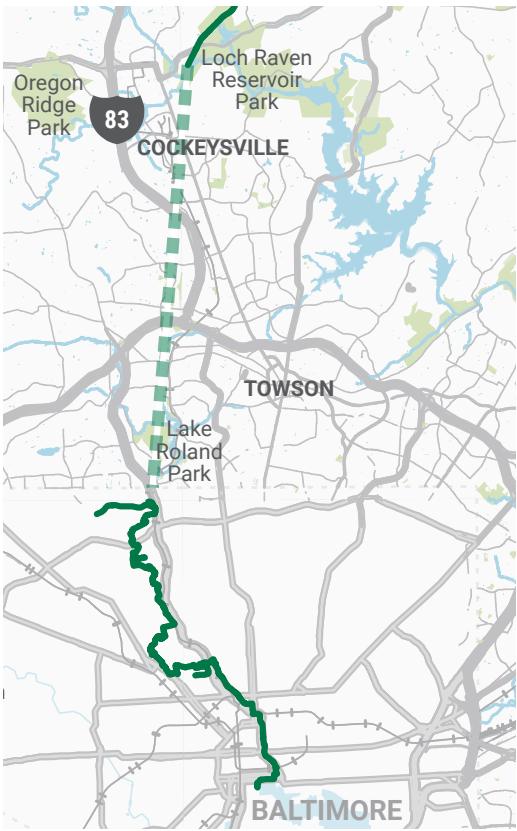
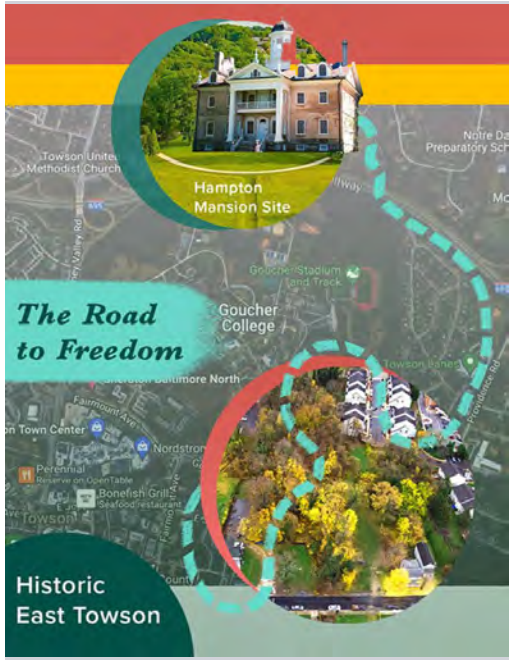


The Northern Central Railroad trail is an example of an existing trail that could be improved in some areas for wider usability.

Trail Systems

Mapping the Road to Freedom

Led by the Northeast Towson Improvement Association, the envisioned Road to Freedom Trail would connect the historic sites of East Towson and Hampton Plantation. The trail would also connect the lives and structures of a community that dates back to 1829 with ancestral ties to those enslaved by Maryland’s 15th governor, Charles Carnan Ridgely, and successive generations. As both a walking and bicycling trail, the Road to Freedom Trail has the potential to bring benefits related to fitness, education, the environment, and historical conservation.



NCR Trail Extension

Baltimore County will be conducting a NCR Trail Feasibility Study to evaluate options for the extension of the NCR Trail at its southern terminus to connect to the trail network near Lake Roland Park, ultimately connecting to the Jones Falls Trail in Baltimore City. This new trail will be approximately 10 miles long. Options for this feasibility study will include identifying a continuation of the existing NCR Trail’s typical section of a completely separated shared-use facility in up to two alignments. Additionally, this study will identify areas in which the facility may function as shared-use trail adjacent to the roadway or areas that may include a combination of sidewalk and bike lanes for highly constrained sections.

East Coast Greenway

The East Coast Greenway is a walking and biking route that, when complete, will be a fully separated path stretching 3,000 miles from Maine to Florida and connecting areas across 15 states and 450 communities.

Today, the Greenway is about 35% built. Once completed, the Greenway will be a safe place for people of all ages and abilities to walk, jog, hike, and bike. The nonprofit East Coast Greenway Alliance leads the development of the trail network.

For more information visit: <https://www.greenway.org/>

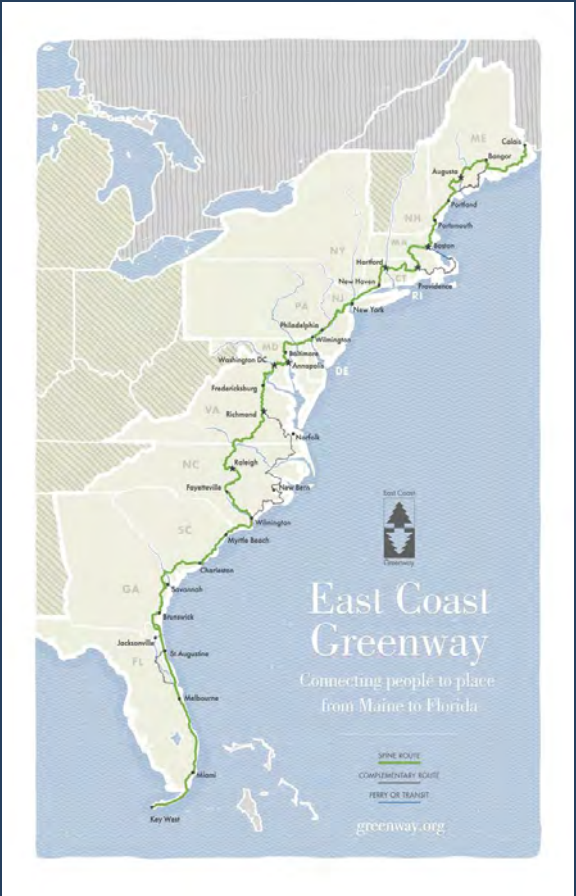


Figure 28. East Coast Greenway



Complete Streets

Description

The recommended Complete Streets network consists of safety, connectivity, and accessibility improvements for road users of all ages and abilities. Such improvements can include pedestrian, bicycle, transit, motor vehicle, and shared mobility facilities and amenities. The implementation of these improvements through small projects can add up to big long-term benefits for these corridors. Opportunities such as roadway resurfacing or enhancements for an individual development project can be the first step in a corridor's gradual transformation. Corridor studies can also help the County to set a vision and identify feasible alternatives. There are 115 miles of roadway that have been recommended for Complete Streets improvements.

Level of Traffic Stress

Originally developed by researchers at the Mineta Transportation Institute, Bicycle Level of Traffic Stress (LTS) is an industry best practice for assessing the comfort and connectivity of bicycle networks. LTS is an objective, data-driven approach for evaluating bikeways by matching roadway design, traffic volumes, and motor vehicle speeds with bicyclist comfort and a willingness to travel out of ones' way to maintain that level of comfort.

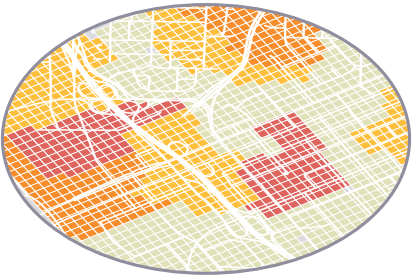
Maryland DOT has released the results of a statewide LTS analysis, which should be one of the tools used to determine the scope of improvements needed within the recommended complete street network at the facility selection stage.

Selection of Complete Street Corridors

The inputs shown in Figure 30 were used to develop the complete streets recommendations for Baltimore County. These inputs were sourced from this plan's existing conditions analyses. The total score resulting from an overlay of these five inputs was calculated using a percent ranking, focusing on streets with the top 20% scores. These streets scoring in the top 20% were then overlaid with popular and frequent transit routes and public comments in order to arrive at the recommended complete street network. Complete street recommendations are also shown in the context of the overall network in Figure 25.

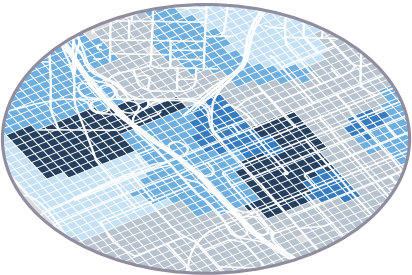
DEMAND

Segments were scored based on their demand analysis tier.



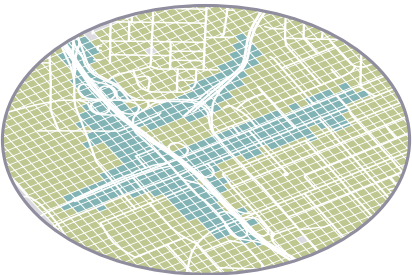
EQUITY

Segments were scored based on their equity analysis tier.



LAND USE

Streets in rural areas were excluded.



SAFETY

Segments were scored based on the number of bicyclist and pedestrian crashes.



Examples of Incomplete Streets



The lack of crossings on Security Boulevard results in people entering traffic to get across the street.



A transit stop located on Charles Street that is difficult and potentially dangerous for riders to access.



Space for PEDESTRIANS

Curb ramps, crosswalks, and curb extensions to make it easy for walking or rolling pedestrians to cross streets and access destinations

Space for BIKES

Designated connected routes and low-stress facilities that support people riding bikes, e-bikes and scooters

Space for CARS

Design cues to encourage slower speeds and driver awareness of vulnerable road users

Space for MASS TRANSIT

Bus shelters, transit-only lanes, and signal priority to create transit-friendly roadways

Space for SHARED MOBILITY

Designated curb-side space for shared bike and scooter parking that separates users from traffic, and keeps sidewalks clear and safe

Space for REFUGE

Street furniture, street trees for shade, pedestrian-scale lighting, and public green spaces that promote gathering and social interaction

Figure 30. Inputs used to identify complete streets

Figure 29. What are Complete Streets?

Complete Streets Toolbox

Complete Streets corridors are made up of a combination of design treatments. Not every design feature can or should be included on every roadway. Design decisions should be flexible and informed by the local context and reflect the community's vision. These treatments represent a broad range of categories Baltimore County can consider.



Sidewalks are a critical part of pedestrian access; sidewalk widths should be sized to support the foot traffic of a corridor.



Marked bikeways provide a designated space for people riding bikes and let people know where to expect them.



Transit amenities like bus shelters create spaces for people to wait and provide weather protection. Benches, trash receptacles, real-time arrival information, charging ports, wifi hot spots, and other amenities may also be provided.



Landscaped areas help to buffer between transportation facility types and can reinforce safety treatments. They help cool surfaces, clean air and water, and create an enjoyable experience for all road users.



Center medians can reduce head-on and turning crashes and provide a refuge for pedestrian crossings. They can also calm traffic and provide planting and cooling opportunities.



Pedestrian scale lighting focuses on illuminating lighting on sidewalks and paths, which helps people feel safe and comfortable walking at night and in high activity areas.



Green infrastructure helps to manage, clean, and capture stormwater runoff from the roadway. Green infrastructure includes a wide range of treatments, from bioswales to permeable paving, flow-through planters, tree trenches, and rain gardens.



Access management strategies increase the efficiency of how a street is used, decrease conflict points, and contribute to safety. This can include things like driveway consolidation, which limits the number of entrance and exit points to parking along a corridor.



Figure 31. Complete Street Toolbox

Recommended Recreational Bike Routes

What is a Recreational Bike Route?

Previous planning efforts identified opportunities for recreational biking in the northern part of the county. The recreational bike routes recommended in this plan are intended for more experienced cyclists and were therefore intentionally not included in the recommended on-road bikeway network. Recreational routes are typically marked by signage alone with no striping for bikes in the roadway, meaning that bicyclists on these routes share the roadway with motor vehicles.

While recreational bike routes are recommended in some suburban areas, they are mainly recommended for roadways located in rural parts of Baltimore County. Today, there are 62 miles of bike routes and this plan recommends 73 miles of new planned bike routes. The photos below show several examples of the County's existing bike route network.

Recreational Bike Route Signage

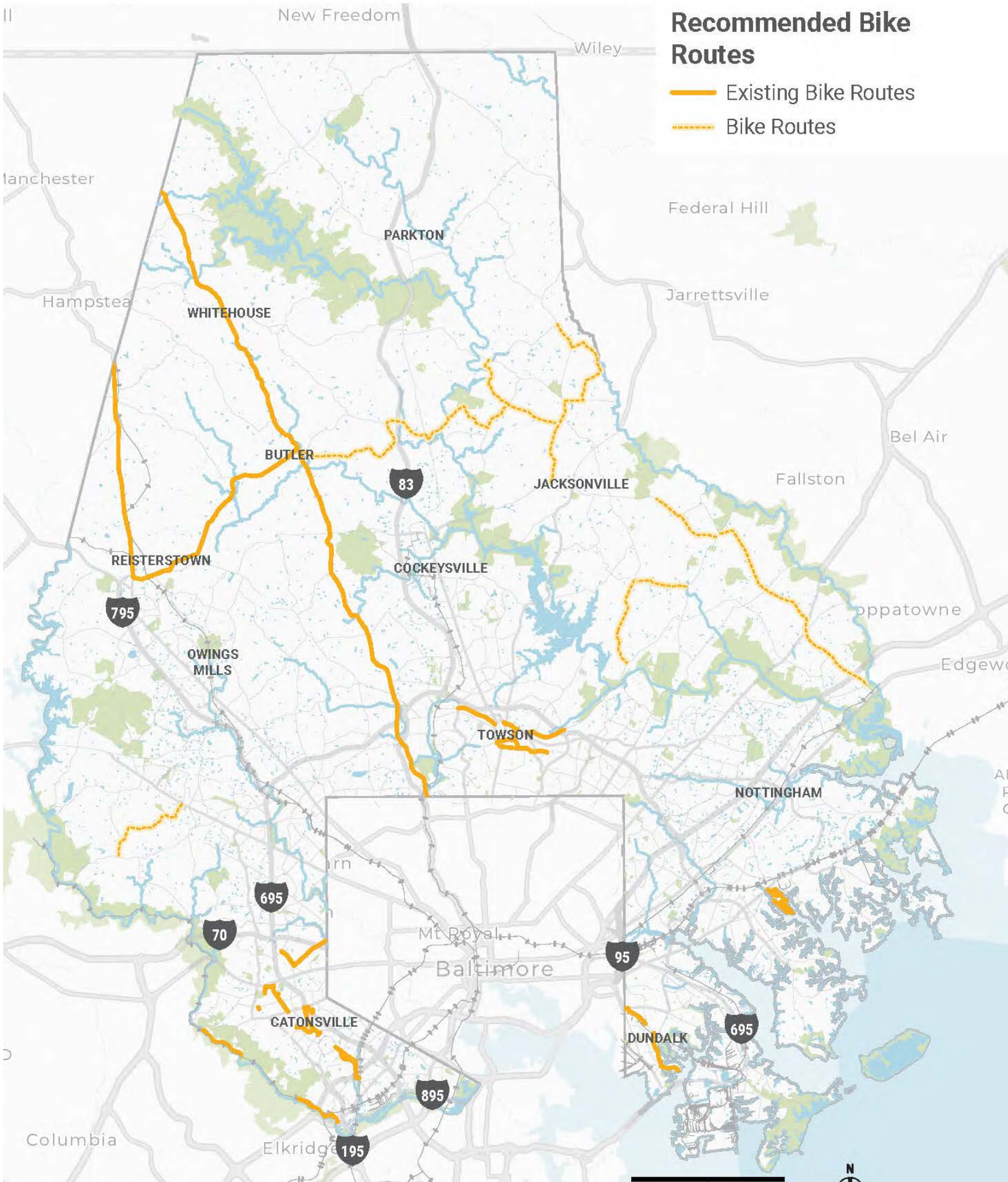


Figure 32. Existing and Proposed Bike Route Network



PEDESTRIAN IMPROVEMENT FRAMEWORK

Prioritizing Pedestrian Infrastructure

Sidewalk and Spot Improvement Prioritization

Identifying priority areas for sidewalk and spot improvements highlights projects for implementation based on demonstrated needs. Prioritizing such projects can help bridge gaps in the active transportation network and address areas with the greatest pedestrian safety issues.

A spot Improvement is a measure that can be implemented at specific locations along pedestrian and bicycle networks to enhance safety and connectivity. For example, a spot improvement could consist of adding a sidewalk connection or a pedestrian refuge island to the block of a major roadway that is difficult for pedestrians to navigate.

Data Driven Decisions

The Pedestrian Priority Areas analysis described on the following pages considers pedestrian demand, equity, safety, and the existing sidewalk network to highlight priority areas for sidewalk connections and spot improvements. The resulting "high," "medium," and "low" pedestrian priority areas should be used for project prioritization and can also inform facility types.



Pedestrian Priority Areas

Sidewalks are a key feature of a walkable community. This section presents a process for sidewalk and spot improvements in the county by identifying pedestrian priority areas, recommendations by priority tier, and recommendations on policies and programs to implement pedestrian facilities. The pedestrian priority areas highlight opportunities for sidewalk and spot improvements in the county.

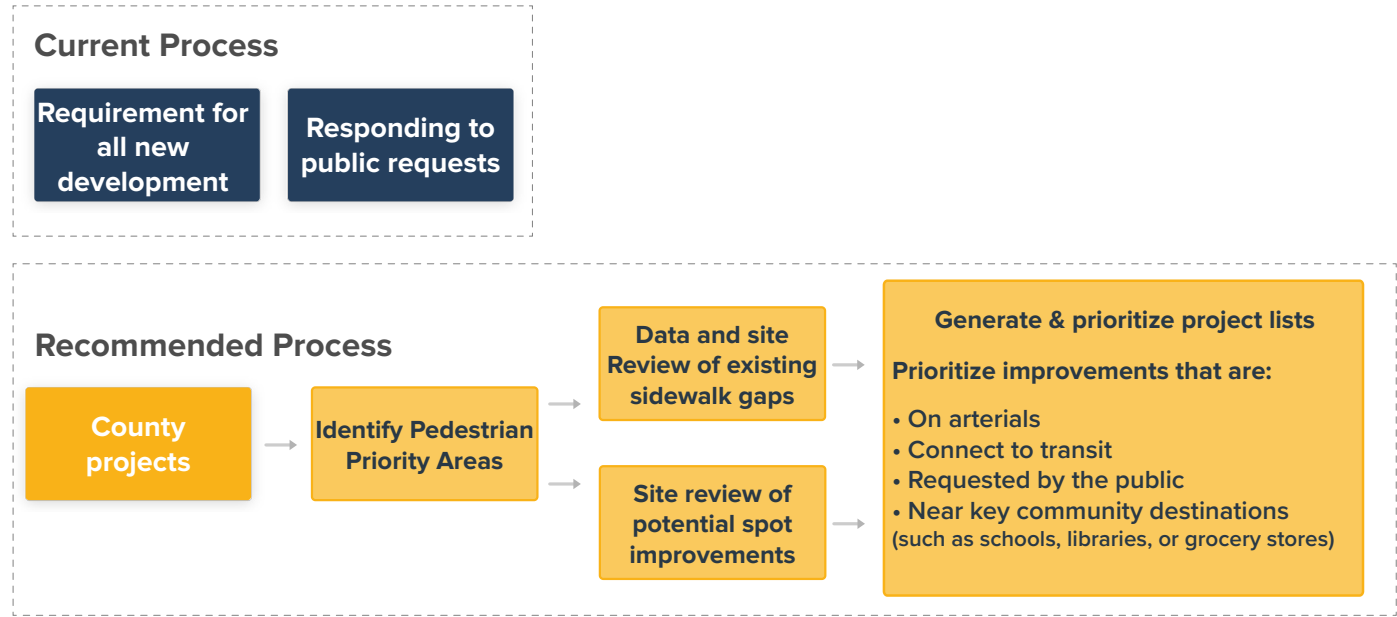
Additional analysis, site planning, and policy revisions are needed to develop and prioritize project lists.

Current Pedestrian Improvement Process

Sidewalks are generally implemented as part of the Division of Highway Design office in Baltimore County. New sidewalk projects initiated by Baltimore County are typically funded through the Baltimore County Capital Improvement Program and implemented by the Department of Public Works and Transportation. Individuals in Baltimore County can request sidewalks to be constructed by contacting the Division of Highway Design office. Additionally, sidewalks are required for new development projects in Baltimore County as part of the plans and policy review manual.

There are opportunities to improve pedestrian facilities by taking a more proactive approach, such as identifying pedestrian priority areas and auditing high-crash locations.

IMPLEMENTING SIDEWALKS IN BALTIMORE COUNTY



Pedestrian Priority Areas Methodology

The successful implementation of pedestrian improvements requires aligning projects with areas that have the greatest need. Pedestrian priority areas were determined using a hexagon grid, with each cell being assigned a pedestrian priority score according to the sum of five data inputs. The hexagons were grouped into three categories based on a percent rank of their total score: high, medium, and low. The results are shown on page 60.

Prioritization Inputs

The five data inputs that were used in the pedestrian priority areas analysis are described below. These inputs also helped to determine the priority tier (high, medium, or low) for each area. Pedestrian facility type recommendations for each priority level are described on the following pages.

PEDESTRIAN PRIORITY INPUTS

Is this a high demand area?

Areas intersecting with the top Demand tiers from the Demand Analysis will receive a yes for the “Demand” input.

Does this area intersect a high equity needs area?

Areas intersecting with the top Equity tiers will receive a yes for the “Equity” input.

Will projects in this area complete the existing sidewalk network?

Areas with between 20% and 95% of the sidewalk network complete receive points.

Have pedestrians been killed or injured in this area?

Areas where a pedestrian-involved injury or fatality crash occurred.

Does this area include particularly dangerous roads?

Areas that intersect with an urban arterial roadway receive points for this category.

Figure 33. Process to implement sidewalks in Baltimore County

Figure 34. Prioritization Inputs

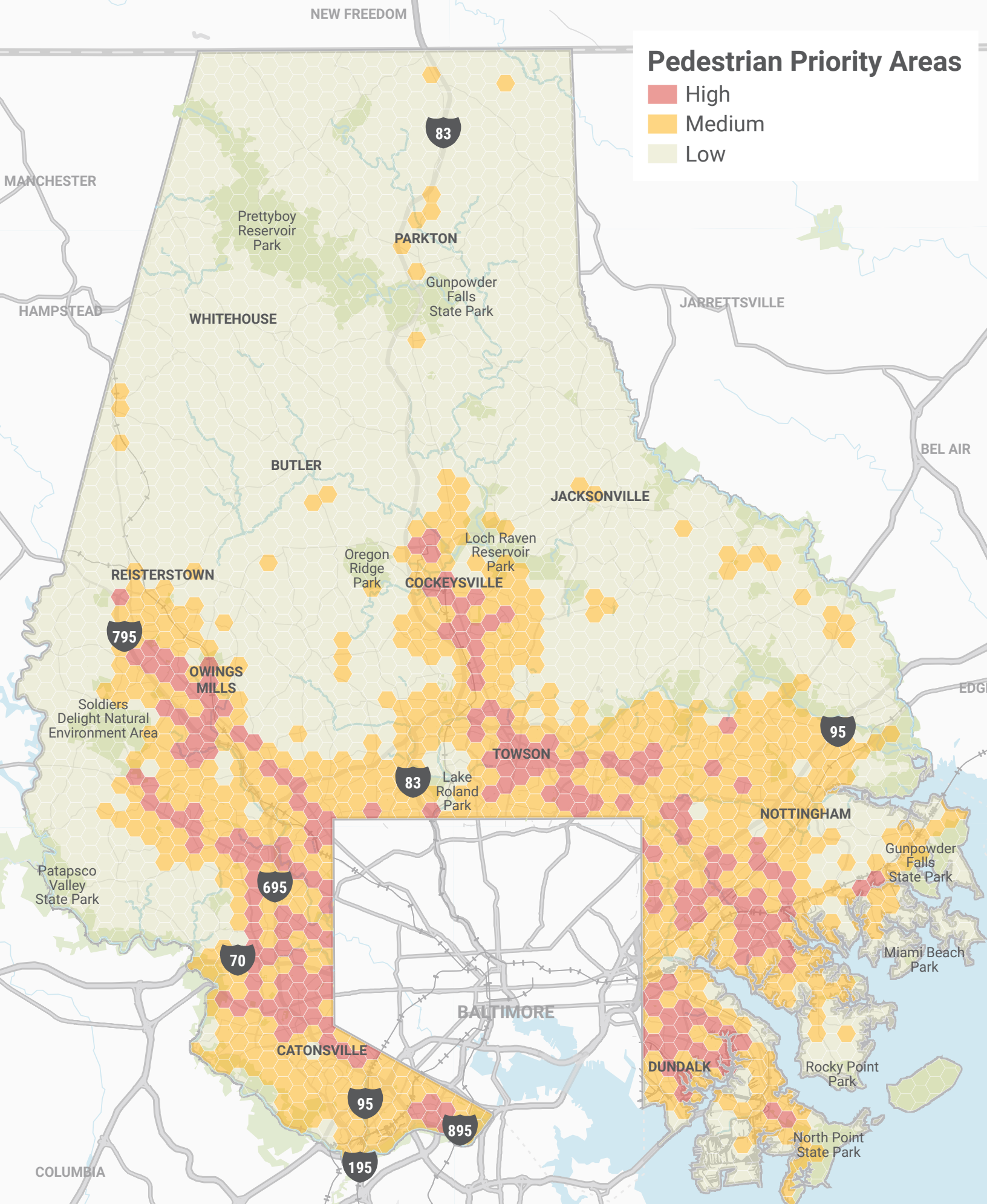


Figure 35. Pedestrian Priority Areas

Pedestrian Priority Areas

- High
- Medium
- Low

Potential Pedestrian Improvements

Low Priority Areas

The potential improvements listed below should only be considered for low priority areas that are important to the overall pedestrian network.

CATEGORY	DESCRIPTION
Facility Type	Paved shoulders
Width	Minimum of 5 feet
Placement	Both sides of roadway
Crossings	None
Streetscape Elements	None
Transit Amenities	None



Butler Road in Butler, MD is an example of a low priority road

Medium Priority Areas

Medium priority areas that link high priority areas should receive increased consideration for pedestrian improvements to develop a truly connected pedestrian network.

CATEGORY	DESCRIPTION
Facility Type	Sidewalks and shared use paths
Width	Sidewalk: 5 feet or greater Shared use path: Minimum of 10 feet preferred
Placement	Sidewalks: On at least one side of roadway Shared use path: One side of roadway (if applicable)
Crossings	Marked crosswalks
Streetscape Elements	Shade Trees, street lighting, buffers from vehicle traffic
Transit Amenities	Signage, seating, lighting



Silver Spring Road in White Marsh is an example of a medium priority road

High Priority Areas

Pedestrian Priority Areas were identified as having the greatest need for investment to meet the existing pedestrian demand.

CATEGORY	DESCRIPTION
Facility Type	Sidewalks and shared use paths
Width	Sidewalk: 6 feet or greater Shared Use Path: Minimum of 10 to 12 feet preferred
Placement	Both sides of roadway
Crossings	Marked crosswalks with enhancements such as curb extensions, pedestrian refuge islands, and rectangular rapid flashing beacons. Pedestrian signals with accessible curb ramps and high visibility crosswalks
Streetscape Elements	Shade trees and landscaping, pedestrian scale lighting, buffers from vehicle traffic, wayfinding, curb management strategies
Transit Amenities	Signage, shelter, seating, trash can, real-time transit tracking, pedestrian scale lighting, shade trees



Bosley Avenue in Towson is an example of a high priority road



High priority pedestrian areas should incorporate pedestrian facilities beyond sidewalks such as mid-block crossings, medians, curb extensions, and rectangular rapid flashing beacons.

Sidewalk Implementation Recommendations

The following recommendations were developed to help Baltimore County advance their pedestrian safety program and provide clear guidance on how and when sidewalks should be implemented throughout the county.

Addressing Missing Sidewalks

- Establish metrics for prioritizing sidewalk capital improvement projects using the Pedestrian Priority Areas as the basis of prioritization.
- Consider vulnerable users in assessment of sidewalk need including:
 - » Youth and elder destinations (e.g., senior centers, schools, recreation centers)
 - » Households without cars
 - » Transit connections
- Consider high demand areas.
- Complete walk audits at high crash locations.
- Consider alternative pedestrian pathways when appropriate. For example, a buffered walkway or road calming to support a shared pedestrian and vehicle street.
- Incorporate safe pedestrian crossings into sidewalk design and development, both mid-block and at intersections.
- Incorporate green infrastructure into sidewalk design guidelines.

Maintaining & Improving Existing Sidewalks

- Provide sufficient funding for sidewalk maintenance and improvements.
- Proactively assess sidewalks for maintenance and improvement needs.

- Audit high crash locations for pedestrian improvements.
- Consider expanding tree plantings and green space near existing sidewalks.

Incorporating Pedestrian Facilities in New Development

- Require new development to assess the need for providing new or upgraded bicycle and pedestrian facilities through a traffic impact statement.
- Consider requiring developers to contribute to a fund established to promote bicycle and pedestrian improvements based on expected impact.
- Potentially expand the requirements under which a sidewalk is required for development.
- Consider applying a pedestrian and bicycle overlay zone (or similar) to the higher density areas in Baltimore County. New development within the overlay must coordinate on pedestrian improvements that extend beyond adding a sidewalk to incorporate connectivity improvements, bicycle improvements, and trail improvements.
- Ensure new development does not create new gaps in the sidewalk network.

Evaluating Pedestrian Facilities

- Collect pedestrian walk counts before and after implementation of sidewalk construction.
- Examine crash trends to evaluate safety needs.
- Engage with community members to further understand critical missing connections in the sidewalk network.

Spot Improvements

Description

Spot Improvements are implemented along pedestrian and bicycle networks to improve safety and comfort on roadways that are dangerous or uncomfortable. Spot improvements can include enhancements such as traffic calming strategies, safety improvements, and intersection and crossing improvements. Examples of specific intersection and crossing improvements include new at-grade crossings, Rectangular Rapid Flashing Beacons (RRFBs), Pedestrian Hybrid Beacons (PHBs), the addition of pedestrian signals at existing traffic signals, and pedestrian bridges or underpasses. Implementing location-specific spot improvements in conjunction with sidewalk improvements in pedestrian priority areas can help create a complete and connected network that maximizes safety.

Spot Improvement Examples



Marked crosswalks signal to motorists that they must yield to pedestrians. They also encourage pedestrians to cross at designated locations.



Mid-block crosswalks are pedestrian crossings at an uncontrolled location. They should include a marked crosswalk, appropriate pavement markings, warning signage, and other treatments to slow or stop traffic.



Pedestrian refuge islands are located at the mid-point of a marked crossing and help improve safety by increasing visibility and allowing pedestrians to navigate one direction of traffic at a time.



Pedestrian signal heads indicate to pedestrians when to cross at a signalized crosswalk.



Rectangular Rapid Flash Beacons (RRFB) are a type of active warning beacon used at unsignalized crossings.



Pedestrian Hybrid Beacons (PHBs) or High-Intensity Activated Crosswalks (HAWKs) are signals that require vehicle traffic to stop at mid-block crossings when pedestrians are present and activate the signal.





Policies & Programs Overview

While infrastructure is paramount to improving walking and biking conditions, policy and programming efforts can supplement and enhance infrastructure improvements. Policies and programs help institutionalize design and engineering recommendations and help build political will to enact change. Policies and programs also help to engage with the community and encourage active transportation.

6

POLICIES & PROGRAMS



POLICIES

Policies are rules, regulations, and guidelines adopted by local, state, or federal institutions. Policies guide the design, implementation, and enforcement of pedestrian and bicycle infrastructure.



PROGRAMS

Programs are activities designed to encourage behavior, or target a specific part of implementation (such as bike parking). Programs are typically funded and staffed by local agencies.

GOAL: ENCOURAGE ACTIVE TRANSPORTATION

Policies	Recommendation	Agency	Timeline
Electric Scooter Ordinance	Allow low-speed electric scooters to operate in public right-of-way.	County Staff, County Council	Mid-term
Shared Mobility Pilot	Draft and release an RFP for a shared mobility pilot program.	Dept of Public Works and Transportation	Short-term
Bike/Pedestrian Design Guidelines	Create and apply state and federal design guidelines to the complete streets policy.	Dept of Public Works and Transportation, ADA Coordinator, BMC	Short-term

Programs	Recommendation	Agency	Timeline
Bike parking request program	Develop a program where businesses within Baltimore County can request bicycle parking.	Dept of Public Works and Transportation	Mid-term
Bike to work and bike to school days	Encourage active transportation through organized group rides & partner events with bike advocates.	Dept of Public Works and Transportation, PBAC, Maryland Department of Education, Baltimore County Schools, PTSA's	Short-term
Bike month programming	Organize events, group-rides, giveaways. Consider expanding programming staff capacity.	Dept of Public Works and Transportation, PBAC	Short-term
Targeted helmet and bike giveaways	Open up avenues to people without access to bikes and helmets (such as low-income residents and youth) through targeted giveaways	Dept of Public Works and Transportation, Baltimore County Schools, Health Department	Short-term
Bike repair station program	Develop a program that establishes stations that provide easily accessible tools for quick fixes for bike repair in areas where bike shops are not present.	Dept of Public Works and Transportation	Short-term



Currently, electric scooters cannot be operated since privately-owned scooters cannot operate in Baltimore County's public right-of-way. Allowing personal and shared scooters will encourage active transportation.

GOAL: IMPROVE THE SIDEWALK NETWORK

Policies	Recommendation	Agency	Timeline
Development Review	Require new developments to analyze pedestrian and bicycle access through the existing development review process and to fund proportional improvements. Such improvements could include contribution to a sidewalk fund to address missing network connections based on impact statement findings.	Dept of Public Works and Transportation, Planning, County Council, MDOT	Long-term
Prioritization Policy	Formally adopt and implement a sidewalk prioritization strategy.	Dept of Public Works and Transportation, Planning	Short-term
Sidewalk Maintenance Policy	Establish a policy to proactively evaluate sidewalk conditions and respond to citizen requests.	Dept of Public Works and Transportation, Planning, ADA Coordinator	Short-term

Programs	Recommendation	Agency	Timeline
Quarterly walk audits	To understand problem areas, conduct regular walking audits of crash and complaint locations, and in high demand areas.	Dept of Public Works and Transportation, Planning, ADA Coordinator, PBAC	Short-term

Walk audits provide practitioners the opportunity to evaluate street and walking conditions. Walk audits can also engage community members, respond to complaints, and begin the planning process for design and engineering interventions.



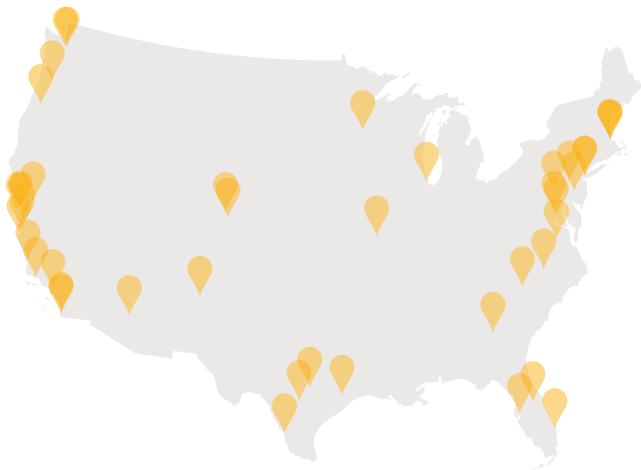
GOAL: ENHANCE SAFETY FOR ALL ROAD USERS

Policies	Recommendation	Agency	Timeline
Vision Zero	Adopt a plan that lays out a path of design and policy strategies to achieve zero traffic deaths in Baltimore County.	Dept of Public Works and Transportation, MDOT, County Council	Short-term
Traffic Calming Design Toolbox	Establish a design toolbox for traffic calming strategies. Coordinate where necessary with the MDOT SHA Context Driven Toolkit.	Dept of Public Works and Transportation, Planning	Mid-term

Programs	Recommendation	Agency	Timeline
Safe Routes to Schools	Develop a safe routes to school program to improve safety around schools, and increase the number of students who walk to school.	Baltimore County Public Schools	Short-term
Safety Curriculum	Develop a universal biking and walking safety curriculum.	Dept of Public Works and Transportation, County Schools	Long-term

VISION ZERO CITIES

Vision Zero is an international movement to achieve zero traffic deaths. This movement has been adopted and supported by dozens of cities and counties nationwide.



Walking school buses, like pictured here, can be one strategy to make walking to school safer and more enjoyable for students and their caregivers.

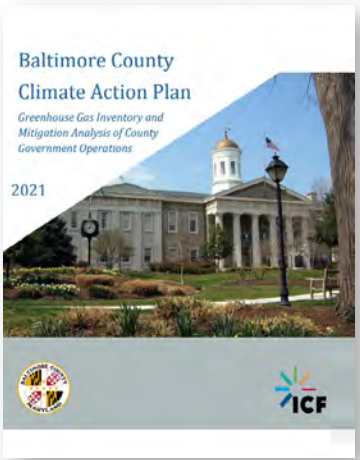
GOAL: PROMOTE SUSTAINABILITY AND RESILIENCY

Policies	Recommendation	Agency	Timeline
Green Infrastructure	Incorporate green stormwater infrastructure in new pedestrian and bicycle projects.	Dept of Public Works and Transportation, MDOT, Planning	Long-term
Urban Cooling	Develop a policy to encourage cooling materials in new pedestrian and bicycle projects.	Dept of Public Works and Transportation, MDOT	Mid-term

Programs	Recommendation	Agency	Timeline
E-Bike Charging	Provide public e-bike charging stations for County residents	Dept of Public Works and Transportation, BMC	Mid-term



Incorporating green infrastructure, such as the bioswale pictured above, helps manage stormwater and runoff and improve the walking and biking experience.



The Baltimore County Climate Action plan lays out an ambitious plan to reduce greenhouse gas emissions in the County.



7

IMPLEMENTATION

Overview

The County and its local partners need not accomplish the recommendations of this plan by acting alone. Implementation can progress through collaboration with regional and state agencies, the private sector, and non-profit organizations. The implementation of the projects and strategies in this document will need to be completed over time and will depend on available resources.

The following action items outline a strategy for implementation of the recommendations found in the Baltimore County Bicycle and Pedestrian Master Plan. The action items are not shown in order of priority and are not meant to be static. This section is meant to provide a high level overview to guide implementation.

- 1

Network Implementation
Continue to refine the active transportation network and priority projects and pursue funding for implementation. Performance measures are provided on page 81.
- 2

Stakeholder Collaboration
Collaborate with stakeholders to prioritize and implement key policy, program and general practice recommendations.
- 3

Enhance Progress Reports
Baltimore County prepares an annual report for the Pedestrian and Bicycle Advisory Committee. Consider releasing an annual progress report to inform partners and the general public about accomplishments and challenges.
- 4

Virtual Interactive Map
Develop and maintain an interactive on-line map that highlights the recommended active transportation network and communicates priorities and progress.
- 5

Funding Sources
Explore creative funding sources for Plan implementation.
- 6

Maintenance Costs
Incorporate long-term maintenance costs into the development of cost estimates for the active transportation network and determine sustainable maintenance responsibilities.
- 7

Adopt a Pedestrian Priority Area Implementation Program
Use the Pedestrian Priority Areas to formally structure a sidewalk implementation program that ensures improvements are made in the areas that need them most.
- 8

Vision Zero Action Plan
Conduct a systematic safety audit of bicycle and pedestrian crashes to understand trends and identify crash risks. This effort should be coordinated with the Baltimore County Strategic Highway Safety Plan and Zero Deaths Maryland.

Network Prioritization

Why Prioritize?

The prioritization process highlights which recommendations are most critical to the network. This helps the County determine which projects to prioritize for funding, either through competitive grant programs or County funding.

Prioritization Inputs

The list of questions that were used as inputs in the prioritization process for the recommended network are provided below.

PRIORITIZATION INPUTS



Does this project have regional connectivity?

Projects connecting to Baltimore City and surrounding Counties



Does this project intersect a high equity needs area?

Projects intersecting with the top two Equity tiers will receive a yes for the “Equity” input



Does this project intersect a high demand area?

Projects intersecting with the top two Demand tiers will receive a yes for the “Demand” input



Are there a high amount of pedestrian and bicycle crashes occurring along this project?

Projects where a bicycle- or pedestrian-involved KSI crash occurred



Is this project connected to existing facilities?

Projects connecting to existing bike facilities (especially the NCR trail) will receive a yes for the “Connectivity” input

Prioritization Results

Prioritization Tiers

Determining how the recommended bicycle and pedestrian network projects should be prioritized was an important step in the development of this plan. To guide implementation, all of the recommended projects were divided into three distinct priority tiers. Tier 1 projects were those that met 4 to 5 of the input categories and are considered High Priority; Tier 2 projects met 2 to 3 input categories and are considered Medium Priority; and Tier 3 projects met only 0 to 1 input categories and are considered Low Priority. Previously proposed recommendations that were not included in the recommended network were considered in the prioritization process and prioritized as Long Term projects. Refer to *Appendix D* for the Baltimore County Council Districts' prioritization maps and further prioritization details.

The maps in Figure 38 and 39 on the following page shows the resulting priority tiers for this plan's bicycle, trail, and Complete Streets network. The figure below lists the mileage of prioritized projects for each tier, both for Baltimore County overall and individual Council Districts.

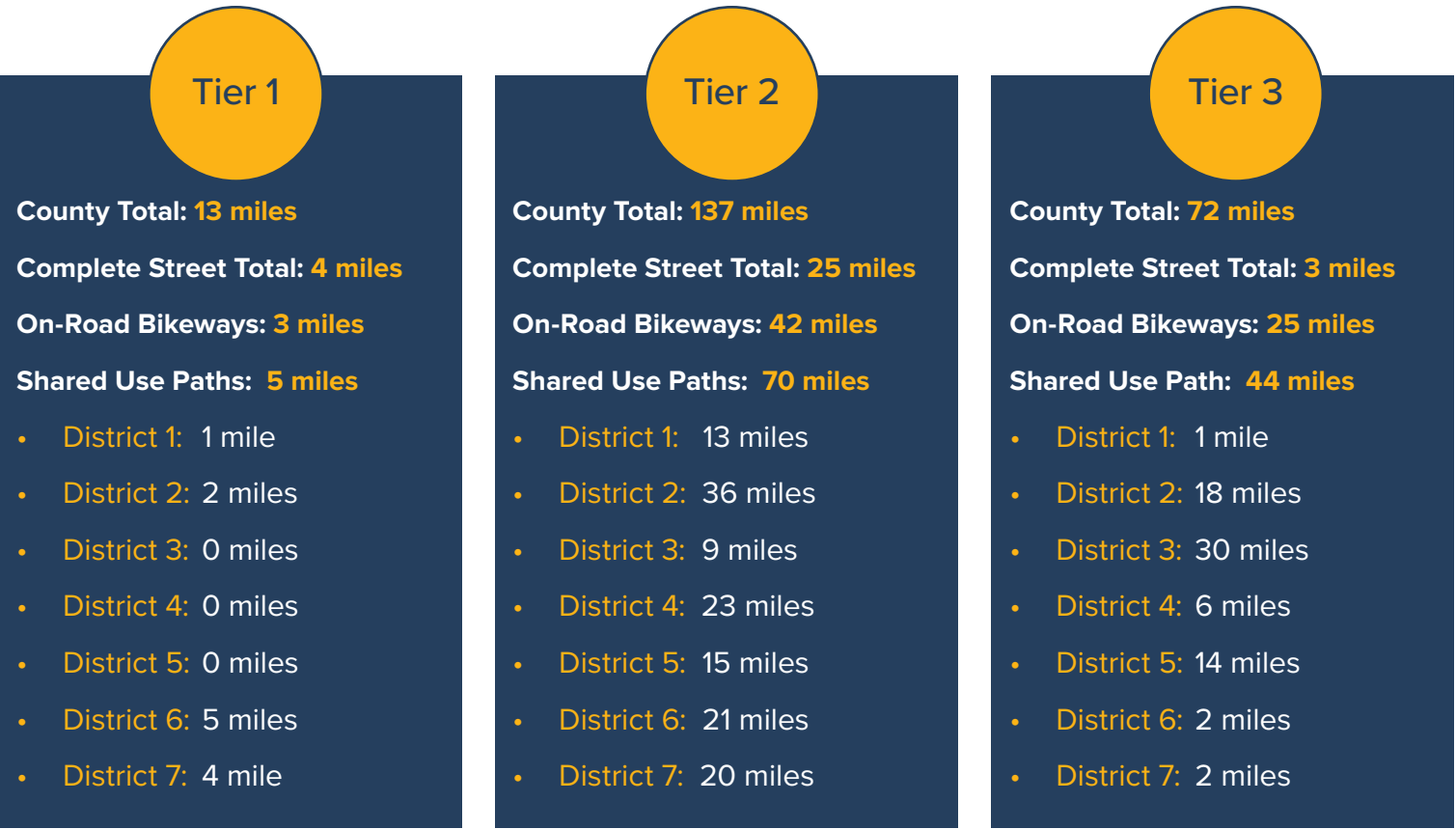


Figure 37. Tier Categories

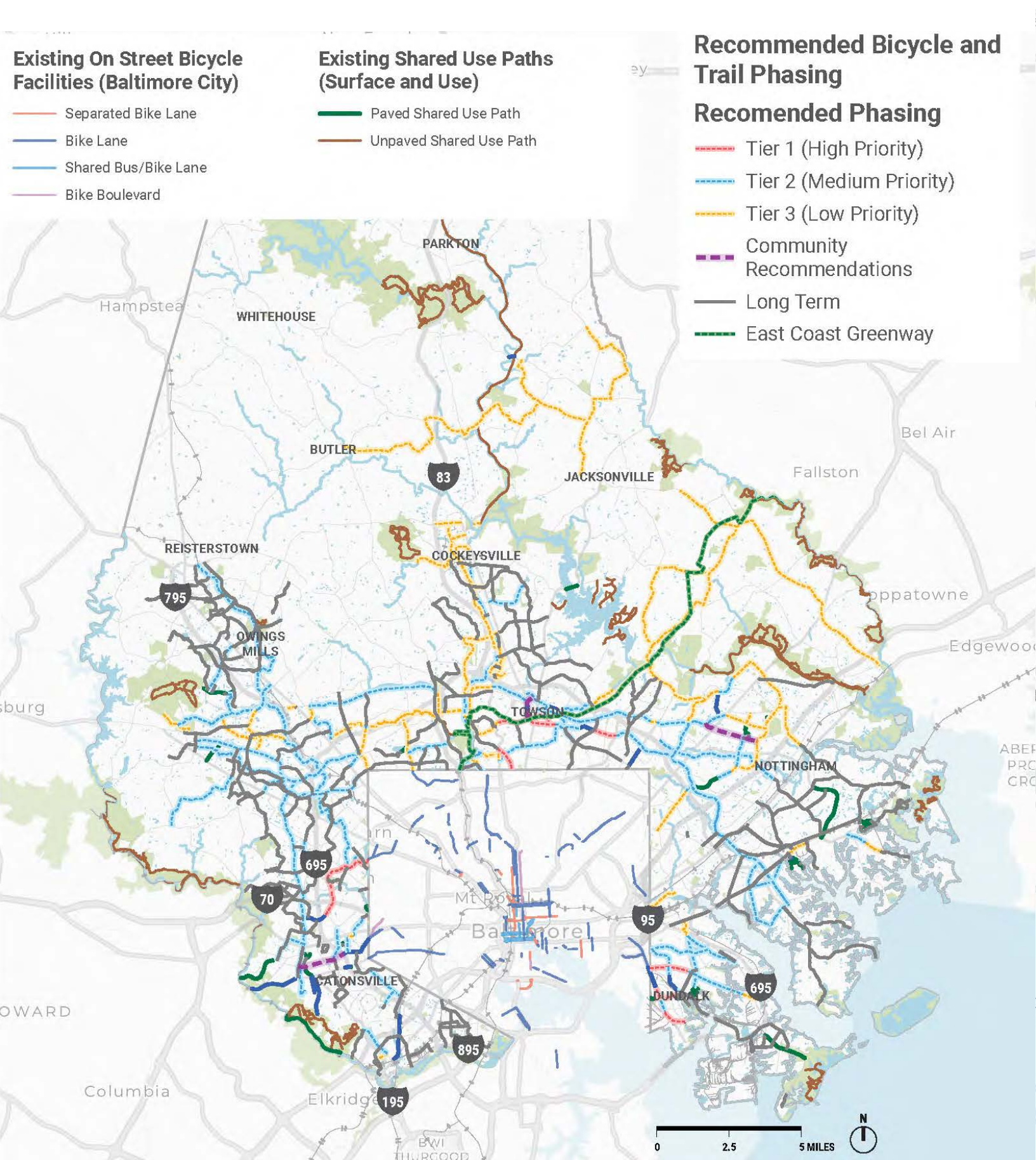


Figure 38. Prioritized bicycle and trail projects

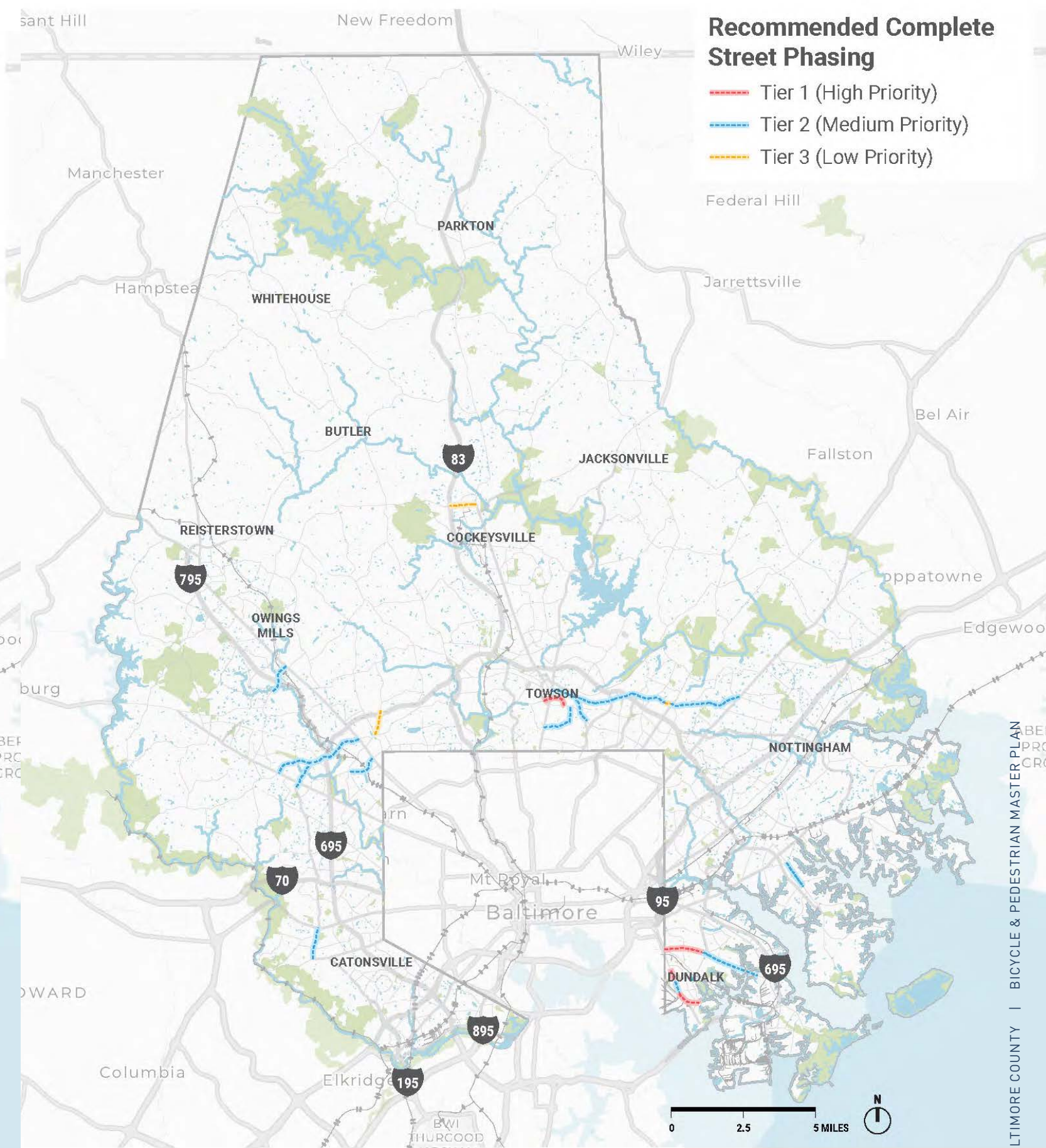


Figure 39. Prioritized Complete Street projects

Network Implementation

How Much Funding is Required?

In addition to prioritizing, planning-level cost estimates were developed for the Tier 1 (High Priority) recommended network. Project costs are extremely difficult to estimate with accuracy at this stage due to the many uncertainties surrounding implementation. However, this section provides a planning-level cost estimate to provide general guidance for implementation funding needs.

The costs are based on the [MDOT Bikeways Project Cost Estimator Tool](#), which was developed jointly by MDOT and the Baltimore Regional Transportation Board's Bicycle and Pedestrian Advisory Group and is updated annually. In addition to contingencies for construction, design, and permitting, an additional 50% contingency was added to each project to provide a buffer for potential costs like inflation, planning/corridor studies prior to implementation, and environmental work. A protected bike facility was assumed for each on-road bikeway project to plan for the best possible facility and to avoid underestimating facility costs. More detailed cost estimates will be needed as part of the implementation of each individual project during the project development and design phase.

The table below shows the estimated cost range per project (low cost and high cost).

TIER 1 (HIGH PRIORITY) ESTIMATED PROJECT COSTS						
PROJECT	FROM	TO	FACILITY TYPE	LENGTH (MILES)	LOW COST	HIGH COST
DUNMANWAY (SEGMENT 1)	Sollers Point Road	Merrit Boulevard	Paved Shared Use Path	0.09	\$270,800	\$516,900
CENTER PLACE	Willow Spring Road	Trading Place	On-Road Bikeway	0.30	\$526,200	\$743,200
TOWSONTOWN BOULEVARD	Charles Street	Burke Avenue	On-Road Bikeway	1.12	\$1,684,900	\$2,377,600
DUNMANWAY (SEGMENT 2)	Center Place	Sollers Point Road	Paved Shared Use Path	0.75	\$2,256,300	\$4,307,400
WOODLAWN DRIVE & GWYNN OAK AVE	Beethoven Avenue	Security Boulevard	On-Road Bikeway	2.21	\$2,944,400	\$4,518,700
PUTTY HILL AVENUE	Loch Raven Boulevard	Perring Parkway	Paved Shared Use Path	0.88	\$3,008,400	\$5,415,100
WOODLAWN DRIVE	Johnnycake Road	Security Boulevard	Paved Shared Use Path	0.95	\$3,247,700	\$5,845,800
EAST COAST GREENWAY	Charles Street	City Line	Paved Shared Use Path	3.94	\$20,928,600	\$26,457,600

Bikeway Project Cost Scenarios

Using the planning-level project cost estimates from the table on the previous page, the below project scenarios were developed which highlight the total costs of and time required for implementing all Tier 1 (High Priority) projects under three different cost scenarios.

- Existing:** Current level of annual funding for bicycle and pedestrian projects is assumed.
- Double:** Current annual funding levels are doubled.
- Accelerated:** Annual funding levels are determined in order to complete the network implementation within 6 years.

The East Coast Greenway is not included in these funding scenarios due to its high relative cost and ability to be pursued as a separate trail implementation project.

TIER 1 (HIGH PRIORITY) ESTIMATED NETWORK FUNDING SCENARIOS						
FUNDING LEVEL	ANNUAL FUNDING (LOW)	ANNUAL FUNDING (HIGH)	YEARS TO COMPLETE (LOW)	YEARS TO COMPLETE (HIGH)	TOTAL NETWORK COST (LOW)	TOTAL NETWORK COST (HIGH)
EXISTING	\$700,000		22	38	\$15,545,400	\$26,457,600
DOUBLE	\$1,400,000		11	19		
ACCELERATED	\$2,590,900	\$4,409,600	6			



Project Implementation

An integrated and strategic project delivery process is an important element of public engagement and project evaluation. Consistency is critical to provide the public a general understanding of how a project will be developed, designed, and implemented. The flow chart below demonstrates a process for project implementation, from project selection through evaluation.



Performance Measures

Building upon the vision and goals, the performance measures recommended for each goal utilize available data, identify existing baseline metrics, and set future targets. These performance measures provide measurable indicators to monitor the implementation progress. Baltimore County should annually assess progress on each performance measure.

GOAL	PERFORMANCE MEASURES	PERFORMANCE TARGET	ANNUAL GOAL
Expand Access & Connectivity	Improve level of traffic stress	Implement recommended network by 2053.	Complete planning or design phase of at least one Tier 1 project. Design and construct at least 6 miles of bikeways and/or shared use paths from any priority tier. Progress the implementation of at least one Complete Streets project from any priority tier.
Increase Safety	Non-motorized killed and serious injury (KSI) crashes	Reduce bicycle and pedestrian crash rates 75% between 2023 and 2045.	Reduce bicycle and pedestrian crash rates by at least 3% from prior year.
Enhance Public Health	Physical activity / opportunities	Increase active transportation facility users 15% by 2030.	Provide new opportunities for active transportation or recreation from prior year.
Ensure Equity	Funds spent in high-demand disadvantaged communities.	Increase funding for implementation 5% by 2030.	20% or more of annual implementation funding spent in high equity need areas.
Protect the Environment	Carbon dioxide emissions	Decrease carbon dioxide emissions 10% between 2023 and 2030.	Decrease carbon dioxide emissions by at least 1% from prior year.
Create Economic Growth	Gross domestic product (GDP)	Improve access to goods and services 50% between 2033 and 2045.	Initiate at least one network improvement that increases access to commercial areas.
Collaborate with Partners	County Stakeholders	Increase stakeholders by 25% by 2030.	Evaluate stakeholder participation each year and identify opportunities.

Maintenance

Bicyclists and pedestrians depend on a network of bikeways and sidewalks to make their trips. They are also impacted by the condition of the facility. Routine maintenance of pedestrian and bicycle facilities ensures that these facilities are reliable for everyday use. Ongoing upkeep of active transportation facilities encourages people to choose active transportation by ensuring reliable conditions and year-round accessibility of bicycle and pedestrian facilities. Lack of bicycle and pedestrian facility maintenance has equity implications, reduces overall active transportation accessibility and comfort, and increases the risk of safety hazards for all modes.

Winter Maintenance

People walk year-round, so snow and ice removal is a critical safety and mobility concern. However, the need for year-round maintenance of walking infrastructure can be a barrier at multiple project stages. The project design stage is critical for considering how a sidewalk or sidepath will be maintained after it is constructed. For example, sidewalk and bicycle facility width impacts whether maintenance equipment will effectively clear a sidewalk after a snowstorm. If maintenance decisions are left until after construction, a local agency may find design flaws that limit their ability to effectively maintain a safe and comfortable path in the winter.

Maintenance Recommendations

Having a robust and well-funded annual maintenance program for active transportation facilities provides the following benefits:

- Prevents falls and crashes.
- Provides clearly defined, year-round facilities.
- Encourages facility use, leading to increased bicycling and pedestrian use and high return on investment.
- Provides useful life of valuable infrastructure investments.

As such, Baltimore County will:

- Review current active transportation maintenance roles, responsibilities, and resources.
- Proactively incorporate active transportation maintenance needs into facility designs.
- Conduct a scan of active transportation maintenance best practices.



Coordination Efforts

The Study Team conducted two roundtable meetings to establish consensus on the issue of ongoing inter-agency coordination, one with representatives of the Maryland Department of Transportation State Highway Administration (MDOT SHA) and one with neighboring jurisdictions and the Baltimore Metropolitan Council (BMC). The attendees discussed organizational bicycle and pedestrian project planning schedules, existing coordination efforts, and opportunities for improved integration of schedules going forward. Consensus was developed around the following actions to ensure regular, repeatable interaction that serves to advance projects in a manner that serves all parties.

Monthly Meetings with MDOT SHA

MDOT SHA and County staff noted that there are already monthly meetings between MDOT SHA District 4 and Baltimore County covering construction, design, and utilities for MDOT SHA projects in Baltimore County. Responsibility for organizing the meetings alternates between MDOT SHA and County staff. Those meetings should continue, with regular reporting to County Planning and MDOT SHA’s statewide planning office, specifically the Active Transportation and Multimodal offices. Regular breakout meetings focused on pedestrian and bike projects should be held as needed.

Prioritization Process

It is recommended that the Baltimore County Bicycle & Pedestrian Master Plan be updated every five years with an annual review and adjustment for project priorities. This annual review should occur in the summer to align with fiscal planning. A regular annual process should be established wherein the MDOT SHA prioritization process provides inputs (criteria, priority corridors, etc.) to the County’s process every year in the April timeframe, with the “hand-off” reversed in June after the County’s review effort.

Presentations during CTP Pre-Meetings

Each year, the State of Maryland conducts a series of tours for the Consolidated Transportation Program (CTP) in the fall. The pre-meetings for the tour schedule provide an opportunity for the County to share their latest bike and pedestrian project priorities. The County should ensure that they have an opportunity to present their bike and pedestrian program each year before the CTP is finalized.

Regional Collaboration

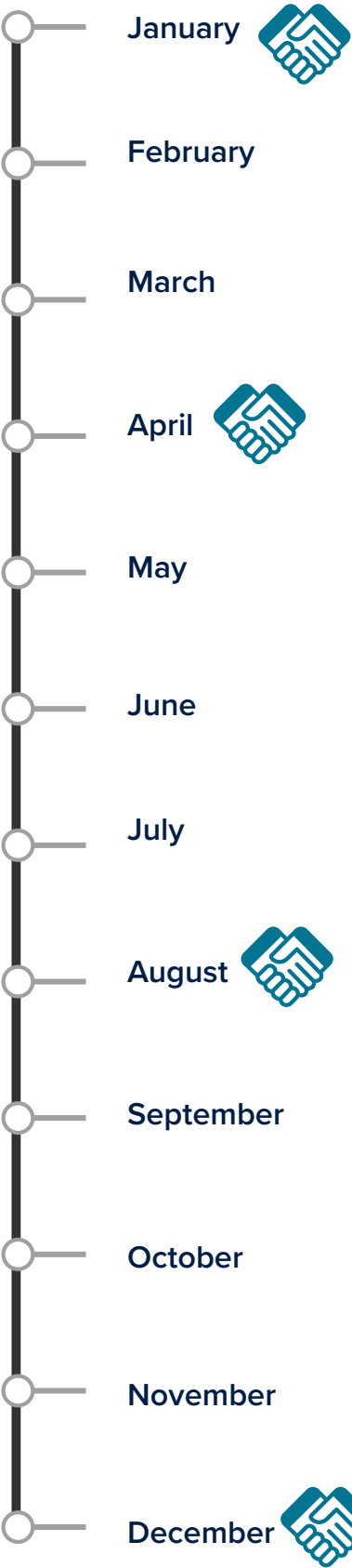
The Baltimore Metropolitan Council (BMC) will be developing a regional bicycle and pedestrian plan and is expected to kick off in late 2023. The County will be a key stakeholder in this planning process and should share all GIS data and recommendations from this planning effort. In addition, it is recommended that all active transportation staff in the region meet quarterly to share lessons learned, discuss regional priorities, and coordinate efforts.

Annual CTP Coordination Efforts

Baltimore County conducts an annual review of recommended bicycle, pedestrian, and complete street networks.

Baltimore County submits updated network recommendations to SHA to influence the consolidated transportation program (CTP)

SHA and Baltimore County conduct a tour of consolidated transportation program projects. The tour is the final step to collaborate on bicycle and pedestrian project priorities before the CTP is finalized later in the year.



 Baltimore County / Neighboring Jurisdictions Coordination Meeting

Figure 40. Coordination Timeline

Potential Funding

Introduction

Implementing this plan's recommendations will require significant resource commitments. Baltimore County has access to a variety of state, federal, and local funding programs to support active transportation infrastructure improvements. The current Infrastructure Investment and Jobs Act (IIJA) federal transportation infrastructure bill, passed in 2022, offers the promise of more federal support for safety initiatives.

Below are the general categories of funding resources that could help provide resources to implement the actions recommended in the Baltimore County Bicycle and Pedestrian Master Plan.

Federal Funds

Federal funding is typically directed through state agencies to local governments, either in the form of grants or direct appropriations, independent from state budgets. In Maryland, federal funds are administered and distributed through the Maryland Department of Transportation or the Baltimore Metropolitan Council (BMC). There are several federal funding programs that are oriented toward transportation, with an emphasis on reducing congestion and providing multimodal connections.



Capital and Department Budgets

Baltimore County will begin to implement the concepts and policies presented in this plan through regularly scheduled capital projects, such as streetscape projects, street resurfacing, or new public or private property construction. To efficiently use staff and maintenance resources, the County should coordinate across multiple agencies, such as the public works and parks and recreation departments. Bicycle and pedestrian projects should be included in the local Capital Improvement Program (CIP), increasing consistent year-to-year funding levels.

Coordination with New Development

Fostering partnerships with private developers provides an opportunity to generate revenue to fund infrastructure projects such as sidewalks, shared use paths, and bicycle parking facilities, as well as programs such as bicycle education classes.

Grants

Competitive grants from public agencies or private foundations can generate additional resources for projects and programs. Grant funding may also be used to acquire right-of-way. To increase readiness for grant funding, preliminary plans (e.g., 30% design drawings) can be developed for priority bikeway and pedestrian projects.

Fundraising Campaigns

Fundraising through neighborhood groups, advocacy groups, or even crowd-funding can help generate additional resources for projects and programs.

Funding Sources by Project Size

SMALL BUDGET	LARGE BUDGET
Federal Transportation Funds - The Congestion Mitigation/Air Quality Improvement Program (CMAQ) and Transportation Alternatives Program (TAP)	Highway Safety Improvement Program (HSIP)
U.S. Department of Urban Development (HUD) and U.S. Environmental Protection Agency (EPA) funds	Federal Transportation Funds
Capital Improvement budget funds	Foundation grants
Maryland Department of Transportation Trust Fund	Individual donors
Community Development Block Grant (CDBG)	Community Improvement Districts
Infrastructure Investment and Jobs Act, Transportation Alternatives set-aside	Public-Private Partnerships
Safe Routes to School	Infrastructure bonds
Made to Move Grant Program	Dedicated local tax sources
People for Bikes	Maryland Department of Transportation Trust Fund

The Infrastructure Investment and Job Act (IIJA)

(also known as the Bipartisan Infrastructure Bill)

The table below is a preliminary summary of how the IIJA may affect existing funding sources and help to create new funding programs for infrastructure projects related to bicycle, pedestrian, and trail systems based on what is known at the time this plan was written in mid-2022.

For an FHWA matrix of funding programs for bicycle and pedestrian projects, see *Pedestrian and Bicycle Funding Opportunities: U.S. Department of Transportation Transit, Safety, and Highway Funds*.

FUNDING PROGRAM	ADMINISTERING AGENCY	DESCRIPTION AND ELIGIBLE RECIPIENTS	LOCAL MATCH
Safe Streets and Roads for All (SS4A)	FHWA (state or local entity may administer project, working with FHWA if awarded)	Competitive grant; \$1.2B available in FY23 for planning and implementation.	20%
RAISE (Rebuilding American Infrastructure with Sustainability and Equity)	FHWA (State or Local entity may administer project, working with FHWA if awarded)	\$7.5B over 5 years (\$1.5B/year); funding for transportation projects (multimodal projects that address equity and safety will be favored under current administration). The maximum funding award is approximately \$30M.	20% but projects with a higher local match are typically more competitive. Projects serving underserved populations may be eligible for local match waiver.
Active Transportation Infrastructure Investment (ATIIP)	FHWA (State or Local entity may administer project, working with FHWA if awarded)	\$1B over 5 years (\$200M/year); funding for active transportation projects (mobility options powered primarily by human energy, including bicycling and walking) at the network scale, rather than on a project-by-project basis.	20% but disadvantaged communities may be eligible for local match waiver.
Healthy Streets	FHWA (State or Local entity may administer project, working with FHWA if awarded)	\$500 million over five years, \$15 million maximum award for projects that mitigate urban heat islands, improve air quality, reduce the extent of impervious surfaces, reduce stormwater run-off and flood risks, and reduce heat impacts to infrastructure and road users.	N/A

FUNDING PROGRAM	ADMINISTERING AGENCY	DESCRIPTION AND ELIGIBLE RECIPIENTS	LOCAL MATCH
Carbon Reduction Program (CRP)	State or MPO	The CRP was established to reduce carbon emissions from the transportation sector. Maryland will receive about \$18 million per year between federal fiscal years 2022 and 2026.	Unknown
Reconnecting Communities and Neighborhoods (RCN) Program <i>Combines Reconnecting Communities Pilot (RCP) and Neighborhood Access and Equity (NAE) programs</i>	FHWA (State or Local entity may administer project, working with FHWA if awarded)	Capital Construction: Funds both reconnecting-focused projects and smaller projects focused on reducing environmental harm and improving access in disadvantaged communities. \$1.15 billion available (\$148M RCP Construction / \$1B NAE).	
		Community Planning: Funds for planning activities to support future construction projects and allow for innovative community planning to address localized transportation challenges. \$185 million available (\$50M RCP Planning / \$135M NAE).	RCP Construction: Max 50% grant cost share, Max 80% Federal RCP Planning: Max 80% grant cost share
		Regional Partnerships Challenge: Incentivizes stronger partnerships between local governments, MPOs/RPOs, State DOTs, and non-profit, private, and community partners to tackle persistent equitable access and mobility challenges, as well as greenhouse gas emissions reductions. Applicants must consist of a partnership between two or more eligible agencies. \$450 million available (NAE).	NAE Planning and Construction: Max 80% grant cost share, except disadvantaged communities

Endnotes

1. <https://www.baltimorecountymd.gov/departments/publicworks/traffic/pedestrianbicycle/why.html>
2. <https://www.aarp.org/livable-communities/learn/transportation-mobility/info-2013/active-transportation-for-america.html>
3. <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2012.300762?journalCode=ajph>
4. Frank, L.D., et al. (2005). Linking objectively measured physical activity with objectively measured urban form: findings from SMARTRAQ. Am J Prev Med. DOI: 10.1016/j.amepre.2004.11.001
5. <https://www.baltimorecountymd.gov/departments/publicworks/traffic/pedestrianbicycle/why.html>
6. <https://medium.com/fast-company/as-we-discuss-big-solutions-to-climate-change-dont-forget-people-friendly-streets-18514fe56a43>
7. https://www.bls.gov/regions/mid-atlantic/news-release/consumerexpenditures_baltimore.htm
8. Liu, J., & Shi, W. (2020). Understanding Economic and Business Impacts of Street Improvements for Bicycle and Mobility – A Multicity Multapproach Exploration.TREC Final Reports. <https://doi.org/10.15760/trec.248>



BALTIMORE COUNTY

BICYCLE & PEDESTRIAN MASTER PLAN



APPENDIX: EXISTING CONDITIONS



Plan Name	Year Adopted or Created	Agency Lead	Plan Purpose	Vision statement/goal/objective relative to active transportation?	Public engagement relative to active transportation?	Infrastructure recommendations relative to active transportation in or connecting to Baltimore County?	Policy/program recommendations relative to active transportation?
BRT'S Top Bicycle Priorities	2020	Baltimore Metro Council	N/A	N/A	N/A	<p>Complete multiple projects that are part of the Patapsco Greenway Trail System, connecting the Grist Mill Trail, Ellicott City, BWI Trail, Gwynn's Falls Trail, and the Baltimore City trail network: This trail concept was funded for preliminary planning through the BRTB Unified Planning Work Program. The multi-jurisdictional nature of the project necessitated bringing together a wide variety of stakeholders. Local jurisdictions were important in providing data and identifying key stakeholders and community groups that were included in public review. DNR involvement was vital as much of the property is on DNR land in the Patapsco Valley State Park. The feasibility study looked at potential trail alignment, cost estimates, easement and right-of-way issues, and a segmented approach for moving the project forward.</p> <p>Develop the BGE Northeast Region Trail: This is a key segment of the planned "emerald necklace" bike loop surrounding Baltimore City. It connects to Baltimore County, with plans for a trail extending to White Marsh. A coalition in Baltimore City is currently working on the Baltimore Belt Line.</p>	N/A
MDOT SHA's Bike Spine Network	2020	Maryland Department of Transportation	MDOT SHA Bike Spine data consists of linear geometric features which represent existing roadways & trails throughout the State of Maryland that are officially designated as routes that meet specific safety criteria to accommodate bicycles. MDOT SHA Bike Spine data was developed to support a variety of MDOT initiatives involving Bicycle & Pedestrian Safety.	N/A	N/A	N/A	MDOT SHA Bike Spine data is key to understanding the existing network of roadways and trails throughout the State of Maryland that are capable of accommodating bicycle traffic safely and where to create future bicycle connections.
2040 Maryland Bicycle and Pedestrian Mater Plan 2019 Update	2019	Maryland Department of Transportation	The 2019 Maryland Bicycle and Pedestrian Master Plan Update highlights the benefits of active transportation and offers solutions to Maryland's current challenges, providing opportunities to better meet the needs of all of our transportation system users. With input from a wide array of stakeholders, the Plan brings a fresh perspective and strategic focus to the challenge of guiding investments and policy, and realizing a newly-articulated vision.	<p>Vision Statement: Maryland will be a great place for biking and walking that safely connects people of all ages and abilities to life's opportunities (p3).</p> <p>Goals, Objectives, and Strategies (p6): 1.Safety (p28) 2.Connected Networks (p29) 3.Analysis and Planning (p30) 4.Partnerships (p31) 5.Economic Development (p32)</p>	Public Outreach details were discussed, but no key takeaways were listed.	<p>Strategy 1.1c: Implement effective design solutions and countermeasures to enhance safety of infrastructure (p7)</p> <p>Strategy 1.2b Enhance protocols that ensure safe access for pedestrians and cyclists during the construction phase of infrastructure projects (p7)</p> <p>Strategy 2.2a Target specific bus stop and transit station area improvements to enhance pedestrian and bicycle infrastructure access (p7)</p> <p>Strategy 3.1a Provide assistance to support strategic planning and implementation of context-appropriate bicycle and pedestrian infrastructure (p7)</p>	<p>Strategy 3.2a Update guidance and policy documents on a regular basis to reflect industry best practices (p7)</p> <p>Developing Planning and Policy Tools (p36) Short-term targets (5-year): Update Bicycle Policy and Design Guidelines to reflect Best Practices and to better support local planning efforts Long-term targets (20-year): Strong local context analysis continuously updated to provide more consistent and specific guidance on policy, planning, and design decision-making</p> <p>Defining and Refunding Programs (p38) Short-term targets (5-year) Implementation process initiated for the Complete Streets policy that identifies and prioritizes underserved and under invested communities</p>
BMC's Maximize 2045	2019	Baltimore Regional Transportation Board	Regional Long-Range Transportation Plan Maximize2045: A Performance-Based Transportation Plan is the long-range transportation plan for the Baltimore region. This plan establishes the region's broad transportation goals and strategies. These goals and strategies will guide transportation investments over the life of the plan (2024-2045). Maximize2045 contains a list of the major surface transportation projects the region expects to implement in the period from 2024 to 2045. The plan also shows revenues the region expects to have available for these projects and estimated costs of these projects. (p2)	<p>Vision (as related to active transportation): Baltimore County is a national leader in delivering exceptional service and is an inclusive place to live, work, visit, and thrive. • People want to live, work, play, and age in Baltimore County</p> <p>Goal: Improve System Safety E. Improve conditions to enable pedestrians and bicyclists to travel more safely on a day-to-day basis, including safe interactions with users of other modes and safe access to transit stations and stops. F. Support research into better understanding the causes of bicycle and pedestrian crashes and injuries to promote more effective countermeasures.</p> <p>GOAL: Improve and Maintain the Existing Infrastructure F. Increase emphasis on improving the condition of existing pedestrian and bicycle facilities.</p> <p>GOAL: Improve Accessibility C. Continue to improve conditions for pedestrians and transit riders to meet or exceed Americans with Disabilities Act requirements. F. Continue to invest in pedestrian and bicycle facilities and programs, especially those that link to activity centers and public transit. I. Encourage the private sector to provide appropriate access on commercial properties for bicyclists, pedestrians, and transit users</p> <p>GOAL: Increase Mobility C. Balance capacity in the highway, transit, and freight rail systems and pedestrian and bicycle networks, including the consideration of expanded transit service coverage and hours of operation</p> <p>GOAL: Promote Prosperity and Economic Opportunity E. Improve transportation infrastructure (all modes) that improves access to existing communities and regional generators of economic activity (e.g., activity centers and freight corridors), including the consideration of expanded transit service coverage and hours of operation.</p>	Per federal law, a public participation plan was developed to define the process for engaging with the public and stakeholders. Appendix E includes details on the public participation process and comments.	In Chapter 7, Major Capital Projects, the Plan discusses recommended improvements of connectivity and accessibility of pedestrian and bicycle infrastructure.	N/A
Baltimore County Enterprise Strategic Plan	2019	Baltimore County	The Enterprise Strategic Plan translates the Transition Report recommendations and the broad array of input from stakeholders into action. The six goals reflect the County's strategic direction for Fiscal Years 2019-2022. The plan also outlines key strategies and activities for achieving the goals. The goal areas also identify key success factors that will inform our progress toward meeting the goals. This work will be further defined through data-driven efforts as County Departments align their operations with the Strategic Plan. The Strategic Plan will be updated annually as progress is made on completing the various strategies and activities.	<p>Goal 1: Vibrant Communities Strategy 1.Integrate existing and create new resources to assist vulnerable populations to thrive in the community Strategy 2.Provide sufficient public facilities, programs and opportunities to protect and enhance both physical and behavioral health Goal 4: Sustainability Strategy 3.Expand the County's transportation infrastructure to promote connectivity, reduce gaps, and promote multi-modal options</p>	N/A	<p>Expand transportation options for older adults and adults with disabilities Complete planning and design of accessible "Nature Trail for All" at Cromwell Valley Park Continue increased investments in bike and pedestrian infrastructure Launch pilot of microtransit options Provide support for "last mile" connectivity Identify strategies and develop recommendations to expand locally operated and microtransit transit systems, including County Ride</p>	Identify strategies and develop recommendations to enhance the County's cyclist and pedestrian access and safety plan.
Eastern Baltimore County Pedestrian and Bicycle Access Plan	2006	Baltimore County	The Eastern Baltimore County Pedestrian and Bicycle Access Plan is an action plan for constructing pedestrian and bicycle improvements. The plan was developed by an advisory committee composed of representatives from the walking/biking community and state and county government, and is based on the needs and desires expressed by the citizens who live or work in the area. The plan identifies specific projects to be implemented, and provided recommendations for phasing and funding. It is a comprehensive, long-range plan that will ultimately integrate walking and bicycling facilities in the county's infrastructure.	<p>Goal for Bicycle Facilities Develop and maintain bicycle facilities that provide an adequate level of convenience, mobility, and safety for bicyclists at all levels of experience, and encourage bicycle trips for utilitarian, recreational and commuting purposes.</p> <p>Goal for Pedestrian Facilities Develop and maintain pedestrian facilities that provide desirable levels of accessibility and safety for pedestrians, and encourage walking for both utilitarian and recreational purposes.</p>	<p>Community Workshops: The action committee planned the outreach efforts which included a series of four community workshops. Approximately 80 citizens attended the workshops, and wash completed a questionnaire individually, and then discussed their responses with the group (see Appendix A, Sample Questionnaire).</p> <p>The participants were asked to focus on identifying the most important places where improvements to walking and bicycling facilities were needed. These recommendations were recorded on a map.</p> <p>The participants were also asked what things prevented them from walking and bicycling and what things could be done that would encourage them to walk or bike more often (see Appendix B).</p> <p>Survey: In addition to the workshops, a survey was posted on the county's website.</p> <p>Citizens had identified over 200 miles of roads for bicycle improvements, 33 miles of shared use trail improvements, and 95 areas for pedestrian improvements.</p> <p>The recommendations of the analysis are contained in this plan as two lists: -Prioritized Pedestrian Projects with potential funding sources identified. -Prioritized Bicycle Projects with potential funding sources identified.</p>	<p>Recommended pedestrian project categories: New sidewalk construction on where sidewalks are lacking or in disrepair. Intersection improvements including crosswalks and pedestrian signals. Specialized improvements for specific areas. (see pages 29-20) Recommended bike project categories: 0. Not Recommend 1. Share the Road/Bicycle Route Sign 2. Widened Curb Lane 3a. Bike Lane by Striping 3b. Bike Lane by Restriping 4a.Bike Lane by Reconfiguring 4b. Bike Lane by Widening within Existing Right-of-Way 5. Bike Lane by Right-of-Way Widening 6a. Off-road Shared Use Trail 6b. Off-road Shared Use Trail (see pages 30-31)</p>	<p>Safe Routes to School Program Expansion of safety curriculum in schools Bike to Work Day Walk a Child to School Week</p> <p>Addition to the following section of Baltimore County Code: 8-2-102. AUTHORITY OF THE DIRECTOR OF PUBLIC WORKS. (a) In general. In order to provide for the safe and expeditious movement of traffic in the county and to protect the safety of citizens using the public or private roads, streets, alleys, and highways in the county, the Director of Public Works may: ... (10). Designate certain sidewalks for shared pedestrian and bicycle use. (see page 57)</p>

Plan Name	Year Adopted or Created	Agency Lead	Plan Purpose	Vision statement/goal/objective relative to active transportation?	Public engagement relative to active transportation?	Infrastructure recommendations relative to active transportation in or connecting to Baltimore County?	Policy/program recommendations relative to active transportation?
Western Baltimore County Pedestrian and Bicycle Access Plan	2012	Baltimore County	This plan is the second phase of a county-wide master plan for improving bicycle and pedestrian access. It covers the western side of the urban county. The plan addressed each of the five "E's" of active transportation planning, including Engineering, Education, Encouragement, Enforcement, and Evaluation. When combined with the Eastern Baltimore County Pedestrian and Bicycle Access Plan, the two together form the Baltimore County Pedestrian and Bicycle Access Plan: a master plan for constructing pedestrian and bicycle improvements.	Pedestrian Access Goal: Develop and maintain pedestrian facilities that provide desirable levels of accessibility and safety for pedestrians, and encourage walking for both utilitarian and recreational purposes. Bicycle Access Goal: Develop and maintain bicycle facilities that provide an adequate level of convenience, mobility, and safety for bicyclists at all levels of experience, and encourage bicycle trips for utilitarian, recreational and commuting purposes.	Outreach efforts included an expanded web page on the Department of Planning web site, a printed and online survey covering Western Baltimore County Pedestrian and Bicycle Access Plan 7 experiences walking and bicycling in the plan area (see Appendix A, Sample Survey), presentations to and meetings with community organizations and other stakeholders, and four community workshops, one held in each of the Council Districts in the plan area. Community Workshops: Approximately 190 citizens attended the workshops where each participant completed a survey on their experiences walking and bicycling in the county. During the workshops, through the web survey, and in meetings with stakeholder groups, citizens were asked to identify the important places that they would like to reach by walking or bicycling, and that have problems or need improvement. From the comments received at the workshops, and the 271 surveys submitted on-line, citizens identified approximately 460 miles of roads for bicycle improvements, 155 miles of shared use path improvements, and 50 miles of pedestrian improvements. The recommendations of the analysis are contained in this plan as three lists: -Prioritized Shared Use Path Projects -Prioritized Pedestrian Projects -Prioritized Bicycle Projects	This plan identifies proposed shared use path improvements (see pages 13 through 18), proposed pedestrian improvements (e.g., sidewalk construction, curb ramps, crosswalks, signals, lighting, traffic calming, and streetscape improvements - see pages 24 through 36), and bicycle improvements (e.g., bike routes, widened b=curb lanes, and bike lanes - see pages 45 through 65)	Complete streets (see page 77) Organizational support initiatives (see pages 77 through 79) Bicycle parking policy (see page 79) Bike share program (see page 81)
Maryland Trails: A Greener Way to Go	2008	Maryland Department of Transportation	Maryland Trails: A Greener Way To Go is the result of a collaborative effort between MDOT, sister agencies and local governments to create a unifying vision and guide as we continue to develop and improve the State's trail system. The vision document illustrates the important role that each of us play in making Maryland's trail network a world-class, multi-purpose system. It also provides a "one-stop shop" for information about Maryland's trails. The Maryland Trails: A Greener Way To Go initiative will help the State: track our progress, provide local governments and agencies a venue to coordinate trail planning activities and inform Maryland residents and visitors about local and regional trails.	Maryland's Vision for Trails 1.Increase the number of people using trails for transportation. 2.Provide a system of multi-use trails that strategically link destinations throughout the State. 3.Provide a sustainable transportation alternative. 4.Promote physical activity and tourism in the places Maryland residents and visitors live, learn, work and play.	Nearly 700 trail users contributed to Maryland's vision for trails by completing an online survey. Multiple State and local agencies and advocacy groups also were engaged in the process. When asked to look 20 years into the future, Maryland agencies and trail users envisioned a trail system that: • Provides a Transportation Option – Marylanders want safe trails that provide convenient access to transit, shopping and communities. Today, 36% of trail trips are for traveling to work, school, transit or shopping. • Is Well-Connected – Closing gaps in the trail network is the most important factor to increase trail use in Maryland. Sixty-three percent of trail users surveyed would use trails more often if the system were expanded and gaps were closed. • Advances Sustainability – Multi-use trails provide a sustainable travel option that reflects the State's commitment to environmental stewardship When asked "What is the Purpose for Your Trip on the Trail?" the top three responses included: 33% replied "Get a workout" 24% replied "Recreation" 23% replied "Travel to or from work"	Patuxent Crossing is a new bridge over the Patuxent River that will connect the West Baltimore & Annapolis Trail, Baltimore & Annapolis Trail and Baltimore Washington International (BWI) Trail in Anne Arundel and Prince George's counties; BWI Connector will connect the BWI Trail in Anne Arundel County to Baltimore City's trail system (about three miles); Jones Falls Trail will be a 10-mile trail that will connect central Baltimore City to Baltimore County	N/A
Baltimore City Greenway Trail System	2020	Greater Washington Partnership	This study examines the potential economic and social benefits of a \$28m plan to expand and connect existing trails in the City of Baltimore to create the Baltimore Greenway Trails Network (the Greenway). By building an additional 10 miles of new trails, the City can complete a 35-mile network, providing safe, healthy access to an off-street network that connects 75 neighborhoods to the trails and offers new opportunities. The completed trail will bring potential economic and social benefits to a wide cross section of Baltimore's population.	N/A	Public Outreach details were discussed, but no key takeaways were listed.	The Greater Washington Partnership and Rails-to-Trails Conservancy believe in the value of multimodal transportation and that access to trails can improve access to opportunity. The expansion of the Greenway represents an important step to build a more equitable transportation system and prosperous regional economy.	N/A
Baltimore City Bike Master Plan (2015)	2015	City of Baltimore Department of Transportation	This update illustrates the continued importance of bicycling, the successes that have occurred since the city's 2006 Bicycle Master Plan, and provides recommendations for additional infrastructure and policies to promote Baltimore as a more bicycle-friendly city. This Master Plan is built on public input and stakeholder engagement, which have helped to identify areas for improvement and build support for better bicycling opportunities. This Master Plan also incorporates some new and innovative facility types and policy recommendations that have proven successful in other cities.	Vision Statement: Bicycling is an important piece of a multi-modal urban transportation network, and provides numerous benefits and a personal, localized and regional level. Bicycling benefits an individual's health, is cost efficient, generates economic growth, conserves resources, reduces the impacts to the environment, and reduces traffic congestion. Cities across the nation have made significant improvements providing access to safe and user-friendly bicycling facilities, and Baltimore is heading in the same direction. In the next 15 years, Baltimore should experience a paradigm shift that places a higher priority on multi-modal infrastructure and more Complete Streets. GOAL 1: Improve Bicycle Infrastructure (SEE SECTION IV, page 17) GOAL 2: Improve Development Patterns to be More Bicycle-Oriented (SEE SECTION V, page 55) GOAL 3: Enact Bicycle-friendly Legislative Policies (SEE SECTION VI, page 61) GOAL 4: Establish and Refine Bicycle Facility Engineering Policies (SEE SECTION VI, page 61) GOAL 5: Build a Stronger Bicycle Culture (SEE SECTION VI, page 61) GOAL 6: Strengthen Law Enforcement to Improve (SEE SECTION VI, page 61) GOAL 7: Improve Recreational Bicycling Opportunity (SEE SECTION VI, page 61)	An online survey has been advertised through media, blogs, and at public meetings. It received 1248 responses from a cross section of people. Responses were collected from representatives throughout the city and beyond, and included people of various ages, economic backgrounds, and bicycle use tendencies. The survey has been extremely valuable at identifying popular routes, areas for improvement, common concerns, and preferences. A detailed summary of the survey responses can be found in Appendix A. (See pages 77-84)	The Plan identifies and recommends bike facility selection and improvements (see pages 17-54)	Legislation for Bike Oriented Developments (see page 62-63) Complete Streets (see page 63)
Baltimore City Separates Bike Lane Network Addendum to 2015 Bike Master Plan Update (2017)	2017	City of Baltimore Department of Transportation	The 2015 Baltimore Bike Master Plan Update was a comprehensive document with good recommendations for every neighborhood in Baltimore. This Low Stress and Separated Facility Network addendum seeks to build on that work by identifying and prioritizing a set of projects that will dramatically increase the number of people in Baltimore City who can meet many of their basic travel needs by bike over the next two to five years.	N/A	The Addendum discusses basic travel needs of pedestrians and bicyclist but does not report any local public outreach data.	Selection of Strategic Corridors for construction of low stress areas (see page 13)	N/A

Plan Name	Year Adopted or Created	Agency Lead	Plan Purpose	Vision statement/goal/objective relative to active transportation?	Public engagement relative to active transportation?	Infrastructure recommendations relative to active transportation in or connecting to Baltimore County?	Policy/program recommendations relative to active transportation?
Anne Arundel County Pedestrian and Bicycle Master Plan: 2013 Plan Update	2013	Anne Arundel County	The purpose of the 2013 Pedestrian and Bicycle Master Plan (2013 PBMP) is to identify improvement opportunities which increase the potential for safe trip-making by walking and bicycling while diminishing the need for single occupant vehicle (SOV) trips. While the 2003 Pedestrian and Bicycle Master Plan (2003 PBMP) focused upon pedestrian and bicycle improvements in targeted geographic improvement areas, the 2013 PBMP focuses on pedestrian and bicycle improvements which create transportation alternatives for Anne Arundel County residents within the urbanized areas. Funding for this planning effort was provided through the Baltimore Regional Transportation Board (BRTB) through the execution of a Federal grant under the Unified Planning Work Program (UPWP).	N/A	<p>Public Listening Sessions:</p> <p>Annapolis High School Cafeteria – January 31, 2012 A total of 29 community members were in attendance for this listening session. Popular discussion areas and ideas included connecting shopping areas with Downtown Annapolis, safety concerns, providing facilities in the vicinity of Anne Arundel Community College and the Naval Academy and the construction of the Broadneck and South Shore Trails.</p> <p>Arundel Mills Mall Community Room – February 7, 2012 A total of seven community members were in attendance for this listening session. Popular discussion areas and ideas included improving access to Arundel Mills Mall, installing bicycle racks at Arundel Mills Mall, access to Fort Meade for bicycle commuters, the construction of the South Shore Trail, and the desire for a facility along Mountain Road.</p> <p>Severna Park Middle School Cafeteria – February 22, 2012 A total of 28 community members were in attendance for this listening session. Popular discussion areas and ideas included pedestrian and bicycle facility improvements in the Severna Park and Pasadena areas, miscellaneous safety improvements and an interest in seeing a report card on the results of the recommendations from the 2003 Pedestrian and Bicycle Master Plan.</p> <p>Appendix C includes comment cards from each of the listening sessions, as well as a compilation of notes compiled by the project team after each of the listening sessions.</p> <p>Public Meetings:</p> <p>Comments were collected at the Public Meeting and for a period of one week following the meeting. Comments included potential new projects for consideration as well as potential general recommendations to improve walking and bicycling in Anne Arundel County. All new pedestrian and bicycle projects were summarized to be evaluated by County staff at a later date, for possible inclusion in the TFMP.</p>	Identify pedestrian/bicycle generators and attractors (see pages 43-47)	Recommendation of AASHTO Guidelines (see pages 89-91)
BikeHoward: Howard County Bicycle Master Plan 2015	2015	Howard County	BikeHoward is the Howard County Bicycle Master Plan. The primary purpose of BikeHoward is to provide a framework to guide the county's future actions to improve conditions for bicyclists and promote bicycling as a safe and convenient travel option	<p>BikeHoward Vision: Howard County, Maryland seeks to be a bicycle-friendly County where residents and visitors, school children and seniors, men and women feel comfortable and safe bicycling on our roads and paths as a means of daily transportation and healthy recreation.</p> <p>BikeHoward Goals: Bicycling has the potential to make a significant contribution toward achieving the County's sustainability goals in each of these areas:</p> <ul style="list-style-type: none">• Environmental sustainability by reducing air and water pollution• Economic sustainability by contributing to tourism and reducing household transportation expenditures• Community sustainability by contributing to public health and helping neighborhoods remain safe and functional for all generations	<p>Public Input</p> <p>Public involvement was facilitated through 6 public workshops, an online survey and an online interactive map. More than 750 people were engaged in the process and provided comments and ideas on every aspect of bicycling in the county. Please see Appendix B for additional details on the public outreach activities.</p>	Identifies recommendations for "On-Road Bikeway Approvements" and "New/Upgraded Path/Cycletrack or Protected Bike Lanes" (See Table 2, page 24)	Identifies Policy recommendations for bike infrastructure planning, implementation, and management (see pages 8-15 and 48-50)
WalkHoward: Howard County Pedestrian Master Plan – County Council Version December 2019	2019	Howard County	WalkHoward sets forth a plan for implementing a connected, comfortable, and safe pedestrian network that accommodates all users. To do this, it identifies pedestrian network improvements needed beyond those completed under the 2007 Plan. It also provides recommendations for changes in policies, guidelines, and practices that affect the pedestrian network, and for programs that will encourage the network's use	<p>Vision Statement: Howard County has a connected pedestrian network that safely and conveniently accommodates people of all ages and abilities.</p> <p>Goals</p> <ul style="list-style-type: none">• Fill gaps in the sidewalk, pathway, and crosswalk network.• Provide safe and convenient pedestrian connections to all transit locations.• Meet or exceed ADA standards for pedestrian facilities.• Support efforts to increase walking to schools.• Improve the maintenance of the facilities that constitute the pedestrian network.	<p>Public Input</p> <p>A series of open houses, online and printed surveys, and various events of different formats allowed the public to identify challenges and opportunities related to the accessibility and comfort of walking.</p> <p>The survey asked participants to identify locations with missing or deficient sidewalks, challenging roadway crossings, and bus stops with access and comfort concerns. In all, nearly 2,500 location-specific comments were received and mapped. Participants also reacted to each other's comments, noting their reaction with a "like" or "dislike".</p>	Provides a summary of recommendations for each of the improvement categories: sidewalks, intersections, bus stops, and pedestrian desire lines (missing connections) (see pages 34-38)	Identifies program recommendations in Table 8 (page 40) as well as ADA and Complete Streets recommendations to consider (see page 47)
Harford County Bicycle and Pedestrian Master Plan 2013	2013	Harford County	The primary focus of this Plan is to increase pedestrian and bicycle activity throughout the County by providing improvements that offer desirable levels of accessibility, mobility, convenience, and safety. By supporting walking and bicycling for utilitarian, recreational, and commuting purposes Harford County residents will experience the environmental, economic, health, and social benefits that come from increased bicycle and pedestrian activity.	N/A	<p>Harford County Bicyclist Survey</p> <p>The 2010 Bicycle Survey identified some clear opportunities for increasing bicycle ridership in Harford County. Significant findings included:</p> <ul style="list-style-type: none">• 95% of survey respondents ride for recreation and nearly 60% of these cyclists leave the County to ride recreationally;• 82% of the survey respondent's drive alone to work every day, however 42% of them indicated that they would consider cycling to work;• 90% of respondents think that building more bikeways would encourage more cycling Countywide;• 60% of respondents would consider allowing their children to walk or ride their bike to school if there were adequate facilities;• Only 9% and 13% of respondents have heard of the Walking School Bus Program and the Safe Routes to School Program, however 70% would consider allowing their children to participate in these programs if they were available; and• Only 23% of respondents were aware that Harford Transit's Link buses accommodated bicycles.	Recommendation for Multi-Use and Regional Long Distance Bikeway improvements (see page 40)	Identifies comprehensive bikeway network policy and strategy recommendations (see pages 45-55)
Bicycle-Pedestrian Master Plan 2019 (Carroll County)	2019	Carroll County	This multimodal transportation plan focuses on the transportation aspect of bicycle and pedestrian movement, as well as recreational and tourism opportunities county-wide. Connectivity is critical, within and beyond jurisdictional borders. The plan examines the implications of creating a county-wide trail network that produces a multimodal transportation system, and how this can benefit the County economically and environmentally. By investing in opportunities for residents and tourists to engage in bicycle and pedestrian activities, the hope is that County revenues will increase, traffic congestion will decrease, and quality of life will improve for the County, as well as the region. This plan emphasizes the importance of designing with safety in mind, using best practices to create a network that will benefit all income levels, ages, races, and abilities. Through engagement with citizens and public officials, the goal is that community needs can be better assessed and funding can be appropriated most efficiently.	<p>Vision Statement</p> <p>Carroll County is a diverse community made up of suburban centers, towns, rural areas, places of recreation and heritage destinations that are well connected in a safe and efficient manner to enable recreational choices and transportation options.</p>	<p>Interest Survey #1</p> <p>The purpose of the 2016 Bicycle-Pedestrian Master Plan Interest Survey (2016 Interest Survey) was to determine the level of interest to use bicycle and pedestrian facilities. 90% of respondents would like to see Carroll County plan for pedestrian trails as a mode of transportation, while 93 % said the same for bicycle trails.</p>	N/A	Recommendations include planning, implementation, and general government-related activities (see pages 94, 147, 161,212,and 255)
York County Bicycle and Pedestrian Connectivity and Safety Inventory 2015	2015	York County Planning Commission	This study is an effort to identify and improve the connectivity of rabbitransit's (the York Adams Transportation Authority) fixed route service in York County to bicycle and pedestrian networks.	N/A	N/A	N/A	N/A
Patapsco Regional Greenway	2016	Baltimore Regional Transportation Board	T he Patapsco Valley State Park was established to preserve and provide access to the area's world class trail system developed. The park's natural surface trail system connects natural and historically significant features such as Cascade Falls, Buzzard Rock and many of the historic homes and buildings in the park. Additional paved trails were created on abandoned railroad corridors, which provide a relatively flat walking or riding experience in an otherwise very steep area. The Patapsco Regional Greenway Plan envisions a 40-mile, shared-use trail running through the Patapsco Valley from Baltimore's Inner Harbor to Sykesville in Carroll County. This trail, if completed, would pass through or near the communities of Cherry Hill, Baltimore Highlands, Halethorpe, Elkridge, Catonsville, Ellicott City, Oella, Daniels, Woodstock, Marriottsville, and Sykesville.	The Patapsco Regional Greenway provides an opportunity to connect and improve the Baltimore region's trail network. The numerous shared-use paths in Howard, Anne Arundel, Baltimore Counties and Baltimore City can be connected to enhance the regional, state and national trails system.	Overall, there was strong support for implementing the greenway. Comments from the community meetings and results from the online survey are available in Appendices A and B , respectively. (see pages 155-159)	Treatment toolkit that contains best practices for boardwalks, walking and biking facilities, road crossings, gateways, wayfinding, and trail and trailhead amenities. (see pages 22-25)	N/A



MEMORANDUM

To: Jessie Bialek, Baltimore County Department of Public Works & Transportation

From: Jennifer Baldwin (Alta), Laura Byer (Alta), Ryan-Paul Johnson (Alta)

Date: September 9, 2021

Re: Equity Analysis Methodology + Results

Equity Analysis Indicators

Without access to transportation, people will have a harder time getting to work, buying healthy food, visiting a doctor, going to school, or connecting with their neighbors, friends, and family. While all communities offer a variety of ways to get around, not everyone has equal access to a wide range of convenient, safe, and affordable means of transportation. Uneven distribution of active transportation infrastructure can provide health, safety, mobility, and economic benefits for some subsegments of a population, while increasing hardships for others. Completion of an equity analysis recognizes that barriers to securing transportation needs may vary among population subsegments and that locating concentrations of disadvantaged subsegments can be the first step in identifying and prioritizing those needs.

Methodology

The completion of the equity analysis recognizes that barriers to securing active transportation needs vary among population demographics and locates concentrations of disadvantage populations within Baltimore County in order to identify and later prioritize those needs. Below are the following equity indicators that were used to complete Baltimore County's equity analysis.

Table 1. Equity Indicators and Weighting

Category	Indicator	Weight
Race	People of color	10 / 70 pts
Children	Under 5 years old	10 / 70 pts
Senior Citizens	Over 64 years old	10 / 70 pts
Linguistic Isolation	Does not speak English well or at all	10 / 70 pts
Educational Attainment	No high school diploma	10 / 70 pts
Income	At or below 200% of Federal Poverty Level	10 / 70 pts
Commute	No access to a motor vehicle	10 / 70 pts



Results by Indicator

This technical memorandum shows the relative concentrations of the seven indicators listed in *Table 1*. The corresponding maps show the relative concentrations for each indicator and help identify potential focus areas for new bicycle and pedestrian investments to address county-wide need concerns. The results for each indicator are described below.

Race

The highest concentrations of people of color include the following areas:

- Owing Mills
- Randallstown
- Milford Mill
- Lochearn
- Woodlawn
- Catonsville
- Lansdowne
- Parkville
- Rosedale
- Sparrows Point
- Carney
- Essex

Children

The highest concentrations of children under the age of five include the following areas:

- Jacksonville
- Cockeysville
- Towson
- Pikesville
- Rosedale
- Sparrows Point
- Catonsville
- Lansdowne
- Brooklandville
- Chase
- Hydes



Senior Citizens

The highest concentrations of senior citizens, or over the age of 64, include the following areas:

- Cockeysville
- Towson
- Brooklandville
- Sparrows Point
- Dundalk
- Bowleys Quarters
- Lansdowne
- Catonsville
- Hampton
- Glen Arm
- Baldwin

Linguistic Isolation

The highest concentrations of people who do not speak English well or at all include the following areas:

- Owing Mills
- Cockeysville
- Lansdowne
- Catonsville
- Woodlawn
- Pikesville
- Carney
- Rossville
- Sparrows Point

Education Attainment

The highest concentrations of people with no high school diploma include the following areas:

- Lansdowne
- Catonsville
- Woodlawn
- Owings Mills
- Towson
- Dundalk
- Baldwin
- Hydes
- Long Green



MEMORANDUM

- Rosedale
- Rossville
- Essex
- Middle River

Income

The highest concentrations of people living at or below 200% of Federal Poverty Level include the following areas:

- Lansdowne
- Catonsville
- Woodlawn
- Pikesville
- Towson
- Cockeysville
- Carney
- Overlea
- Rosedale
- Rossville
- Dundalk
- Sparrows Point
- Middle River

Commute

The highest concentrations of people without access to a car include the following areas:

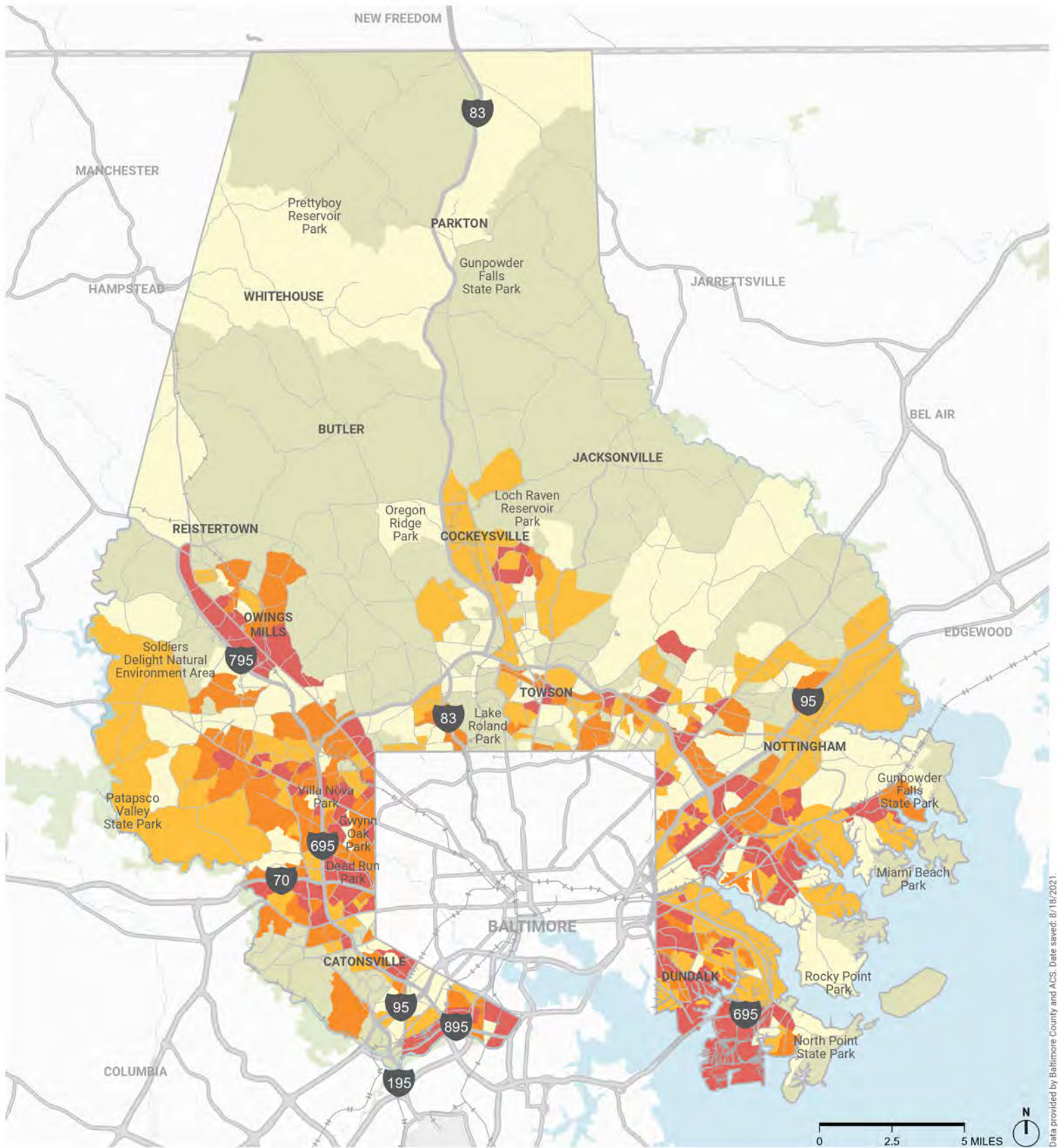
- Lansdowne
- Catonsville
- Woodlawn
- Milford Mill
- Owing Mills
- Reistertown
- Garrison
- Pikesville
- Cockeysville
- Lutherville-Timonium
- Towson
- Rossville
- Dundalk
- Essex
- Sparrows Point



Summary of Composite Results

The Composite Need Map illustrates the sum of each indicator in every census block group, weighted according to *Table 1* above. The composite scores for each census block group are shown again in five quintiles, so that the areas with the highest needs are clearly identifiable. The areas within Baltimore County with the highest need scores compared to the rest of the county include **Sparrows Point** and **Owings Mills**. Other high need areas include:

- Dundalk
- Essex
- Milford Mills
- Lansdowne
- Rossville
- Rosedale
- Catonsville
- Middle River
- Parkville
- Cockeysville
- Carney
- Towson

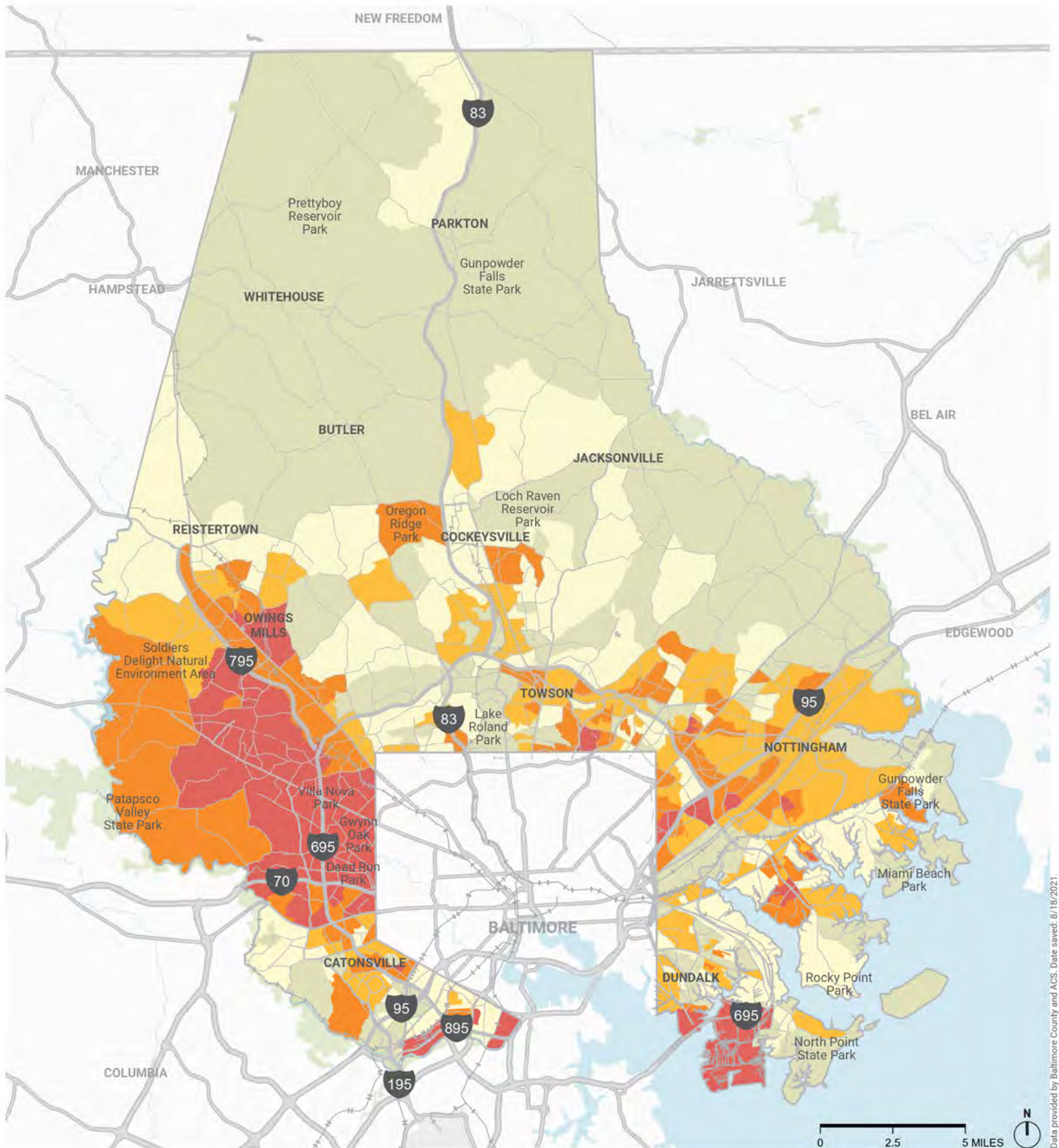


Data provided by Baltimore County and ACS. Date saved: 8/18/2021.

EQUITY ANALYSIS BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN

Composite Equity Analysis Results



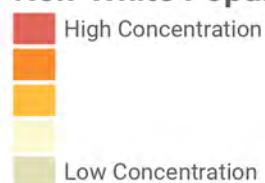


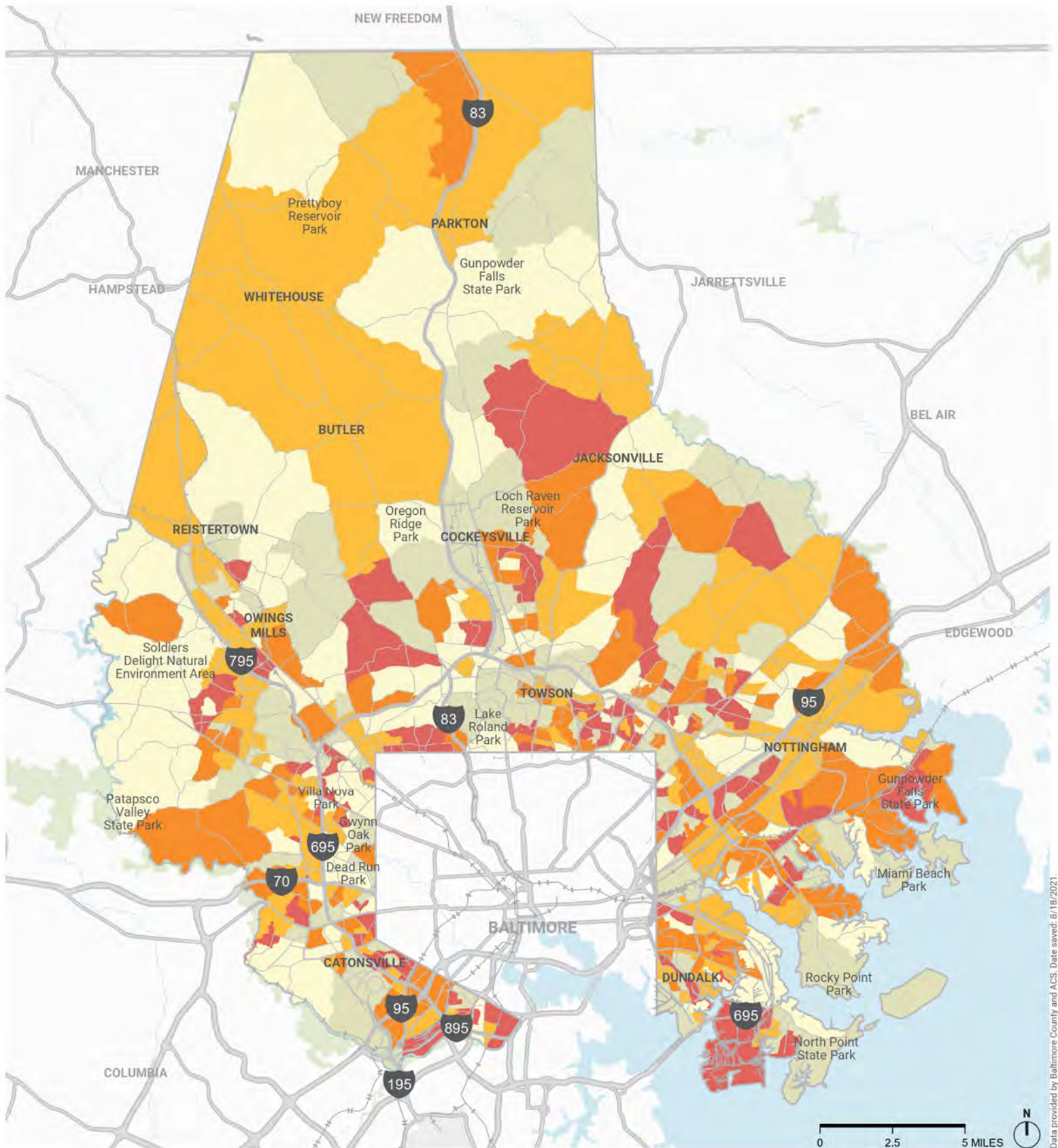
EQUITY ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Non-White Population





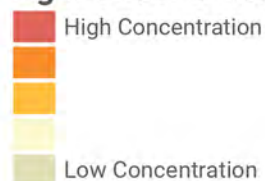
Data provided by Baltimore County and ACS. Date saved: 8/18/2021.

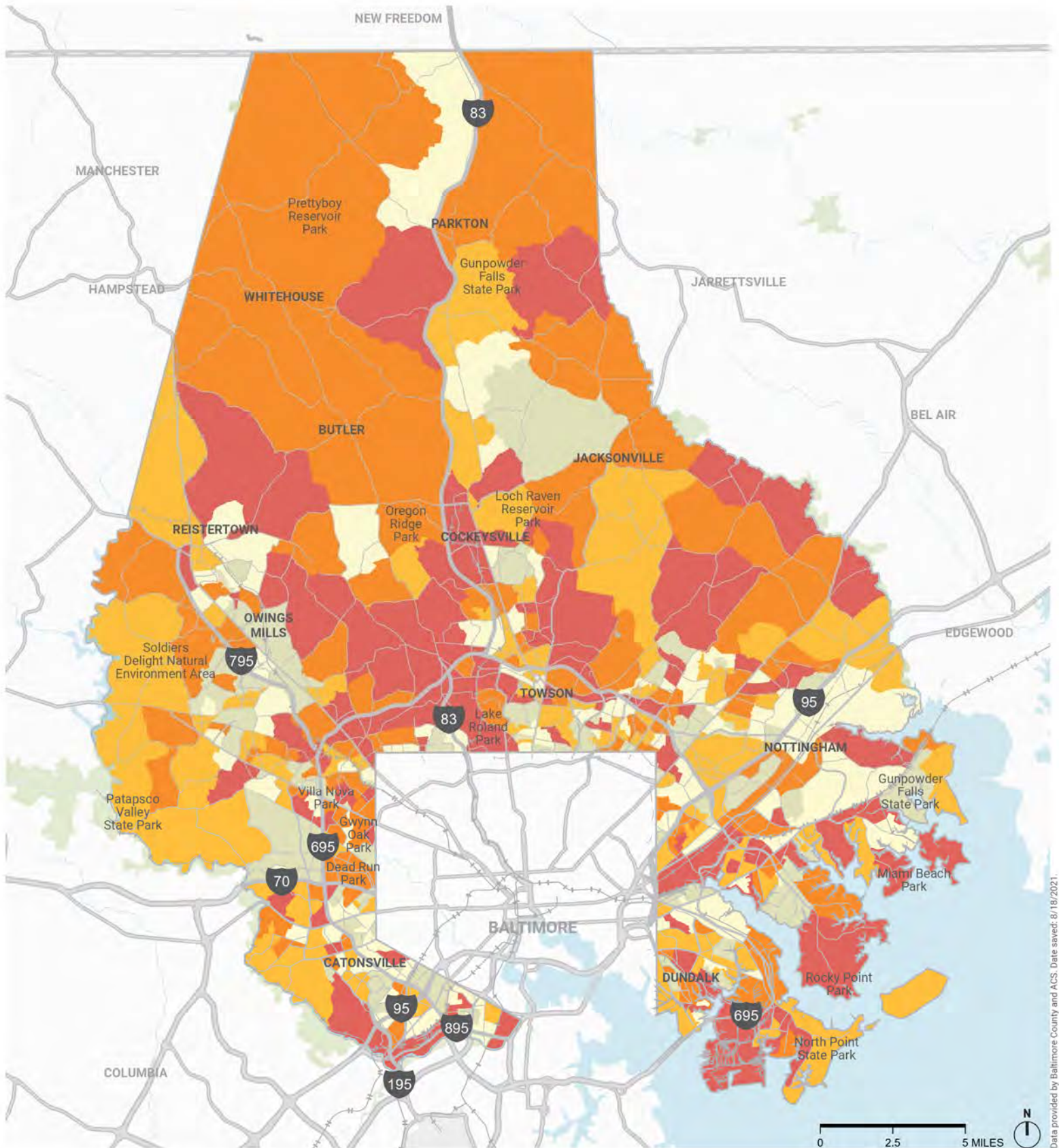
EQUITY ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Age: Under 5 Years

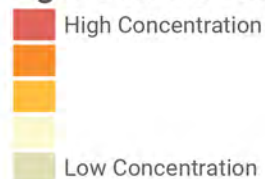


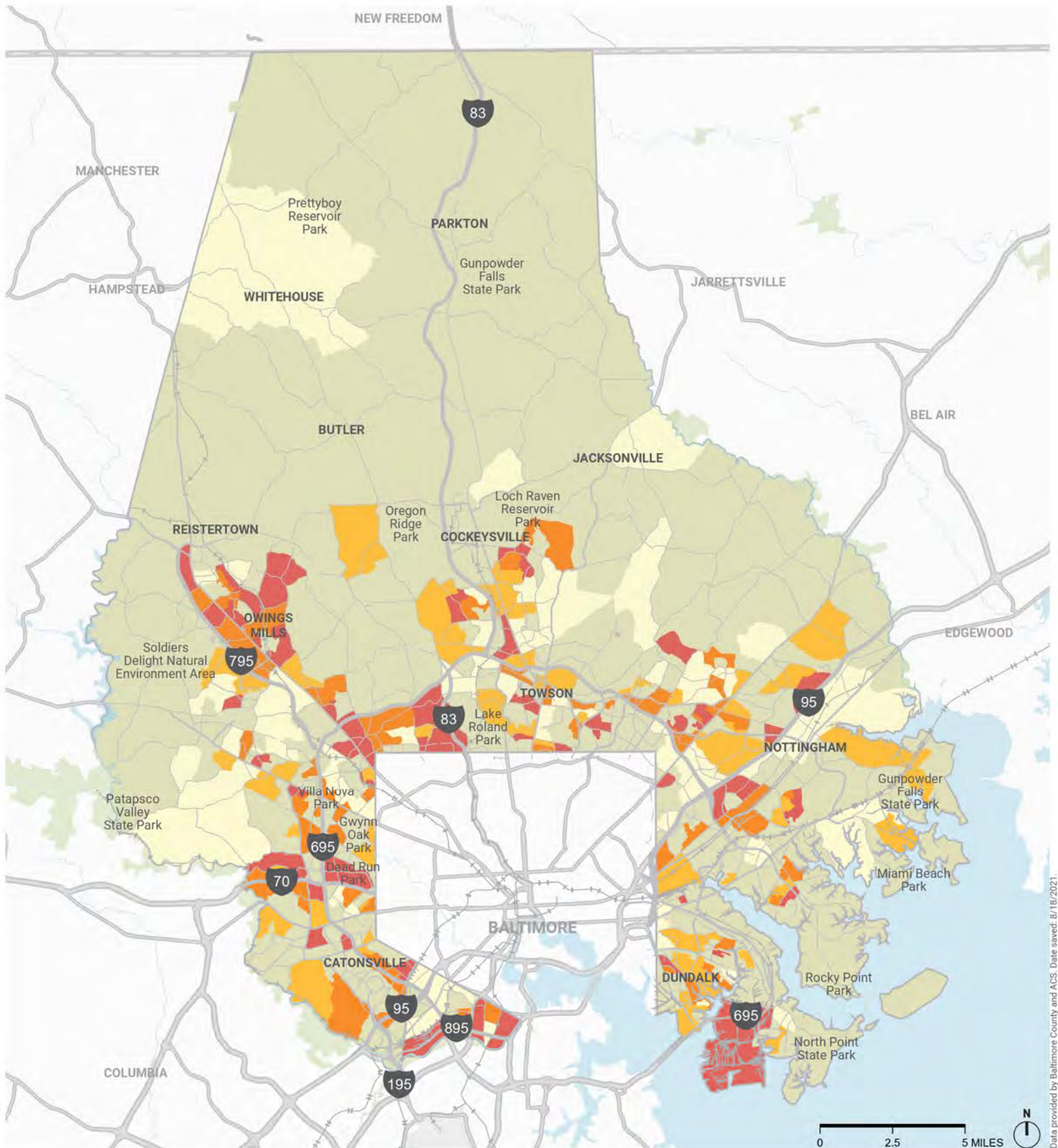


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EQUITY ANALYSIS BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN

Age: Over 65 Years

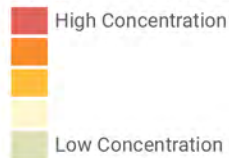


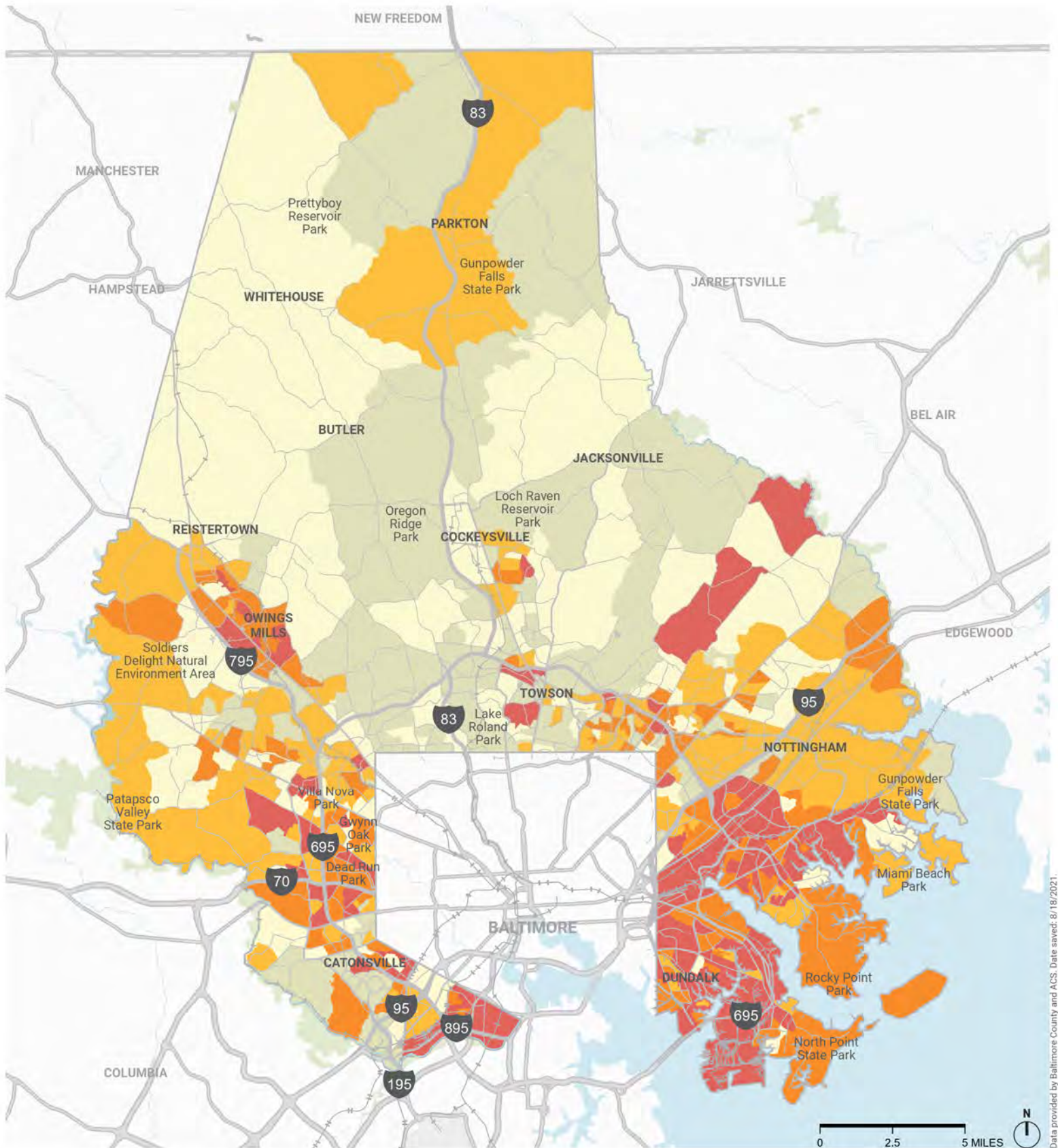


EQUITY ANALYSIS

BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN

Limited or Non-English Speaking



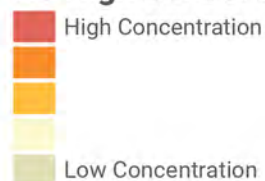


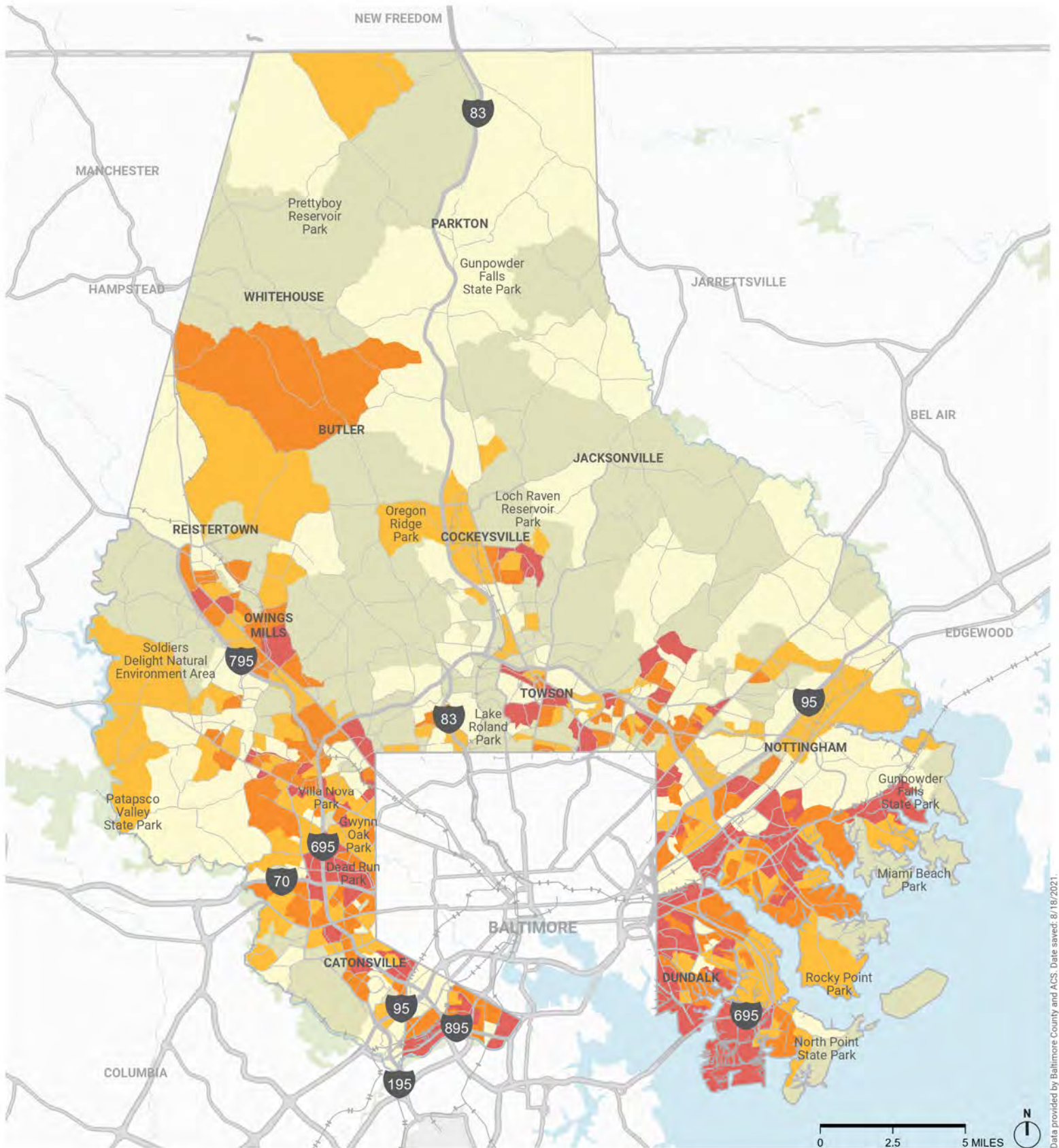
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EQUITY ANALYSIS

BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
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No High School Diploma



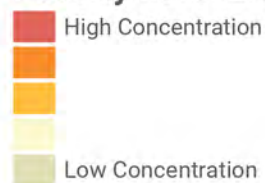


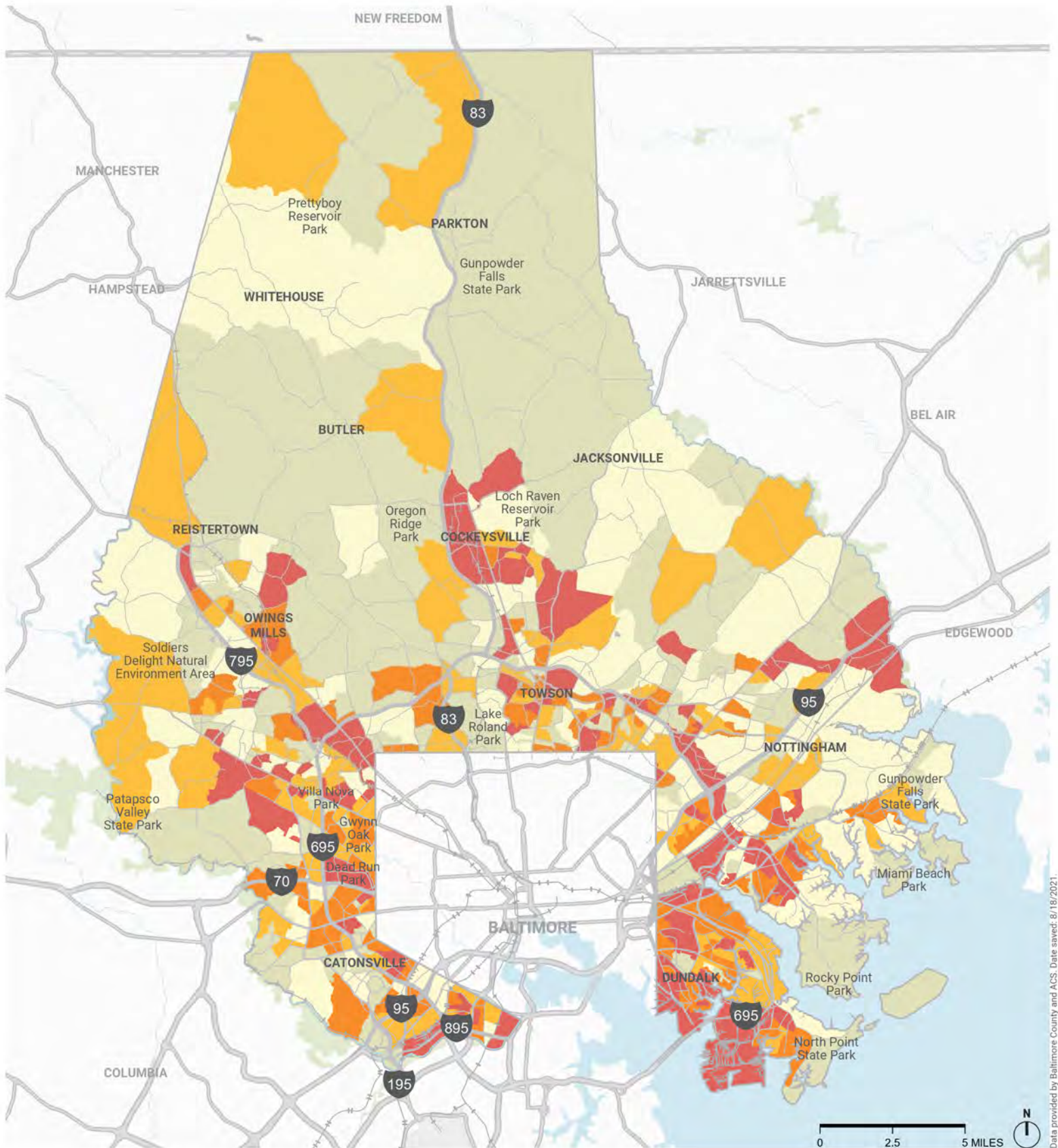
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EQUITY ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN

Poverty Level 2.0 and Lower



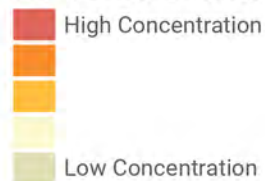


Data provided by Baltimore County and ACS. Date saved: 8/18/2021.

EQUITY ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN

No Vehicle Access





MEMORANDUM

To: Jessie Bialek, Baltimore County Department of Public Works & Transportation

From: Jennifer Baldwin (Alta), Laura Byer (Alta), Ryan-Paul Johnson (Alta)

Date: September 30, 2021

Re: Demand Analysis Methodology + Results

Demand Analysis Results

To quantify and visualize demand for transportation and recreational activities within the Study Area, the planning team employed active transportation demand analysis. This memo summarizes the methods and findings of the demand analysis for Baltimore County.

Demand Analysis

This is an objective, data driven process that estimates the cumulative demand for active transportation. This is accomplished by quantifying factors that generate bicycle and pedestrian movement. The resulting Composite Demand Map summarizes the geographic distribution of active transportation demand throughout the Study Area. The results of the analysis will be used to help inform and prioritize recommendations. The following section discusses the approach taken to assessing relative demand for walking and bicycling within Baltimore County.

Methodology

The Demand Analysis model provides a general understanding of expected transportation and recreational activity by analyzing spatial data representative of origins and destinations in the County. This type of demand is often expressed as where people live, work, play, shop, learn, take transit, and access community services. Also included is land use and planned facilities in order to account for expected future activity. A composite demand score will summarize the geographic distribution of active transportation demand in Baltimore County and will be used to help inform and prioritize recommendations. Table 1 identifies the seven input categories and their weighting. Table 2 identifies the indicators and data sources used for each input category.

Table 1. Demand Category Weighting

Category	Alta Recommended Weight
Live: Where people live	10 / 70 pts
Work: Where people work	10 / 70 pts
Play: Where people recreate	10 / 70 pts
Shop: Where people shop	10 / 70 pts
Learn: Where people attend school / educational facilities	10 / 70 pts
Transit: Where people access public transportation	10 / 70 pts
Community Services: Where people access community services	10 / 70 pts



Summary of Composite Results

The demand analysis' scoring method is a function of density and proximity. Areas that have more input features and features that are closer together, have higher scores. Low feature density areas and areas where input features are further apart, receive lower scores. Composite demand is calculated by summing all eight categories: Live, Work, Play, Shop, Learn, Transit, and Community Services.

The analysis reveals high demand areas exist throughout Baltimore County, yet some areas reveal much higher demand than others. From a countywide perspective, areas with higher demand concentrations are located in Towson, Cockeysville, Dundalk, Catonsville, Owings Mills, Woodlawn, and Rossville.

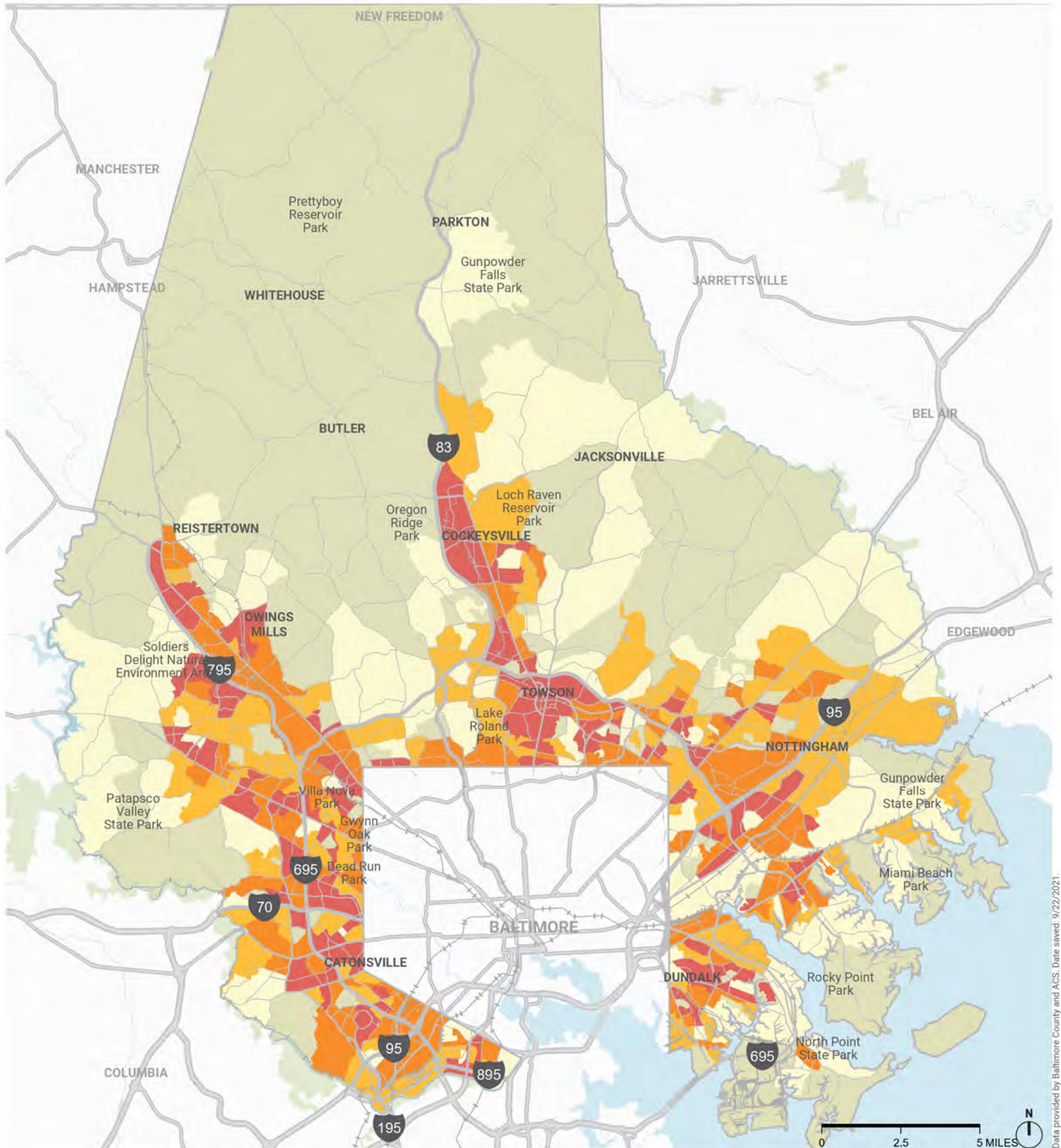
Table 2. Demand Indicators

Category	Indicator	Typical Data Source
Live: Where people live	Population Density	2014-2019 American Community Survey (US Census)
Work: Where people work	Employment Density	2018 Longitudinal Employer-Household Dynamic (LEHD)
Play: Where people recreate	Parks	Provided by Client
	Existing Shared Use Paths	Provided by Client – data to be updated by consultant team as part of Task 3
Shop: Where people shop	Retail Job Density	2018 Longitudinal Employer-Household Dynamic (LEHD)
Learn: Where people attend school / educational facilities	K-12 Public Schools (data does not include enrollment)	Provided by Client
	K-12 Private Schools (data includes enrollment)	Provided by Client
	Colleges / Universities (data does not include enrollment)	Provided by Client
Transit: Where people access public transportation	Bus Stops (data includes boarding / alighting numbers)	Provided by Client
	Light Rail Stations (data includes average weekday ridership)	Provided by Client
	Subway Stations (data includes average weekday and weekend ridership and)	Provided by Client
	MARC Train Stations (data includes average weekday ridership and partial average weekend ridership)	Provided by Client
	Hospital / Urgent Care Facilities / Health Treatment Centers	Provided by Client



MEMORANDUM

Category	Indicator	Typical Data Source
Community Services: Where people access community services	Social Service Offices	Provided by Client
	County Historic Landmarks	Provided by Client
	Community Centers	Provided by Client
	Park and Ride Locations	Provided by Client
	Child Care Centers	Provided by Client
	County Offices	Provided by Client
	Nature Centers	Provided by Client
	PAL Centers / Sports Complex	Provided by Client
	Libraries	Provided by Client
	Senior Centers / Nursing Homes / Residential Care Facilities / Assisted Living Facilities	Provided by Client



Data provided by Baltimore County and ACS. Date saved: 9/22/2021.

DEMAND ANALYSIS

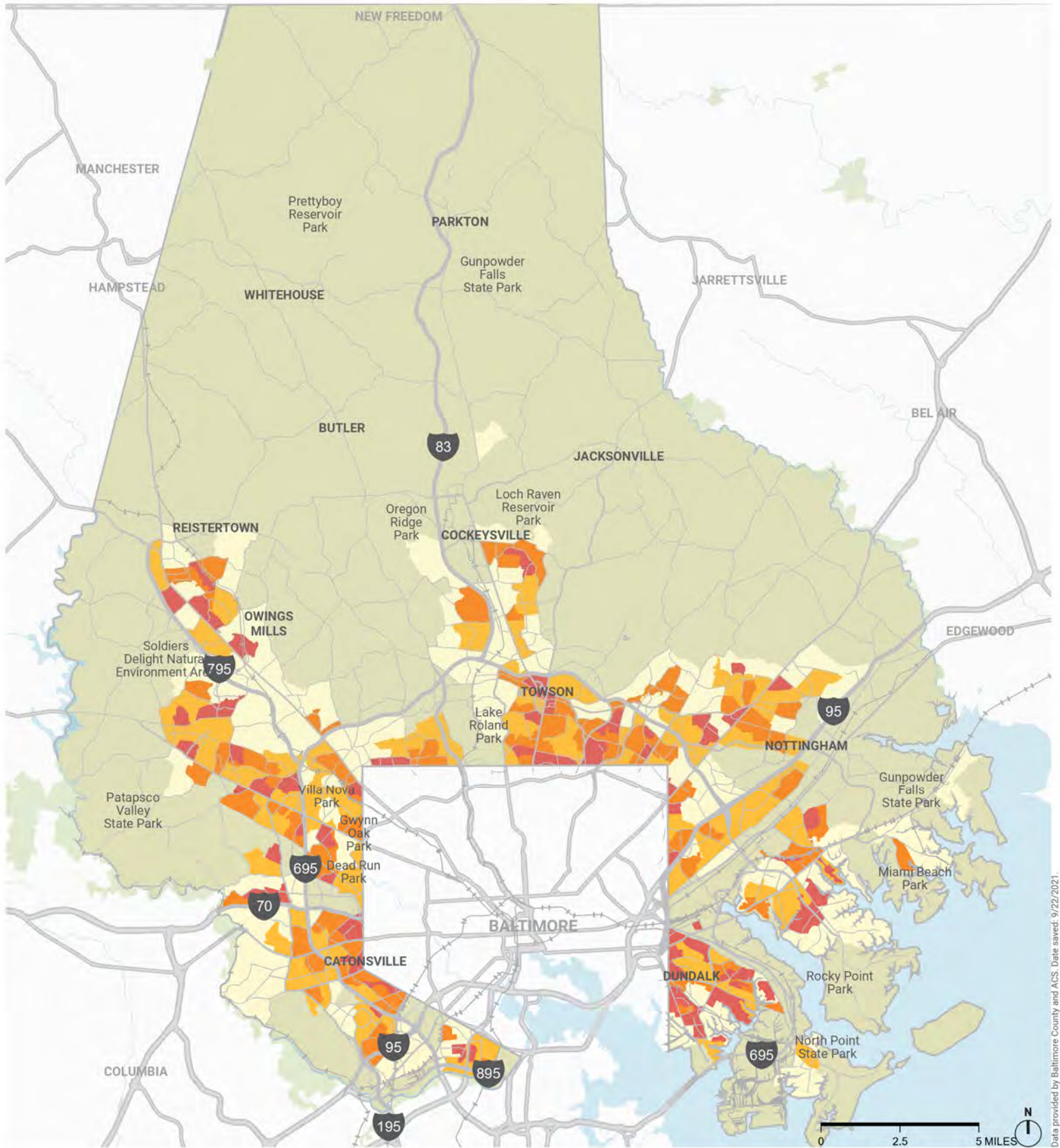
BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Composite Demand

- High Demand
-
-
- Low Demand





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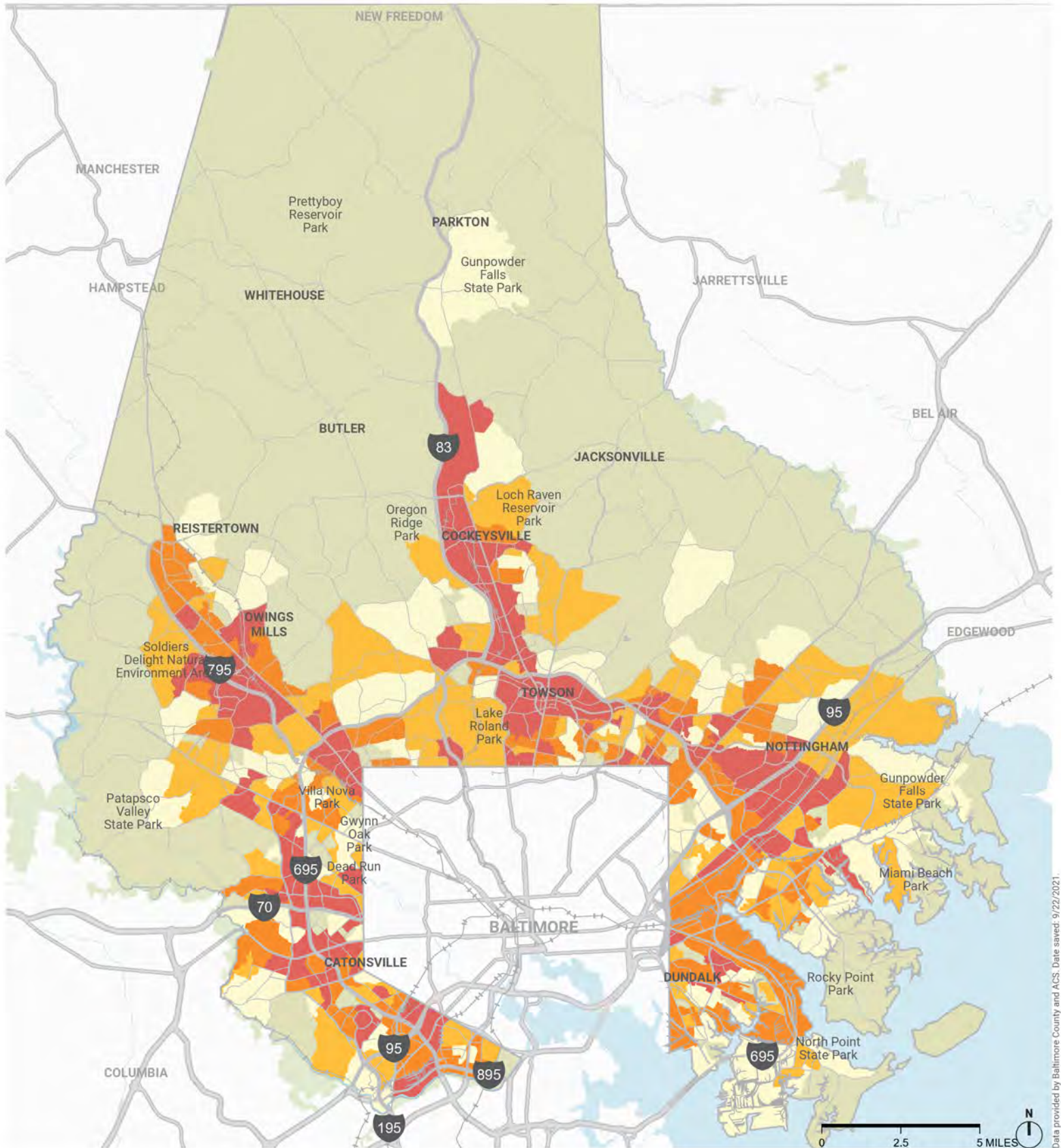
DEMAND ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Live Input





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DEMAND ANALYSIS

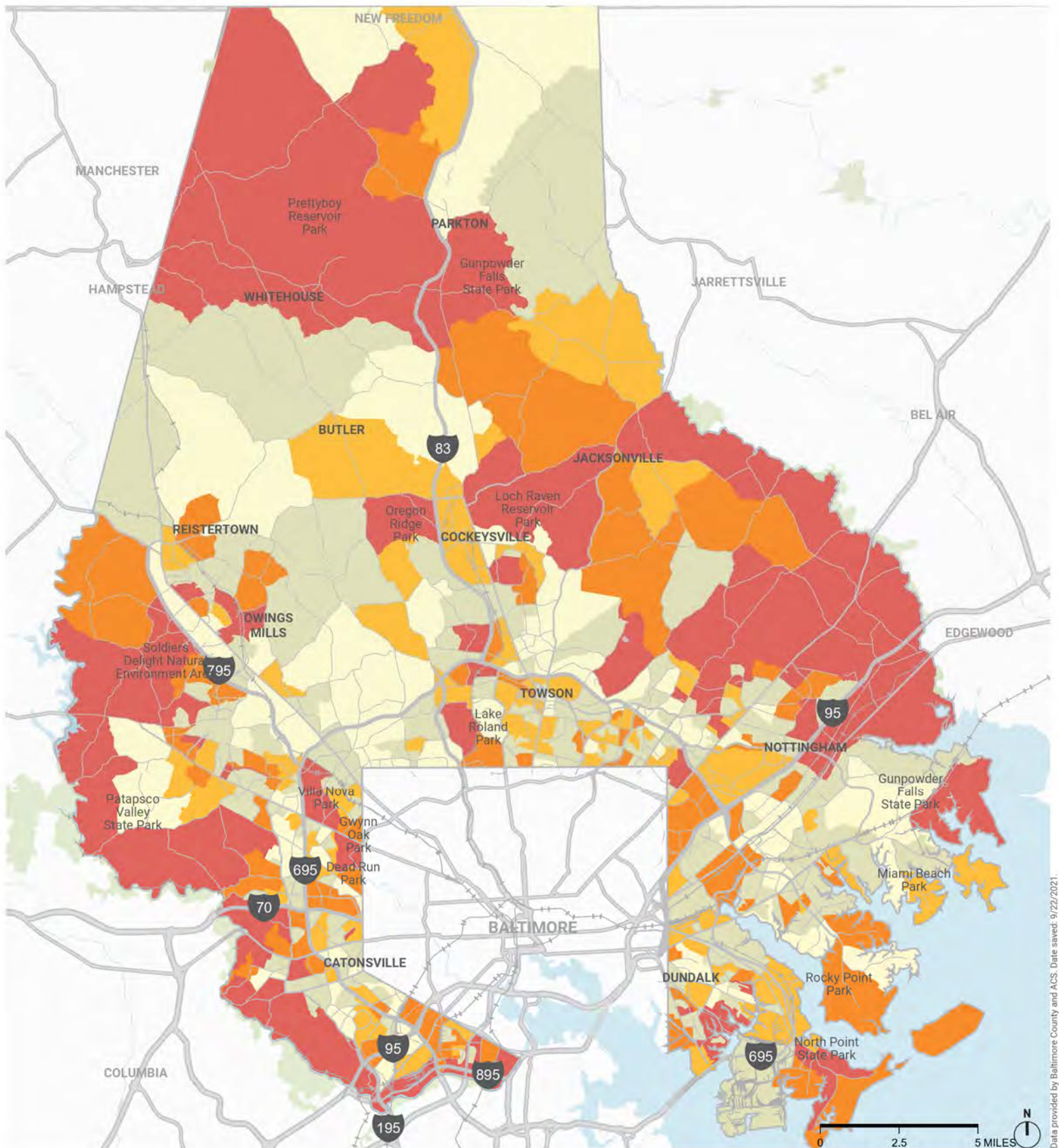
BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Work Input

- Highest Employment Density
-
-
- Lowest Employment Density





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DEMAND ANALYSIS

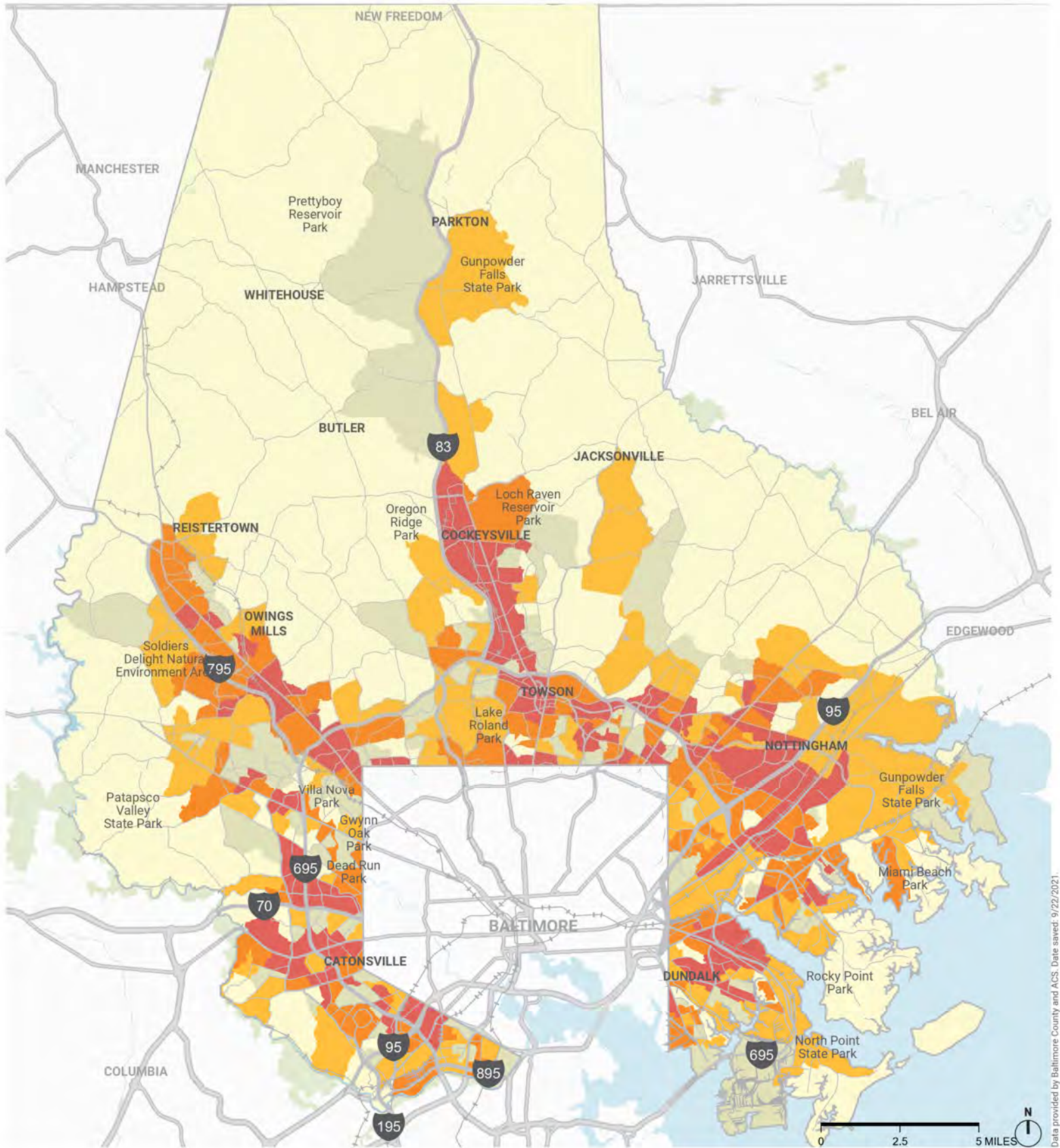
BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN

alta

Play Input

- Highest Play Density
-
-
- Lowest Play Density



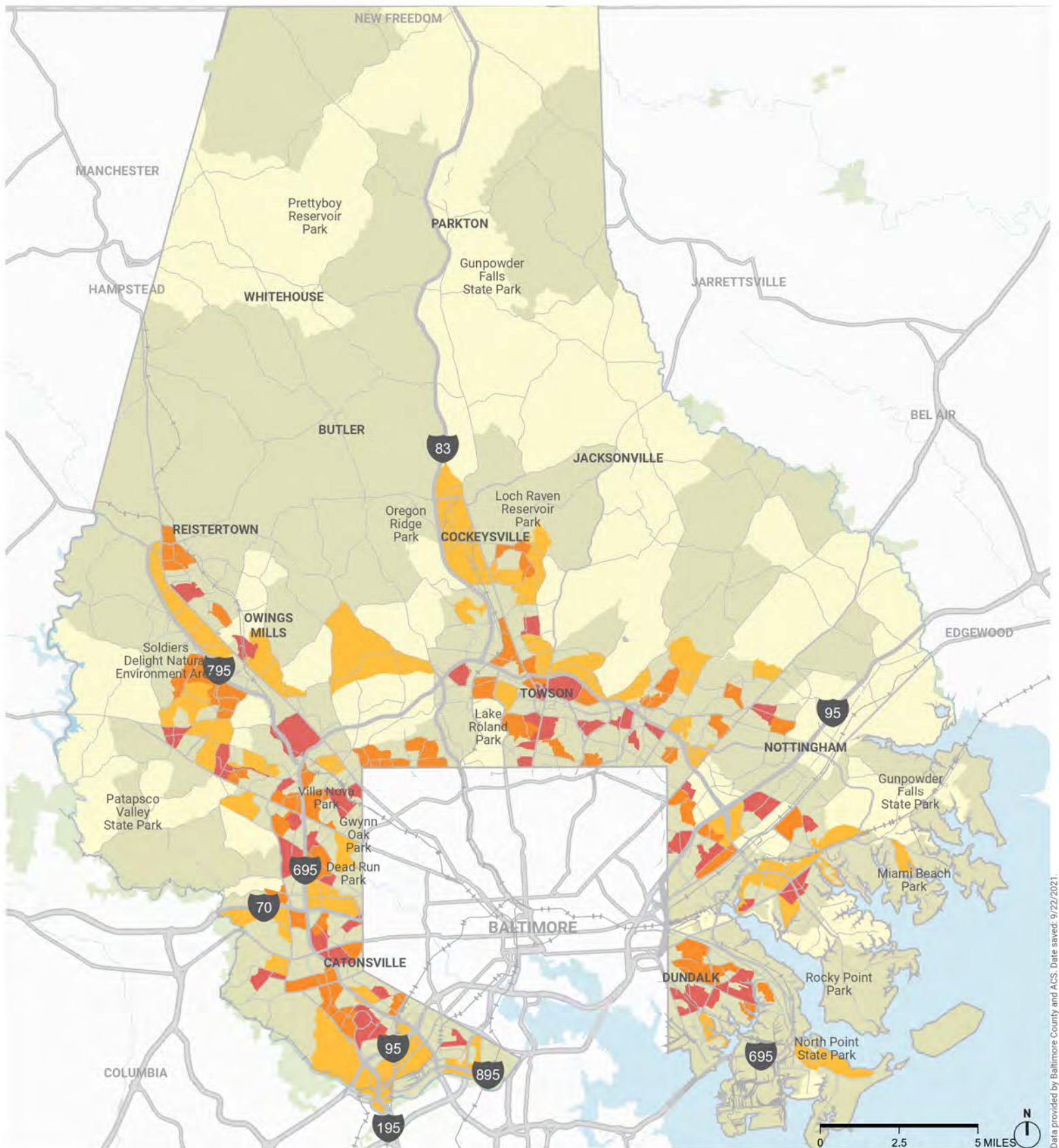


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DEMAND ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN





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DEMAND ANALYSIS

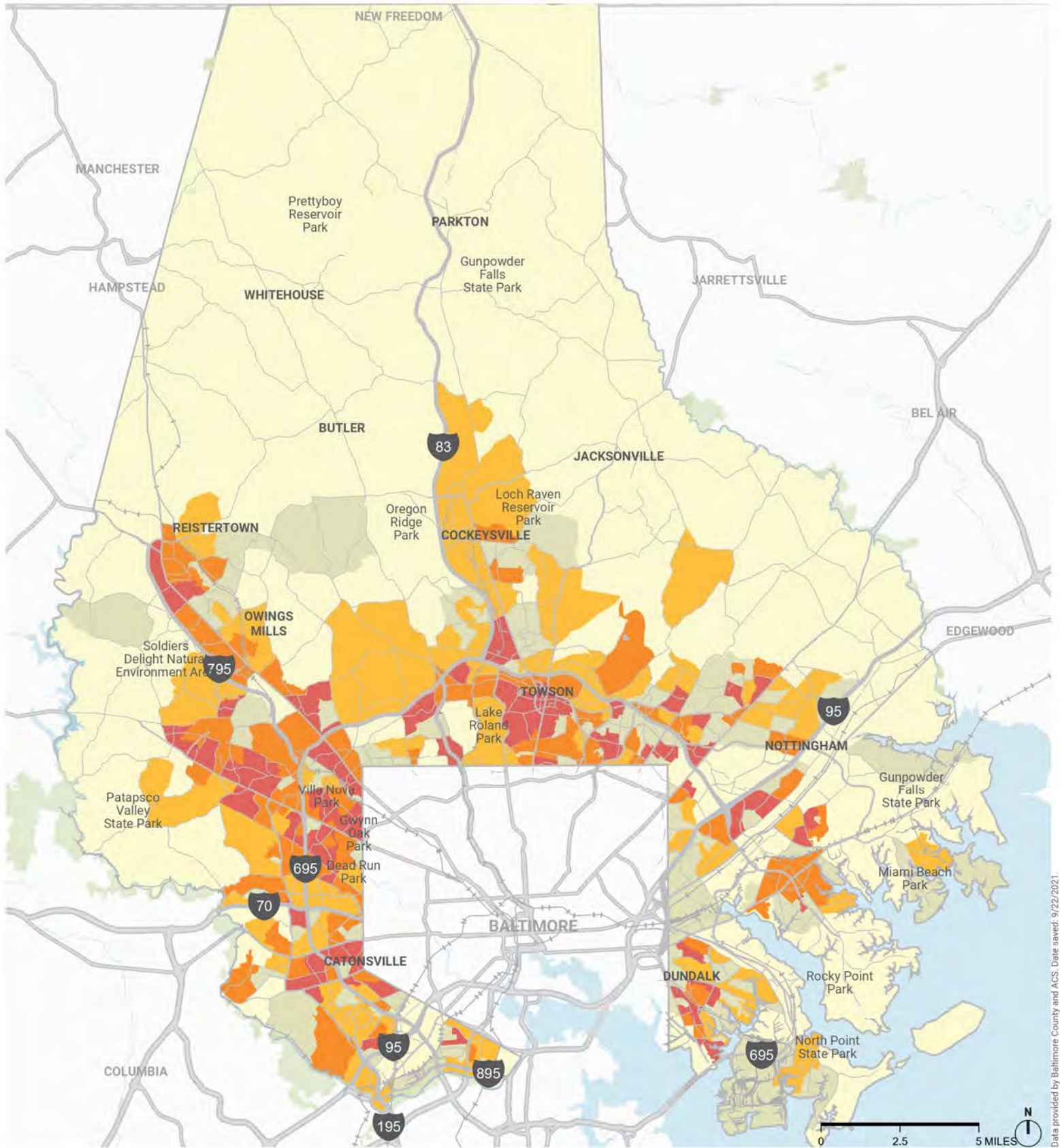
BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Learn Input

- Highest Educational Facility Density
-
-
- Lowest Educational Facility Density





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DEMAND ANALYSIS

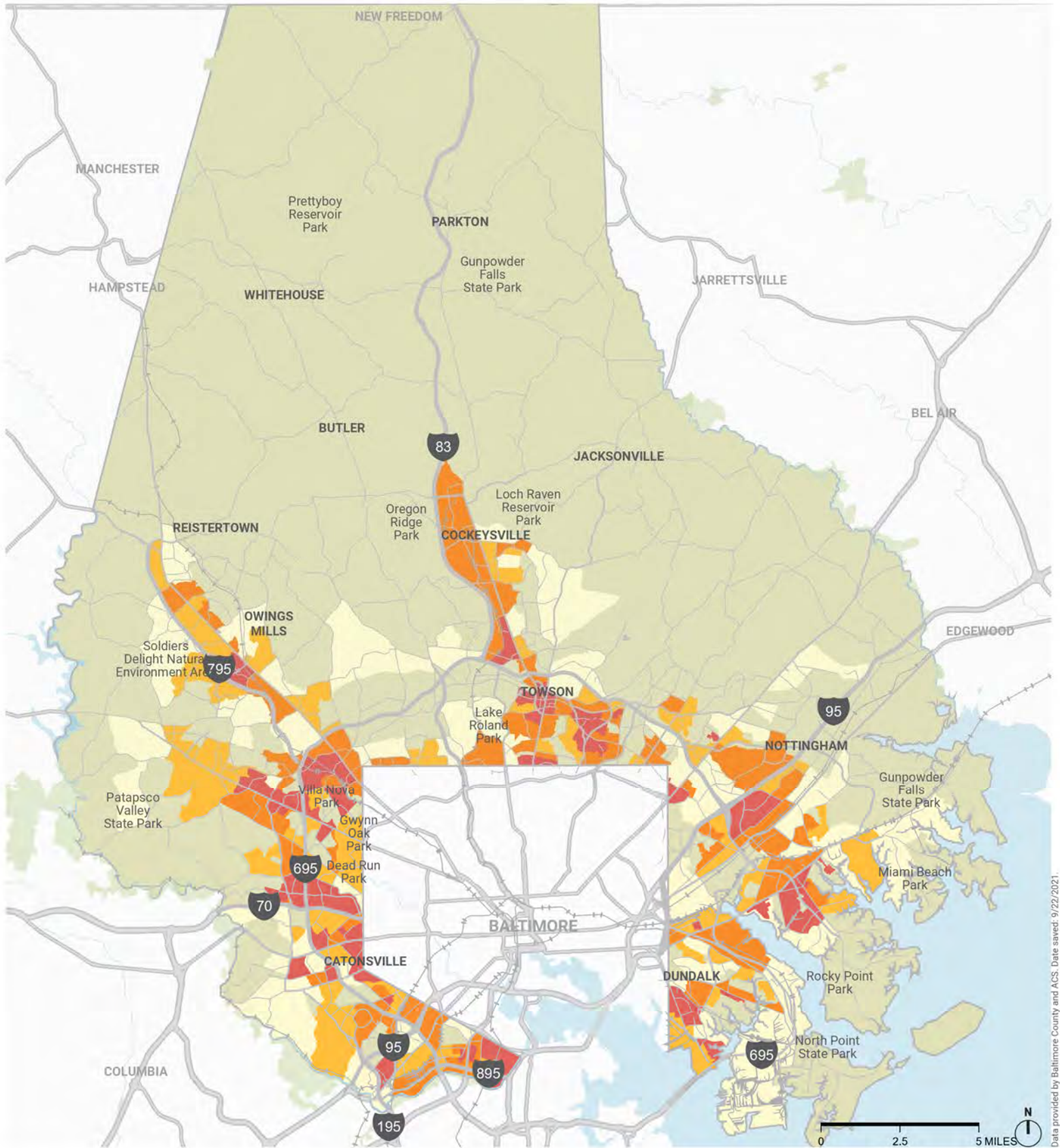
BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN

alta

Community Services Input

- Highest Community Services Density
-
-
- Lowest Community Services Density





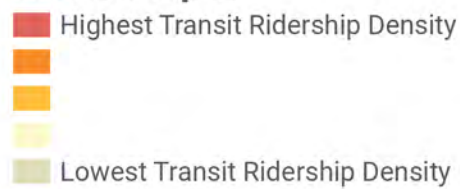
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DEMAND ANALYSIS

BALTIMORE COUNTY PEDESTRIAN AND BICYCLE MASTER PLAN



Transit Input



To: Jessie Bialek, Baltimore County Department of Public Works & Transportation

From: Jennifer Baldwin (Alta), Laura Byer (Alta), Ryan-Paul Johnson (Alta)

Date: October 4, 2022

Re: Baltimore County Bicycle & Pedestrian Master Plan – Health Assessment

Why Consider Health?

By creating healthier, more active communities, the Baltimore County Bicycle & Pedestrian Master Plan can focus on meaningful change in the everyday lives of Baltimore County residents and promote active transportation and physical activity through the built environment. In “A Framework for Public Health Action: The Health Impact Pyramid,” Dr. Thomas Frieden, former Director of the CDC, states that changing the environmental context of communities holds the second highest impact on health, following changing socioeconomic status. Accounting for other societal factors, creating healthy options as the default choice is one of those most effective methods for impacting health outcomes (Frieden, 2010).

Adjusting health behavior by limiting sedentary lifestyles and incorporating regular physical activity into weekly routines can lower risk of cardiovascular disease (heart attack and stroke), high blood pressure, type 2 diabetes, certain cancers, dementia, and depression. In fact, the CDC has found that over 8 percent of adult deaths can be traced to lack of physical activity (Carlson, Adams, Yang & Fulton, 2018).

Equitable transportation access means the fair ability to reach destinations such as work, school, grocery stores, health care centers, or entertainment. Many communities rely on a variety of modes to connect to basic services that are necessary to live productive, fulfilling, and healthy lives. Advancing active transportation in Baltimore County through the built environment provides access to opportunities while promoting physical exercise. Improving conditions for people who walk and bike is critical to the health, safety, and overall mobility of our communities, leading to an increased quality of life for Baltimore County residents. In order to implement solutions that positively impact the health of residents in every community, there must be a baseline measure and consideration of the current health status of Baltimore County residents.

The following pages explore the health indicators that most impact Baltimore County residents in terms of lifestyle limitations, chronic conditions, and mortality.

Health Indicator Analysis

This analysis focuses on the following key health indicators, related to either health behaviors or risk factors, due to their ability to be highly influenced by an individual’s physical activity or Baltimore County’s built environment (data was only available at the county level):

- Physical Activity/Inactivity
- Obesity
- Food Access
- Mental Health
- Hypertension
- High Cholesterol

Physical Activity/Inactivity

Research suggests that physically active adults “have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon cancer, breast cancer, and depression” than their physically inactive peers (USDHSS, 2008). The 2008 Physical Activity Guidelines for Americans from the U.S. Department of Health and Human Services recommends that adults aged 18 to 64 engage in at least 150 minutes of moderate intensity aerobic physical activity each week (USDHSS, 2008). Walking or bicycling as a form of transportation or walking to public transportation stations, such as bus stops, also count toward meeting the daily physical activity recommendations (Besser, 2005; Freeland, 2013). Overall, there is a significant 12% reduction in mortality associated with active transportation, and there is an 11% reduction in risk of cardiovascular disease associated with active transportation (Hamer, 2008; Hu, 2007).

- **75.6% of Baltimore County residents reported participating in any physical activities or exercises in the past month (at the time of the survey), compared to 76.6% for Maryland (MD-IBIS, 2019 BRFSS Data)**

Obesity

Body mass index (BMI), used to define obesity and overweight, should not be used to define the overall health of an individual as a variable by itself. However, research has shown that elevated BMI is strongly correlated with various adverse health outcomes and chronic diseases, and can be impacted by levels of physical activity. Obesity is defined as a BMI greater than or equal to 30.0, when calculated using weight and height. Obesity is a nationwide epidemic that affects over one third of U.S. adult population and approximately one fifth of U.S. children (age 2-19) (CDC, 2019). This represents a significant portion of the population that are at risk of developing high blood pressure, high cholesterol, stroke, diabetes, heart disease, certain types of cancer, among other chronic illnesses (CDC, 2016; NHLBI, 2019). Walkable and bikeable communities support daily physical activity and healthy behaviors that lead to reductions in the incidence of obesity in residents.

- **33.5% of Baltimore County residents are obese (MD-IBIS, 2019 BRFSS Data)**
- **65.9% of Baltimore County residents are overweight and obese, compared to 66.6% for Maryland (MD-IBIS, 2019 BRFSS Data)**

Food Access

Limited access to supermarkets, grocery stores, or other sources of healthy and affordable food make it more difficult for some people to regularly incorporate a healthy diet into their lives. Evidence has linked low food access to a number of health issues, including obesity, being overweight, poor dietary habits, other chronic conditions associated with being overweight or obese, physical inactivity, and high levels of stress and poor mental health (FRAC, 2019). Considering areas with low food access - which is the share of people that live more than one mile from the closest supermarket or grocery store - can provide a better understanding of the populations whose health is impacted by food access. It is especially important to ensure that it is safe and convenient to walk, bicycle or take public transit to access food in low-income communities, rural communities, and communities of color, which are less likely to have a grocery store close to home and where people are less likely to own a vehicle (SRP, 2019).

- **13.7% of Baltimore County residents reported that it was often/sometimes true that the food they bought did not last and they did not have money to purchase additional food, compared to 14.1% for Maryland (MD-IBIS, 2019 BRFSS Data)**

Mental Health

Determinants of mental illness can be individual, social and environmental, and can be broken down into adverse and protective factors (WHO, 2012). Adverse or risk factors are those characteristics at the individual, social, or environmental level that are associated with a higher likelihood of problem outcomes, whereas protective factors are those characteristics associated with a lower likelihood of problem outcomes (Youth.gov, 2019). Creating more livable, healthy, and well-connected communities has a direct impact on many of the protective factors of mental illness. Increased bicycle and pedestrian activity is one factor that can positively influence physical health and fitness. One study found that bicycling improves self-confidence, tolerance to stress, and overall well-being, while another study indicates that 30 minutes of daily moderate intensity physical activity (walking or biking) at least three days a week, is associated with reduced anxiety, depression, and improved self-esteem and social interaction (Cavil, 2007; Sharma, 2006).

- **9.8% of Baltimore County residents have experienced 1-2 days of poor mental health in the past month (at the time of the survey), compared to 9.4% in Maryland (MD-IBIS, 2019 BRFSS Data)**
- **12% of Baltimore County residents have experienced 3-7 days of poor mental health in the past month (at the time of the survey), compared to 12.5% in Maryland (MD-IBIS, 2019 BRFSS Data)**
- **13.5% of Baltimore County residents have experienced 8-29 days of poor mental health in the past month (at the time of the survey), compared to 11% in Maryland (MD-IBIS, 2019 BRFSS Data)**
- **6.3% of Baltimore County residents have experienced 30 days of poor mental health in the past month (at the time of the survey), compared to 5% in Maryland (MD-IBIS, 2019 BRFSS Data)**

Hypertension

High blood pressure, also called hypertension, is a condition in which blood flows through the blood vessels at a higher than normal force (REF 64). In the United States, approximately one in three adults has high blood pressure, and over 1,000 people each day die from high blood pressure-related causes including heart attacks, stroke, chronic heart failure, or kidney disease (REF 65). While some risk factors for high blood pressure are genetic, lifestyle habits such as being overweight or obese from eating habits, physical inactivity, and stress all significantly contribute to high blood pressure (REF 66). Walking can significantly reduce the risk of first-time hypertension (by 7%) (REF 46).

- **36.4% of Baltimore County residents have been diagnosed with hypertension (pregnant women not reported), compared to 34.5% for Maryland (MD-IBIS, 2019 BRFSS Data)**

High Cholesterol

Cholesterol, an essential building block of cells in the human body, is transported on proteins called “lipoproteins” through our blood. There are two types of cholesterol: LDL (low-density lipoprotein), the majority of cholesterol, and HDL (high-density lipoprotein), which carries cholesterol back to the liver and flushes it from the body. High levels of LDL (“bad” cholesterol) and low levels of HDL (“good” cholesterol) can increase the risk for heart disease and stroke due to buildup in blood vessels and blocking blood flow. While improved eating habits can lower LDL, the only behavioral and non-medicinal change that can increase HDL is physical activity (Harvard Health Letter, 2010). High cholesterol carries an even greater risk of mortality as age increases, due to its association with heart disease and stroke. Walking reduced first-time high cholesterol by 7% (USDHSS, 2008).

- **34.6% of Baltimore County residents have been diagnosed with high cholesterol, compared to 34.9% for Maryland (MD-IBIS, 2019 BRFSS Data)**

Summary

In general, the data indicates Baltimore County residents are in relatively similar health to the State of Maryland average. That said, there is room for improvement. County residents are still negatively affected by health-related factors that can be mitigated through expansion of the active transportation and recreation network. Such expansions can help increase access to exercise opportunities and connections to major destinations (e.g., food sources, health facilities, etc.). Additionally, there are limitations in the data related to equity. Given that the health assessment data is available at the Countywide level, we are unable to compare the numbers to vulnerable populations. Future recommendations should consider the fact that more vulnerable populations have historically been more susceptible to negative health impacts.

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To: Jessie Bialek, Baltimore County Department of Public Works & Transportation

From: Jennifer Baldwin (Alta), Sarah Littlefield (Alta)

Date: October 4, 2022

Re: Baltimore County Bicycle & Pedestrian Master Plan – Safety and Crash Memo

Introduction

This analysis examines both crash locations and crash trends in Baltimore County. In total, 100,137 crashes were examined, encompassing the years January 2015 through June 2021. The trends identified in this analysis point towards findings that emphasized bicyclist and pedestrians as vulnerable road users, and the more urban areas of Baltimore County as crash hot spots. Yearly trends were also examined, showing a positive downward trend in crashes across all modes. Key findings from this analysis include:

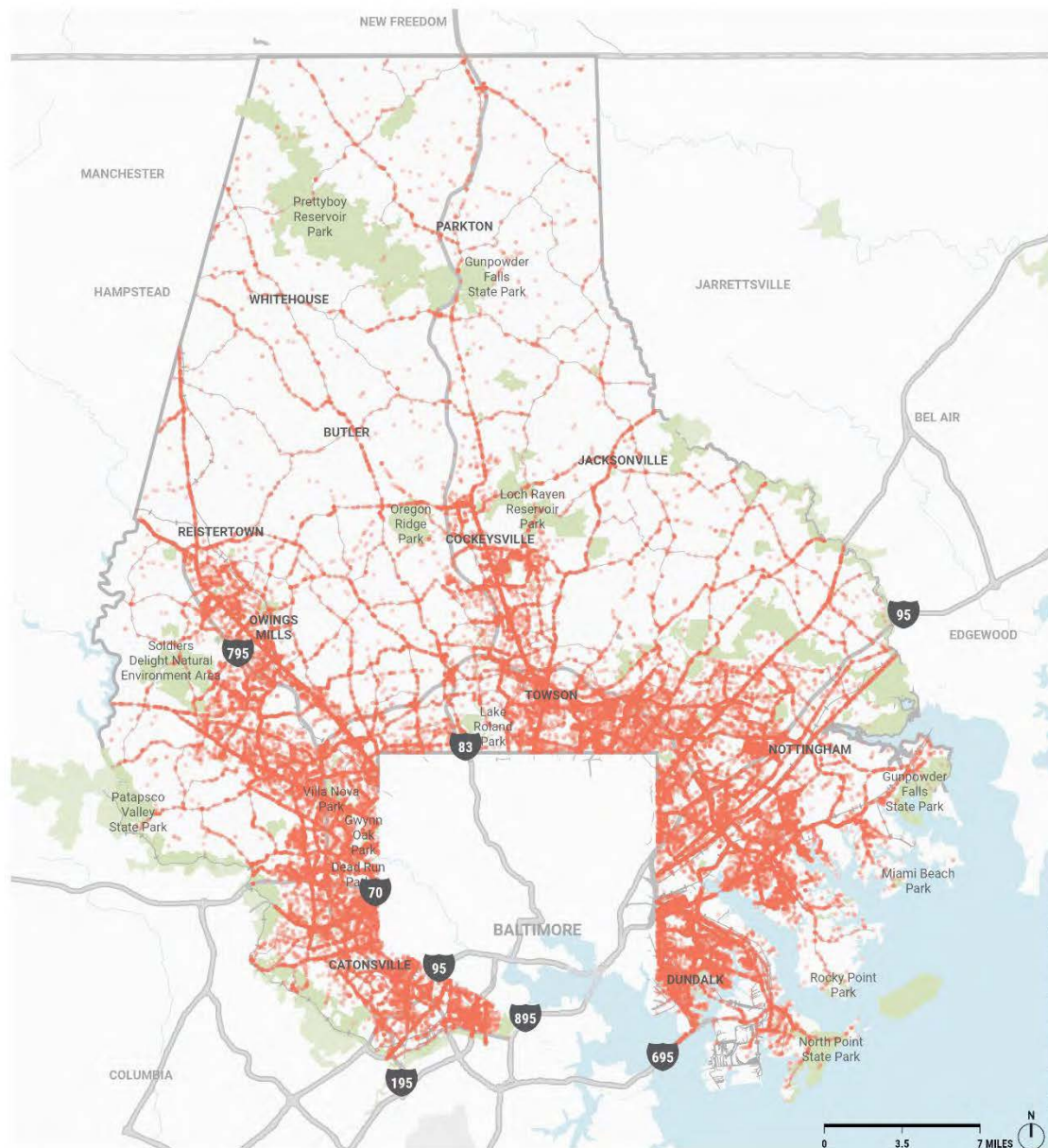
- While bicyclists and pedestrians make up a small percentage of total crashes, they are overrepresented in fatal crashes. **Pedestrians are involved in just 2% of all crashes, but 32% of fatal crashes.** Bicyclists make up 0.5% of all crashes, and 5% of all fatal crashes.
- Three in four pedestrians involved in a traffic crash are killed or injured. Three out of five bicyclists involved in a crash are killed or injured.
- Areas with the highest identified need face disproportionate rates of pedestrian crashes. Though the block groups with the highest need make up just 20% of the county population, they face 43% of pedestrian crashes and 37% of bicyclist crashes.
- 32% of bicyclist involved crashes occur on proposed bike facilities, compared with 4% of bicyclist crashes on existing facilities. This suggests both a need for these bicycle facilities and also the effectiveness of existing facilities at keeping cyclists safe.
- 817 out of 2326 (35%) pedestrian involved crashes occur after dark. Given that people are more likely to walk during the day, this suggests that walking at night is more dangerous than walking during the daytime.

Methodology

Collision points and the road centerline file were processed using the following steps. There were instances where incomplete data prevented us from conducting a full analysis. This includes crash types and crash severity.

- Collision points were obtained from the [Maryland open data portal](#). The data covers crashes within the state of Maryland between January 2015 and June 2021. Crashes that fell outside the boundary of Baltimore County were removed.
- Collision points that fell along federally-controlled interstates were removed. This is due to the high volume on these roadways that would skew crash locations and characteristics and the lack of control local agencies have over these roadways.
- Crashes that fell within the high need and demand areas (the top 80%) were identified and assigned an attribute.
- Attributes were added to the centerline network file in order to evaluate sidewalk and bikeway presence.
- Crash points were snapped to the centerline network, and assigned road attributes associated with the centerline file through a spatial join.
- Crash points and their associated attributes were exported to a CSV file and tabulations were calculated using the statistical software R.

Map 1 - Baltimore County Motorist Crash Locations

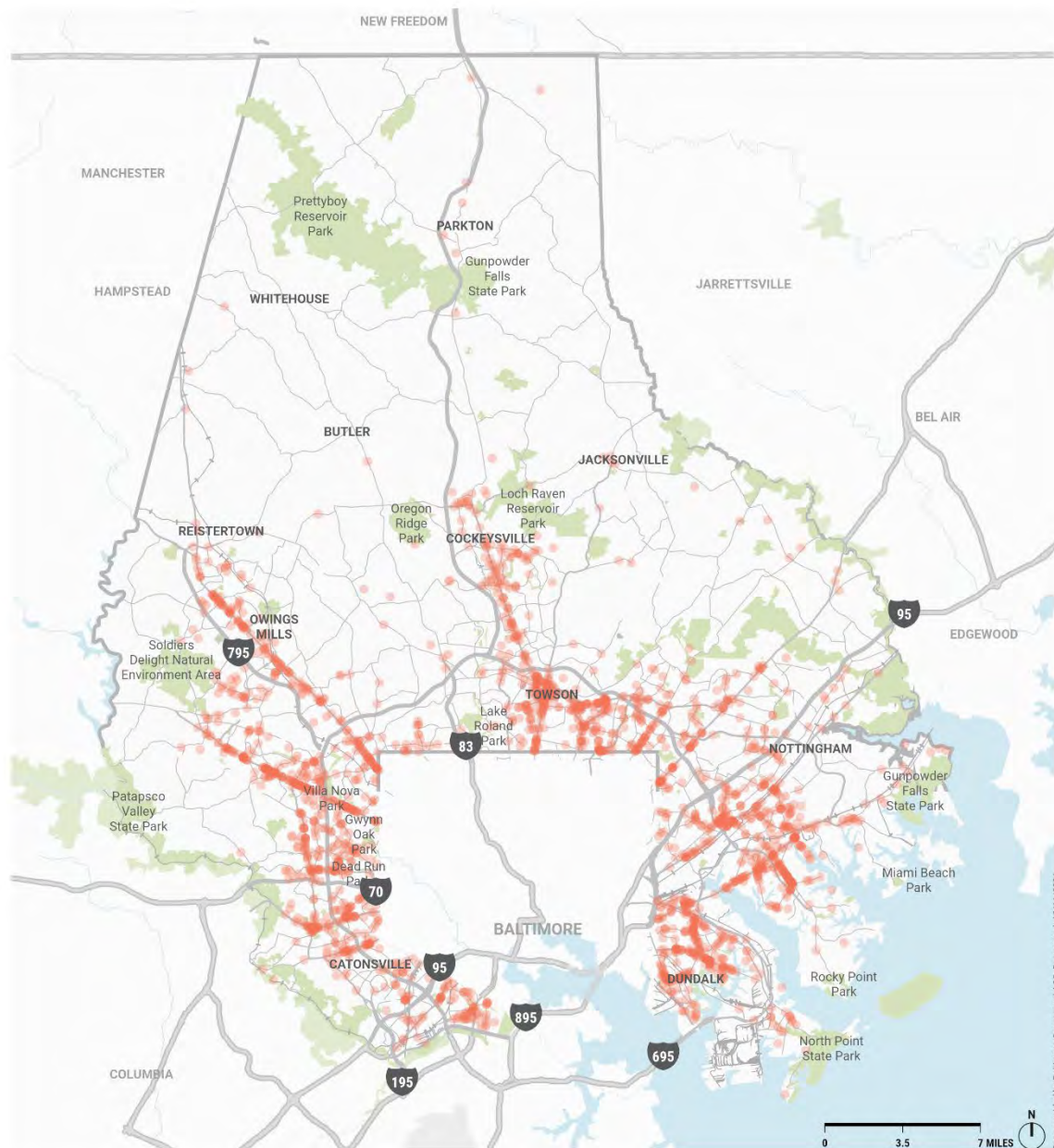


MOTORIST CRASHES
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN

BALTIMORE COUNTY
Motorist Involved Crashes
Parks and Recreation Areas
County Boundary



Map 2 - Baltimore County Pedestrian Crash Locations



PEDESTRIAN CRASHES

BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN

BALTIMORE COUNTY

- Pedestrian Involved Crashes
- Parks and Recreation Areas
- County Boundary



Map 3 - Baltimore County Bicyclist Crash Locations



BICYCLIST CRASHES
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN

BALTIMORE COUNTY

- Bicyclist Involved Crashes
- Parks and Recreation Areas
- County Boundary

Crash Trends

Crashes by Mode and Severity

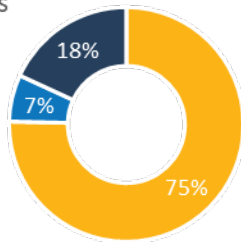
- While bicyclists and pedestrians make up a small percentage of total crashes, they are overrepresented in fatal crashes. Pedestrians are involved in just 2% of all crashes, but 32% of fatal crashes. Bicyclists make up 0.5% of all crashes, and 5% of all fatal crashes.

Table 1 - Mode Split for all Crashes

Mode	Crashes	Percent of total
Motorist	97,313	97.2%
Bicyclist	498	0.50%
Pedestrian	2,326	2.3%

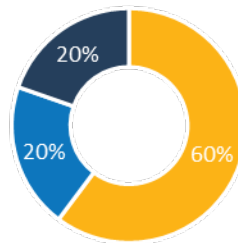
Figure 1 -Share of Crashes by Severity

Pedestrians



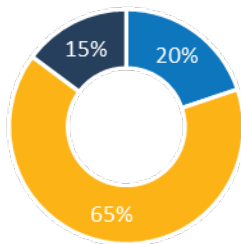
■ Injury/Fatality ■ Property Damage ■ Unknown

Bicyclists



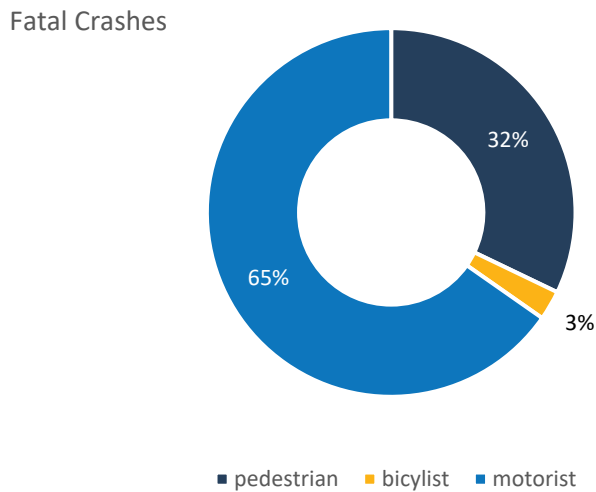
■ Injury/Fatality ■ Property Damage ■ Unknown

Motorists



■ Injury/Fatality ■ property Damage ■ Unknown

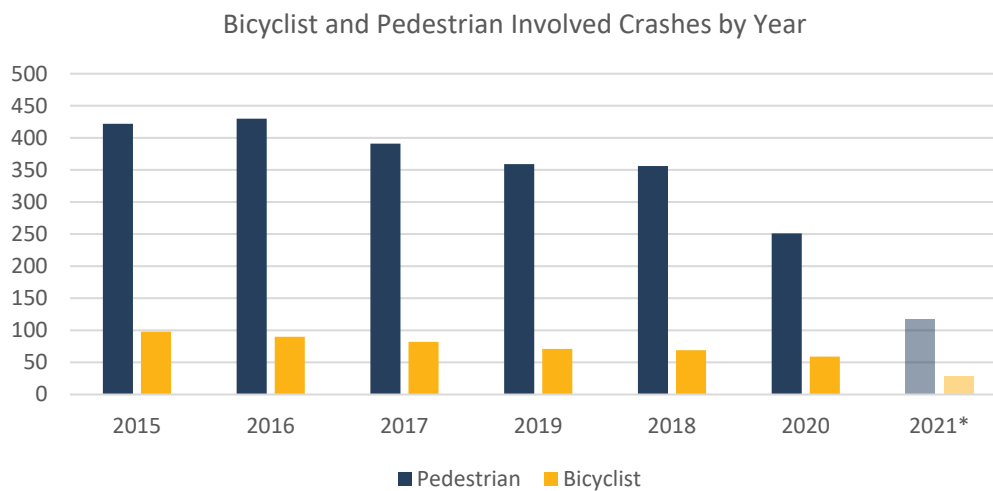
Figure 2 - Mode Split Among Fatal Crashes



Crashes by Temporal Trends

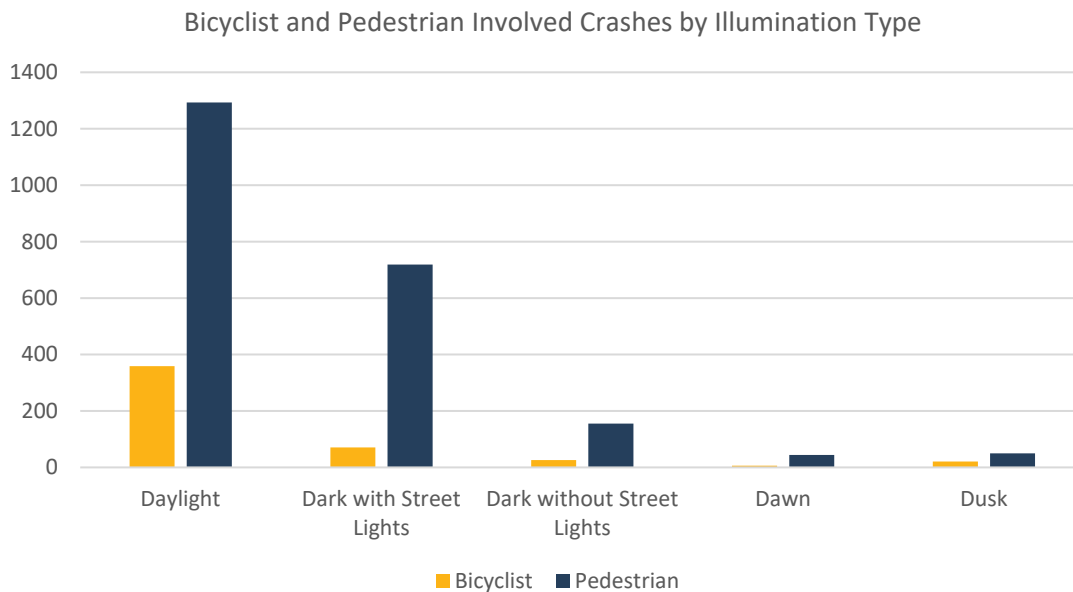
- Bicyclist and pedestrian involved crashes appear to be decreasing. However, the data for 2021 is incomplete as the data only captures crashes through June, so future analysis is needed to see if the trend continues for 2021.
- 817 out of 2326 (35%) pedestrian involved crashes occur during nighttime conditions. Given that people are more likely to walk during the day, this suggests that walking at night is more dangerous than walking during the daytime.

Figure 3 - Crashes per Year – Pedestrians & Bicyclists



*2021 data only captures crashes through June

Figure 4 - Crashes by Illumination: Bicyclists and Pedestrians



Crashes by Equity + Demand

- Areas with the highest identified need face disproportionate rates of pedestrian crashes. Though the block groups with the highest need make up just 20% of the county population, they face 43% of pedestrian crashes and 37% of bicyclist crashes.
- Areas within the top demand tier also face a disproportionate number of crashes. Over 50% of pedestrian crashes occur within the top demand tier. This is likely due to the greater number of people who live, work, and play in these areas of Baltimore County.

Table 2 - Crashes in the Top Equity Tier

Top Need Areas (80 th percentile)	Count	Percent
Motorists	11,100	11%
Pedestrians	992	43%
Bicyclists	184	37%

Table 3 - Pedestrian & Bicyclist Crashes in the Top Demand Tier

Top Demand Areas (80 th percentile)	Count	Percent
Motorists	39,143	40%
Pedestrians	1,183	51%
Bicyclists	218	44%

Crash Types

- Bicyclist and pedestrian involved crash types cannot be fully evaluated, as many of these crash types are listed as “single vehicle”, other, or unknown. 18% percent of bicyclist involved crashes were categorized as “same movement angle”, which is typically associated which crashes occurring at intersections.
- Both bicyclist and pedestrian crashes occurred more frequently in left turns than right turns.

Table 4 - Crash Type in Bicyclist Crashes

Bike Collision Types	Crashes	Percent
Single Vehicle	168	34%
Other	140	28%
Same Movement Angle	91	18%
Same Direction Rear End	24	5%
Same Direction Sideswipe	16	3%
Head On Left Turn	13	3%
Same Direction Right Turn	10	2%
Not Applicable	9	2%
Same Direction Left Turn	8	2%
Head On	7	1%
Angle Meets Right Turn	3	1%
Unknown	3	1%
Opposite Direction Sideswipe	2	0%
Angle Meets Left Turn	2	0%
Same Direction Rear End Left Turn	1	0%
Angle Meets Left Turn Head On	1	0%

Table 5 - Crash Types in Pedestrian Involved Crashes

Pedestrian Collision Types	Crashes	Percent
Single Vehicle	1123	48%
Other	867	37%
Same Movement Angle	134	6%
Not Applicable	133	6%
Head On Left Turn	18	1%
Same Direction Rear End	15	1%
Head On	8	0%
Same Direction Sideswipe	7	0%
Unknown	7	0%
Same Direction Left Turn	6	0%
Opposite Direction Sideswipe	4	0%
Same Direction Right Turn	4	0%

Crashes by Roadway Type

- Most crashes occurred on urban roadways.

Table 6 – Functional Class of all Roads in Baltimore County (excludes interstates)

Functional Class	Crashes	Percent
Urban - Local	23,871	65%
Urban - Other Principal Arterial	2,179	6%
Urban - Minor Arterial	3,964	11%
Unknown	7	0%
Urban - Collector	3,220	9%
Urban - Other Freeways And Expressways	403	1%
Rural - Major Collector	605	2%
Rural - Local	2,098	6%
Rural - Minor Arterial	174	0%
Rural - Other Principal Arterial	46	0%
Rural - Minor Collector	216	1%

Table 7 - Roadway Type: All Modes

Functional Class	Crashes	Percent
Urban - Local	25462	25%
Urban - Other Principal Arterial	20781	21%
Urban - Minor Arterial	19913	20%
Unknown	15407	15%
Urban - Collector	10473	10%
Urban - Other Freeways And Expressways	3478	3%
Rural - Major Collector	1788	2%
Rural - Local	859	1%
Rural - Minor Arterial	755	1%
Rural - Other Principal Arterial	474	0%
Rural - Minor Collector	435	0%

Table 8 - Roadway Type: Pedestrian Crashes (excludes interstates)

Functional Class	Crashes	Percent
Urban - Other Principal Arterial	649	28%
Urban - Local	604	26%
Urban - Minor Arterial	497	21%
Urban - Collector	243	10%
Urban - Other Freeways and Expressways	18	1%
Rural - Local	8	0%
Rural - Major Collector	5	0%
Rural - Minor Arterial	3	0%
Rural - Minor Collector	2	0%
Rural - Other Principal Arterial	2	0%
Unknown	295	13%

Table 9 - Roadway Type: Bicyclist Crashes

Functional Class	Crashes	Percent
Urban - Local	175	35%
Urban - Minor Arterial	106	21%
Urban - Other Principal Arterial	89	18%
Urban - Collector	60	12%
Rural - Local	5	1%
Urban - Other Freeways and Expressways	5	1%
Rural - Minor Arterial	4	1%
Rural - Major Collector	1	0%
Unknown	53	11%

Crashes by Presence of Active Transportation Infrastructure

- 33% of pedestrian crashes occurred on roads without sidewalks.
- 32% of bicyclist involved crashes occur on proposed bike facilities, compared with 4% of bicyclist crashes on existing facilities.

Table 10 – Pedestrian Crashes by Sidewalk Status

Sidewalk Status	Crashes	Percent
No Sidewalks	757	33%
Sidewalks on One Side	1,063	46%
Sidewalks on Both Sides	506	22%

Table 11 – Bike Crashes by Existing Bikeway Type

Bike Crashes By Existing Bikeway Type	Crashes	Percent
None	316	63%
Unimproved	160	32%
Bicycle Lane	12	2%
Bicycle Route Signs	4	1%
Bicycle route signs - Advanced	2	0%
Bicycle Route Signs and Pavement Markings	2	0%
Bicycle route signs and pavement markings	1	0%
Unpaved shared use path	1	0%



Table 12 – Bike Crashes by Bikeway Recommendations

Bike Crashes by Bikeway Status	Crashes	Percent
None	316	63%
Proposed	158	32%
Existing	21	4%
Preliminary Investigation	2	0%
Existing/Proposed	1	0%



APPENDIX: COMMUNITY INPUT





Meeting Schedule:

Virtual Public Workshop #1

Tuesday, October 26, 2021 from 12PM to 1PM

Participants: 9

Virtual Public Workshop #2

Wednesday, October 27, 2021 from 7PM to 8PM

Participants: 4

Virtual Public Workshop #3

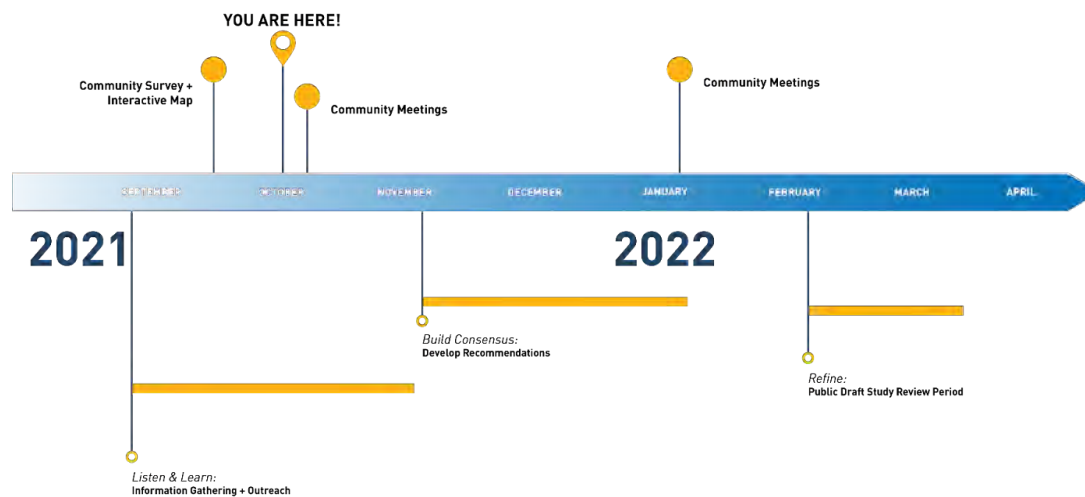
Tuesday, October 30, 2021 from 10AM to 11AM

Participants: 5

Project Background

The plan will serve as an update to the existing Western and Eastern Pedestrian and Bicycle Access Plans to reflect changing development patterns and new momentum around walking and biking in the County. This will be a countywide active transportation plan that will provide on-road bikeway, trail and greenway improvement strategies, conduct a Complete Street Inventory, and develop policy recommendations.

Project Schedule





Existing Conditions- Key Findings

- **Existing Sidewalk Network**

- Conducted an inventory of about 2,449 centerline miles of existing sidewalks.
 - **Question:** When you are inventorying the crosswalks, did you capture all crosswalks? As meaning all 4 legs of intersections.
 - **Answer:** Yes, the inventory captures a captures and markings at each leg of an intersection

- **Existing On-Road Bikeway Network**

- Conducted an inventory of 271 miles of proposed bicycle lanes, 124 proposed bicycle routes, 24 miles of existing bicycle lanes, and 62.5 existing bicycle routes.
 - Note: Proposed bicycle lanes and routes have been taken from existing plans.
 - **Question:** What is the existing bike route category?
 - **Answer:** Anytime a 'share the road' or wayfinding signage is located along a roadway. Does not include marked on- road facilities.
 - **Question:** Is this inventory looking at Strava heat map data?
 - **Answer:** No, not at this moment. However, it may be used to develop recommendations.

- **Existing Trail Network**

- Conducted an inventory of 72.4 miles of proposed unpaved shared use paths, 84.8 miles of proposed paved shared use paths, 25.9 miles of existing unpaved shared use path, and 18 miles of existing paved shared use path.
 - **Comment:** Connectivity to the East Coast Greenway is important to include in the network development stage of project
 - **Question:** Are hiking and mountain biking needs being taken into consideration?
 - **Answer:** Yes
 - **Question:** Reevaluating the policies that are implemented at Loch Raven Reservoir Park owned by the City, has that been a part of the plan?
 - **Answer:** Not to this point, but it could be. Alta is doing a review of specific policies and procedures that currently exist.

- **Demand Analysis**

- This is demand analysis of live, work, play, shop, learn, transit, and community services. Using census block data with these indicators helps to understand the latent demand for active transportation in the area.



- **Equity Analysis**

- This analysis helps to understand the vulnerable users of active transportation within the County. Pulling census data from the block group level and using the indicators of race, children, seniors' citizens, linguistic isolation, educational attainment, income, and commute helps to map out where these vulnerable users are possibly located.

- **Safety Analysis**

- This analysis maps out where safety measures need to be focused based on pedestrian, bicycle, and motor crash data. Bicyclists and pedestrians are over represented in the crash data as compared to existing mode share. Based on our preliminary findings, safety will be a key prioritization factor in the network development phase of the project.

- **Discussion?**

- **Question:** Will these maps be available for the public?
 - **Answer:** The presentation and an existing conditions memo report will be available on the project's website.
- **Question:** Regarding the equity analysis is there any relation to access to transit?
 - **Answer:** We have not overlaid transit stops/routes with the equity analysis but that could be done in the future if needed.
- **Comment:** Glad to see that the safety analysis was done. It's a really important factor to take into consideration.
- **Comment:** The red areas on the maps in the equity and demand maps are indeed reflective of high urban density areas. However, some of the roads that are not lined with the red areas are popular routes used by cyclists.
- **Comment:** Glad to see the demand and equity analysis was done in conjunction with routes were identified by the public. It would also be good to see the connectivity between core city areas.
- **Question:** Is there a part in the plan to coordinate with the State Highway Administration?
 - **Answer:** Yes, the County and State are indeed coordinating together to improve state owned corridors.

What is a Vision Statement?

A vision statement depicts the desired future condition or environment and serves as a guidepost for the planning process and subsequent implementation efforts.

- **Draft Vision Statement**

- "Baltimore County will consist of an active transportation network that is safe and accessible to improve the quality of life and health for users of all ages, abilities, and demographics."



- **Discussion:**

- **Question:** What does the active transportation network include?
 - **Answer:** Walking, biking, use of wheelchair, scooter, bike share, or any other micro mobility.
- **Comment:** I do believe that the vision statement should include more about recreational active transportation use. This could possibly help promote more people to bike and walk and could also attract more people to visit and live in the area.
- **Comment:** I think there is a big opportunity to discuss the benefits to the environment within the vision statement and how using active transportation could improve environmental issues.
- **Comment:** Discuss economic benefits within the vision statement.
- **Comment:** Create a vision statement that will entice people to use active transportation.

Draft Goals:



Increase Safety

Decrease bicycle and pedestrian fatalities and injuries.



Protect the Environment

Promote active transportation as an environmental good to lower environmental hazards.



Ensure Equity

Provide accessibility and affordability for all ages, abilities, and areas with greatest need.



Collaborate with Partners

Create internal and external partnerships.



Expand Access & Connectivity

Create a connected walkable and bikeable network to be accessed by all active transportation users.



Create Economic Growth

Recognize the economic benefits of pedestrian and bicycle-friendly communities to attract people and businesses.



Enhance Public Health

Increase individual activity by improving access to active transportation and outdoor recreation.

- **Discussion:**

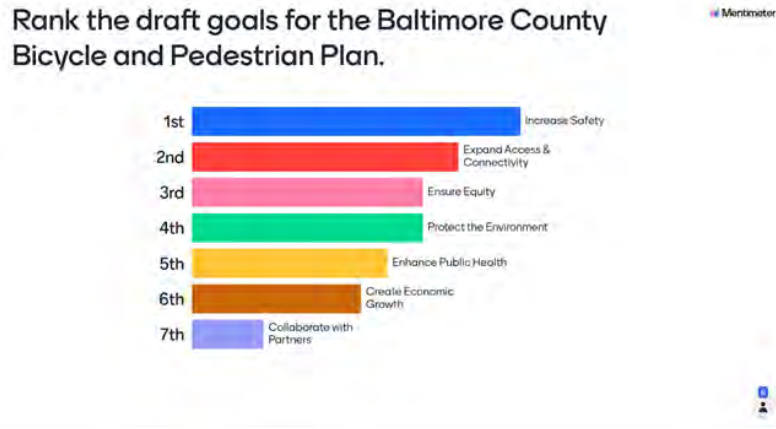
- **Comment:** I think there should be a place where active transportation is clearly defined.
- **Comment:** Regarding land use, it is important to think about the connectivity and use of facilities for those who park their cars in a lot or garage and those who are getting off transit, who are then using active transportation facilities to get to their destinations.
- **Comment:** Recreation goal needed to help promote the investment in recreational opportunities.



- **Draft Goals Poll**

- What top three goals do you think that the County should focus on?

- **Mentimeter Ranking (Workshop #1)**



- **Top Answers (Workshop #3)**

- Expand Access & Connectivity
- Protect the Environment
- Collaborate with Partners
- Combining Equity with Expand Access & Connectivity
- Enhance Public Health

Share Your Thoughts

Public engagement input opportunities have been made possible through the Plan's [website](#) where you can engage in an [interactive map](#) and [survey](#) to share your thoughts about and experiences with active transportation, and also stay updated on the plans process.

- **Comment:** Sign-in page and 'like' button on report for map are not working correctly.

**Nov 14, 2021, is the deadline for commenting through survey and interactive map.

Overall Comments:

- **Comment:** I am concerned about pedestrian crossings at major arterials because there is a lack of crossing infrastructure where people can safely cross, and is also causing longer travel times when walking.
- **Question:** What is the County's perspective on current bike lanes that are just painted on roads and will proposed facilities include this type of facility or will protected bike lanes be prioritized?
 - **Answer:** With there being a great number of major arterials, separation of bike lanes will be prioritized following national best practices.



- **Question:** Is there any part of the plan that will be focused on slowing down cars in neighborhoods and on roads? Is traffic calming a part of the plan?
 - **Answer:** We most likely will not get into specific details about how to create traffic calming but we likely will have policy recommendations to address.
- **Question:** What does collaboration with partners mean?
 - **Answer:** Examples include collaborations with the State, Baltimore City, and having equitable public engagement.
- **Comment:** A good way to further advertise the Plan may be to have marketing materials in parks and at trailheads like Lake Roland and Loch Raven.
- **Question:** One the greatest strengths about the County is its natural spaces and parks. How open is the Department of Natural Resources to creating the connectivity of these spaces and closing gaps along trailways?
 - **Answer:** We will be coordinating with the County's Parks and Recreation Department as we get into developing the network.
- **Comment:** Collaborating with Baltimore City regarding Loch Raven Park should be considered when creating the network.

Meeting Adjourned

To: Jessie Bialek, Baltimore County Department of Public Works & Transportation
 From: Jennifer Baldwin, Alta and Ryan-Paul Johnson, Alta
 Date: October 4, 2022
 Re: Baltimore County Bicycle & Pedestrian Master Plan – Pop-Up Events Memo

Task Summary

Alta conducted six (6) pop-up events, two (2) hours each within the County. The locations of these pop-up events were chosen by County staff, and conducted by Alta between October 5th and October 19th.

The intent of the pop-up events is to spread awareness of the project planning process and conduct intercept surveys in paper format about walking and biking in Baltimore County. Pop-up events allow the project team to go to where people are, rather than asking them to come to us in a traditional public meeting format.

District 1:

- **When:** Monday, October 19, 9am to 11am
- **Where:** University of Maryland (1000 Hilltop Circle, Baltimore, MD 21250)
- **Number of Surveys Completed:** 17

This event was originally scheduled in early October but canceled due to weather. As an effort to expand the demographics and target audience for intercept surveys, this event was moved to the Catonsville Branch of the Baltimore County Library system.

District 2:

- **When:** Tuesday, October 5, 9 am to 11 am
- **Where:** Stevenson University, Greenspring Campus (1525 Greenspring Valley Road, Stevenson, MD 21153)
- **Number of Surveys Completed:** 12

To garner more engagement, this pop-up event location was moved to 7-mile Market, at 201 Reisterstown Rd, Pikesville, MD. After 30-minutes and only one survey participant at this location, the pop-up event was moved again to the Pikesville Library, at 1301 Reisterstown Rd, Pikesville, MD.

District 3:

- **When:** Saturday, October 9, 8 am to 10 am
- **Where:** Veloccino Bike and Coffee (15007 Falls Road, Butler Md, 21023)
- **Number of Surveys Completed:** 19

Alta staff quickly engaged with cyclists who use this location as a meeting post for starting or taking a break during their recreational trips. Most cyclists were very excited to participate and gave feedback about their experiences biking within the County.

District 4:

- **When:** Tuesday, October 5, 2 pm to 4 pm
- **Where:** Randallstown Community Center (3505 Resource Drive, Randallstown, MD 21133)
- **Number of Surveys Completed:** 15

This location saw less public engagement than expected. However, because there was also a vaccination event going on at the community center, many are now aware of the development of the Baltimore County Bicycle and Pedestrian Master Plan by the County.

District 5:

- **When:** Wednesday, October 6, 9 am to 11 am
- **Where:** Towson University (8000 York Road, Towson MD 21252)
- **Number of Surveys Completed:** 41

This location was the most successful event with great student engagement. Many students gave feedback on their experiences walking and biking around both the campus, and the County.

District 6:

- **When:** Thursday, October 7, 11 am to 1 pm
- **Where:** Community College of Baltimore County Essex (7201 Rossville Boulevard, Baltimore MD 21237)
- **Number of Surveys Completed:** 33

Another great student engagement event. Although a smaller campus, many students were excited to participate in the survey and give feedback.

District 7:

- **When:** Thursday, October 7, 2pm to 4pm
- **Where:** Community College of Baltimore County, Dundalk (7200 Sollers Point Rd, Baltimore MD 21222)
- **Number of Surveys Completed:** 14

Public engagement at this event was very sporadic with few students, faculty and staff actively walking around. After about an hour and a half of being on-site, we were approached by campus security and ask to leave for not having the correct permission to be on campus.



To: Jessie Bialek, Baltimore County Department of Public Works & Transportation
From: Jennifer Baldwin, Alta
Ryan-Paul Johnson, Alta
Date: October 7, 2022
Re: Baltimore County Bicycle and Pedestrian Master Plan Engagement Summary

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Background

With the launch of the Baltimore County Bicycle and Pedestrian Master Plan, public involvement in its planning process plays a valued part to develop a plan that represents community needs in Baltimore County. The purpose of the Plan is to promote a vision and strategy for the implementation of a connected, safe, and equitable bicycle and pedestrian network within the County. Public engagement opportunities will help to identify and understand the challenges and barriers of people using active transportation within and through the County and what improvements or needs they would like to see in their community. This phase of the planning process will help us answer the following questions:

- How do people actively travel around their community and throughout the County today?
- How do people want to actively travel around/within their community and throughout the County in the future?
- What current challenges need to be addressed to allow people to actively travel around their community and throughout the County more safely, conveniently and comfortably?
- What ideas (e.g., new facilities or programs) do people have to improve how they actively travel around their community and throughout the County?



Online Community Survey

The Online Community Survey was conducted between October and November 2021 with the purpose of understanding the general public's thoughts, experiences, and perspectives about using active transportation in Baltimore County. **A total of 1,292 online surveys were completed** with 151 intercept surveys collected from pop-up events

Who We Heard From

- **Race (n=1250)**

Selected Race	Count	Percent
White	951	76.08%
Black or African American	113	9.04%
Hispanic, Latinx, or Spanish Origin	39	3.12%
Asian	33	2.64%
Native American or Alaska Native	10	0.80%
Native Hawaiian or Pacific Islander	2	0.16%
Identify as a Race not Listed	15	1.20%
Preferred not to Identify Race	129	10.32%

42 survey respondents skipped the question

- **Gender (n= 1255)**

Selected Gender	Count	Percent
Female	642	51.16%
Male	541	43.11%
Transgender	2	0.16%
Preferred not to Identify Gender	56	4.46%
Identified as a Gender not Listed	14	1.12%

37 survey respondents skipped the question



- **Age (n= 1258)**

Selected Age	Count	Percent
17 Years or Younger	5	0.40%
18 – 30 Years	144	11.45%
31 – 45 Years	412	32.75%
46 – 60 Years	403	32.03%
61 Years or Older	273	21.70%
Preferred not to Identify Age	21	1.67%

34 survey respondents skipped the question

- **Income (n= 1176)**

Selected Household Income	Count	Percent
Less than \$25,000	29	2.47%
\$25,000 to \$50,000	88	7.48%
\$50,000 to \$75,000	129	10.97%
More than \$75,000	681	57.91%
Preferred not to Share Income	249	21.17%

116 survey respondents skipped the question

- **Language**

- 1,292 Online Community Surveys were completed in English
- 0 Online Community Surveys were completed in Spanish

- **Vehicle Access (n= 1246)**

- 97.8% of respondents (1,219 respondents replied yes to having access to a car, motorcycle, or truck).
- 46 respondents skipped the question

- **Bicycle/Micro-mobility Device Access (n= 1247)**

- 75.3% of respondents (939 respondents replied yes to having access to a bicycle, scooter, or other micro-mobility devices).
- 45 respondents skipped the question

- **Most Common Home Zip Codes (n= 1239)**

- 21228 (107 respondents)-District 1



- 21093 (96 respondents)- District 2, District 3
 - 21286 (73 respondents)- District 3, District 5
 - 21212(64 respondents)-District 2, District 5
 - 21234 (59 respondents)- District 3, District 5 District 6
- **Most Common Work Zip Codes (n= 1072)**
 - 21204 (107 respondents)-Districts 2, District 5
 - 21093 (56 respondents)-District 2, District 3
 - 21286 (46 respondents)-District 3, District 5
 - 21228 (44 respondents)-District 1
 - 21208 (43 respondents)-District 2

What We Heard

Question 1: In the past year, how often did you use each of the following modes of transportation for work trips?

Answered: 1,292 Skipped: 0

Results:

Mode	Daily	About Once a Week	About Once a Month	A Couple Times a Year	Never
Driving	63.91%	12.27%	4.77%	5.55%	13.52%
Walking	14.01%	6.68%	3.96%	4.86%	70.49%
Biking	5.99%	7.14%	3.69%	7.72%	75.45%
Scooter Share	0.34%	0.17%	1.10%	2.36%	96.04%
Bike Share	0.67%	0.34%	0.59%	1.68%	96.71%
Public Transit	2.92%	1.92%	2.09%	8.27%	84.80%
Taxi, Uber, Lyft	1.01%	1.01%	3.62%	16.40%	77.96%
Special Transportation Services	0.34%	0.08%	0.08%	0.68%	98.81%



Question 2: In the past year, how often did you use each of the following modes of transportation for recreation trips?

Answered: 1,292 Skipped: 0

Results:

Mode	Daily	About Once a Week	About Once a Month	A Couple Times a Year	Never
Driving	71.01%	24.12%	2.04%	0.86%	1.96%
Walking	42.56%	25.87%	9.02%	7.04%	15.51%
Biking	16.65%	18.90%	7.21%	11.37%	45.88%
Scooter Share	0.25%	0.58%	1.58%	4.33%	93.25%
Bike Share	0.67%	0.25%	0.67%	2.34%	96.08%
Public Transit	1.65%	2.07%	3.72%	16.13%	76.43%
Taxi, Uber, Lyft	0.83%	1.90%	6.94%	30.39%	59.95%
Special Transportation Services	0.34%	0.00%	0.08%	1.26%	98.32%

Question 3: If driving is the primary way you get around for work or recreation trips, what are the barriers that prevent you from walking or biking more? (Please select all that apply)

Answered: 1,292 Skipped: 0

Results:

- Barriers ranked from highest to lowest:
 - I do not feel safe and I worry about get hit by a vehicle 60.4% (780 respondents)
 - There are no dedicated sidewalks or bike lanes 56.1% (725 respondents)
 - I live too far from the places I need to go 46% (589 respondents)
 - There is not a secure place to park my bike 22.4% (289 respondents)
 - I do not have time 12.5% (161 respondents)
 - I do not have access to a bike 6.7% (87 respondents)
 - I am physically unable to walk or bike 1.9% (25 respondents)
- 16.4% of respondents (215 respondents) answered the Other (please specify) answer choice. Most common answers that differ from selection above included the following:
 - Not enough trails
 - Laziness
 - Street lighting
 - Weather conditions
 - Topography
 - Work/activity equipment or gear



Question 4: In the past year, what is your primary motivation to walk for a work or recreation trip? (Please select all that apply)

Answered: 1,292 Skipped: 0

Results:

- Motivation to walk ranked from highest to lowest:

1. Exercise	80.2%	(1,036 respondents)
2. To spend time outdoors	66.7%	(862 respondents)
3. To relax or for fun	57.6%	(744 respondents)
4. To reduce emissions	19%	(289 respondents)
5. To get to a destination other than public transit	15.3%	(161 respondents)
6. To save travel cost	10.5%	(87 respondents)
7. To travel to or from public transit	5.2%	(67 respondents)
- 5% of respondents (65 respondents) answered that they have not walked in the past year for a work or recreation trips.
- 8.6% of respondents (111 respondents) answered the Other (please specify) answer choice. Most common answers that differ from selection above included the following:

1. To walk dog
2. To avoid losing a parking space
3. Training for a marathon
4. Coping skill during the pandemic

Question 5: In the past year, what is your primary motivation to bike for a work or recreation trip? (Please select all that apply)

Answered: 1,292 Skipped: 0

Results:

- Motivation to walk ranked from highest to lowest:

1. Exercise	55.7%	(720 respondents)
2. To spend time outdoors	46.5%	(601 respondents)
3. To relax or for fun	46.4%	(600 respondents)
4. To reduce emissions	19%	(246 respondents)
5. To get to a destination other than public transit	14.2%	(184 respondents)
6. To save travel cost	12.1%	(156 respondents)
7. To travel to or from public transit	4%	(52 respondents)
- 32.4% of respondents (418 respondents) answered that they have not biked in the past year for a work or recreation trips.
- 9.1% of respondents (118 respondents) answered the Other (please specify) answer choice. Most common answers that differ from selection above included the following:

1. To walk dog



2. No access to car
3. Training for races
4. Mountain biking

Question 6: I feel safe walking or biking around my neighborhood

Answered: 1,292 Skipped: 0

Results:

- 66.1% of respondents (854 respondents) strongly agreed or agreed they feel safe walking or biking in Baltimore County.
- 31.7% of respondents (409 respondents) disagreed or strongly disagreed that they feel safe walking or biking in Baltimore County.
- 2.2% of respondents (29 respondents answered N/A.

Question 7: As a pedestrian or bicyclist, what would you most like motorists to know?

Answered: 995 Skipped: 297

Results:

- Top answers included the following topics:
 - Share the road (space/awareness)
 - Reducing speed when pedestrians/bicyclist are present
 - Passing with 3ft distance between bicyclist and vehicle
 - Yielding to pedestrians at crosswalks
 - Watching for bicyclist and pedestrians when turning at traffic signals

Question 8: As a motorist, what would you most like pedestrians or bicyclists to know?

Answered: 995 Skipped: 297

Results:

- Top answers included the following topics:
 - Obey traffic regulations when cycling on roadway
 - Walking against traffic when walking on roadway
 - Riding or walking on winding roadways with no shoulder
 - Using crosswalks correctly
 - Stopping at traffic lights when cycling
 - Stopping at stop signs when cycling
 - Moving over when vehicle is passing



Question 9: You have the option of two bicycle routes to reach your destination. The first route takes 10 minutes by bike, and it is along a 25-mph road without separated bike facilities. The second route is 20 minutes by bike, and it is a shared-use pedestrian and bicycle path (separated from motor vehicles). Which route would you be more likely to choose?

Answered: 1253 Skipped: 39

Results:

- 78.45% of respondents (983 respondents) answered that they would choose the 20 min longer, less stressful route to reach their destination.
- 21.55% of respondents (270 respondents) answered that they would choose the 10 min short, more stressful route

Question 10: Which pedestrian improvements would you most like to see? (Check all that apply)

Answered: 1292 Skipped: 0

Results:

- Desired pedestrian improvements ranked from highest to lowest:
 1. More Sidewalks 69% (892 respondents)
 2. Improve Maintenance to Sidewalks 53.3% (688 respondents)
 3. Crosswalks 49.5% (639 respondents)
 4. Street Lighting 44.9% (580 respondents)
 5. Traffic Signals 41.1% (535 respondents)
 6. Slower Vehicle Speeds 32.4% (419 respondents)
 7. Increased Shade 31% (401 respondents)

Question 11: Are there any other pedestrian improvements that you would like to see that were not listed above?

Answered: 649 Skipped: 643

Results:

- Other Desired Pedestrian Improvements:
 - Crosswalk Signals and Markings
 - ADA Compliant Infrastructure
 - Better Traffic Enforcement
 - Curb infrastructure Improvements
 - Speed Management
 - Pedestrian Bridges



Question 12: Which bicycle improvements would you most like to see? (Check all that apply)

Answered: 1292 Skipped: 0

Results:

- Desired bicycle improvements ranked from highest to lowest:
 1. More Shared-use Paths or Trails 71.9% (929 respondents)
 2. More Separated Bike Lanes 64.1% (828 respondents)
 3. More On-road Bike Lanes 45.3% (639 respondents)
 4. More Bike Parking 33% (426 respondents)
 5. Slower Vehicle Speeds 27.8% (535 respondents)
 6. Access to a Bicycle 19% (245 respondents)
 7. More Bike Share Options 14% (181 respondents)
 8. More Scooter Share Options 6.9% (89 respondents)

Question 13: Are there any other bicycle improvements that you would like to see that were not listed above?

Answered: 620 Skipped: 672

Results:

- Other desired bicycle improvements:
 - Separated Bike Lanes
 - Street/Trail Lighting
 - Road Surface Improvement
 - More Mountain Bike Trails
 - Wider Shoulders
 - Access to Loch Raven Park
 - Education on Roadway Usage

Question 14: Is there any additional feedback you would like to share?

Answered: 720 Skipped: 572

Results:

- General comments included:
 - Connected Bicycle and Pedestrian Network
 - Safety/Danger of Being a Cyclist or Pedestrian
 - Traffic Law Enforcement



Interactive Map

District 1

On-road Bikeway

- 53 respondents recommended on-road bikeway facilities within District 1.
- Most common comment recommendations included the following:
 - Connectivity to existing trails
 - Connections to destinations around the Catonsville Area
 - Bikeway connectivity for students attending UMBC
- The most voted recommendation for a bikeway facility in District 1 includes the following:
 - A protected bike line connecting Old Ellicott City through Catonsville would make cycling traffic between the two safer. Can connect to other proposed trails/bike lanes at river road for access to Patapsco St. Park's Grist Mill Trail @ Ilchester.

Trail

- 25 respondents recommended trail facilities within District 1
 - Most common comment recommendations included the following:
 - Connectivity to Gwynns Falls Trail
 - UMBC trail loop network and connectivity
 - CCBC trail loop network and connectivity
 - Connectivity of a trail network along the Patapsco River
 - The most voted recommendation for a trail facility in District 1 includes the following:
 - Connect Historic Elkridge to Gwynns Falls Trail at Reedbird Park/Harbor hospital via a multi-use trail along the Patapsco River. Underpasses, boardwalks, and bridges would be appropriate for such a trail, and should be wide enough to accommodate bicycles

Sidewalk

- 35 respondents recommended sidewalk facilities within District 1
 - Most common comment recommendations included the following:
 - Sidewalks needed around UMBC campus
 - Gaps in sidewalks along Rolling Road
 - Crosswalk Improvements
 - Neighborhood sidewalk connectivity
 - The most voted recommendation for a sidewalk facility in District 1 includes the following:
 - Sidewalk needed on Rolling Road to enhance access to parks, bus stops, and stores.



District 2

On-road Bikeway

- 46 respondents recommended on-road bikeway facilities within District 2.
- Most common comment recommendations included the following:
 - Bike lane implementation on Old Pimlico
 - Bikeway connectivity to Baltimore City on Greenspring Avenue
- The most voted recommendation for a bikeway facility in District 1 includes the following:
 - Very popular with cyclist. Sections with no shoulder. (Falls Rd.)

Trail

- 23 respondents recommended trail facilities within District 2
 - Most common comment recommendations included the following:
 - Trail connectivity to Greenspring Avenue
 - Trail network connectivity to Lake Roland
 - Trail network connectivity between park systems
 - The most voted recommendation for a trail facility in District 2 includes the following:
 - How the County allowed a gated community here, I'll never understand. Please allow people trying to walk from Greenspring to Old Court to take Midfield instead of having to walk all the way around. This is insane.

Sidewalk

- 38 respondents recommended sidewalk facilities within District 2
 - Most common comment recommendations included the following:
 - Closing sidewalk gaps along Stevenson Rd.
 - Sidewalk connectivity of Old Pimlico to Mount Washington
 - Sidewalk network connectivity to Falls Rd.
 - Crosswalk Improvements (raised crosswalks)
 - Neighborhood sidewalk connectivity
 - The most voted recommendation for a sidewalk facility in District 2 includes the following:
 - Please continue sidewalk on Stevenson from Autumn Dr to Brooks Robinson. A sidewalk already exists south of here from Old Ct but stops for some reason at Autumn Dr. This will allow for much improved walkability in the area!

District 3

On-road Bikeway

- 36 respondents recommended on-road bikeway facilities within District 3.
- Most common comment recommendations included the following:
 - Connection to Loch Raven Reservoir
 - Bikeway improvements along Pleasantville Rd.
 - Connectivity to the NCR trail



- The most voted recommendation for a bikeway facility in District 3 includes the following:
 - On-Road Bikeway along York Rd

Trail

- 23 respondents recommended trail facilities within District 3
 - Most common comment recommendations included the following:
 - Closing gap between Jones Falls Trail and Torrey C Brown Trail
 - Connectivity to Loch Raven Reservoir
 - Connectivity of NCR trail system
 - The most voted recommendation for a trail facility in District 2 includes the following:
 - Connect the Jones Falls Trail to the Torrey C Brown Trail

Sidewalk

- 37 respondents recommended sidewalk facilities within District 3
 - Most common recommendations included the following:
 - Fill in gaps in sidewalk along York and Shawan
 - Crosswalk markings
 - Neighborhood sidewalk network connectivity
 - The most voted recommendation for a sidewalk facility in District 3 includes the following:
 - Gap in sidewalk between the Cockeysville Senior Center and Captain Trey's.

District 4

On-road Bikeway

- 9 respondents recommended on-road bikeway facilities within District 4.
- Most common comment recommendations included the following:
 - Bikeway connectivity of residential areas, retail shops, and green spaces.
 - Bikeway connectivity of McDonogh Rd. and Winands Rd.
- The most voted recommendation for a bikeway facility in District 4 includes the following:
 - Winands Road is wide enough and calm enough to add bike lanes. These would encourage recreational cycling

Trail

- 5 respondents recommended trail facilities within District 4
 - Most common comment recommendations included the following:
 - Connectivity to the Gwynns Falls Trail
 - Continuation of the New Town loop trail
 - Extension of Red Run Trail
 - The most voted recommendation for a trail facility in District 4 includes the following:



- Build a Baltimore County Extension to the Gwynn Falls Trail, first to Gwynn Oak Park and Woodburn Memorial Park. If right-of-way can be procured from Woodlawn Cemetery, the trail could extend north through Villa Nova, Silver Creek and Sudbrook Parks

Sidewalk

- There were no recommended sidewalk facilities within District 4

District 5

On-road Bikeway

- 26 respondents recommended on-road bikeway facilities within District 5.
 - Most common comment recommendations included the following:
 - Create an east to west bikeway network
 - Create a north to south bikeway network
 - Bikeway implementation on Joppa Road
 - The most voted recommendation for a bikeway facility in District 5 includes the following:
 - Joppa Road is very wide and cars go very fast. Narrowing the street and adding protected bike lanes would do wonders for safety

Trail

- 39 respondents recommended trail facilities within District 5
 - Most common comment recommendations included the following:
 - Connectivity of Indian Run Trail
 - Trail connectivity to Gunpowder State Park
 - East Coast Greenway extension and connectivity to Jones Fall trail and park systems.
 - The most voted recommendation for a trail facility in District 5 includes the following:
 - Connect the East Coast Greenway from the Jones Falls Trail through Lake Roland, Towson, Glen Arm, Baldwin, and to Fallston to match Harford's Bike Ped Plan and use Ma and Pa corridor, sidepaths, and riverbed boardwalks where necessary

Sidewalk

- 24 respondents recommended sidewalk facilities within District 5
 - Most common comment recommendations included the following:
 - Sidewalks needed along Magleth Rd.
 - Neighborhood sidewalk network connectivity
 - Crosswalk improvements



- The most voted recommendation for a trail facility in District 5 includes the following:
 - There are no sidewalks here (Magledt Rd.)

District 6

On-road Bikeway

- 4 respondents recommended on-road bikeway facilities within District 6.
 - Most common comment recommendations included the following:
 - Bikeway improvements along Campbell Boulevard
 - Bikeway improvements along Harford Road
 - Neighborhood bikeway network connectivity
- The most voted recommendation for a bikeway facility in District 6 includes the following:
 - Portions of Harford Road in both the city and the county are bikeable. Just make the whole road bikeable.

Trail

- 6 respondents recommended trail facilities within District 6
 - Most common comment recommendations included the following:
 - Trail implementation along US Hwy 40
 - Trail access to Double Rock Park
 - Trail implantation along Redhouse Creek
 - The most voted recommendation for a trail facility in District 6 includes the following:
 - Multi-use Trail approximately following Redhouse Creek from Overlea HS to at least Pulaski Highway. If possible, crossing the Back River and rail tracks would connect Rosedale to the Colgate neighborhood (or possibly extend further to Eastpoint Mall).

Sidewalk

- 9 respondents recommended sidewalk facilities within District 6
 - Most common comment recommendations included the following:
 - Complete and improve existing sidewalks along Kenwood Ave.
 - Complete and improve existing sidewalks along Loch Raven Blvd
 - The most voted recommendation for a trail facility in District 6 includes the following:
 - Many students (and other folks!) walk this path afterschool and there isn't sidewalk available for the entire walk. The shoulder is narrow and many cars go too fast making this walk feel dangerous. This will also improve access to the library. (Kenwood Ave.)

On-road Bikeway

- 4 respondents recommended on-road bikeway facilities within District 7.
- Most common comment recommendations included the following:
 - Safe bikeway connectivity



- Bikeway connectivity to park trail systems
- The most voted recommendation for a bikeway facility in District 7 includes the following:
 - A bike lane on the road will help with the current problem of kids riding down the middle of the road because it is currently not wide enough for both

Trail

- 12 respondents recommended trail facilities within District 7
 - Most common comment recommendations included the following:
 - Trail connectivity to Baltimore City and Harford County Continuation of the
 - Trail connectivity to major parks
 - The most voted recommendation for a trail facility in District 7 includes the following:
 - US 40 shared-use paths buffered by vegetation, connect Baltimore City, Baltimore County, and Harford County in public right-of-way

Sidewalk

- 3 respondents recommended sidewalk facilities within District 7
 - Most common comment recommendations included the following:
 - Fill in gaps in sidewalk network



Other Leveraged Engagement Efforts

Public Comment Contact Form

71 Comments gathered through a public comment contact form will help to identify community barriers and needs of active transportation throughout Baltimore County. Types of comments include the following topics:

- Trail connectivity and gaps in trail network
- Sidewalk improvements and gaps in trail network
- Crosswalk improvements along major arterials
- Separated bikeway network along major arterials
- Connected bikeway network

Baltimore County 2030 Master Plan Comments

The 2030 Master Plan is intended to guide the County Executive, the County Council, and County departments in promoting responsible development in an equitable and environmentally sensitive manner that promotes adequate open space to help secure a sustainable future for the residents of Baltimore County.

- Public comments made during engagement efforts for the 2030 Master Plan pertaining to active transportation have been incorporated with comments gathered from the Baltimore County BPMP public engagement survey and public comment contact form.
- These comments will help us to understand what Baltimore County residents commonly value in terms of transportation, and what they consider opportunities and constraints. Comments gathered from the Plan answered the following questions:
 - What do you value about your community that you do not want to see change?
 - What changes would you most like to see in your community in the future?
 - What are the most important issues facing your community over the next 10 years?
 - What do you want your community to be like in 10 years?
 - Looking beyond your community to Baltimore County as a whole-what is the biggest challenge in the next 10 years?
 - What is the biggest opportunity?



Public Comments for Network Development

- Based on what we heard from the comments gather from all engagement efforts comments are to be categories within themes of the following:
 - Increase Safety
 - Ensure Equity
 - Expand Access and Connectivity
 - Promote Less Stress
- These themes will play a valued part in developing a network based on community needs and demand to create equitable opportunities for those using active transportation for both work and recreational trips in Baltimore County.



APPENDIX: RECOMMENDED NETWORK

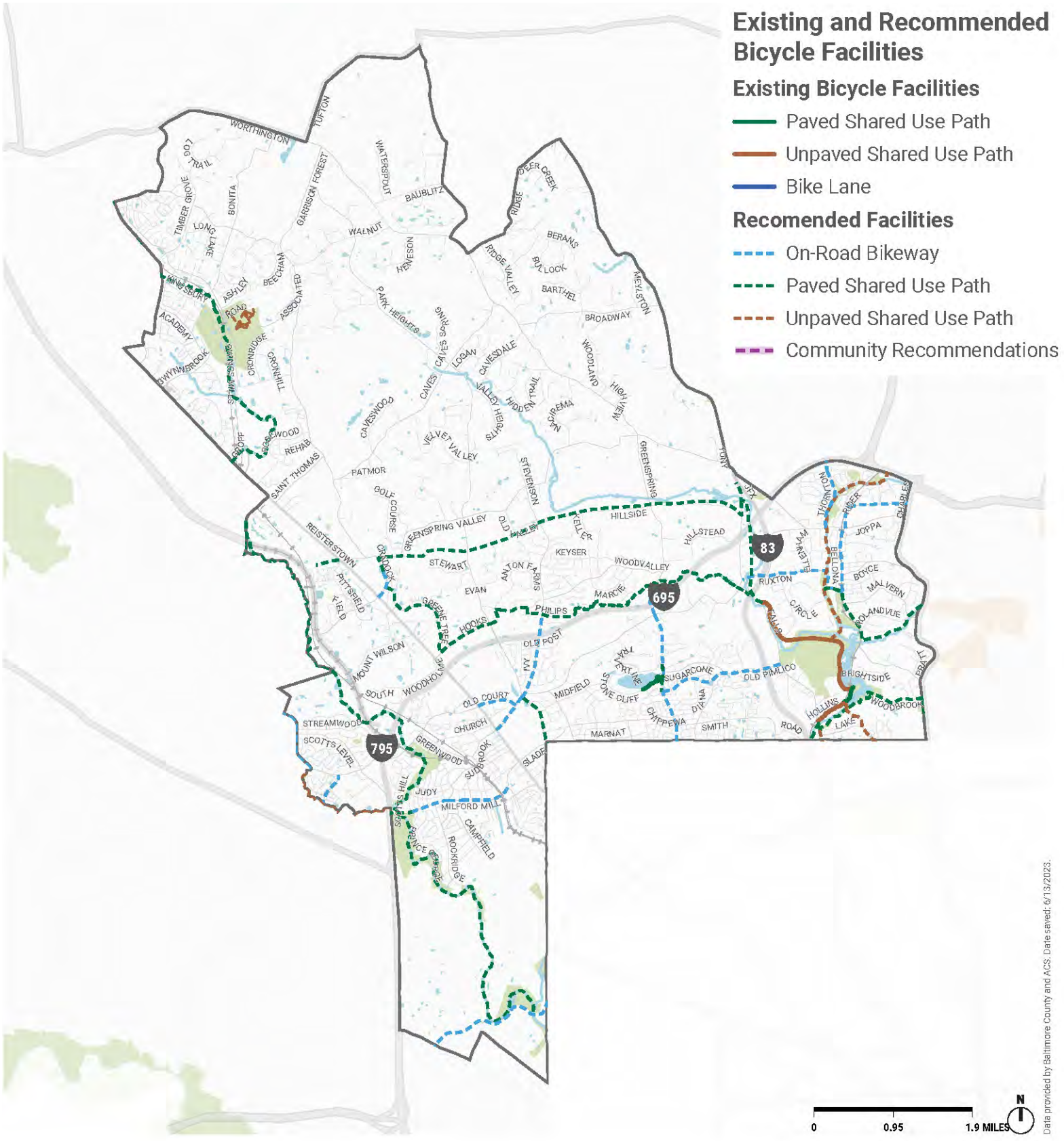


Recommended Network by District

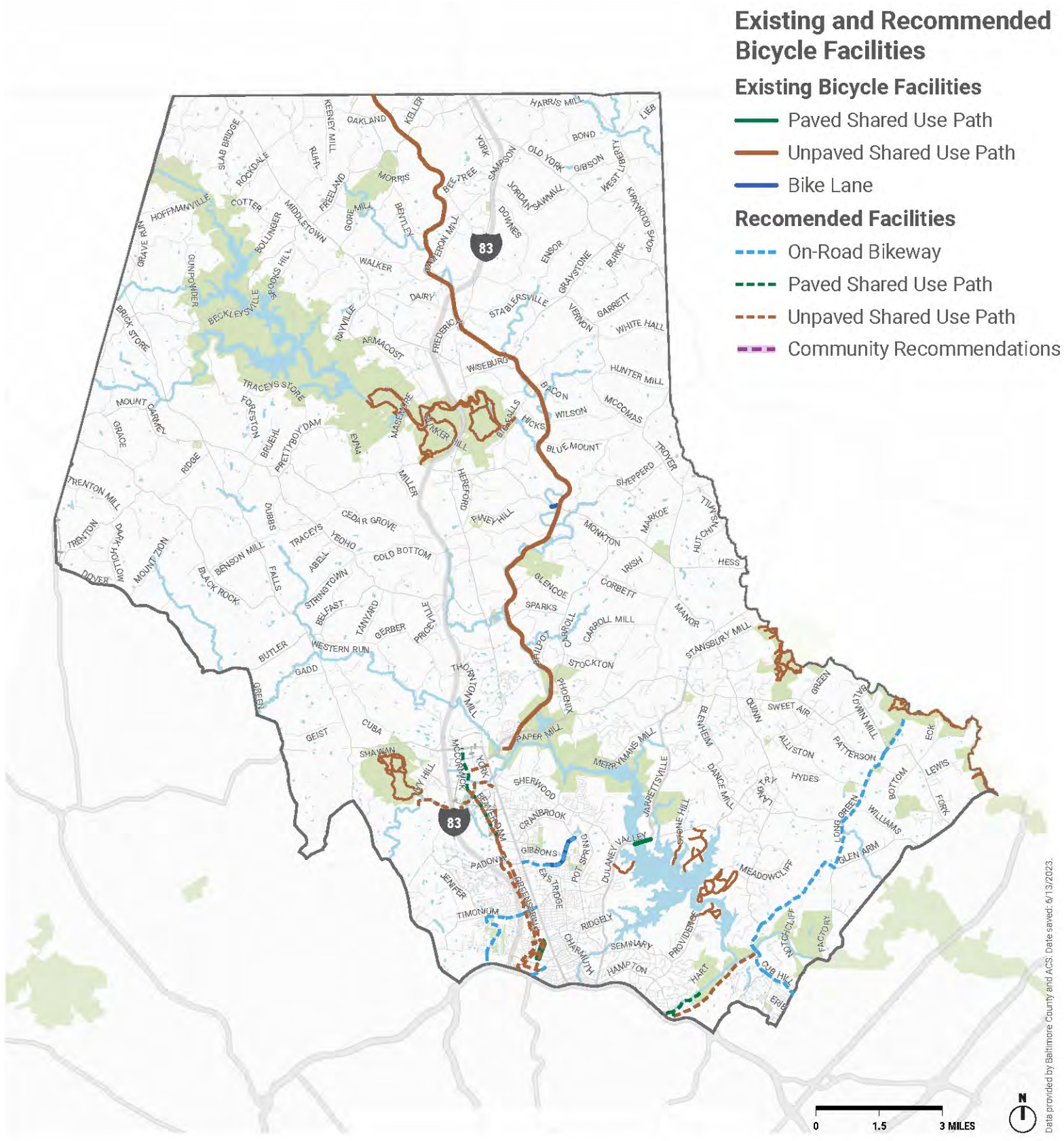


RECOMMENDED ON STREET BICYCLE
FACILITIES AND SHARED USE PATHS - DISTRICT: 1
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN



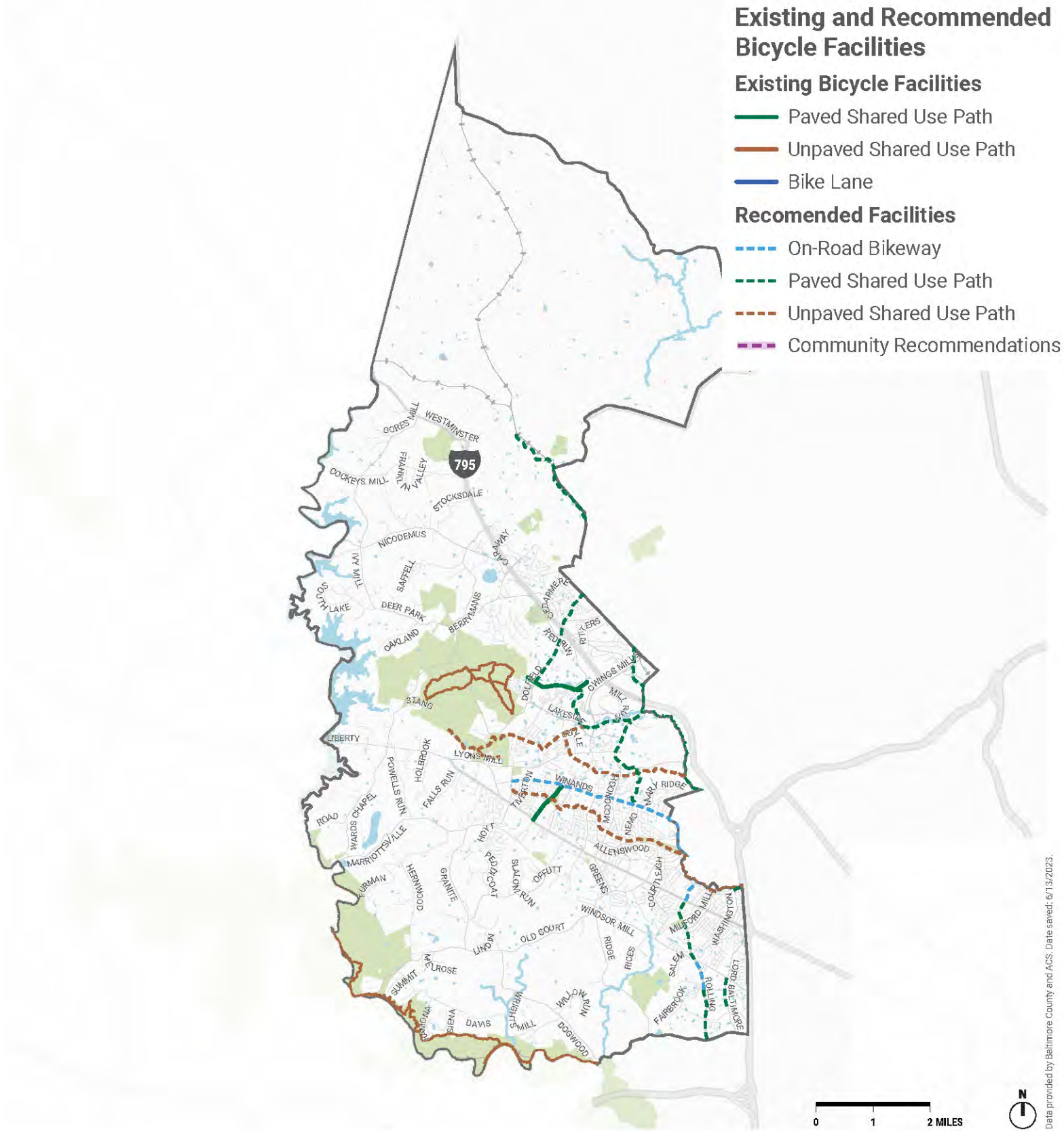


RECOMMENDED ON STREET BICYCLE FACILITIES AND SHARED USE PATHS - DISTRICT: 2
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN

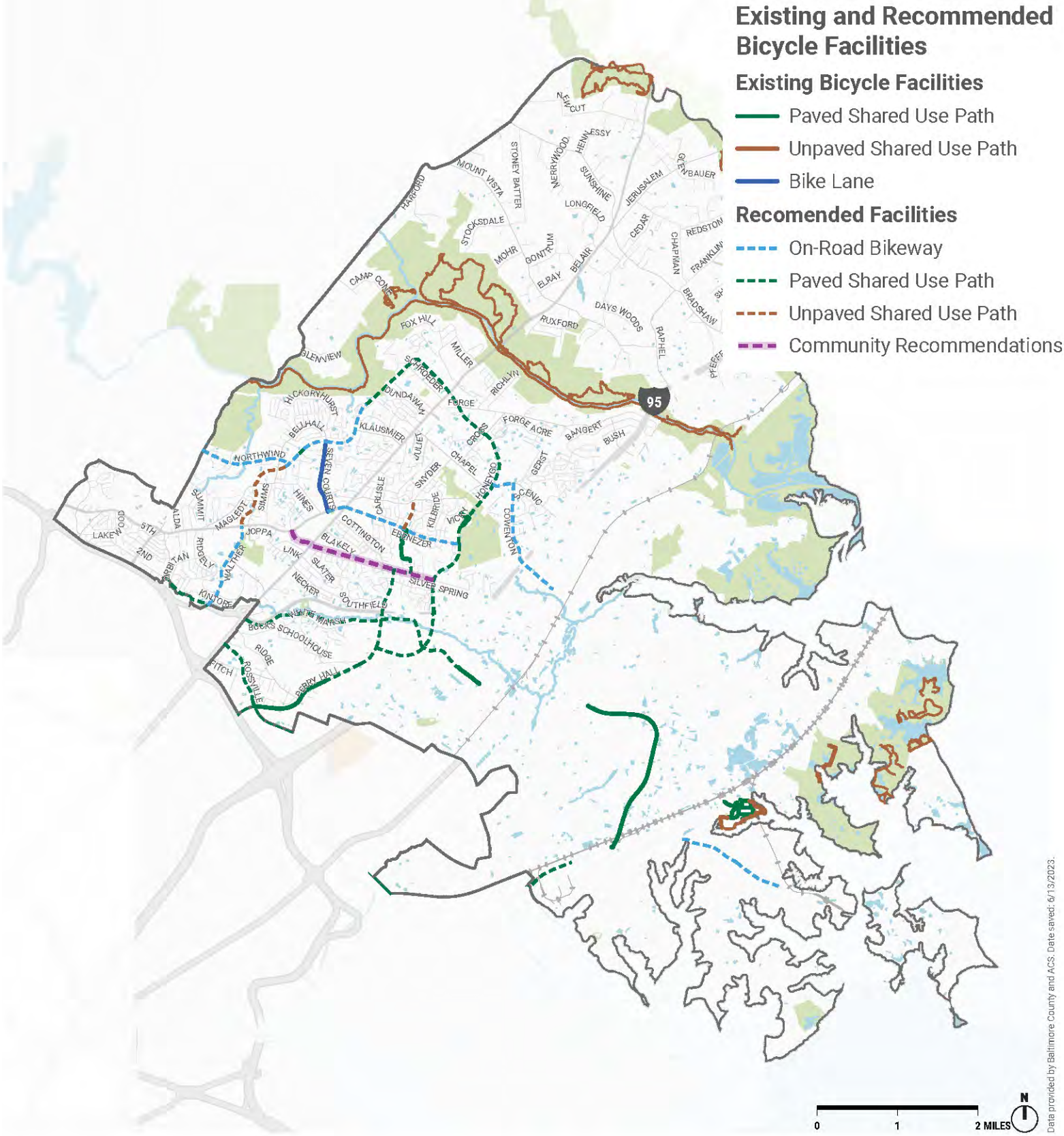


RECOMMENDED ON STREET BICYCLE FACILITIES AND SHARED USE PATHS - DISTRICT: 3
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN



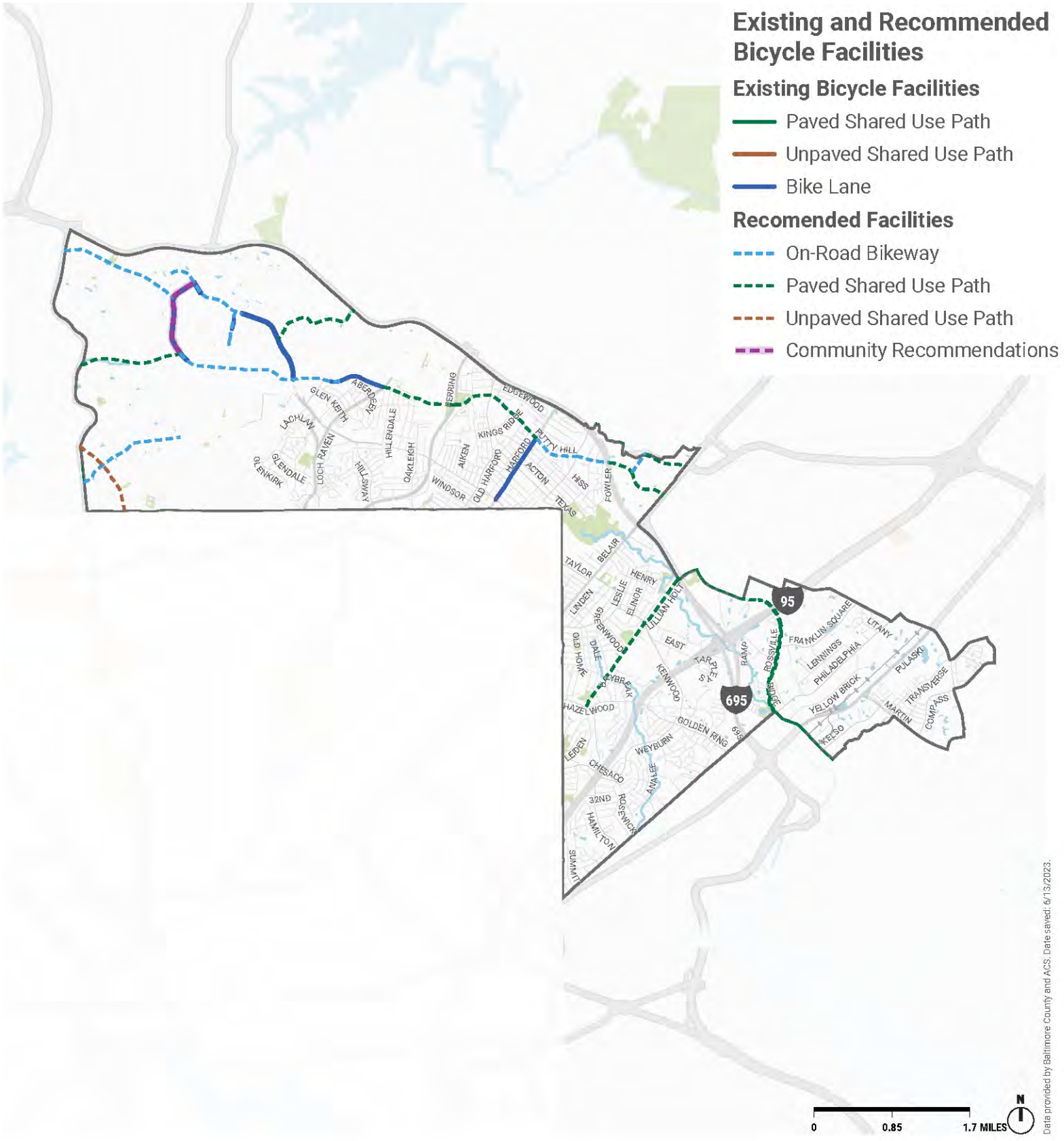


RECOMMENDED ON STREET BICYCLE FACILITIES AND SHARED USE PATHS - DISTRICT: 4
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN

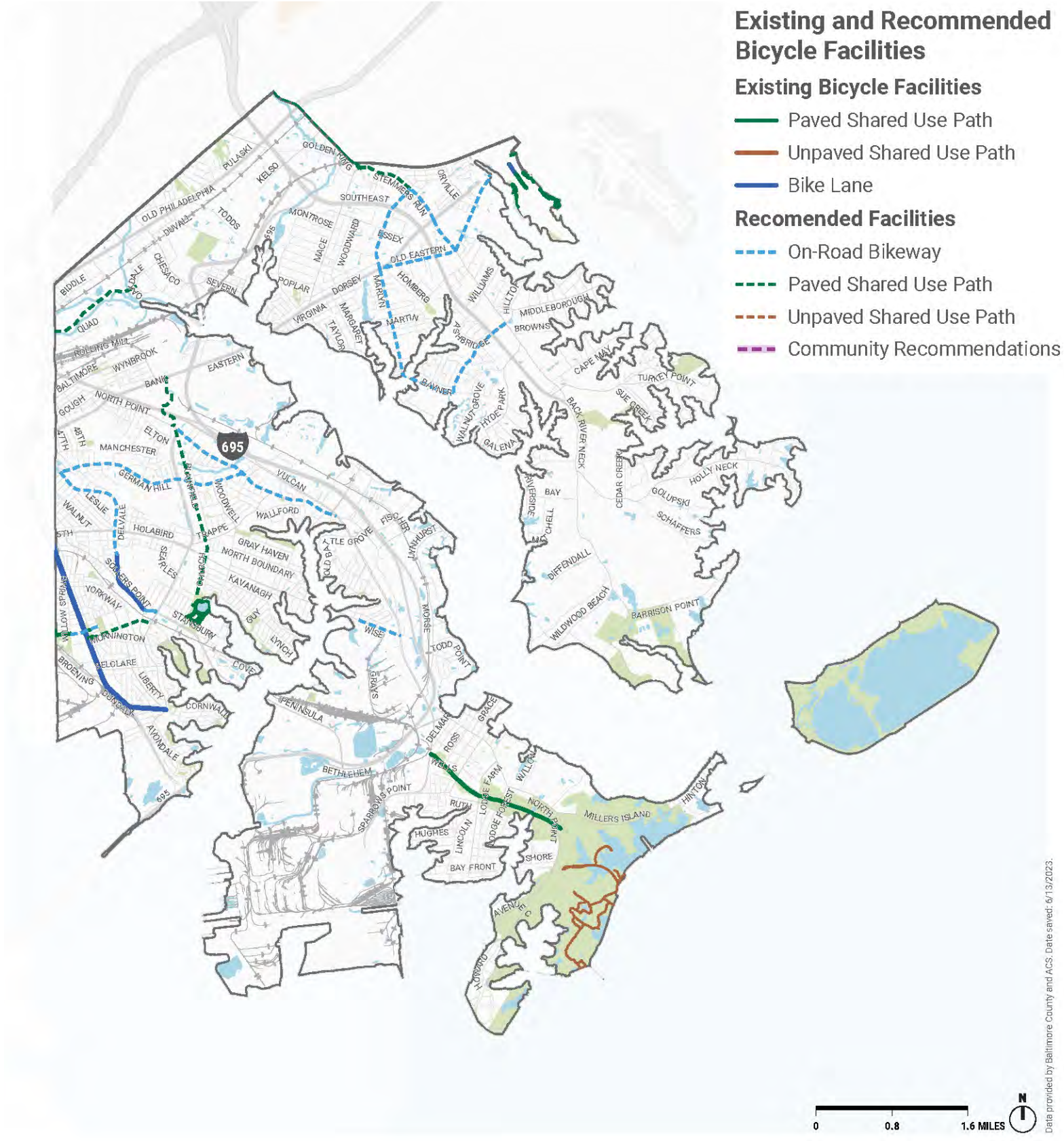


RECOMMENDED ON STREET BICYCLE FACILITIES AND SHARED USE PATHS - DISTRICT: 5
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN





RECOMMENDED ON STREET BICYCLE FACILITIES AND SHARED USE PATHS - DISTRICT: 6
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN



RECOMMENDED ON STREET BICYCLE FACILITIES AND SHARED USE PATHS - DISTRICT: 7
BALTIMORE COUNTY
PEDESTRIAN AND BICYCLE
MASTER PLAN





APPENDIX: IMPLEMENTATION





To: Jessie Bialeck, Baltimore County Department of Public Works & Transportation
From: Jennifer Baldwin, Alta Planning + Design
Kim Voros, Alta Planning + Design

Date: October 7, 2022

Re: Bikeway and Trail Prioritization Methodology

This memorandum outlines the project team’s approach to prioritizing the proposed bicycle and trail network (developed as part of Task 5).

Bikeway Network (on/off road)

Using the on-road bikeway and trail network identified in Task 5, this task will result in a prioritization map and table of project line segments (including to/from information) to communicate where investment should be prioritized in the region.

Note: Complete Street recommendations were not prioritized as it is anticipated that we’ll replace those recommendations with SHA context typologies and priorities.

Score Assignment and Data Considerations

Scores for each criterion were calculated based on the inputs shown in Table 1. A simple binary scoring scheme of Yes/No is used. Projects are assigned a priority tier of High, Medium or Low based on the number of criteria which were scored as ‘True’. Project tiers are defined by the following point thresholds:

- Tier 1 – High Priority: 4 – 5 inputs were “Yes”
- Tier 2 – Medium Priority: 2 - 3 inputs were “Yes”
- Tier 3 – Low Priority: 0 – 1 input was “Yes”

Scores were assigned using the following assumptions:

- Due to the binary nature of this prioritization methodology, scores are not normalized by length
- A ‘Yes’ value was assigned if any portion of a project intersected an area of high equity or demand
- A project was assigned a ‘Yes’ for Connectivity if it connected to an existing facility
- A project was assigned a ‘Yes’ for Regional Connectivity if it ended within 100 feet of the county boundary
- A project was assigned a ‘Yes’ for Safety if a bicycle- or pedestrian-involved KSI collision occurred within 100-feet of a proposed project. This automated step was followed by manual data review and clean-up

Table 1. Prioritization of Bikeway + Trail Network

Input	Description	Proposed Scoring	Data Source
Regional Connectivity	Projects connecting to Baltimore City and surrounding Counties	<ul style="list-style-type: none"> • YES (1) = Projects intersects a county boundary • NO (0) = Project does not intersect a county boundary 	Baltimore County
Equity	Projects intersecting with the top two Equity tiers will receive a yes for the “Equity” input	<ul style="list-style-type: none"> • YES (1) = Projects intersecting with the top two Equity tiers • NO (0) = Projects not intersecting with the top two Equity tiers 	Alta
Demand	Projects intersecting with the top two Demand tiers will receive a yes for the “Demand” input	<ul style="list-style-type: none"> • YES (1) = Projects intersecting with the top two Demand tiers • NO (0) = Projects not intersecting with the top two Demand tiers 	Alta
Safety	Projects where a bicycle- or pedestrian-involved KSI collision occurred	<ul style="list-style-type: none"> • YES (1) = Projects where both a bicycle AND pedestrian-involved KSI occurred • NO (0) = Projects withing a bicycle and pedestrian-involved KSI collision 	Maryland Department of Transportation
Connectivity	Projects connecting to existing * bike facilities (especially the NCR trail) will receive a yes for the “Connectivity” input	<ul style="list-style-type: none"> • YES (1) = Projects connecting to an existing bicycle facility • NO (0) = Projects which do not connect to an existing bicycle facility 	Baltimore County



To: Jessie Bialeck, Baltimore County Department of Public Works & Transportation
From: Jennifer Baldwin, Alta Planning + Design
Kim Voros, Alta Planning + Design

Date: October 7, 2022

Re: Pedestrian Infrastructure Prioritization Methodology

Introduction

The successful implementation of pedestrian improvements requires aligning planned projects with the areas that have the greatest demonstrated pedestrian needs. To guide the funding and construction of the Baltimore County's pedestrian network, Priority Pedestrian Areas (PPAs) have been identified. The PPAs represent the areas with the greatest demonstrated pedestrian need in the region. The intent of this approach is to prioritize areas of need rather than specific projects in order to provide a framework that is both flexible and opportunistic and can both guide future development and prioritize available funding. This memorandum provides a brief overview of the proposed process for identifying PPAs.

Methodology

The pedestrian priority analysis will consider three indicators to identify areas where the funding of pedestrian facilities should be prioritized based on demonstrated need (Table 1). The proposed indicators are:

- **Demand** – Areas with high demand scores, calculated by the demand index
- **Safety** – Roadways where a KSI collision occurred
- **Equity** – Areas with higher equity scores, calculated by the equity index

The analysis will utilize a hexagon grid and each cell will be assigned a score based. Their scores will then be combined to develop a composite score for each hexagon and determine an area's overall pedestrian priority level.

Hexagons were grouped into either two or three categories based on the percentile rank of their composite score to determine their level of priority for pedestrian investment. The results of the analysis will be visualized in a heatmap that shows the PPAs using a gradient.

Input	Description	Proposed Scoring	Data Source
Equity	Hexagons are scored based on the equity tier that the majority of the shape falls within	<ul style="list-style-type: none"> ● 1 to 5 = A hexagon will be assigned points based on the equity tier it falls within (e.g., hexagons in the highest tier will receive 5 points and the lowers tier 1 point) 	Alta
Demand	Hexagons are scored based on the demand tier that the majority of the shape falls within	<ul style="list-style-type: none"> ● 1 to 5 = A hexagon will be assigned points based on the demand tier it falls within (e.g., hexagons in the highest tier will receive 5 points and the lowers tier 1 point) 	Alta
Safety	Projects where a pedestrian-involved KSI collision occurred	<ul style="list-style-type: none"> ● YES (5) = A pedestrian-involved collision occurred within the hexagon ● NO (0) = No KSI collision occurred within the hexagon 	Maryland Department of Transportation

Prioritized Recommended Network Projects

Segment #	Name	From	To	Length (Miles)	Facility Type	District	Priority Tier
1	Towsontown Boulevard	Charles Street	Burke Avenue	1.12	Paved Shared Use Path	2,5	Tier 1 - (High Priority)
2	Dunmanway	Center Place	Sollers Point Road	0.75	Paved Shared Use Path	7	Tier 1 - (High Priority)
3	Woodlawn Drive Sidepath	Johnnycake Road	Security Blvd	0.95	Paved Shared Use Path	1	Tier 1 - (High Priority)
4	Putty Hill Avenue	Loch Raven Boulevard	Perring Parkway	0.88	Paved Shared Use Path	6,5	Tier 1 - (High Priority)
5	Center Place	Willow Spring Road	Trading Place	0.30	On-Road Bikeway	7	Tier 1 - (High Priority)
6	Woodlawn-Gwynn Oaks/MD126 On-road Bikeway	Beethoven Ave.	Security Ave./MD 122	2.21	On-Road Bikeway	4,1	Tier 1 - (High Priority)
7	Dunmanway On-road Bikeway	Sollers Point Road	Merrit Blvd	0.09	Paved Shared Use Path	7	Tier 1 - (High Priority)
8	East Coast Greenway	Charles St./MD 134	Baltimore City Boundary	1.29	Shared Use Path	5	Tier 1 - (High Priority)
9	Fairmount Avenue	Towsontown Boulevard	Pennsylvania Avenue	0.11	On-Road Bikeway	5	Tier 2 - (Medium Priority)
10	White Marsh Run Trail	Avondale Road	Honeygo Boulevard	3.70	Paved Shared Use Path	6,5	Tier 2 - (Medium Priority)
11	Campbell Boulevard	Honeygo Boulevard	Philadelphia Road	0.93	Paved Shared Use Path	6	Tier 2 - (Medium Priority)
12	BGE Right-of-way	North Point Road	Searles Road	1.82	Paved Shared Use Path	7	Tier 2 - (Medium Priority)
13	Northeast Trail	Bucks School House Road	End	0.48	Paved Shared Use Path	5	Tier 2 - (Medium Priority)
14	Old Court Road	Reisterstown Road	Park Heights Ave	0.60	On-Road Bikeway	2	Tier 2 - (Medium Priority)
15	Maiden Choice Lane	Shelbourne Road	Wilkins Ave	0.25	On-Road Bikeway	1	Tier 2 - (Medium Priority)
16	N Rolling Road	Security Boulevard	Baltimore National Pike	1.58	Paved Shared Use Path	1	Tier 2 - (Medium Priority)
17	Rolling Road	Windsor Boulevard	Security Blvd	1.45	Paved Shared Use Path	4,1	Tier 2 - (Medium Priority)
18	Lakeside Drive	Falls Road	Lake Roland Park	0.45	Paved Shared Use Path	2	Tier 2 - (Medium Priority)
19	Rolling Road	Liberty Road	Windsor Mill Road	1.11	Paved Shared Use Path	4	Tier 2 - (Medium Priority)
20	Red Run Stream Valley Park Trail	Existing Red Run Trail	Gwynns Falls	2.57	Paved Shared Use Path	4,2	Tier 2 - (Medium Priority)
21	Gwynns Falls Greenway	Baltimore City Gwynns Falls Trail	Glyndon	16.78	Paved Shared Use Path	4,2	Tier 2 - (Medium Priority)
22	Jones Falls Trail Connection	Robert E Lee Park Trail	City line	0.26	Paved Shared Use Path	2	Tier 2 - (Medium Priority)
23	Southwest Owings Mills Greenway	Locust Run Greenway at NW Area Park	Red Run Stream Valley Park	2.31	Shared Use Path	4	Tier 2 - (Medium Priority)
24	Light Rail/Roland Run Greenway	Warren Road	Lake Roland Park	6.98	Shared Use Path	2,3	Tier 2 - (Medium Priority)
25	Rolling Rd Sidepath	Johnnycake Rd	Red Line Path	0.46	Paved Shared Use Path	1	Tier 2 - (Medium Priority)
26	Greene Tree Rd Sidepath	Hooks Ln	Craddock Ln	1.31	Paved Shared Use Path	2	Tier 2 - (Medium Priority)
27	Northeast Trail	Rossville Boulevard	Linover Park	0.32	Paved Shared Use Path	6,5	Tier 2 - (Medium Priority)
28	Lake Roland Park Path	NCR West Rail Trail terminus	Falls Rd	0.59	Paved Shared Use Path	2	Tier 2 - (Medium Priority)
29	East Coast Greenway	Baltimore City Boundary	Hollins Ave.	0.52	Shared Use Path	2	Tier 2 - (Medium Priority)
30	East Coast Greenway	Old Falls Rd.	Falls Road Light Rail Station	0.12	Shared Use Path	2	Tier 2 - (Medium Priority)
31	East Coast Greenway	Lakeside Dr.	Lake Roland Park Boardwalk	0.09	Shared Use Path	2	Tier 2 - (Medium Priority)
32	East Coast Greenway	Lake Roland Park	Falls Road Light Rail Station	0.28	Shared Use Path	2	Tier 2 - (Medium Priority)
33	East Coast Greenway	Old Falls Road	Baltimore City Boundary	0.49	Shared Use Path	2	Tier 2 - (Medium Priority)
34	Putty Hill Avenue	Avondale Road	Harford Road	0.51	On-Road Bikeway	6	Tier 2 - (Medium Priority)
35	Rossville Boulevard	Walther Boulevard	Belair Road	0.47	Paved Shared Use Path	5	Tier 2 - (Medium Priority)
36	Putty Hill Avenue	Walther Boulevard	I-695 Bridge	0.27	Paved Shared Use Path	6,5	Tier 2 - (Medium Priority)
37	Joppa Road	Seven Courts Drive	Belair Road	0.23	On-Road Bikeway	5	Tier 2 - (Medium Priority)
38	Putty Hill Avenue	695 Bridge	Avondale Road	0.37	On-Road Bikeway	6	Tier 2 - (Medium Priority)
39	Stevenson Lane	York Road	Charles Street	1.27	On-Road Bikeway	5	Tier 2 - (Medium Priority)
40	Putty Hill Avenue	Perring Parkway	Harford Road	1.19	Paved Shared Use Path	6	Tier 2 - (Medium Priority)
41	North Point Road	Merritt Boulevard	North Point Boulevard	1.94	On-Road Bikeway	7	Tier 2 - (Medium Priority)
42	German Hill Road	North Point Road	Delvale Road	2.03	On-Road Bikeway	7	Tier 2 - (Medium Priority)
43	Rossville Boulevard	Belair Road	Lillian Holt Drive	1.06	Paved Shared Use Path	6,5	Tier 2 - (Medium Priority)
44	Rossville Boulevard	Lillian Holt Drive	Ridge Road	1.66	Paved Shared Use Path	6,5	Tier 2 - (Medium Priority)
45	Rossville Boulevard	Ridge Road	Pulaski Highway	2.63	Paved Shared Use Path	7,6	Tier 2 - (Medium Priority)
46	Carroll Island Road	Eastern Avenue	Bowleys Quarters Road	0.28	On-Road Bikeway	6	Tier 2 - (Medium Priority)
47	Carroll Island Road	Bowleys Quarters Road	Keeners Road	0.47	On-Road Bikeway	6	Tier 2 - (Medium Priority)
48	Rossville Boulevard	Pulaski Highway	Orems Road	0.73	Paved Shared Use Path	7,6	Tier 2 - (Medium Priority)
49	Rossville Boulevard	Orems Road	Mace Avenue	0.47	Paved Shared Use Path	7,6	Tier 2 - (Medium Priority)
50	Stemmers Run Road	Rossville Boulevard	Eastern Boulevard	0.74	Paved Shared Use Path	7	Tier 2 - (Medium Priority)

Prioritized Recommended Network Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District	Priority Tier
51	Old Eastern Avenue	Eastern Avenue	Stemmers Run Road	0.89	On-Road Bikeway	7,6	Tier 2 - (Medium Priority)
52	Marlyn Avenue	Stemmers Run Road	Eastern Boulevard	0.96	On-Road Bikeway	7	Tier 2 - (Medium Priority)
53	Stemmers Run Road	Eastern Boulevard	Old Eastern Avenue	0.40	On-Road Bikeway	7	Tier 2 - (Medium Priority)
54	Old Eastern Avenue	Stemmers Run Road	Essex Avenue	0.34	On-Road Bikeway	7	Tier 2 - (Medium Priority)
55	Old Eastern Avenue	Essex Avenue	Eastern Boulevard	0.48	On-Road Bikeway	7	Tier 2 - (Medium Priority)
56	Marlyn Avenue	Eastern Boulevard	Middleborough Road	1.71	On-Road Bikeway	7	Tier 2 - (Medium Priority)
57	Middleborough Road	Marlyn Avenue	Back River Neck Road	0.95	On-Road Bikeway	7	Tier 2 - (Medium Priority)
58	Winands Road	Marriotsville Rd	Cedars Mill Road	3.71	On-Road Bikeway	4,2	Tier 2 - (Medium Priority)
59	Maiden Choice Lane	Wilkens Avenue	Maiden Choice Medical Center	0.41	On-Road Bikeway	1	Tier 2 - (Medium Priority)
60	Maiden Choice Lane	Maiden Choice Medical Center	Garden Ridge Road	0.31	On-Road Bikeway	1	Tier 2 - (Medium Priority)
61	Milford Mill Road	Cloudyfold Rd	Sudbrook Rd	0.46	On-Road Bikeway	2	Tier 2 - (Medium Priority)
62	Milford Mill Road	Sudbrook Rd	Roman Frasier Ln	0.77	On-Road Bikeway	4,2	Tier 2 - (Medium Priority)
63	Rolling Road	Old Court Road	Liberty Road	0.83	On-Road Bikeway	4,2	Tier 2 - (Medium Priority)
64	Sudbrook Lane	Reisterstown Road	Park Heights Ave	0.38	On-Road Bikeway	2	Tier 2 - (Medium Priority)
65	Stevenson Road	Old Court Road	Philips Dr	1.03	On-Road Bikeway	2	Tier 2 - (Medium Priority)
66	Rolling Road	Windsor Mill Road	Windsor Boulevard	0.57	On-Road Bikeway	4	Tier 2 - (Medium Priority)
67	Proctor Lane / Gunview Road	Sandstone Court	Foxfarm Road	0.80	On-Road Bikeway	5	Tier 2 - (Medium Priority)
68	Delvale Road	Holabird Ave	German Hill Road	1.01	On-Road Bikeway	7	Tier 2 - (Medium Priority)
69	Merrit Ave	Sollers Point Road	Merritt Blvd	0.20	On-Road Bikeway	7	Tier 2 - (Medium Priority)
70	Maiden Choice Lane	Leeds Avenue	Shelbourne Road	0.49	On-Road Bikeway	1	Tier 2 - (Medium Priority)
71	Delvale Ave. On-road Bikeway	Jackson Rd.	Holabird Ave	0.27	On-Road Bikeway	7	Tier 2 - (Medium Priority)
72	Minebank Run Path	East Jopppa Rd.	Cowpens Ave.	1.33	Paved Shared Use Path	3,5	Tier 2 - (Medium Priority)
73	Hillside Rd. to Chattolane Area Path	Craddock Ln.	Falls Rd. /MD 25	4.73	Paved Shared Use Path	2	Tier 2 - (Medium Priority)
74	Kenilworth Drive On-road Bikeway	N. Charles St./MD 139	Bosley Ave./MD 45)	1.33	On-Road Bikeway	2,5	Tier 2 - (Medium Priority)
75	Fairmount Ave. On-road Bikeway	Lambourne Road	Sadler Road	0.96	On-Road Bikeway	5	Tier 2 - (Medium Priority)
76	Fairmount Ave. On-road Bikeway	Goucher Blvd	East Pennsylvania Ave.	0.27	On-Road Bikeway	5	Tier 2 - (Medium Priority)
77	Fairmount Ave. On-road Bikeway	East Pensylvannia Ave.	Hillen Rd.	0.11	On-Road Bikeway	5	Tier 2 - (Medium Priority)
78	Putty Hill Ave. On-road Bikeway	Stevenson Lane	Drumwood Road	1.84	On-Road Bikeway	6,5	Tier 2 - (Medium Priority)
79	Stemmers Run Road	Rossville Boulevard	Eastern Boulevard	0.42	On-Road Bikeway	7	Tier 2 - (Medium Priority)
80	N Rolling Road	Security Boulevard	Baltimore National Pike	1.01	On-Road Bikeway	1	Tier 2 - (Medium Priority)
81	N Rolling Road	Security Boulevard	Baltimore National Pike	0.00	Paved Shared Use Path	1	Tier 2 - (Medium Priority)
82	Westland Blvd On-road Bikeway	Maiden Choice Ln.	Linden Ave.	0.52	On-Road Bikeway	1	Tier 2 - (Medium Priority)
83	Baltimore-Washington Parkway Path	Virgina Ave.	Baltimore-Washington Pkwy/MD 295	0.27	Paved Shared Use Path	1	Tier 2 - (Medium Priority)
84	Baltimore National Pike-W. Geipe Rd. Conectort	Baltimore National Pike/US 40	W. Geipe Rd.	0.07	Paved Shared Use Path	1	Tier 2 - (Medium Priority)
85	East Padonia Rd. On-road Bikeway	Cranbrook Rd.	York Rd./MD 45	1.66	On-Road Bikeway	3	Tier 2 - (Medium Priority)
86	Nuwood Drive On-road Bikeway	Baltimore National Pike/US 40	Powers Ln.	0.11	On-Road Bikeway	1	Tier 2 - (Medium Priority)
87	Northeast Trail	Silver Sprins Rd.	Honeygo Blvd.	1.38	Paved Shared Use Path	5	Tier 2 - (Medium Priority)
88	Harlem Lane	Old Frederick Road	Edmondson Avenue	0.54	On-Road Bikeway	1	Tier 2 - (Medium Priority)
89	St Agnes Lane	Old Frederick Road	Forest Park Avenue	0.75	On-Road Bikeway	1	Tier 2 - (Medium Priority)
90	Ingleside Avenue	Baltimore National Pike	Edmondson Avenue	0.78	On-Road Bikeway	1	Tier 2 - (Medium Priority)
91	Dolfield Blvd Ext. Sidepath	Pleasant Hill Rd	Tollgate Rd	1.81	Paved Shared Use Path	4	Tier 2 - (Medium Priority)
92	Scotts Level Branch Greenway	Marriottsville Rd	Milford Mill Rd	5.43	Shared Use Path	4,2	Tier 2 - (Medium Priority)
93	Lord Baltimore Drive Sidepath	Windsor Mill Road	Ambassador Rd	0.51	Paved Shared Use Path	4	Tier 2 - (Medium Priority)
94	Milford Mill Rd Sidepath 2	Washington Avenue	Cloudyfold Dr	0.44	Paved Shared Use Path	4,2	Tier 2 - (Medium Priority)
95	Walther Boulevard	Joppa Road	Rossville Boulevard	1.37	On-Road Bikeway	5	Tier 2 - (Medium Priority)
96	Selford Road	Rolling Rd/Gun Road	Oakand Rd	1.25	On-Road Bikeway	1	Tier 2 - (Medium Priority)
97	Old Pimlico/Greensummit Rd	Falls Road	Greenspring Avenue	1.51	On-Road Bikeway	2	Tier 2 - (Medium Priority)
98	Ingleside Avenue	Johnnycake Rd	Baltimore National Pike	0.35	On-Road Bikeway	1	Tier 2 - (Medium Priority)
99	Tributary Greenway	Edgewood Ave	Misty Morning Drive	1.10	Shared Use Path	1	Tier 2 - (Medium Priority)

Prioritized Recommended Network Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District	Priority Tier
100	Honeygo Boulevard	Ebenezer Road	Magnolia Avenue	0.48	Paved Shared Use Path	5	Tier 3 - (Low Priority)
101	Path through Eastpoint Mall	Eastern Boulevard	North Point Road	0.72	Paved Shared Use Path	7	Tier 3 - (Low Priority)
102	Honeygo Boulevard	Cross Road	Ebenezer Road	1.57	Paved Shared Use Path	5	Tier 3 - (Low Priority)
103	Honeygo Boulevard	Magnolia Avenue	White Marsh Boulevard	0.84	Paved Shared Use Path	6,5	Tier 3 - (Low Priority)
104	Eastern Boulevard	Volz Avenue	Wilson Point Road	0.70	Paved Shared Use Path	6	Tier 3 - (Low Priority)
105	Honeygo Boulevard	Cross Road	Belair Road	0.67	Paved Shared Use Path	5	Tier 3 - (Low Priority)
106	Honeygo Boulevard	White Marsh Boulevard	Perry Hall Boulevard	1.09	Paved Shared Use Path	6,5	Tier 3 - (Low Priority)
107	Northeast Trail	Honeygo Boulevard	Bucks School House Road	0.30	Paved Shared Use Path	5	Tier 3 - (Low Priority)
108	Philips Dr	North of Red Barn Ct	Melody Ln	0.64	Paved Shared Use Path	2	Tier 3 - (Low Priority)
109	Craddock Lane	After Village Queen Drive	Green Spring Valley Road	0.18	Paved Shared Use Path	2	Tier 3 - (Low Priority)
110	Woodbrook Lane	Charles Street	Robert E Lee Park	0.64	Paved Shared Use Path	2,5	Tier 3 - (Low Priority)
111	Woodvalley Dr	West end	Melody Ln	0.32	Paved Shared Use Path	2	Tier 3 - (Low Priority)
112	Melody Ln	Woodvalley Dr	Philips Dr	0.08	Paved Shared Use Path	2	Tier 3 - (Low Priority)
113	Michelle Way	Park Heights Ave	Connector Path	0.23	Paved Shared Use Path	2	Tier 3 - (Low Priority)
114	Ruxton Road	Bellona Avenue	Falls Road	1.44	On-Road Bikeway	2	Tier 3 - (Low Priority)
115	Green Spring Avenue	Old Court Road	Smith Avenue	1.38	On-Road Bikeway	2	Tier 3 - (Low Priority)
116	Bellona Avenue	Ruxton Road	Charles Street	1.73	On-Road Bikeway	2	Tier 3 - (Low Priority)
117	Slaughterhouse Branch Greenway	Falls Rd	Philips Dr	2.77	Paved Shared Use Path	2	Tier 3 - (Low Priority)
118	Lutherville Connector Path	Lutherville Light Rail Stop	Greenspring Drive	0.10	Paved Shared Use Path	3	Tier 3 - (Low Priority)
119	Locust Run Greenway	Liberty Reservoir	Northwest Area Park	1.10	Shared Use Path	4	Tier 3 - (Low Priority)
120	Horsehead Branch Greenway	Gwynns Falls Greenway	Owings Mills Shared Use Path System	2.81	Shared Use Path	4	Tier 3 - (Low Priority)
121	McCormick Rd Sidepath	Shawan Rd	Industry Ln	2.32	Paved Shared Use Path	3	Tier 3 - (Low Priority)
122	Connector Path	Michelle Way	Woodvalley Dr	0.07	Paved Shared Use Path	2	Tier 3 - (Low Priority)
123	Hooks Ln Sidepath	Greene Tree Rd	Park Heights Ave	0.68	Paved Shared Use Path	2	Tier 3 - (Low Priority)
124	Painters Mill Rd Sidepath 1	Winands Rd	Owings Mills Blvd	1.92	Paved Shared Use Path	4	Tier 3 - (Low Priority)
125	Tobins Ln	Reisterstown Rd	End	0.28	Paved Shared Use Path	2	Tier 3 - (Low Priority)
126	Park Heights Ave Sidepath	Old Court Rd	City Line	0.65	Paved Shared Use Path	2	Tier 3 - (Low Priority)
127	Cromwell Valley Path	Cowpens Ave	Glen Arm Rd	2.55	Shared Use Path	3,5	Tier 3 - (Low Priority)
128	Gunpowder View Trail	Foxfarm Road	Belair Road	1.46	Paved Shared Use Path	5	Tier 3 - (Low Priority)
129	Gunpowder View Trail	Unnamed Court	Proctor Lane Terminus	0.09	Paved Shared Use Path	5	Tier 3 - (Low Priority)
130	Walther Boulevard (partially built)	Bretton Reef Road	Unnamed Court	0.23	On-Road Bikeway	5	Tier 3 - (Low Priority)
131	Northeast Trail	Linover Park	Hazelwood Ave	1.69	Paved Shared Use Path	6	Tier 3 - (Low Priority)
132	NCR Greenspring Branch Path	Robert E Lee Park	Meadowood Park	1.57	Paved Shared Use Path	2	Tier 3 - (Low Priority)
133	Greenspring Quarry Path	Moores Branch Greenway	Lightfood Dr	0.17	Paved Shared Use Path	2	Tier 3 - (Low Priority)
134	Greenspring Quarry Path	Moores Branch Greenway	Lightfood Dr	0.16	Paved Shared Use Path	2	Tier 3 - (Low Priority)
135	East Coast Greenway	West Lake Ave.	Lakeside Dr.	0.32	Shared Use Path	2	Tier 3 - (Low Priority)
136	East Coast Greenway	Baltimore City	Harford County	0.26	Shared Use Path		Tier 3 - (Low Priority)
137	Cub Hill Road	Cromwell Bridge Road	Waltham Woods Road	0.66	On-Road Bikeway	3	Tier 3 - (Low Priority)
138	Cub Hill Road	Waltham Woods Road	Harford Road	0.85	On-Road Bikeway	3,5	Tier 3 - (Low Priority)
139	North Wind Road	Jennifer Run	Harford Road	0.56	On-Road Bikeway	5	Tier 3 - (Low Priority)
140	North Wind Road	Fontaine Drive	Jennifer Run	0.31	On-Road Bikeway	5	Tier 3 - (Low Priority)
141	Ebenezer Road	Perry Hall Middle School	Honeygo Boulevard	1.18	On-Road Bikeway	5	Tier 3 - (Low Priority)
142	Ebenezer Road	Belair Road	Perry Hall Middle School	0.31	On-Road Bikeway	5	Tier 3 - (Low Priority)
143	Wise Avenue	North Point Road	Pin Oak Avenue	0.47	On-Road Bikeway	7	Tier 3 - (Low Priority)
144	Carroll Island Road	Keeners Road	Luthardt Road	0.60	On-Road Bikeway	6	Tier 3 - (Low Priority)
145	North Wind Road	Ferguson Avenue	Fontaine Drive	0.26	On-Road Bikeway	5	Tier 3 - (Low Priority)
146	Craddock Lane	Reisterstown Road	After Village Queen Drive	0.35	On-Road Bikeway	2	Tier 3 - (Low Priority)
147	Green Spring Avenue	Baltimore City Line	Smith Avenue	0.20	On-Road Bikeway	2	Tier 3 - (Low Priority)
148	NCR Towson Spur Path	N Charles St./MD 39	Roland Run Greenway	1.76	Paved Shared Use Path	2	Tier 3 - (Low Priority)
149	Greensprings Ave. On-road Bikeway	I-695	Old Court Rd./ MD 133	0.21	On-Road Bikeway	2	Tier 3 - (Low Priority)
150	Proctor Lane / Gunview Road	Sandstone Court	Foxfarm Road	0.29	On-Road Bikeway	5	Tier 3 - (Low Priority)
151	Charles St./MD 139 Path	Stevenson Lane	Woodbrook Lane	0.18	Paved Shared Use Path	2	Tier 3 - (Low Priority)
152	Moore's Run Path	I-95	Oakdale Ave.	1.05	Paved Shared Use Path	7	Tier 3 - (Low Priority)

Prioritized Recommended Network Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District	Priority Tier
153	Glen Arm Rd. On-road Bikeway	Gunpowder Rd.	Harford County Boundary	7.24	On-Road Bikeway	3	Tier 3 - (Low Priority)
154	Old Frederick Road	Harlem Lane	St Agnes Lane	0.20	On-Road Bikeway	1	Tier 3 - (Low Priority)
155	Cedar Ave	Selford Ave	Arlington Ave	0.42	On-Road Bikeway	1	Tier 3 - (Low Priority)
156	Thornton Road	Joppa Road	Landon Ave	0.70	On-Road Bikeway	2	Tier 3 - (Low Priority)
157	Beaverdam Run Greenway	Cockeysville	Oregon Ridge Park	2.68	Shared Use Path	2,3	Tier 3 - (Low Priority)
158	Gunpowder View Trail	Joppa Road	Bretton Reef Road	1.04	Shared Use Path	5	Tier 3 - (Low Priority)
159	Northeast Trail	Joppa Road	Ebenezer Road	0.39	Shared Use Path	5	Tier 3 - (Low Priority)
160	Joppa Road	Cowenton Avenue	Honeygo Boulevard	0.26	On-Road Bikeway	5	Tier 3 - (Low Priority)
161	Cowenton Avenue (proposed)	Joppa Road	Philadelphia Road	1.52	On-Road Bikeway	6,5	Tier 3 - (Low Priority)
162	Bellona Avenue	Charles Street	W Seminary Avenue	0.40	On-Road Bikeway	3	Tier 3 - (Low Priority)
163	Thornton Road	Landon Ave	Joppa Road	0.42	On-Road Bikeway	2	Tier 3 - (Low Priority)
164	Timonium Road	Pine Valley Drive	Jenifer Road	0.51	On-Road Bikeway	3	Tier 3 - (Low Priority)
165	Timonium Road	York Road	I-83	0.38	On-Road Bikeway	3	Tier 3 - (Low Priority)
166	Timonium Road	I-83	Pine Valley Drive	0.45	On-Road Bikeway	3	Tier 3 - (Low Priority)
167	Thornton Road	Seminary Avenue	Timonium Road	1.18	On-Road Bikeway	2,3	Tier 3 - (Low Priority)
168	East Coast Greenway	Lincoln Ave.	W. Ridgley Rd.	0.72	Shared Use Path	3	Tier 3 - (Low Priority)
169	East Coast Greenway	Kurtz Ave.	York Ridge Shopping Center	0.07	Shared Use Path	3	Tier 3 - (Low Priority)
170	East Coast Greenway	McCormick Rd.	York Rd. / MD 45	0.51	Shared Use Path	3	Tier 3 - (Low Priority)
171	East Coast Greenway	Front Ave.	Kurtz Ave.	0.09	Shared Use Path	3	Tier 3 - (Low Priority)
172	East Coast Greenway	Franken Ave	Front Ave	0.29	Shared Use Path	3	Tier 3 - (Low Priority)
173	East Coast Greenway	Lincoln Ave.	Melancthon Ave.	0.40	Shared Use Path	3	Tier 3 - (Low Priority)
174	East Coast Greenway	Business Park Dr.	West Ridgely Rd.	0.03	Shared Use Path	3	Tier 3 - (Low Priority)
175	East Coast Greenway	West Ridgely Road	Front Ave.	0.34	Shared Use Path	3	Tier 3 - (Low Priority)
176	East Coast Greenway	Greenspring Dr.	West Aylesbury Rd.	0.16	Shared Use Path	3	Tier 3 - (Low Priority)
177	East Coast Greenway	West Ridgely Road	West Aylesbury Rd.	0.33	Shared Use Path	3	Tier 3 - (Low Priority)
178	East Coast Greenway	Paper Mill Rd.	Western Run	0.21	Shared Use Path	3	Tier 3 - (Low Priority)
179	East Coast Greenway	Bellona Avenue	Front Ave.	0.10	Shared Use Path	3	Tier 3 - (Low Priority)
180	East Coast Greenway	West Padonia Road	Beaver Dam Road	1.98	Shared Use Path	3	Tier 3 - (Low Priority)
181	East Coast Greenway	Business Park Dr.	W. Padonia Rd.	1.74	Shared Use Path	3	Tier 3 - (Low Priority)
182	Cromwell Bridge Road Path (Alt)	Cowpens Road	Cromwell Valley Park Sherwood Entrance	1.28	Paved Shared Use Path	3,5	Tier 3 - (Low Priority)

Prioritized Recommended Long Term Projects

Segment #	Name	From	To	Length (Miles)	Facility Type	District
1	Proctor Lane	Satyr Hill Road	Waltham Woods Road	0.19	Bike Route	3,5
2	Stansbury Road / Chesterwood Road	Denbury Drive	Chesterwood Park	0.29	Bike Route	7
3	Dunmanway	Merritt Boulevard	Merritt Point Park	0.49	Bike Route	7
4	Dunmanway	Sollers Point Road	Merritt Boulevard	0.10	Bike Route	7
5	Trappe Road	Plainfield Road	Merritt Boulevard	0.26	Bike Route	7
6	Lodge Forest Drive	North Point Road	Old Haul Road	0.18	Bike Route	7
7	Carroll Island Road	Luthardt Road	Aberdeen Proving Ground	1.05	Bike Route	5
8	Riverside Drive	Eastern Boulevard	Coxs Point Park	1.28	Bike Route	7
9	Bengies Area Trail	Campbell Boulevard	MARC Station	1.10	Paved Shared Use Path	5
10	Graces Quarters Road	Eastern Avenue	Cunninghill Cove Road	0.33	Bike Route	5
11	Leland Avenue Extension Trail	Leland Avenue	Earls Road	1.82	Paved Shared Use Path	5
12	Eastern Regional Park Greenway	Eastern Regional Park Entrance	Dundee / Saltpeter Creeks Park	2.73	Shared Use Path	5
13	Leland Avenue	Martin Boulevard	End	0.90	Bike Route	5
14	North Point Road	Old Bay Road	Fort Howard Park Drive	0.48	Bike Route	7
15	Eastern Regional Park Greenway	West End of Eastern Regional Park	East End of Eastern Regional Park	1.25	Paved Shared Use Path	5
16	Hawthorne Community Bicycle/Pedestrian System	Eastern Avenue	Waterfront parks	0.39	Paved Shared Use Path	5,7
17	Magruder Avenue	Stanley Park Drive	Mellor Ave	0.50	Bike Route	1
18	Transway Rd	Hollins Ferry Road	End	0.31	Bike Route	1
19	Church Road (branch)	Red Run Boulevard	Church Road	0.09	Bike Route	4
20	Francis Avenue	S Rolling Road	Selma Ave	1.17	Bike Route	1
21	Pot Spring Road	Dulaney Valley Road	Ridgely Rd	0.63	Bike Route	3
22	Sudbrook Lane	Reisterstown Road	Milford Mill Rd	1.21	Bike Route	2
23	Cowpens Avenue	Cromwell Bridge Road	Providence Road	0.98	On Road Bike Lane	3
24	Brenbrook Drive	Church Lane	McDonogh Rd	0.85	Bike Route	4
25	Aylesbury Road	Shopping Center Rd	Timonium Road	0.51	Bike Route	3
26	Morris Avenue	Front Avenue	Francke Avenue	0.20	Bike Route	3
27	Charles Street	Bellona Avenue	End	0.11	Bike Route	3
28	Church Lane	Old Court Road	Brenbrook Drive	0.47	Bike Route	4
29	Jenifer Road	Oak Farm Court	Padonia Road	1.16	Bike Route	3
30	Stanley Park Drive	Frederick Road	Magruder Avenue	0.15	Bike Route	1
31	Gun Road	S Rolling Road	Patapsco Valley State Park	1.15	Bike Route	1
32	Prospect Avenue	Frederick Road	Short Line Path	0.30	Bike Route	1
33	Virginia Avenue	Annapolis Road	Baltimore Street	0.41	Bike Route	1
34	Edmondson Ridge Rd/Prospect Ave	Ridge Road	Frederick Road	0.20	Bike Route	1
35	Ridge Road	Edmondson Avenue	Edmondson Ridge Road	0.24	Bike Route	1
36	Mellor Avenue	Frederick Road	Bloomsbury Avenue	0.37	Bike Route	1
37	Church Lane	Old Court Road	Milford Mill Rd	1.21	Bike Route	4
38	Seminary Avenue	Providence Road	Dulaney Valley Road	1.77	Bike Route	3
39	Mt Wilson Ln	Reisterstown Rd	Winands Rd	2.15	Bike Route	2
40	Church Lane	York Road	Rail Road	0.41	Bike Route	3
41	Cranbook Road	Greenside Drive	York Road	0.39	Bike Route	3
42	Greenpoint Road	Pine Valley Drive	Chatterton Road	0.63	Bike Route	3
43	Gwynn Oak Avenue	Dogwood Road	Windsor Mill Road	0.38	Bike Route	1,2
44	Pine Valley Drive	Timonium Road	Dead End Pine Valley Dr	0.58	Bike Route	3
45	Tally Ho Road	Clearfield Circle	Seminary Avenue	0.19	Bike Route	3
46	Greenpoint Road	Chatterton Road	Padonia Road	0.29	Bike Route	3
47	Baltimore Street	Virginia Avenue	Light Rail Stop	0.13	Bike Route	1
48	Tollgate Road	Ritters Lane	Pleasant Hill Road	0.54	Bike Route	4

Prioritized Recommended Long Term Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District
49	Featherbed Ln	Pleasant Hill Road	Millpond Court	0.34	Bike Route	4
50	Gwynn Oak Avenue	Windsor Mill Road	Woodlawn Dr	0.16	Bike Route	2
51	Ingleside Avenue	Edmondson Avenue	Frederick Road	0.38	Bike Route	1
52	Alma Road	Lansdowne Road	Clyde Ave.	0.40	Bike Route	1
53	Clyde Ave	Alma Road	Charleston Ave.	0.04	Bike Route	1
54	Virginia Ave	Annapolis Road	McDowell Ln	0.32	Bike Route	1
55	Myrtle Ave	McDowell Ln	Tulip Ave	0.10	Bike Route	1
56	Tulip Ave	Myrtle Ave	Daisy Ave	0.17	Bike Route	1
57	Daisy Avenue	Tulip Ave	Hollins Ferry Rd	0.06	Bike Route	1
58	Charleston Ave	Clyde Ave	Bigley Ave	0.44	Bike Route	1
59	McDowell Ln	Virginia Ave	Myrtle Ave	0.55	Bike Route	1
60	Bigley Ave	Charleston Ave	Bero Rd	0.25	Bike Route	1
61	Bero Rd	Bigley Ave	Hickory Hills Park Entrance	0.35	Bike Route	1
62	Selma Ave	Washington Boulevard	Francis Ave	0.33	Bike Route	1
63	Johnnycake Rd	Rolling Rd	Crosby Rd	0.72	Bike Route	1
64	Gwynnbrook Ave	Reisterstown Rd	Garrison Forest Rd	1.99	Bike Route	2
65	Walgrove Rd	Reisterstown ES	Shirley Manor Rd	0.62	Bike Route	4
66	East St	Rolling Rd	St Denis Rail Stop	0.13	Bike Route	1
67	Walden Mill Way	Winters Ln	Alexander Ave	0.17	Bike Route	1
68	Alexander Ave	Walden Mill Way	Gilston Park Rd	0.16	Bike Route	1
69	Gilston Park Rd	Alexander Ave	Chesworth Rd	0.10	Bike Route	1
70	Purnell Dr	Gwynn Oak Ave	City Line	0.22	Bike Route	2
71	Chesworth Rd	Pleasant Valley Dr	Crosby Rd	0.79	Bike Route	1
72	Allenswood Road	Collier Road	Old Court Road	2.32	Bike Route	4
73	Fairbrook Road	Rolling Road	Red Line Path	1.08	Bike Route	1
74	Gwynndale Avenue	Gwynn Oak Avenue	Kelox Road	0.73	Bike Route	2
75	Pleasant Valley Dr	Chesworth Rd	Crosby Rd	0.64	Bike Route	1
76	East Dr	Poplar Ave	Linden Ave	0.23	Bike Route	1
77	Greens Lane	Old Court Road	Liberty Road	0.67	Bike Route	4
78	Nuwood Dr	Path Connection	Path Connection	0.12	Bike Route	1
79	Nuwood Dr	Baltimore Natl Pike	Baltimore National Pike	0.24	Bike Route	1
80	Shared Driveway	Baltimore Natl Pike	Baltimore National Pike	0.14	Bike Route	1
81	West Geipe Rd	Path Connection	Oak Lodge Rd	0.10	Bike Route	1
82	Oak Lodge Rd	West Geipe Rd	Edmondson Ave	0.49	Bike Route	1
83	Linden Ave	East Dr	Leeds Ave	0.07	Bike Route	1
84	Downey Dale Dr	Allenswood Rd	Church Ln	0.22	Bike Route	4
85	Lightfoot Dr	Greenspring Quarry Trail	Garrison Forest Rd	0.99	Bike Route	2
86	Keller Rd	Reisterstown Rd Sidepath	End	0.12	Bike Route	2
87	Old Pimlico Road	Old Pimlico/Greensummit Rd	Smith Avenue	0.58	Bike Route	2
88	Old Pimlico/Pimlico Road	Smith Avenue	Baltimore City Line	0.22	Bike Route	2
89	Old Court Road	Joppa Road	Ruxton Road	0.93	Bike Route	2
90	Joppa Road	Charles Street	Falls Road	2.33	Bike Route	2,3,6
91	Jenifer Road	Timonium Road	Oak Farm Court	0.50	Bike Route	3
92	Ridgely Road	York Road	Lutherville Light Rail Stop	0.31	Bike Route	3
93	Pot Spring Road	Ridgely Road	Girdwood Road	1.34	Bike Route	3
94	Girdwood Road	Potspring Road	Trehern Rd	0.49	Bike Route	3
95	Park Heights Avenue	Old Court Road	Green Spring Valley Road	2.30	On Road Bike Lane	2
96	Old Court Road	Windsor Mill Road	Greens Lane	0.42	Bike Route	4
97	Old Court Road	Greens Lane	Liberty Road	0.66	Bike Route	4
98	Pleasant Hill Road	Church Rd	Reisterstown Rd	0.73	Bike Route	2,4
99	Church Road	Pleasant Hill Road	Red Run Boulevard	0.92	Bike Route	4
100	Tollgate Road	Reisterstown Road	Ritters Lane	0.78	Bike Route	2,4
101	Lynn Haven Drive	Lord Baltimore Drive	Washington Avenue	0.17	Bike Route	4
102	Cranbook Road/Girdwood	Greenside Drive	Trehern Rd	1.88	Bike Route	3

Prioritized Recommended Long Term Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District
103	Ridgland Road	Girdwood Road	Warren Road	0.14	Bike Route	3
104	Hampton Lane	Dulaney Valley Road	Providence Road	1.55	On Road Bike Lane	3
105	Tally Ho Road	Joppa Road	Clearfield Circle	0.98	Bike Route	3
106	Charmuth Road	Dulaney Valley Road	Seminary Avenue	0.76	Bike Route	3
107	Bellona Avenue	Charles Street	Ruxton Road	1.63	Bike Route	2,6
108	Lake Avenue	Baltimore City Line	Falls Road	0.72	Bike Route	2
109	L' Hirondelle Club Road	Ruxton Road	Club House	0.31	Bike Route	2
110	Malvern Avenue	Bellona Avenue	Charles Street	1.14	Bike Route	2,6
111	Beechfield Avenue	College Rd	Leeds Avenue	0.65	Bike Route	1
112	Leeds Avenue	Linden Avenue	Maiden Choice Lane	0.95	Bike Route	1
113	Red Run Stream Valley Park Trail	Red Run Trail	Gold Hill Road	0.08	Shared Use Path	4
114	Moores Branch Greenway	Slaughterhouse Branch	Greenspring Avenue	1.59	Shared Use Path	2
115	Connector Path	Thelma Street	Timonium Light Rail Stop	0.16	Shared Use Path	3
116	Connector Path	York Avenue	Matthews Avenue	0.04	Shared Use Path	3
117	Banneker CC Path	Old Frederick Road	Banneker Community Center	0.81	Paved Shared Use Path	1
118	Connector Path	Seminary Avenue	Meadowood Park	0.45	Paved Shared Use Path	2
119	Walden Mill Way Extension	Winters Ln	Alexander Ave	0.02	Shared Use Path	1
120	Nuwood Dr Extension	Pleasant Valley Rd	Nuwood Dr	0.05	Shared Use Path	1
121	Nuwood Dr Extension	Nuwood Dr	Nuwood Dr	0.04	Shared Use Path	1
122	Short Line Rail Trail	Maiden Choice Lane	Terminus near Charlestown Retirement Community	0.57	Paved Shared Use Path	1
123	Connector Path	Cherry Hill Rd End	Owings Mills Blvd	0.27	Shared Use Path	2,4
124	Connector Path	Westland Boulevard	Poplar Avenue	0.16	Paved Shared Use Path	1
125	Gwynnbrook Greenway	Gwynns Falls Greenway	Gwynnbrook Wildlife Management Area northward	2.28	Shared Use Path	2
126	Norris Run Greenway	Gwynns Falls Greenway	Liberty Reservoir	3.34	Shared Use Path	4
127	Cockeysville Quarry Green	Beaver Dam Run	Texas Station	1.92	Shared Use Path	3
128	Brice Run Greenway	Randallstown ES	Patapsco Valley State Park	0.71	Shared Use Path	4
129	Falls Run Greenway	Marriottsville Rd	Patapsco Valley State Park	1.30	Shared Use Path	4
130	Cooks Branch Greenway	Carroll County	Northern Red Run Greenway	0.43	Shared Use Path	4
131	Northern Red Run Greenway	Red Run Stream Valley Park Trail	Cooks Branch	2.93	Shared Use Path	4
132	Bens Run Greenway	Brice Run Greenway	Hollifield Rd	2.93	Shared Use Path	4
133	Bens Run Greenway Branch	Bens Run Greenway	Dogwood Rd	2.20	Shared Use Path	1,4
134	Warren Road Sidepath	Warren Road Light Rail Stop	NCR Trail Extension terminus	0.46	Paved Shared Use Path	3
135	Pleasant Hill Road Path	Red Brook Corporate Center	Red Run Trail	0.31	Paved Shared Use Path	4
136	Neighborhood Connector	Church Lane	Scotts Level Branch Green	0.16	Shared Use Path	2,4
137	Woodlawn HS Path	Dogwood Rd Sidepath	Dead Run Greenway Trail	0.52	Paved Shared Use Path	1
138	Charles Street Connector	Charles Street End	Lincoln Ave	0.05	Shared Use Path	3
139	W Padonia Rd Sidepath	Greenpoint Rd	Jenifer Rd	1.11	Paved Shared Use Path	3
140	Red Run Blvd Sidepath	Church Rd	Red Run Trail	2.35	Paved Shared Use Path	4
141	Reisterstown Rd Connector Sidepath 3	Grey Rock Rd	Keller Rd	0.09	Shared Use Path	2
142	Connector Path	Keller Rd	Greene Tree Rd	0.18	Shared Use Path	2
143	S Rolling Rd	Francis Ave	South St	0.67	Bike Route	1
144	Arlington Ave	S Rolling Rd	Maple Ave	0.23	Bike Route	1
145	South St	Patapsco State Park Entrance	S Rolling Rd	0.23	Bike Route	1

Prioritized Recommended Long Term Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District
146	Catonsville HS Perimeter			1.19	Paved Shared Use Path	1
147	Featherbed Ln	Windsor Mill Rd	Dogwood Rd	0.56	Bike Route	2
148	Windsor Mill Rd Sidepath	Lawnwood Cir	Featherbed Lane	0.05	Shared Use Path	2
149	Windsor Blvd Extension	Essex Rd	Joicy Ct	0.19	Shared Use Path	2
150	Sauter Ln	Windsor Mill Rd	Windsor Blvd/Path	0.30	Bike Route	2
151	Pot Spring Rd	Chantrey Rd	Stella Maris Rd	0.19	Bike Route	3
152	Academy Ave	High Falcon Rd	Gwynnbrook Ave	1.10	Bike Route	2,4
153	Reisterstown Rd Connector Sidepath 4	Tobins Ln	Greenspring Valley Rd	0.04	Shared Use Path	2
154	Reisterstown Rd Connector Sidepath 2	Dolfield Blvd	Gwynnbrook Ave	0.08	Shared Use Path	2
155	Milford Mill Road Sidepath 1	Deerfield Rd	Reisterstown Rd	0.36	Shared Use Path	2
156	Painters Mill Rd Sidepath 2	Winands Rd	McDonogh Rd	0.51	Paved Shared Use Path	4
157	Glyndon Greenway	Gwynns Falls Greenway	Franklin MS	0.97	Shared Use Path	4
158	Groff Rd	Owings Mills Blvd	Reisterstown Rd	0.46	Bike Route	2
159	Reisterstown Rd Connector Sidepath 1	Tollgate Rd	Groff Rd	0.06	Shared Use Path	2
160	Timber Grove/Delight Rd	High Falcon Rd	Church Rd	0.76	Bike Route	2,4
161	Security Square Path	Red Line Path	Rolling Rd	0.24	Paved Shared Use Path	1
162	Winder Rd	Fairbrook Rd	ES	0.17	Bike Route	1
163	Chadwick ES Path	Winder Rd	Security Blvd	0.11	Paved Shared Use Path	1
164	Security R/W Sidepath	HCFA Drwy	Fairbrook Rd	0.29	Paved Shared Use Path	1
165	Existing Path Repaving	Longview Dr	Westowne ES	0.09	Shared Use Path	1
166	W Joppa Rd Sidepath	Tally Ho Rd	Greenspring Station	0.17	Paved Shared Use Path	3
167	Short Line Rail Trail	Shady Nook Ave	Maiden Choice Lane	0.73	Paved Shared Use Path	1
168	Bedford/Campfield/Bedford Rd	Prince George Rd	Roman Frasier Ln	0.89	Bike Route	2
169	Roman Frasier Ln	Bedford Rd	Milford Mill Rd	0.24	Bike Route	2
170	Dogwood Rd Sidepath	Woodlawn HS	Gwynn Oak Ave	0.16	Paved Shared Use Path	1
171	Prince George/Villa Nova/Queen Anne Rd	Essex Rd	Milford Mill Rd	1.23	Bike Route	2
172	Essex Road	Liberty Road	Queen Anne Road	0.13	Bike Route	2
173	South St	Washington Blvd	Patapsco State Park Entrance	0.07	Bike Route	1
174	Halethorpe Farms Rd	Patapsco Trail	Washington Boulevard	0.81	Bike Route	1
175	Johnnycake Rd	Upper Mills Circle	Rolling Rd	0.85	Bike Route	1
176	Inwood Ave	Johnnycake Rd	Ashton Valley Way	0.42	Bike Route	1
177	Pleasant Valley Dr	Path Connection	Chesworth Rd	0.38	Bike Route	1
178	Clyde Ave	Hammonds Ferry Rd	Charleston Ave	0.33	Bike Route	1
179	Clyde Ave	Alma Rd	end	0.16	Bike Route	1
180	Third Ave	Hammonds Ferry Rd	Hollins Ferry Rd	0.84	Bike Route	1
181	Hillcrest Park Path	Clyde Ave end	Senior Center and Library at 3rd Ave	0.22	Shared Use Path	1
182	Hammonds Ferry Rd	Clyde Ave	5th Ave	0.24	Bike Route	1
183	Forest Park Ave	Ingleside Ave	Franklintown Rd	0.10	Bike Route	1
184	Northeast Trail	Perry Hall Blvd	Silver Hall Road	0.21	Paved Shared Use Path	5
185	Silver Hall Rd	Silver Spring Rd	End	0.17	Bike Route	5
186	Crosby Rd	Pleasant Valley Dr	Upper Mills Circle	0.46	Bike Route	1
187	Upper Mills Circle	Crosby Rd	Johnnycake Rd	0.14	Bike Route	1
188	Existing Path Repaving	Longview Dr	Westowne ES	0.09	Shared Use Path	1

Prioritized Recommended Long Term Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District
189	Katie and Will's Trail			0.63	Paved Shared Use Path	5
190	Short Line Rail Trail	west of Bloomsbury Ave	Bloomsbury Ave	0.02	Paved Shared Use Path	1
191	Winters Lane	Old Frederick Road	Path Connector at Walden Mill	0.38	Bike Route	1
192	Oakdale Avenue	Edmondson Avenue	Catonsville Park	0.28	Bike Route	1
193	Short Line Rail Trail-Asylum Lane Sidepath	Bloomsbury Ave	Maple Street	0.12	Paved Shared Use Path	1
194	Catonsville Park Path	Oakdale Ave and Rolling Road	Existing park path	0.10	Paved Shared Use Path	1
195	Catonsville Park Path	Oakdale Ave and Rolling Road	Existing park path	0.11	Paved Shared Use Path	1
196	Greenspring Quarry Path	Moores Branch Greenway	Lightfood Dr	0.23	Paved Shared Use Path	2
197	Satyr Hill Road	Cromwell Bridge Road	Sylwood Drive	0.47	On Road Bike Lane	3
198	Old Harford Road	Placid Avenue	Putty Hill Avenue	1.74	On Road Bike Lane	3,5,6
199	Osler Drive	Towsontown Boulevard	Stevenson Lane	0.88	On Road Bike Lane	6
200	Old Harford Road	Putty Hill Avenue	Alden Road	0.83	On Road Bike Lane	6
201	Ebenezer Road	Philadelphia Road	Pulaski Highway	0.35	On Road Bike Lane	5
202	Taylor Avenue	Hillendale Road	Oakleigh Road	0.39	On Road Bike Lane	6
203	Ebenezer Road	Pulaski Highway	Graces Quarters Road	3.94	On Road Bike Lane	5
204	Harford Road	Hillcrest Avenue (City Line)	Taylor Avenue	0.17	On Road Bike Lane	6
205	Loch Raven Boulevard	Baltimore City Line	Loch Hill Road	0.38	On Road Bike Lane	6
206	Old Harford Road	Placid Avenue	Cub Hill Road	0.47	On Road Bike Lane	3
207	Taylor Avenue	Loch Raven Boulevard	Goucher Boulevard	0.43	On Road Bike Lane	6
208	Loch Raven Boulevard (east side)	Taylor Avenue	Joppa Road	2.39	On Road Bike Lane	6
209	Goucher Boulevard	Putty Hill Avenue	Taylor Avenue	0.95	On Road Bike Lane	6
210	Satyr Hill Road	Joppa Road	Old Harford Road	0.34	On Road Bike Lane	5
211	Waltham Woods Road	Cidermill Road	Cub Hill Road	1.43	On Road Bike Lane	3,5
212	Waltham Woods Road	Joppa Road	Cidermill Road	0.39	On Road Bike Lane	5
213	Taylor Avenue	Perring Parkway	Elmhurst Road	0.55	On Road Bike Lane	6
214	Satyr Hill Road	Sylwood Drive	Proctor Lane	0.17	On Road Bike Lane	3
215	Eastern Boulevard	North Point Boulevard	Southeast Boulevard	7.35	On Road Bike Lane	7
216	Sparrows Point Road	North Point Road	North Point Boulevard	0.99	On Road Bike Lane	7
217	Wharf Road	Bethlehem Boulevard	Sparrows Point Road	1.09	On Road Bike Lane	7
218	Bird River Road	Ebenezer Road	Middle River Road	2.92	On Road Bike Lane	5,6
219	Earls Road	Ebenezer Road	Eastern Avenue	1.47	On Road Bike Lane	5
220	Pulaski Highway	Martin Boulevard	I-695	2.64	On Road Bike Lane	6,7
221	Kenwood Avenue	Hazelwood Avenue	Golden Ring Road	0.20	On Road Bike Lane	6
222	Philadelphia Road	Golden Ring Road	Rossville Boulevard	1.04	On Road Bike Lane	6,7
223	Martin Boulevard	Eastern Boulevard	Pulaski Highway	4.05	On Road Bike Lane	5,6,7
224	Wilson Point Road	Eastern Boulevard	Dark Head Cove Road	0.93	On Road Bike Lane	5
225	Middle River Road	Pulaski Highway	Martin Boulevard	1.68	On Road Bike Lane	5,6
226	Orems Road	Rossville / Golden Ring Road	Martin Boulevard	1.85	On Road Bike Lane	5
227	Mace Avenue	MD 702 Crossing	Stemmers Run Road	0.52	On Road Bike Lane	7
228	Wilson Point Road	Dark Head Cove Road	Dogwood Drive	1.35	On Road Bike Lane	5
229	Mace Avenue	Eastern Boulevard	MD 702 Crossing	1.15	On Road Bike Lane	7
230	Turkey Point Road	Back River Neck Road	End	1.75	On Road Bike Lane	7
231	Back River Neck Road	MD 702	Pottery Farm Road	0.20	On Road Bike Lane	7
232	Back River Neck Road	MD 702	Riverview Road (End)	2.71	On Road Bike Lane	7
233	Holly Neck Road	Back River Neck Road	End	2.82	On Road Bike Lane	7
234	Dulaney Valley Road	Fairmount Avenue	Charmuth Ave	1.36	On Road Bike Lane	3,6
235	Loch Raven Boulevard	Loch Hill Road	Taylor Avenue	1.58	On Road Bike Lane	6
236	Taylor Avenue	Oakleigh Road	Perring Parkway	0.15	On Road Bike Lane	6

Prioritized Recommended Long Term Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District
237	Taylor Avenue	Loch Raven Boulevard	Hillendale Road	1.24	On Road Bike Lane	6
238	Southeast Boulevard	Middleborough Road	Back River Neck Road	1.68	On Road Bike Lane	7
239	Bethlehem Boulevard	Peninsula Expressway	North Point Road	1.13	On Road Bike Lane	7
240	North Point Boulevard	Trappe Road	Cove Road	1.29	On Road Bike Lane	7
241	Peninsula Expressway	Merritt Boulevard	Bethlehem Boulevard	5.45	On Road Bike Lane	7
242	North Point Road	Bethlehem Boulevard	Lodge Forest Drive	1.03	On Road Bike Lane	7
243	Middle River Road	Philadelphia Road	Pulaski Highway	0.39	On Road Bike Lane	5,6
244	Eastern Boulevard	Southeast Boulevard	Volz Avenue	2.45	On Road Bike Lane	7
245	Campbell Boulevard (proposed)	Philadelphia Road	MD 43 Extended	2.64	On Road Bike Lane	5
246	Forge Road	Belair Road	Gunpowder State Park	2.74	On Road Bike Lane	5
247	Hammonds Ferry Road	Lansdowne Road	Baltimore City Line	0.32	On Road Bike Lane	1
248	McDonogh Road	Painters Mill Road	Reisterstown Rd	2.21	On Road Bike Lane	2,4
249	Gwynn Oak Avenue	Security Boulevard	Dogwood Road	0.35	On Road Bike Lane	1
250	Campus Drive	S Rolling Road	CCBC Campus	0.34	On Road Bike Lane	1
251	Forest Park Avenue	St Agnes Lane	Cooks Ln	0.24	On Road Bike Lane	1
252	Timonium Road	Potspring Road	York Road	1.19	On Road Bike Lane	3
253	Greenside Drive	Warren Road	Padonia Road	1.25	On Road Bike Lane	3
254	N Rolling Road	Baltimore National Pike	Frederick Road	1.11	On Road Bike Lane	1
255	Timonium Road	Dulaney Valley Road	Pot Spring Road	0.73	On Road Bike Lane	3
256	Eastridge Road	Ridgely Road	Padonia Road	1.80	On Road Bike Lane	3
257	Warren Road	Greenside Drive	Ridgeland Road	0.55	On Road Bike Lane	3
258	Smith Avenue	Sanzo Road	Wickfield Road	0.21	On Road Bike Lane	2
259	Smith Avenue	Old Pimlico Road	Deancroft Road	0.29	On Road Bike Lane	2
260	Smith Avenue	Deancroft Road	Broadview Road	0.31	On Road Bike Lane	2
261	Smith Avenue	Broadview Road	Penny Lane	0.24	On Road Bike Lane	2
262	Slade Avenue	Park Heights Avenue	Seven Mille Lane	0.35	On Road Bike Lane	2
263	McDonogh Road	Liberty Road	Brenbrook Drive	0.77	On Road Bike Lane	4
264	McDonogh Road	Brenbrook Drive	Winands Road	0.30	On Road Bike Lane	4
265	Marriottsville Road	Liberty Road	Lyons Mill Road	0.66	On Road Bike Lane	4
266	Stevenson Road	Philips Drive	Greenspring Valley Road	1.17	On Road Bike Lane	2
267	Kernan Drive	Security Blvd	Windsor Mill Road	0.32	On Road Bike Lane	1,2
268	Ambassador Road	Dogwood Road	Lord Baltimore Drive	0.71	On Road Bike Lane	1,4
269	Windsor Boulevard	Ambassador Road	Rolling Rd	0.38	On Road Bike Lane	4
270	Hammonds Ferry Road	5th Ave	Proposed Patapsco Valley	0.64	On Road Bike Lane	1
271	Hollins Ferry Rd	Transway Rd	Halethorpe Farms Rd	0.84	On Road Bike Lane	1
272	Sacred Heart Ln	Butler Rd	Walgrove Rd	1.49	On Road Bike Lane	4
273	Bloomsbury Ave	Rolling Road	Mellor Ave	0.27	On Road Bike Lane	1
274	Cherry Hill Rd	Reisterstown Rd	End	0.96	On Road Bike Lane	4
275	Lansdowne Road	Hollins Ferry Road	Alma Road	0.70	On Road Bike Lane	1
276	Shirley Manor Rd	HANNAH MORE PARK	Cherry Hill Rd	0.60	On Road Bike Lane	4
277	Lindellen Ave	Shirley Manor Rd	Cherry Hill Rd	0.24	On Road Bike Lane	4
278	Johnnycake Road	Fairbrook Road	Pickall Dr	1.41	On Road Bike Lane	1
279	Offutt Road	Liberty Road	Winands Road	1.01	On Road Bike Lane	4
280	Scotts Level Road	Old Court Road	Winands Road	0.98	On Road Bike Lane	2
281	Lord Baltimore Drive	Windsor Mill Road	Lynne Haven Dr	0.97	On Road Bike Lane	4
282	Falls Road	Ruxton Road	City Line	2.27	On Road Bike Lane	2
283	Ridgely Road	Dulaney Valley Road	York Road	1.39	On Road Bike Lane	3
284	Lyons Mill Road	Liberty Road	Painters Mill Road	2.29	On Road Bike Lane	4
285	Slade Avenue	Reisterstown Road	Park Heights Ave	0.41	On Road Bike Lane	2
286	Smith Avenue	Seven Mile Lane	Sanzo Road	0.71	On Road Bike Lane	2
287	Smith Avenue	Wickfield Road	Old Pimlico Road	0.63	On Road Bike Lane	2
288	Smith Avenue	Penny Lane	Baltimore City Line	0.36	On Road Bike Lane	2
289	Red Run Boulevard	Painters Mill Road	Owings Mills Boulevard	3.10	On Road Bike Lane	4
290	Milford Mill Road	Rolling Road	Washington Avenue	1.18	On Road Bike Lane	4

Prioritized Recommended Long Term Projects (Continued)

Segment #	Name	From	To	Length (Miles)	Facility Type	District
291	Washington Avenue	Lynn Haven Drive	Milford Mill Rd	0.63	On Road Bike Lane	4
292	Warren Road	York Road	Greenside Drive	0.74	On Road Bike Lane	3
293	Charmuth Road	Seminary Avenue	Ridgely Rd	0.82	On Road Bike Lane	3
294	Rockland Hills Drive	Dead end Rockland Hills Dr	Green Summit / Old Pimlico	0.27	On Road Bike Lane	2
295	Pheasant Cross Dr	Smith Avenue	Dead end Pheasant Cross	0.33	On Road Bike Lane	2
296	Cantwell Rd	Fairbrook Road	Cross Trails Road	1.18	On Road Bike Lane	1
297	Oldstone Rd	Johnnycake Road	Cantwell Rd	0.29	On Road Bike Lane	1
298	Cross Trails Road	Johnnycake Road	Cantwell Rd	0.13	On Road Bike Lane	1
299	Belmont Ave	Security Mall	Dogwood Rd	0.93	On Road Bike Lane	1
300	Essex Rd	Liberty Rd	Windsor Blvd	0.97	On Road Bike Lane	2
301	Highfalcon Rd	E Cherry Hill Rd	Reisterstown Rd	1.01	On Road Bike Lane	2,4
302	Scotts Level Rd	Old Court Rd	Milford Mill Rd	0.66	On Road Bike Lane	2,4
303	Dogwood Road	Western Area Park	Belmont Avenue	1.80	On Road Bike Lane	1,4
304	Central Ave/Owings Mills Blvd	Butler Rd	Groff Rd/Stevenson Univ	4.21	On Road Bike Lane	2,4
305	Security Blvd	Rolling Rd	CMS Drwy	0.93	On Road Bike Lane	1
306	Lansdowne Road	Alma Road	Hammonds Ferry Road	0.31	On Road Bike Lane	1
307	Hollins Ferry Rd	Lansdowne Rd	Third Ave	0.26	On Road Bike Lane	1
308	Falls Road	Ruxton Road	Seminary Ave	2.11	On Road Bike Lane	2,3
309	Crosby Rd	Pleasant Valley Dr	Chesworth Rd	0.21	On Road Bike Lane	1
310	Merritt Boulevard	North Point Road	Sollers Point Road	0.90	On Road Bike Lane	7
311	Merritt Boulevard	North Point Road	Sollers Point Road	1.05	On Road Bike Lane	7
312	Bethlehem Boulevard	Peninsula Expressway	North Point Road	1.12	On Road Bike Lane	7
313	Bethlehem Boulevard	Peninsula Expressway	North Point Road	0.26	On Road Bike Lane	7
314	North Point Boulevard	Bethlehem Boulevard	Sparrows Point Road	0.66	On Road Bike Lane	7
315	North Point Boulevard	Bethlehem Boulevard	Sparrows Point Road	0.64	On Road Bike Lane	7
316	Southeast Boulevard	Middleborough Road	Back River Neck Road	0.31	On Road Bike Lane	7
317	Southeast Boulevard	Middleborough Road	Back River Neck Road	0.31	On Road Bike Lane	7
318	Eastern Regional Park Greenway	Eastern Regional Park Entrance	Dundee / Saltpeter Creeks Park	2.73	Shared Use Path	5