MARYLAND DEPARTMENT OF TRANSPORTATION

MARYLAND STATE TRANSPORTATION TRAILS STRATEGIC PLAN

Existing Conditions Report

April 2025

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Table of Contents

List of Tables

List of Figures

1. Introduction

The Maryland State Transportation Trails Strategic Plan will build and expand upon the foundation set by the Maryland Department of Transportation's (MDOT) 2009 Trails Plan, the 2050 Bicycle and Pedestrian Master Plan, and the 2050 Maryland Transportation Plan. The updated plan will specifically advance state sustainability goals and address the growing demand for a transportation trail network that meets active transportation needs within and between all of Maryland's regions.

For this plan, a **transportation trail** refers to a shared-use path that is open to public bicycle and pedestrian traffic as well as most forms of micromobility, such as e-scooters, skateboards, or strollers. While transportation trails may be used for recreational purposes, they serve a transportation function by providing a low-traffic-stress facility between community destinations, not just within parks. These trails connect people to jobs, schools, parks, and daily needs, while supporting broader goals related to traffic safety, public health, and economic and community development. As demand for safe, active transportation grows, transportation trails are increasingly recognized as essential infrastructure.

While many facilities were constructed prior to the enactment of the American with Disabilities Act (ADA), transportation trails are mostly ADA-compliant and follow the standards for shared use paths set by the American Association of State Highway Transportation Officials (AASHTO), enabling use by those requiring mobility devices. The formal definition of shared-use path as defined in the Maryland Department of Transportation State Highway Administration Bicycle Policy and Design Guidelines will be utilized: *"Shared use paths are physically separated from motorized vehicular traffic by an open space, curb, curb and gutter, or barrier and are located either within the highway right-of-way or within an independent right-of-way. Shared use paths are open to use by pedestrians and other authorized non-motorized users."* For the purposes of this Existing Conditions report, transportation trail facilities will be referred to as "trails" throughout the remainder of this document unless noted otherwise.

Figure 1: Examples of Transportation Trails and Non-Transportation (Recreational) Trails

This Existing Conditions Summary was developed to provide an understanding of the plans and policies that have and continue to inform trail development. These plans and policies are described in the **Plan and Policy Review** section.

This summary also identifies areas within the trail project lifecycle that have known barriers that prevent trails from being implemented or from fully benefitting the community once they are implemented. The **Trail Project Lifecycle Analysis** section identifies these barriers and offers opportunities for overcoming challenges. Brief case studies and additional resources are also provided for further context. Some of the solutions to these common trail project challenges will be further developed into trail toolkits. The toolkits will be a component of the Maryland State Transportation Trails Strategic Plan that will provide trail practitioners with guidance on trail implementation and operations topics.

A database and map of Maryland's transportation trails network is being developed by MDOT. A draft map of the network is available on the Maryland State Transportation Trails Strategic Plan website. Maps and analyses from statewide trail network data, overall findings from this Existing Conditions report, and additional research and outreach will be combined into a Final Report at the end of this project.

2. Plan and Policy Review

Transportation trails provide safe corridors suitable for all ages and abilities for bicycle and pedestrian transportation and recreation. The statewide trail network serves as an integral part of the greater statewide bicycle and pedestrian transportation network, which are supported by several statewide and local plans for their various community benefits. The following plans and policies provide the background and direction for the forthcoming statewide trail network and plan.

2.1. Plan Review

2.1.1 State Plans

Maryland has a decades-long legacy of statewide trail and greenway planning. As early as the late 1980s and early 1990s, the state produced foundational reports such as the Rail-Trail Assessment by the Department of Natural Resources (DNR) and a Statewide Greenways Plan commissioned under the Schaefer Administration. These efforts helped establish the vision and precedent for connected trails systems across jurisdictions. The 2009 Maryland Trails plan built on this earlier work, reinforcing the state's longstanding commitment to developing a coordinated trail network.

In this section, state plans developed since the 2009 Maryland Trails plan (including the trails plan itself) were reviewed for guidance on trails and, more broadly, bicycling and walking issues. Plans in **bold** include specific references to transportation trails, while other plans addressed bicycling and walking networks in general. These state plans are presented chronologically and are the latest plans within the scope that they address at the time of writing.

- **Maryland Trails: A Greener Way to Go**, MDOT's 2009 statewide trails plan
- DNR's **2019-2023 Maryland Land Preservation and Recreation Plan (LPRP)**
- 2021-2025 Maryland Strategic Highway Safety Plan (SHSP)
- **The 2022 State Rail Plan,** MDOT's Rail Strategic Plan
- The 2023 Climate Pollution Reduction Plan (CPRP), Maryland Department of the Environment's Climate Action Plan and MDOT's complementary action plan
- The Moore-Miller Administration's 2024 State Plan, the Maryland Governor's Strategic Plan
- The 2050 Maryland Transportation Plan (MTP), "The Playbook" MDOT's 2024 comprehensive long-range transportation master plan
- **The 2050 Bicycle and Pedestrian Master Plan (BPMP)**, MDOT's long-range master plan for active transportation, issued in 2024

Summary

The State Plan, the CPRP, and The Playbook all highlight a goal to reduce automotive travel, as measured by vehicle miles traveled per capita. The CPRP briefly mentions “expanding” and/or “filling gaps” in the state’s bicycle network as a part of reducing automotive travel, though none of these comprehensive plans discuss transportation trails in any significant way. The SHSP also does not mention transportation trails specifically but highlights pedestrian and bicyclist safety as one of six Emphasis Areas due to the increasing share of traffic deaths involving pedestrians and cyclists.

The State Rail Plan includes support for railbanking, turning disused rail corridors into transportation trails until such time as rail service is restored, and identifies several corridors which are in the process of being developed as such ‘interim’ trails. It also identifies a couple of potential rail-with-trail projects where a trail is being developed alongside an active or expanding rail corridor or vice versa.

A Greener Way to Go, the 2009 statewide trails plan, set out a vision for trails and a number of trail goals, and identified eight “top priority links” where trails were needed. Fifteen years later, some of these projects have been completed. The BPMP identified five incomplete priority projects.

The BPMP is the document of this group that most narrowly focuses on active transportation, and provides the greatest number of relevant goals, objectives, strategies, and recommendations related to active transportation trail infrastructure. The BPMP conducted a statewide bicycle level of traffic stress (LTS) and subsequent bicycle network analysis (BNA) to identify low-traffic-stress access to community services such as schools, parks and healthcare and groceries. To conduct these analyses, MDOT inventoried transportation trail-like facilities, which help form the foundation of the low-traffic-stress network. The BPMP also discusses a dozen overlapping trails and trail networks of national, statewide or regional importance, from the Western Maryland Rail Trail to the Eastern Shore Trail Network and a specific recommendation to update the State Trails Plan.

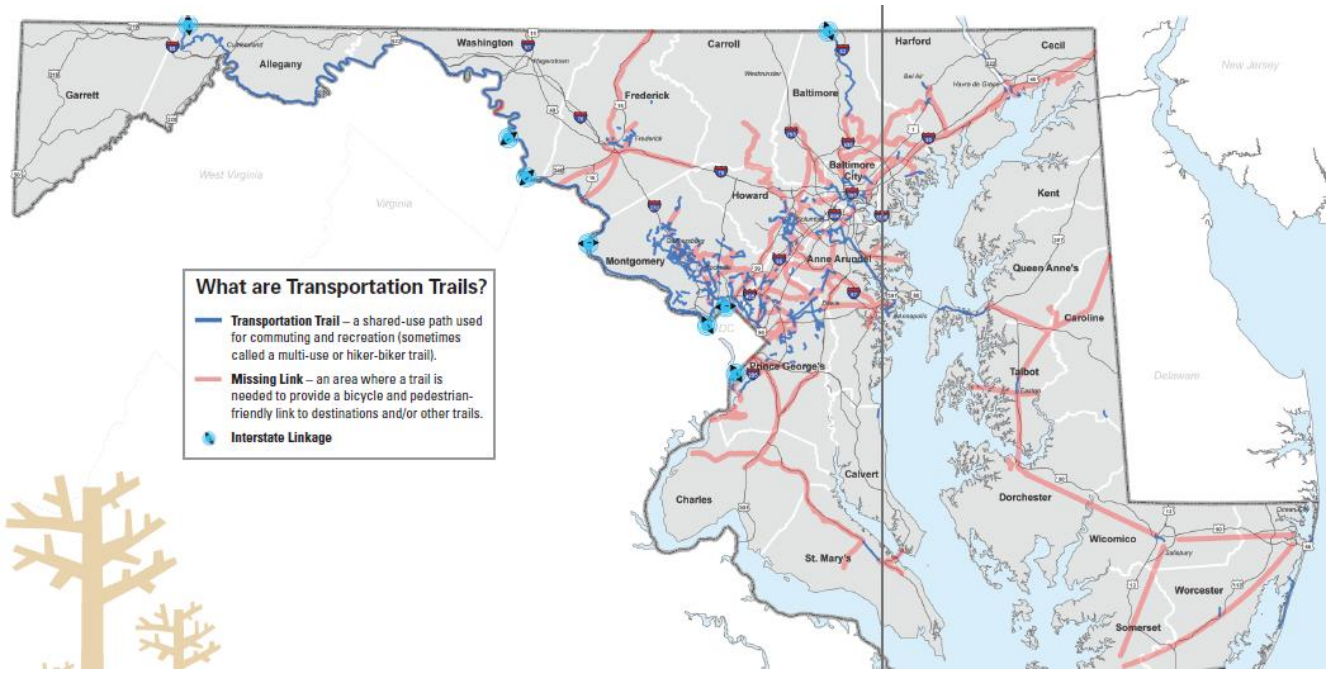
Maryland Trails: A Greener Way to Go (2009)

- A statewide plan focused exclusively on transportation trails, introducing a statewide vision for trails and identifying eight “top priority links” to close gaps in the network.
- Features a Transportation Trails and Missing Links Map, highlighting strategic corridors (e.g., Baltimore–Washington, I-270, interstate linkages, and the Eastern Shore).
- Recommends implementation strategies such as working with railroads and utilities and providing technical assistance and training to local trail developers.

This short, 12-page document, part of the O’Malley Administration’s *Smart, Green, and Growing* initiative to “create a more sustainable future for Maryland”, “outlines a long-term vision to create a Statewide system of trails that provide sustainable transportation and recreation options for all Marylanders.” The plan exclusively addresses transportation trails, like this current effort.

The centerpiece is a map displaying Maryland's network of Transportation Trails (see Figure 2), "shared-use paths used for commuting and recreation" concentrated in the corridor between DC and Baltimore and along I-270 in Montgomery County; interstate linkages, where those trails cross into Pennsylvania, Virginia, and DC; and Missing Links where trails are "needed to provide a bicycle and pedestrian-friendly link to destinations and/or other trails", most of which radiate along major corridors in Central and Southern Maryland and the Eastern Shore, as well as filling some gaps in the Baltimore-Washington Corridor. The document also lists objectives that form a Vision for Trails (such as "Increase the number of people using trails for transportation" and "Provide a sustainable transportation alternative") and a series of Trail Goals (including "Strategically Expand the Trail Network" and "Address Barriers to Trail Development"), and Implementation Strategies to reach them like "work with railroads and utilities to develop trails in underutilized corridors" and "provide support staff, training and technical assistance to support local trail developers."

Figure 2: 2009 Maryland Trails Plan Transportation Trails and Missing Links Map



Maryland Land Preservation and Recreation Plan 2019-2023 (2019)

- Serves as Maryland's Statewide Comprehensive Outdoor Recreation Plan, published by DNR.
- While focused primarily on natural-surface recreational trails, the plan acknowledges the need for transportation trails.
- Survey data within plan finds that 86% of Marylanders engage in trail-based recreation, one-third viewed trail improvements as the top priority for recreation, and 75% of counties listed "trails" among their top three recreation needs.

The LPRP is Maryland's Statewide Comprehensive Outdoor Recreation Plan, published by the Maryland Department of Natural Resources (DNR) to describe the current state of public outdoor recreation [OR] and be "a resource and guide for strategically enhancing public outdoor recreation opportunities" across the state. Although this plan mostly discusses natural-surface trails created for recreational purposes, there are references to transportation trail facilities. The 2019-2023 LPRP is the latest at the time of writing; DNR is currently in the process of updating the LPRP.

In a 2018 survey of Marylanders, 86% of state residents participate in "trail-based" recreation, including hiking, biking, running, and horseback riding, and "one in three respondents viewed improvements to trails as the key priority for enhancement." The state's 24 counties (including the independent City of Baltimore) produce their own Land Preservation and Recreation plans; as of 2019, 75% of the counties named "trails" as one of their top three recreation needs.

The Plan process produced a series of analyses and maps showing "number of locations…within a 5-mile radius" with various types of recreational facility, including trails. It found "access to public outdoor recreation areas with trails is strong through most of the [Central] region" and "few areas in the Western Region were further than five miles" from a public area with trails. Trails were less evenly distributed in the other regions, with Eastern region trails found near Salisbury, on the central Eastern Shore, and in oceanside Worcester County; Southern region trails were concentrated in the northern end, in Prince George's and Anne Arundel counties. Note however that this analysis included "any sites with a path or trail that may be used for walking or hiking, cycling, mountain biking, by equestrians, or for off-highway vehicle (OHV) use", so some of the trails that were included may not be appropriate for transportation use; residents' access to transportation trails may be more limited.

As the report notes, "Trail-based recreation is hugely important in Maryland," and for this reason the Research section includes an extended discussion of "The Significance of Trails," including their Health, Environmental, and Economic benefits, and a list of "Regional Trail Priorities," the top ten trail projects "most needed to help connect communities through an on-road/off-road trail network in each of the Department's service regions." Several match priorities outlined in the 2009 Trails Plan and the BPMP, including connecting the Torrey C. Brown Trail to Baltimore City and completing the Three-Notch Trail in Southern Maryland.

2021-2025 Maryland Strategic Highway Safety Plan (2021)

- Identifies pedestrian and bicyclist safety as one of six emphasis areas due to rising fatality rates.
- While not directly addressing trails, it supports active transportation safety efforts through Complete Streets policies, intersection treatments, and design for vulnerable road users.

The SHSP is a five-year initiative designed to reduce roadway fatalities and serious injuries by 2030, supporting the state's Vision Zero goal. It follows a multi-disciplinary and data-driven approach known as the "Four Es" of Traffic Safety: Education, Enforcement, Engineering, and Emergency Medical Services.

Pedestrian and bicyclist safety is one of the plan's six Emphasis Areas, reflecting growing concerns about vulnerable road users. The SHSP reports that pedestrian and bicyclist fatalities now account for one in four traffic deaths in Maryland, up from one in five, highlighting the need for expanded safety measures. To address this, the plan prioritizes infrastructure investments, including protected bike lanes, pedestrian crossings, and roadway designs that accommodate multimodal travel. Additionally, systemic safety screenings and crash data analysis will help identify high-risk locations where targeted improvements—such as safer intersections and traffic-calming measures—can reduce conflicts between vehicles and non-motorized users.

The SHSP's safety strategies are funded and implemented through federal programs, such as the Highway Safety Improvement Program (HSIP). While there is no explicit mention of trails within this plan, the focus on infrastructure improvements catered to improving multimodal connectivity align with broader active transportation goals. As Maryland continues to implement safety strategies, trails may indirectly benefit from overlapping policies that heighten the safety of non-motorized users. Future iterations of the SHSP may provide additional opportunities to integrate trail networks into its statewide transportation safety planning efforts.

Maryland State Rail Plan (2022)

- Supports railbanking to convert unused rail corridors into interim trail use until rail service returns.
- Identifies corridors under active trail development (e.g., "interim" or rail-with-trail alignments).
- Encourages co-location of trails and rail to enhance multimodal options and nonmotorized access to rail stations.

The State Rail Plan (SRP) guides the state's investments, policies, and strategies for the development of regional and long-distance passenger and freight rail service—specifically, while it covers MARC and Amtrak, it does not cover local transit rail service provided by MTA or WMATA.

The plan identifies several railroad corridors, in Frederick County and many on the Eastern Shore, with trails existing or under development in or near the Towns of Chestertown, Easton, Queen Anne, and Ridgely. It also notes two heritage excursion railroads considering freight service—the Western Maryland Scenic Railroad, which is paralleled by the Allegheny Highlands Trail of Maryland, part of the Great Allegheny Passage, and the Walkersville Southern Railroad, alongside which Frederick County and the City of Frederick are planning a new shared-use path—and highlights the "extensive coordination" required, especially in the latter case, to "balance" railroad requirements and trail needs.

One of the Plan's strategies, within the objective "Pursue capital improvements to the rail system that will improve access to jobs and tourism" under the "Economic Opportunity" goal, is to "support opportunities for railbanking to preserve MDOT owned rail corridors for future transportation usage while providing for the possibility of interim trail use." Interim trail use can be used as a foundational rail corridor preservation and management tool, in addition to active rail service. For Maryland, the

goal is to maximize “beneficial use” which refers to state owned corridors that are either an active railroad or interim trail (sometimes both).

Additionally, the section on “Proposed Investments and Improvements” notes that planning for a new Susquehanna River Bridge on Amtrak’s Northeast Corridor recognized the need for safe walking and bicycling access across the river. While at the time of writing “the rail bridge project does not include a separate bicycle and pedestrian component, [it] would be designed to not preclude the future addition of a multi-use path” river crossing along this bridge. Further, stakeholder input during the plan’s development highlighted a need to improve multimodal access to MARC regional rail stations, including bike/pedestrian connections.

The State Rail Plan is slated for an update in 2027, which will include further guidance on railbanking and rails-with-trails corridors.

Maryland’s Climate Pollution Reduction Plan (2023)

- Statewide plan developed by the Maryland Department of the Environment, while MDOT’s accompanying plan complements MDE’s version with a transportation-specific lens.
- Both primarily focus on electrification of vehicles but also highlight mode shift strategies and suggests investment in active transportation infrastructure to support carbon reduction goals.

The CPRP is the Maryland Department of the Environment (MDE)’s plan to meet the requirements of the 2022 Climate Solutions Now Act, which requires the state to reduce statewide emissions 60% from 2006 levels within ten years and achieve net-zero emissions by 2045. Transportation, according to the plan, “accounted for 35% of Maryland’s GHG emissions in 2020 with most emissions (82%) in this sector coming from on-road vehicles powered by gasoline or diesel.” While much of the transportation section of the plan revolves around shifting Maryland’s vehicle fleet—including school buses, transit vehicles, trucks, and personal cars—to electric or other Zero-Emission Vehicles, it also includes the goal the 2023 State Plan (below) to reduce Vehicle Miles Traveled (VMT) per capita by 20%.

In addition to existing programs to fill gaps in the state bicycle network and administer the statewide transportation demand management (TDM) program, new measures to achieve this goal will include expanding transit infrastructure, usability, and accessibility, and increased “investments and policies to accommodate bicyclists and pedestrians routinely and safely on our extensive road network.”

MDOT published its own Climate Pollution Reduction Plan in 2023, complementing MDE’s plan. Specifically, MDOT’s plan assembles and analyzes measures which reduce climate pollution, dividing them into three categories: Standards and Current Vehicle-Miles-of-Travel Growth, Strategies in Progress (SP), and Potential New Initiatives (PNI). Implementation of SP and PNI measures are projected to add up to 41.9 percent to 54.8 percent reductions in climate pollution compared to 2006 by 2031. This includes climate-pollution-reducing bicycle and pedestrian strategies, expanded

bike/pedestrian system development, as well as effective implementation of metropolitan planning organization plans and programs which include active transportation infrastructure investments.

The Moore-Miller Administration 2024 State Plan (2024)

- Governor's high-level strategic plan guiding agencies under themes of equity, opportunity, and sustainability.
- Recognizes outdoor access, active living, and green infrastructure as integral to health and community development.
- Establishes a policy context supportive of active transportation infrastructure expansion as a tool for statewide equity and economic development.

The 2024 State Plan sets out the Administration's priorities for Governor Moore's term in office. Section 7, "Advancing Infrastructure to Better Connect all Marylanders", includes as its first objective to "improve the safety of current infrastructure" with the aim of eliminating traffic deaths including by "developing transformative bicycle networks." Another key objective is to "decarbonize Maryland's transportation sector"; while this primarily refers to expanding use of electric vehicles and alternative fuels, it also discusses reducing vehicle miles traveled (VMT) and expanding travel demand management (TDM). Providing better and safer transportation trail infrastructure so that more people can safely travel by foot and bicycle is typically a key component of TDM and other efforts to reduce VMT.

The Playbook: 2050 Maryland Transportation Plan (2024)

- MDOT's long-range transportation master plan, updated in 2024.
- Promotes multimodal connectivity, including the role of active transportation infrastructure in reducing single-occupancy vehicle travel.

Designed in the style of a sports team's playbook, the Playbook, Maryland's long-range statewide transportation master plan, presents a "Scouting Report" depicting the current state of Maryland's transportation system and a "Game Plan" for its development over the next 25 years. It closes with a selection of "a few game changing projects and programs" across the state which highlight active transportation resources and uphold the goal to promote environmental stewardship. The statewide programs include the Model Complete Streets Initiative, the Pedestrian Safety Action Plan (PSAP), and the Statewide Trail Network, and many of the game changing projects are large, multi-jurisdictional transit or highway projects that may offer the opportunity to fill active transportation needs such as the Purple Line light rail project or the American Legion Bridge highway projects. There are also projects that contribute to the transportation trail effort further discussed in the BPMP. For example, the MTA's Susquehanna River Crossing could help close a gap in the East Coast Greenway and facilitate bike and pedestrian travel between Havre de Grace and Perryville, which is currently nearly impossible.

The 2050 Maryland Bicycle and Pedestrian Master Plan (2024)

MDOT's most trail-relevant document, focused on active transportation infrastructure. It includes:

- Statewide Bicycle Level of Traffic Stress (LTS) analysis, Bicycle Network Analysis (BNA) for low-stress access to destinations, and underlying inventory of shared use paths to drive modeling.
- Provides progress update on 2009 Maryland Trails plan priority projects and recommends a formal update to the State Trails Plan and integration of trail networks into larger infrastructure planning.

The 2050 Maryland Bicycle and Pedestrian Master Plan (BPMP) describes the state of active transportation in Maryland as of 2023 and presents strategies to advance a vision for complete and integrated systems through policy, infrastructure, and collaboration proposals. The BPMP conducted a statewide bicycle level of traffic stress (LTS) and subsequent bicycle network analysis (BNA) to identify low-traffic-stress access to community services such as schools, parks and healthcare and groceries. To conduct these analyses, MDOT inventoried transportation trail-like facilities, which helped form the foundation of the low-traffic-stress network. In addition to assigning a "bike score" for each census block, the bicycle network analysis highlights areas of low bicycle accessibility and high equity need — historically and/or currently marginalized communities, areas of persistent poverty, and geographically isolated places — which would benefit greatly from trail connections and other bicycle infrastructure improvements.

Alongside segments on building out the state's bicycle and pedestrian network, the Plan contains a section (4.4) of recommended policy and guidance for the Statewide Trail Network. This section includes a listing of Priority Projects identified by the 2009 Statewide Trails Plan which remain incomplete—of which there are just five projects, totaling less than 40 miles (see Table 1).

Figure 3: Map of Remaining 2009 Statewide Trails Plan Priority Projects

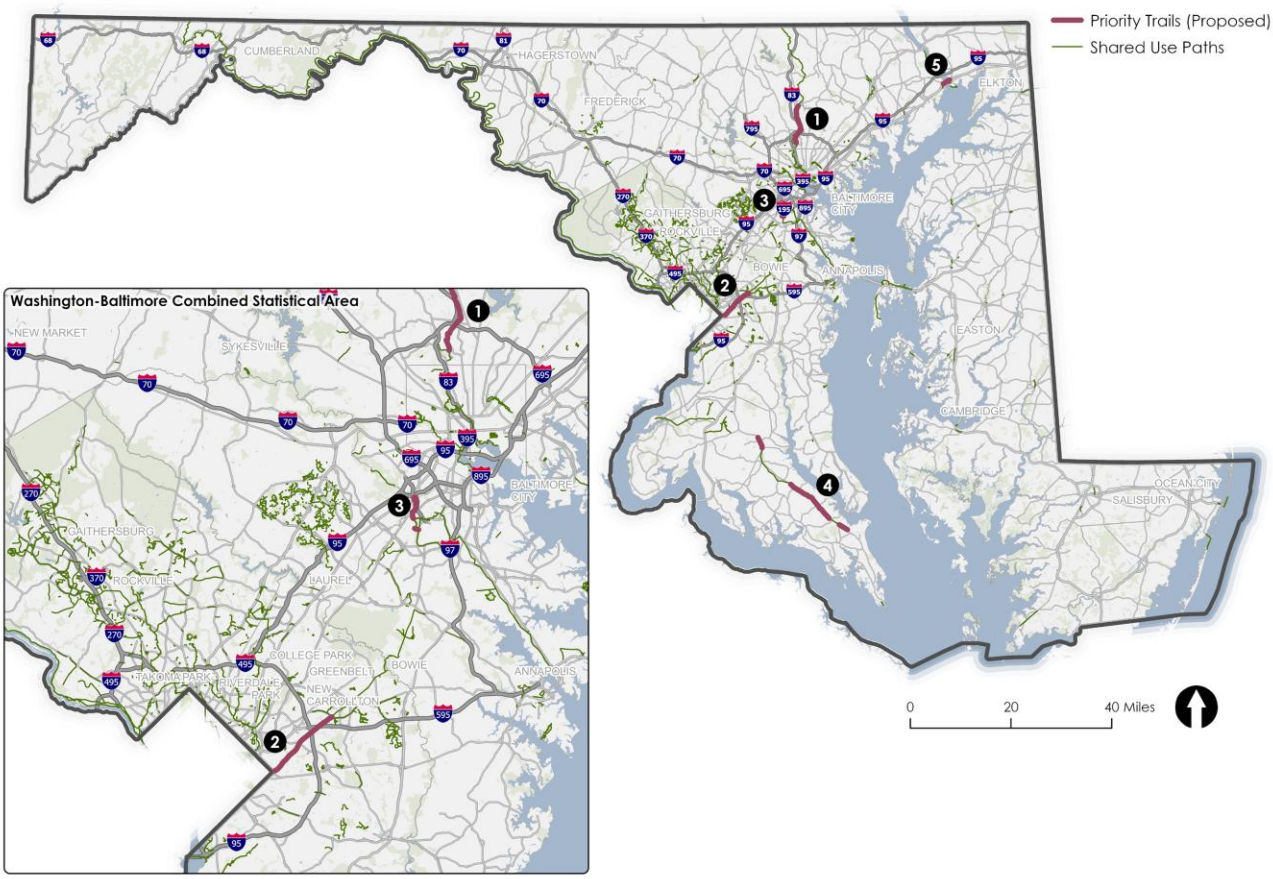


Table 1. Remaining 2009 Statewide Trails Plan Priority Projects (Updated)

NAME	DESCRIPTION	DOCUMENT	LOCATION
Jones Falls Trail to Torrey C. Brown Rail Trail	8.4-mile connection between the northern terminus of the Jones Falls Trail near Lake Roland Park and the southern terminus of the Torrey C. Brown Rail Trail in Ashland east of Hunt Valley. This would upgrade an on-road segment of the East Coast Greenway.	Feasibility Study completed June 2024, but project faces continued barriers and may need re-evaluation.	Baltimore County
WB&A Trail towards DC	6.5-mile connection between the current southern terminus of the WB&A Trail near MD 450 in Prince George's County along MD 704 to the Washington, DC city limits.	WB&A Trail Extension Feasibility Study (June 2018) MD 704 Streetscape Enhancement 30% Design Report (October 2019)	Prince George's County
BWI Trail to Patapsco Regional Greenway	7-mile connection between BWI Hiker Biker Trail to the proposed Patapsco Regional Greenway via the Stony Run Trail. This connection includes the Patapsco Greenway segments: Ridge Road, Stony Run, Stony Run Crossing, I-95.	Patapsco Regional Greenway Plan (2018)	Anne Arundel County/Baltimore City/Baltimore County/Howard County/Carroll County
Three Notch Trail in Charles & St. Mary's (Note: This project was not listed in the 2009 Trails Plan)	10.5-mile connection (Phase VII, VIII and IX) between FDR Boulevard in the south and Baggett Park in the north. Approximately 2-mile connection (Phase IVB) between MD 237/Chancellors Run Road in the north and MD 235/Three Notch Road in the south (future southern terminus). 2.5-mile connection between the current northern terminus of Three Notch Trail at Deborah Drive/the Charles County line through Hughesville to the intersection of MD 5 and Leonardtown Road (future northern terminus).	Three Notch Trail phasing documentation from St. Mary's County Indian Head Rail Trail Extension Feasibility Study from Charles County (April 2022)	Charles County St. Mary's County
Lower Susquehanna Greenway across Susquehanna River	A bridge over the Susquehanna River between Havre de Grace and Perryville	2009 Maryland Trails plan, as well as local plans for Cecil County, Hartford County, Perryville, and Havre de Grace	Harford County Cecil County

In addition to filling these gaps, the document recommends standards for several types of trails (i.e., shared use, recreational, and natural surface), and that some older "legacy trails and paths" should be upgraded to meet current accessibility and other standards to be shared use paths as funding permits. It also recommends several updates to be incorporated into the next Statewide Trail Plan, and that the state create an overarching Trail Team to coordinate and liaise between MDOT and localities. Select recommendations geared to bicycling and walking more generally also have an indirect impact on trails.

Table 2. BPMP Recommendations Relevant to Transportation Trails

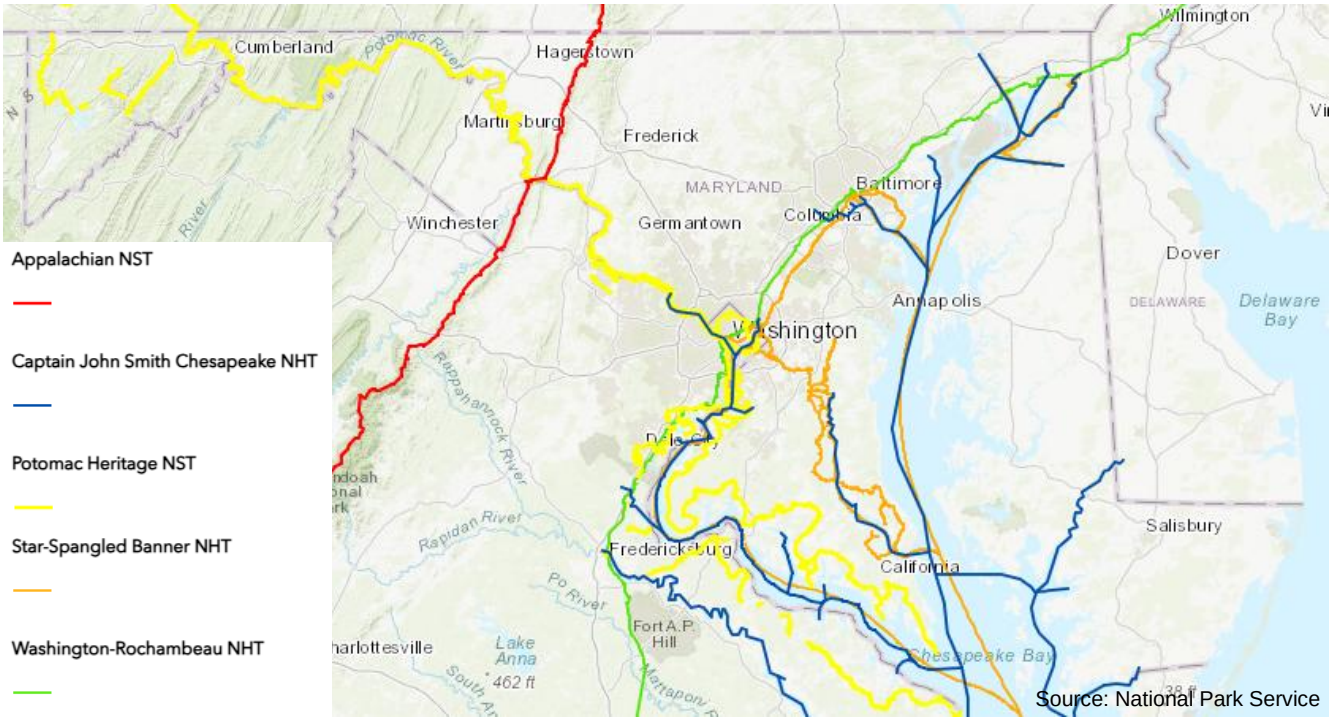
Chapter 4 Section 4.4 Statewide Trail Plan Recommendations	• Integrate local trail projects and transportation network plans. • Include longer distance routes and paths along with greater focus on specific infrastructure improvements. • Set forth procedures to prioritize new projects and coordinate trail network improvements across jurisdictions. • Identify existing trails that are in need of improvements to meet current standards. • Include (or cross reference) design guidance for all trail types. • Adopt access and lighting standards for transportation trail projects. • Establish a prioritization process for regionally significant trails that includes an equity measure. • Establish a clear railbanking process. • Create opportunities for trail creation that promote the growth of trail-based economy and trail-oriented development.
Chapter 5 Goals, Objectives, and Recommendations Specific to Trails	• Update State Trail Plan and identify implementation actions. • Create a Trails Team within MDOT to oversee and coordinate trail planning, design, construction and maintenance. • Expand the Trail Town Program (https://www.trailtowns.org/) to promote economic development and active tourism. • Develop statewide Railbanking Policy and implementation guidance; provide rail-banking and rails-with-trails assistance. • Coordinate with utility companies and railroads in developing a Trail Access Policy.
Chapter 5 Goals, Objectives, and Recommendations Relevant to Trails	• Update SHA's sidewalk/shared use path policy to align with local goals and partnerships. • Implement the Bicycle Facility Selection Guide to complement the Context Driven Guide, to support analysis of land use context when selecting bicycle facility types. • Promote projects that fill gaps in existing active transportation networks. • Revisit and update capital and maintenance policies and mandates related to sidewalks and shared-use paths within SHA rights-of-way. • Develop guidance for best practices to maintain bicycle and pedestrian facilities. • Identify locations on state roads that act as gaps or barriers in local low-stress bicycle and pedestrian networks.

2.1.2 Cross-State and Regionally Significant Trail Networks

This section documents signature existing and planned trails that are within or run through the State of Maryland as well as trail networks that are regionally significant. Although some of these trails cannot be categorized as transportation trails due to their trail specifications or primary purpose, these trails are being highlighted in this report because they have a significant presence in the state and many of them may serve as "backbone" corridors from which the statewide trail network, including transportation and recreation trails, can continue to expand.

Maryland's participation in regional and national trail networks not only supports long-distance mobility and recreation but generates measurable economic and community benefits. Trails such as the C&O Canal Towpath and the Great Allegheny Passage draws thousands of visitors annually, contributing to local economies and community wellbeing across towns large and small. Maryland's trail network is uniquely positioned at the intersection of the Northeast and Mid-Atlantic with a dense mix of urban, suburban, and rural landscapes and a complex patchwork of state, local, and federal landowners. This makes Maryland both a critical connector in interstate trail systems and sometimes a uniquely challenging environment for cross-jurisdictional trail planning.

Figure 4: Map of National Scenic and National Historic Trails in Maryland



Source: National Park Service

National Trails System

The National Trails System is a network of long-distance non-motorized trails that is overseen by the National Park Service. National Scenic Trails (NST) and National Historical Trails (NHT) have been

added to the system through an act of Congress. While the alignment of these trails is identified, they are often comprised of regional trails that are connected together, and most remain a work in progress. Maryland has several NSTs and NHTs within its boundaries:

- **Appalachian NST**: the iconic Appalachian Trail, a hiking-only trail that traverses Maryland from Harpers Ferry, WV to Pen Mar, MD primarily on state parkland along the South Mountain ridgeline separating Washington and Frederick Counties.
- **Captain John Smith Chesapeake NHT**: an all-water trail following John Smith's 1609 voyage up the Chesapeake Bay and its numerous tributaries.
- **Potomac Heritage NST**: a braided trail network (hiking, bicycling or other allowed uses determined by different landowners) paralleling the Potomac River, with connections to water, scenic views, public recreation and cultural/historic sites.
- **Star-Spangled Banner NHT**: a land and water trail connecting historic sites relevant to the War of 1812 in the Chesapeake Bay region.
- **Washington-Rochambeau Revolutionary Route NHT**: a land trail tracing the route of French and Continental Armies from Boston, MA to Yorktown, VA during the Revolutionary War.

National Historic Trails are not explicitly required to accommodate hiking and biking throughout their lengths. In Maryland, NHTs primarily make use of roads to connect between historic sites; however, shared use paths should be considered for part or all of these trails. National Scenic Trails are expected to accommodate hiking, with other complementary non-motorized uses allowed. Of the two NSTs within Maryland, the Potomac Heritage National Scenic Trail accommodates both walking and biking among a range of other uses but is incomplete in the Coastal Plain.

Potomac Heritage National Scenic Trail (https://www.nps.gov/pohe)

The Potomac Heritage NST (PHNST) is a network of individually managed public trails connected from the mouth of the Potomac River to the Allegheny Highlands and the Upper Youghiogheny River basin. It includes 20 units of the National Park system within three states and the District of Columbia. Significant existing segments of the PHNST in Maryland include:

- **Chesapeake & Ohio (C&O) Canal Towpath:** a hard-packed dirt trail open to hikers and bike riders from DC to Cumberland, itself a unit of the National Park Service. The C&O Canal Towpath is also a component trail of multiple cross-state trail networks, including the American Discovery Trail, Great American Rail-Trail, Grand History Trail, and the 9/11 Memorial Trail.
- **Great Allegheny Passage (GAP) Trail:** the segment connecting the C&O Canal Towpath in Cumberland to Ohiopyle State Park in Pennsylvania (passing Mount Savage and Frostburg).
- **Eastern Continental Divide Loop:** a proposed 150-mile loop hiking-only trail that includes some existing sections within Garrett County.

The NPS and partners published a 5-year Strategic Partnership Plan for this trail in 2022. Most of the PHNST in Southern Maryland is on-road or on waterways, connecting trail sections within public lands.

Other Cross-State Networks

Cross-state networks are also developed by nonprofit organizations by connecting local and regional trail segments together. These networks are also often comprised of regional and local trails linked together, with temporary on-road segments where a trail currently does not exist. Local trails that can align with these cross-state networks may be able to leverage the additional exposure and support networks that can come from being part of a larger trail project.

American Discovery Trail (https://discoverytrail.org/states/maryland-dc/)

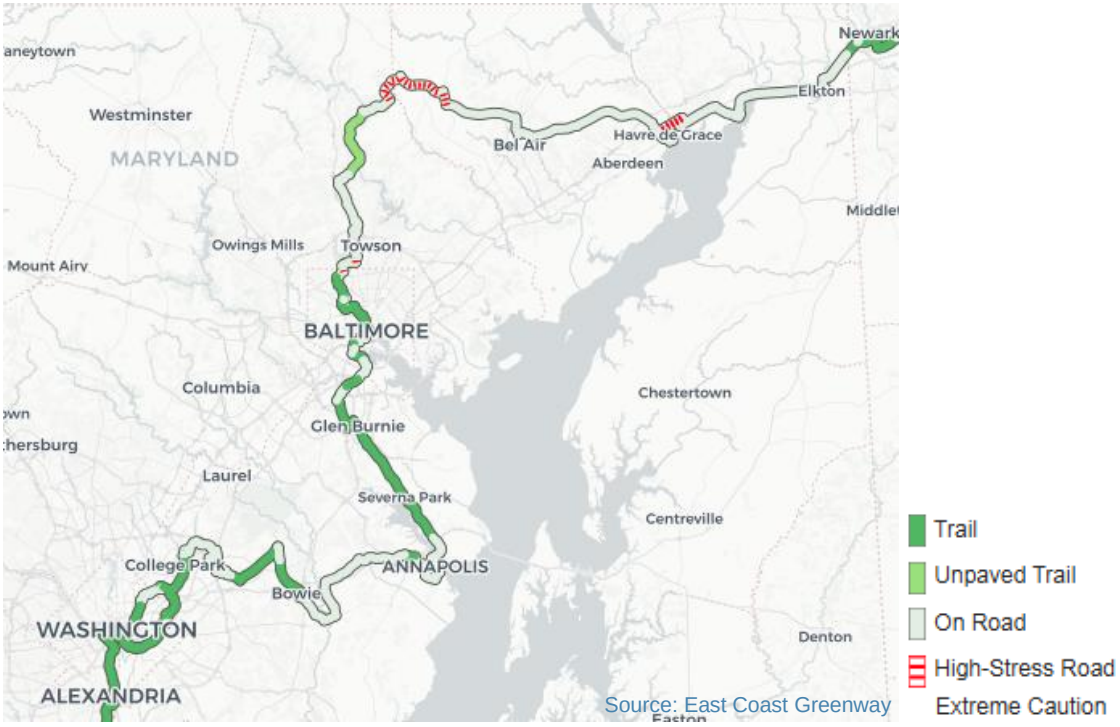
The American Discovery Trail (ADT) is a system of recreational trails and roads that collectively form a coast-to-coast hiking and biking route, "the first coast to coast, non-motorized trail," comprising "6,800+ miles of continuous, multi-use trail…from Cape Henlopen State Park, Delaware, to Pt. Reyes National Seashore, California." In Maryland, the route includes portions of the C&O Canal Towpath, Anacostia Tributary Trails, the Baltimore & Annapolis and WB&A Trails, and the Cross Island Trail in Queen Anne's County, and the "future" Love Point to Lewes, DE "Smuggler's Trail" and "planned" Hillsboro Rail Trail. The trail is fully complete from the DC line to Western Maryland and West Virginia, and mostly incomplete from the DC line to the Eastern Shore and Delaware.

East Coast Greenway (https://greenway.org/states/maryland)

The East Coast Greenway (ECG) is a walking and biking route stretching 3,000 miles from Maine to Florida which when complete will connect 450 communities across 15 states. As in many states, in Maryland the Greenway is currently made up of several disconnected segments of trail, including:

- The Torrey C. Brown Rail Trail north of Baltimore
- The Jones Falls and Gwynns Falls Trails in Baltimore
- The Baltimore-Washington International (BWI), Baltimore & Annapolis (B&A), and the Washington, Baltimore & Annapolis (WB&A) Trails linking Baltimore to Annapolis and DC.

Figure 5: Current East Coast Greenway Alignment in Maryland



These trails represent only 61 miles (37%) of the 163-mile "Spine Route" through the state. The most notable gap within the ECG in Maryland are the lack of a pedestrian-accessible bridge over the Susquehanna with very limited bicycle access to the Hatem Bridge between Perryville and Havre de Grace. Another notable gap on the end of the WB&A Trail between Prince George's County and Anne Arundel County over the Patuxent River is scheduled to open Spring 2025.

Grand History Trail (https://habpi.com/our-work/ght/)

The Grand History Trail is a proposed trail to connect sites of historic interest in central Maryland, southern Pennsylvania, and the Potomac River Basin, including Annapolis, Baltimore, York, Gettysburg, Frederick, Antietam, Harper's Ferry, and Washington, DC. Much of the route overlaps with the East Coast Greenway. Because of this, existing Maryland segments of the route include portions of the C&O Canal Towpath, Anacostia Tributary Trails, Torrey C. Brown Rail Trail, and BWI, B&A, and WB&A Trails. Non-existing segments include a connection from the C&O Canal to Frederick and towards Gettysburg, PA, as well as non-existing segments of the East Coast Greenway.

Great American Rail-Trail (https://www.railstotrails.org/site/greatamericanrailtrail/content/maryland/)

Much like the American Discovery Trail, above, the Great American Rail-Trail (GART) is a system of trails that collectively form a coast-to-coast hiking and biking route, but it will be "the first trail that will be entirely bikeable across the country and, when completed, separated from vehicle traffic." The

GART "connects 150+ existing rail-trails, greenways and other multiuse paths spanning more than 3,700 miles" from Washington, DC, to Washington State. In Maryland, the GART is fully complete as it uses the existing C&O Canal Towpath and GAP Trail.

Great Eastern Trail (https://www.greateasterntrail.net/maps-trail-descriptions/maryland/)

The Great Eastern Trail (GET) is approximately 1,600 miles in length, spanning throughout the eastern part of the United States from Alabama to New York. It is part of a cooperative project between the Potomac Appalachian Trail Club (PATC), Green Ridge State Forest, Mid Atlantic Foot Trails Coalition, and the American Hiking Society.

Apart from the C&O Canal Towpath, much of the GET's route in Maryland consists of hiking trails that are not suitable for cycling. From West Virginia, the GET enters Maryland following the Tuscarora Trail, a PATC-maintained hiking trail that parallels the Appalachian Trail. At Hancock, hikers have a choice between an eastern and western route towards Pennsylvania. The eastern route follows the C&O Canal Towpath to rejoin the Tuscarora Trail for six miles before crossing into Pennsylvania at Yeakle Mill. The western route follows the C&O Canal Towpath to exit on Lock 58 on Long Pont Trail to enter Green Ridge State Forest, moving along the Pine Lick Trail before reach the Mid State Trail in Pennsylvania.

Mason-Dixon Trail (https://masondixontrail.wixsite.com/mdts)

The Mason-Dixon Trail is a 200-mile hiking trail, about a quarter of which is in Maryland, connecting the Appalachian Trail near Boiling Springs, Pennsylvania, with the Brandywine Trail in Chadds Ford, near West Chester, PA. The trail follows the Susquehanna River from north of York, PA, to its mouth at Havre de Grace, then turns east through Perryville and Elkton before crossing into Delaware.

Parts of the Mason-Dixon follow public roads and multi-use trails, but much of it is on trails which are designated for hiking only and segments of private property through which the trail organization has arranged for hikers to pass. From Conowingo Dam to Havre de Grace, the Mason-Dixon Trail follows the Lower Susquehanna Heritage Greenway's Wildflower Trail and trails of the Susquehanna State Park.

The 9/11 National Memorial Trail (https://www.911trail.org/)

The 9/11 National Memorial Trail connects the Pentagon in Arlington, Virginia, the site of Flight 93's crash in Shanksville, Pennsylvania, and the Twin Towers in New York City as a "perpetual memorial to those lost on that fateful day" in 2001. In Maryland, the Arlington–Shanksville leg of the trail is complete as it follows the C&O Canal Towpath from DC to Cumberland and the GAP Trail from Cumberland into Pennsylvania; while the Arlington–New York leg follows the East Coast Greenway and is subject to the same level of completeness. The trail was recognized by an act of Congress in 2021, to be administered by the National Park Service but outside of the National Trails System.

U.S. Bicycle Route System (https://www.adventurecycling.org/routes-and-maps/us-bicycle-route-system/)

The U.S. Bicycle Route System (USBRS) is a national network of long-distance bike routes which use a combination of roads and trails. Routes are nominated by state transportation departments and approved by the American Association of State Highway and Transportation Officials (AASHTO). The Adventure Cycling Association provides free technical assistance on behalf of AASHTO to any state interested in developing US Bicycle Routes.

Four U.S. Bicycle Routes are designated within Maryland, though only one, USBR 11 between the C&O Towpath at Harpers Ferry, West Virginia and the Pennsylvania border north of Hagerstown, Maryland is signed. USBR 1 runs from DC through Central Maryland via the Capital Crescent, Rock Creek, and Torrey C. Brown Trails; USBR 50 runs west from DC along the C&O Towpath and GAP Trail; and USBR 201 connects USBR 1 at Gunpowder State Park to Havre de Grace, Elkton, and the Delaware line along the East Coast Greenway's current (on-road) route.

2.1.3 Regional Trail Plans and Networks

Within the state, there are several government and coalition-led initiatives to develop extensive trail networks focused on connecting multiple jurisdictions together within a metropolitan area or region. These multijurisdictional plans are being featured in this report because they often identify gaps and potential alignments for long-distance trails that may become significant at the statewide level.

Anne Arundel Trail Network (https://annearundeltrailnetwork.org/)

The Anne Arundel Trail Network (AATN) is a countywide initiative to create a system of multi-use trails in Anne Arundel County. It included a spine of major trails forming a hub and spoke system, complemented by community connectors to neighborhoods, schools, parks, and other destinations. AATN also identifies opportunities to complete gaps in national trails passing through the county, with current priorities including the WB&A Patuxent River Bridge, Broadneck Trail, South Shore Trail, and connections to the BWI Loops and Odenton.

Baltimore Greenway Trails Network (https://www.railstotrails.org/trailnation/baltimore-greenway-trails-network/)

"The Baltimore Greenway Trails Network is a vision for a 48-mile world-class network of urban trails that will link together the diverse neighborhoods, cultural amenities and outdoor resources that make up the landscape of Baltimore City." In addition to these connections within the City, when complete this Network would also link the City and surrounding areas, including filling gaps in the East Coast Greenway both north and south of Baltimore, through the Jones Falls to Torrey C. Brown Trail and the Baybrook Connector respectively. The Network is spearheaded by the Rails-to-Trails Conservancy in partnership with over 90 partners across the city.

Figure 6: Herring Run Trail Bridge in Baltimore

Source: Rails-to-Trails Conservancy/Side A Photography

Bikeable Baltimore Region (https://arcg.is/eH1GS0)

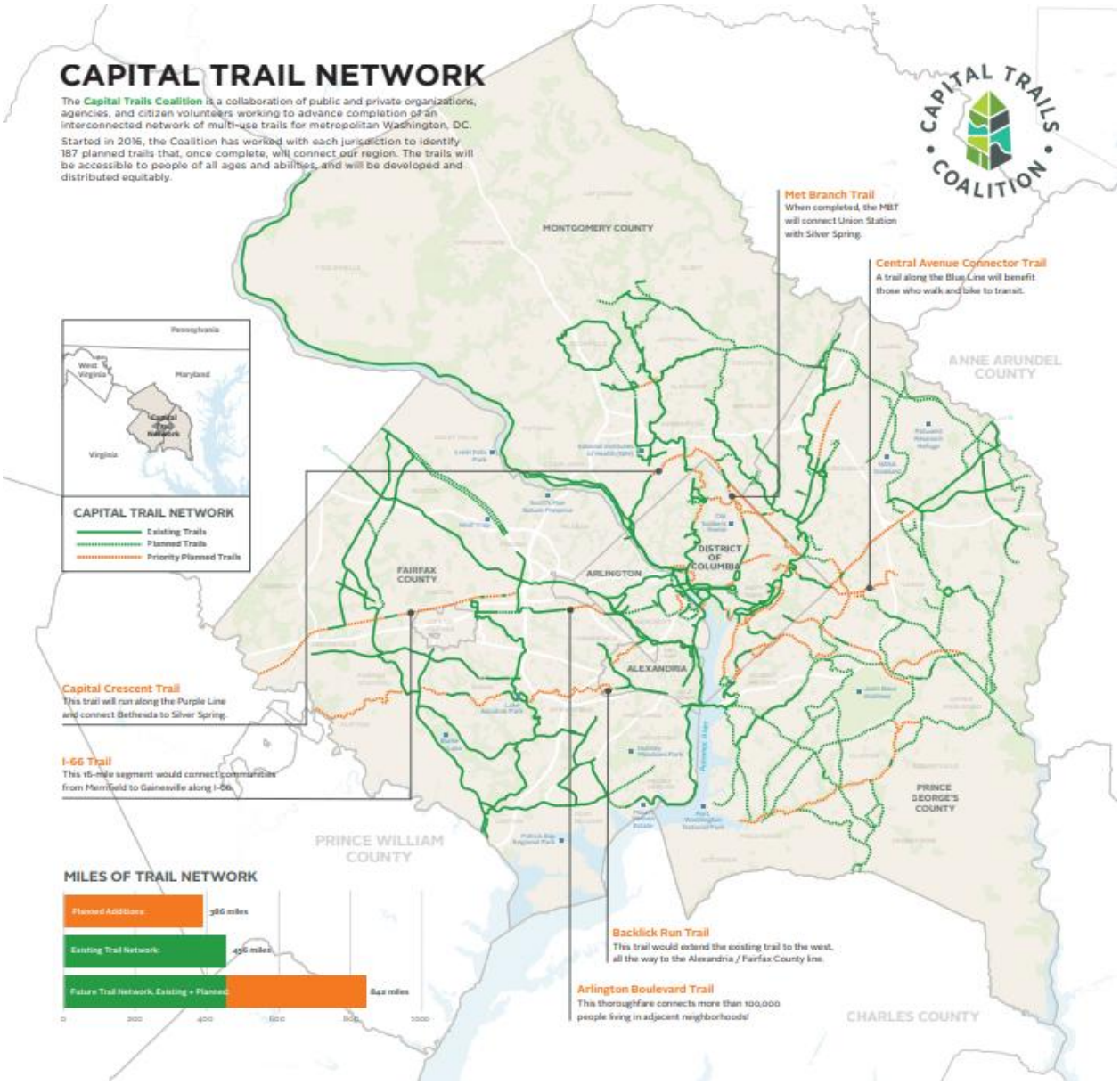
The Baltimore region — Baltimore City and the six surrounding counties, from Havre de Grace west to Westminster and south to Columbia, Annapolis, and beyond — "already has nearly 600 miles of bike lanes and paths, but many of these routes are not connected." The Bikeable Baltimore Region Proposed Regional Bike Network collects existing and planned paths and bike lanes from across the region and calls out gaps and high-stress roadways that need to be improved to knit together a comprehensive, connected all-ages-and-abilities network. Most of the network is proposed along existing state highways and river valleys, with a minimum planned Bicycle Level of Traffic Stress of 1, necessitating shared use paths and protected bike lanes along most proposed corridors. As of this writing, the proposal is nearing the end of a public feedback phase with a final plan expected by mid-2025.

Capital Trails Coalition Network (https://www.capitaltrailscoalition.org/map/)

The Capital Trails Coalition (CTCN) is a group of local and regional agencies and non-profits building and advocating for "a world-class network of multi-use trails that are equitably distributed throughout the Washington D.C. metropolitan region", including Montgomery and Prince George's Counties. As with the Baltimore Greenway network, a number of the proposed and planned trail projects would fill significant gaps in the greater Maryland and national trail network; the East Coast Greenway and 9/11 Memorial Trail organizations and the Potomac Heritage Trail Association are all members of the Coalition. The Bike/Ped Subcommittee of the Transportation Planning Board, Washington DC's

metropolitan planning organization, supports the development of the Capital Trails Network and regularly reports status updates.

Figure 7: Capital Trails Coalition Trail Network Map

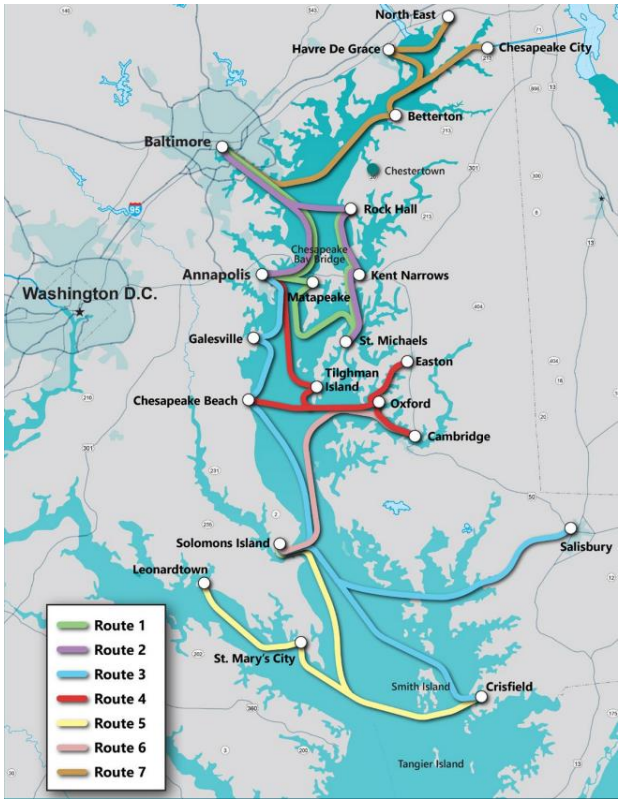


Chesapeake Bay Passenger Ferry Feasibility Study (https://www.visitannapolis.org/media/ferry-feasibility-study-consortium/)

A recent feasibility study commissioned by a consortium of counties on the Chesapeake Bay concluded that subsidized ferry service across the bay is feasible and beneficial to the economic development of the counties overall. The study identified five potential cross-bay ferry routes, with the top two routes by highest potential ridership being two once-daily routes connecting Baltimore and Annapolis to Rock Hall, Kent Narrows, St. Michaels, and Matapeake (Routes 1 and 2 in Figure 6). A third route that had relatively higher expected ridership connects Chesapeake Beach to Easton, Oxford, and Cambridge twice a day (Route 4 in Figure 6).

While trails are not mentioned in the study, the proposed ferry network would be passenger-only ferries, and people would need to drive and park at ferry terminals or take alternative forms of transportation to board ferries. Trails are not explicitly identified as connecting facilities, but walking paths are. Shared use paths could expand the catchment area and appeal of ferry services by providing a bikeway in addition to a walkway to the terminals.

Figure 8: Potential Chesapeake Bay Ferry Routes



Source: Cambridge Systematics

Maryland Eastern Shore Trail Network (https://mestn.org/)

The mission of Maryland's Eastern Shore Trail Network coalition is to galvanize communities and support them in planning, promoting, advocating for, and implementing a diverse system of accessible trails and safe crossings across the region. The group is headed by The Eastern Shore Land Conservancy with members from the National Park Service, the Maryland Bicycle and Pedestrian Advisory Committee (MBPAC), MDOT Office of Planning, Talbot Thrive, and several of the county and municipality planners throughout Maryland's Eastern Shore.

This region benefits from the presence of a network of state-owned railroad corridors, some of which have been converted or are in the process of conversion into rail-trails. These trails include the Wayne Gilcrist Rail-Trail in Chestertown, Easton Rails-to-Trails, Ridgley Railroad Park and the studied Frederick Douglass Rail-Trail. Data on these and other potential trails has been provided for this

Statewide Trail Plan. MESTN has completed preliminary mapping of existing, planned, and potential routes to connect people and places. The full map and strategic plan can be found on their website.

Maryland Park Service Rail Trails

The Maryland Department of Natural Resources owns and maintains two active rail trails and one prospective rail trail corridor. These trails are listed in an inventory within DNR's 2019 Land Preservation and Recreation Plan. While primarily used for recreational purposes, these trails are built to shared use path standards and the connectivity they provide between communities makes them useful for transportation purposes.

- **Torrey C. Brown Rail Trail**: A 21-mile crushed stone multi-use trail in northern Baltimore County, from Cockeysville to the Maryland-Pennsylvania border. Parts of the Trail, which is managed by Maryland's Gunpowder Falls State Park, are included in the East Coast Greenway and 9/11 Memorial Trail routes.
- **Western Maryland Rail Trail**: The 28-mile trail follows the former right-of-way of the Western Maryland Railway between Fort Frederick State Park and Little Orleans via Hancock, parallel to the C&O Canal Towpath. It is often recommended as a paved alternative to the C&O.
- **Weverton Roxbury Corridor Rail Trail**: Also known as the Civil War Railroad Trail, this 23-mile abandoned railroad was a branch line that connected the C&O Canal Towpath to Hagerstown. While the corridor has been railbanked by DNR, trail building has not commenced due to local opposition.

Patapsco Regional Greenway (https://baltometro.org/transportation/plans/patapsco-regional-greenway)

The Patapsco Regional Greenway (PRG) is a planned 40-mile shared-use trail running through the Patapsco Valley from Baltimore's Inner Harbor to Sykesville in Carroll County, connecting regional trails including the BWI, Jones Falls, and Middle Branch Trails to Patapsco Valley State Park. Seven segments have been constructed and are open for use, including about 5.5 miles in Baltimore City and 5.2 miles in Baltimore County. Several other sections are in planning or design phases. Maintenance guidance for the trail is currently being developed by the Baltimore Metropolitan Council.

Three Notch Trail and Indian Head Rail Trail

In Southern Maryland, two neighboring counties have built long-distance trails since the early 2000s – Charles County has completed the 13.1-mile Indian Head Rail Trail between Indian Head and White Plains and St. Mary's County has built 10.6 out of 26 miles of the Three Notch Trail, which parallels Three Notch Road (MD-5/MD-235) between Hughesville and Lexington Park. Charles County has also studied the feasibility of closing the gap between the two trails in a 2022 study. If fully built out, Southern Maryland would have a 50+ mile long trail from the Potomac River to the Chesapeake Bay.

2.2. Policy Analysis

Federal, state, and local policies have influence over how trails are planned, designed, and managed. A review of these policies is provided to help identify where policy changes may benefit the statewide trails network and where existing policies can be leveraged to support trail project implementation in Maryland.

Railbanking and Trails

Figure 9: DNR-Railbanked Western Maryland Rail Trail

Railbanking is a federal process where a trail sponsor, typically a public agency, negotiates an agreement with a rail corridor owner to use an out-of-service corridor for interim trail use. The process preserves the integrity or completeness of a rail corridor by preserving existing land ownership, rights and easements while it is used as a trail. This agreement allows the corridor to be reactivated for rail use in the future. The railbanking process is standardized by the Surface Transportation Board (STB), the federal agency in charge of overseeing interstate railroad commerce. State transportation departments or railroad agencies often get involved to support potential local trail sponsors during the railbanking process. The process in which the State of Maryland interacts with the STB during the railbanking process is outlined in Appendix F of the 2050 Bicycle and Pedestrian Master Plan.

The BPMP denotes the difficulty in finding a local trail sponsor as a barrier in Maryland's railbanking process, followed by concerns of potential trail sponsors in issuing a Statement of Willingness to Assume Financial Responsibility (SWAFR) of the railroad corridor to the STB. Developing local capacity for rails-to-trails projects is a recommendation within the BPMP. Developing state agency capacity for rails-to-projects is also necessary in cases where a locality is unable to support it at the time rail abandonment proceedings are occurring.

Across the country, states themselves have stepped in to preserve rail corridors for trail use in one of two ways. In states such as New York, Virginia, and West Virginia, if the State has the intent to railbank the corridor as a trail and files a request for interim trail use with a SWAFR, then that indemnifies the railroad company from any potential liability without qualifications, giving time for all relevant parties to transfer ownership or management of the corridor. In other states, such as

Connecticut and Wisconsin, the state transportation department has an explicit policy to acquire all rail corridors at risk of abandonment to preserve future rail use. Then, at a later date, a petition to allow for interim trail use on select corridors is filed on behalf of the state's natural resources department or a local trail sponsor. SWAFRs issued by other states or their agencies and departments have standardized language and do not include preconditions or exceptions that may scrutinize their approval by the STB.

MDOT currently does not have a policy to preserve all rail corridors at risk of abandonment and has passed over opportunities to acquire out-of-service rail corridors in the past. However, MDOT does have the authority to acquire railroad corridors from private rail operators for a variety of reasons when justifiable, including to support local economic development, preserve the corridors for future use, and help meet sustainable transportation goals. Transportation trail development and usage should be considered when making rail corridor acquisition determinations.

Railway abandonment is permanent. In a densely populated and developed state like Maryland, the loss of a linear transportation corridor makes it difficult, expensive, or impossible to piece together again for legitimate transportation uses by any mode, whether it is reactivation of freight or passenger rail service or buildout of a new road or a pedestrian and bicycle trail. Nationally, rail corridor route-mileage has fallen 63% since the peak in 1916, with similar route milage losses in Maryland. Therefore, while the State of Maryland first seeks local partnerships for rail-banking projects, it can and has assumed the role of trail sponsor when corridors are crucial to preserve advantageous transportation access, particularly those that serve more rural areas of the state.

Recreational Use Statute

Maryland's Recreational Use Statute (MRUS), as amended in 2000, limits the liability of local governments and private landowners when they offer their land for educational or recreational use to the public at no charge. Recreational activities are loosely defined in the law. Historically, this has included jogging and hiking in addition to classic recreational activities such as fishing, hunting, and camping. For local governments, MRUS protections are in addition to the sovereign immunity they receive when exercising their governmental functions such as operating parks and recreation facilities. Under common law, however, courts have made a distinction between a locality's governmental functions and their "proprietary or corporate functions," such as building and maintaining roadways, walkways. In these latter functions, a local government can be held liable under the standard of common law duty of care.

A 2022 case from the Appellate Court of Maryland called into question whether "paths" qualify under MRUS. In *Mayor and City Council of Baltimore v. Jamie Wallace*, the Appellate Court found that Baltimore's Waterfront Promenade, a shared use path within Inner Harbor Park, functions more like a walkway than a park, and therefore the City of Baltimore had a common law duty of care in making sure it was maintained. Therefore, the City was liable for the injuries suffered by the plaintiff when she fell over when her bicycle got stuck in a gap along the trail. This case has been appealed to the

Supreme Court of Maryland and oral arguments occurred in November 2024. An opinion from this appeal is pending.

While the Appellate Court affirms that local governments have a common law duty of care on shared use paths within their jurisdiction through *Wallace*, this responsibility is no greater than if the trail were a sidewalk or a road. Pending results from the appeal to the Supreme Court, the Maryland Legislature could consider refining the Recreational Use Statute to include paths used for a recreational purpose.

Complete Streets Policy

MDOT's updated Complete Streets Policy strengthens the department's mandate to prioritize safety and access for all modes, in particular vulnerable road users (VRU) such as pedestrians and bicyclists. The new policy requires all MDOT modal agencies (i.e., SHA, MDTA, MTA, MPA, MAA, and MVA) to consider bicycle and pedestrian facilities in all new projects on MDOT right-of-way, with measurable objectives for bicycle level of traffic stress (LTS) and an evaluation of historical crash data with an emphasis on VRUs. The Maryland Transportation Authority (MDTA) is also explicitly included in the policy "when access to a transit, walking or bicycling facility, like a transit stop or a regional trailhead, is planned or available within a reasonable distance of MDTA's project limits."

As part of the strengthening of the policy, all new projects must consider current and future bicycle/pedestrian use as part of implementation or utilize a waiver process. Waivers from the Complete Streets Policy are more limited and must be approved by the Secretary of Transportation. While the policy was enacted in 2024, more detailed policy and implementation guidance will be rolled out in 2025, which provides an opportunity for recommendations from this Plan to be incorporated into updated policy documents.

E-Bike and Micromobility Use Policies

Trail use modes outside of walking/running, standard bicycling, and mobility assistive devices are frequently desired by users, but often have additional policies and/or restrictions associated with them. These regulations are typically established to preserve a safe user experience when mixing of use modes creates safety or user comfort concerns. These concerns typically arise when there is congestion or a significant speed differential between user types. Regulating trail use modes is also implemented when a user group damages the trail or adjacent environment. In many cases, thoughtful trail design that accounts for sufficient passing space and sightlines can allow trails to support multiple use modes including e-bikes, micromobility, and equestrian uses.

E-bikes and e-scooters are regulated under the same code as standard bicycles in Maryland State Law (MD Transportation Code § 11-104 (2022)). Trail managers may regulate e-bike/scooter use differently from standard bicycles, however. For example, Maryland State Parks currently has an Electric Bicycle Policy that prohibits e-bikes on state park trails and any other areas not designated for motorized vehicles. The Torrey C. Brown Rail Trail and the Western Maryland Rail Trail are

exceptions where (only) Class 1 e-bikes are permitted. This policy is being reviewed in 2025 to better balance the needs of e-bike users with existing trail uses and environmentally sensitive areas.

As e-bikes, e-scooters, and other electric-assist devices are growing in popularity, a framework for a Model Micromobility Permit & Program structure was developed in conjunction with the 2050 Bicycle and Pedestrian Master Plan. MDOT developed the framework to guide local jurisdictions in customizing a program to suit local needs. The guidance discusses best practices for permits and program structures, data tracking tools, and equity metrics and practices.

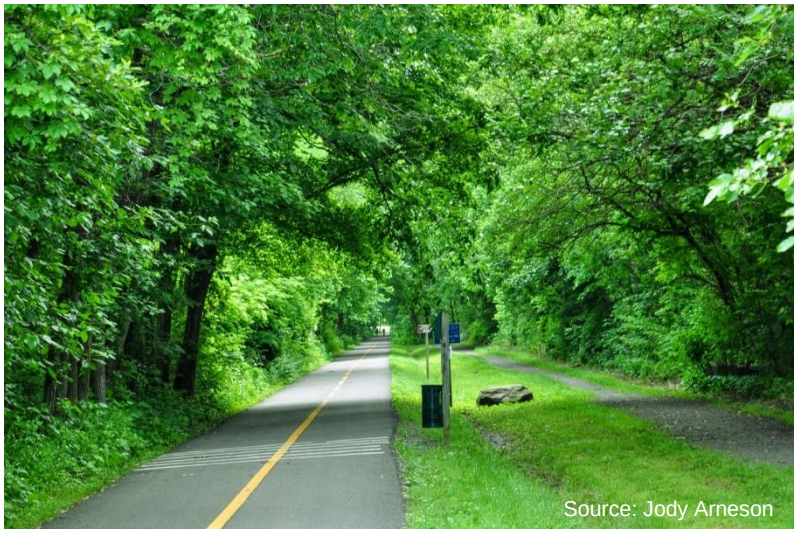
Equestrian Use Policies

Transportation trails that are managed for bicyclists and pedestrians as well as equestrians are not exceedingly common in Maryland. This is due, in part, to the primarily recreational nature of horseback riding, but also to trail surfacing types and potential for user conflicts. Soft surface trails, such as crushed stone or native surface, are preferred over asphalt or concrete, which are more common in transportation trails. The potential for user conflict, particularly between bicyclists and equestrians, offers a strong reason for separating these uses. As animals of prey, horses can be spooked by bicyclists. Whenever trails are managed for bicycle and equestrian use, it is important to provide education through signage and other methods about trail etiquette and the fact that all other trail users must yield to equestrians. Designing trails with adequate space for safe passing is another important consideration for any shared-use paths that permit equestrian use.

Transportation trails in Maryland that do have sections open to equestrian use include the C&O Canal. Horses and mules can be ridden on 160 out of 184.5 miles of the C&O Canal Towpath. A recent resurfacing project on the towpath highlighted the need for allowing the surfacing material to settle before reintroducing equestrian use. A section of resurfaced towpath was damaged by hooves because it did not have sufficient time for the material to settle. Now resurfaced sections of the towpath are closed for equestrian use for 30 days after resurfacing to prevent damage.

Some transportation trails, such as the W&OD Trail in Northern Virginia, accommodate equestrian use in its more rural sections by including a parallel crushed stone surface path along the corridor (see Figure 10). This separate path allows for the preferred surface type for each user group and provides some separation between equestrians and bicyclists, reducing the risk for user conflicts.

Figure 10: W&OD Trail and Parallel Bridle Path, Virginia



Source: Jody Arneson

An earlier form of mobility, the horse-drawn buggy, is still used by Amish

and some Mennonite communities in Maryland. The Three Notch Trail in Southern Maryland is one example of where buggy use is accommodated on shared use paths. A northern section of the trail is open to horses and buggies as an alternative to the congested local highways. There are other examples across the country where trails are designed to accommodate buggies, including the Holmes County Trail in Ohio, where the trail is 16 ft wide to provide extra space for buggies. This trail also has sections where one side of the trail is permitted for buggy use.

Shared Use Path Standards

MDOT SHA's Bicycle Policy and Design Guidelines contains specific guidance for the design of shared use paths, and paths paralleling roads (sidepaths). The guidance is based on American Association of State Highway and Transportation Officials (AASHTO)'s 2012 Guide for the Development of Bicycle Facilities. Both design guidelines provide geometric parameters for safe path planning and design including path widths, sight distances, intersections considerations as well as signing and marking, The AASHTO Bike Guide has been updated in 2024 and MDOT is expected to adopt this updated version as part of the Complete Streets policy implementation and guidance update. The new guide has expanded guidance on almost all aspects of bicycle facility design, including shared use paths.

Of relevance to transportation trails is the expanded guidance on shared use path widths. The new AASHTO Bike Guide has recommended widths based on typical shared use path volumes that are often wider than the minimum width of 10 feet. According to the new guide, paths wider than 12 feet are recommended for regionally significant trails (see Table 3), and delineation or separation between pedestrians and bicyclists should be considered when peak hour volumes exceed 300 users per hour. Path widths do not include space for shoulders and shy distances that are recommended between the path and other objects (see Figure 11). These wider widths and consideration for separation between active modes recognize the need to provide additional space between pedestrians and bicyclists on popular paths, with an acknowledgement that there is a preference for people to socialize while walking or riding side-by-side on trails.

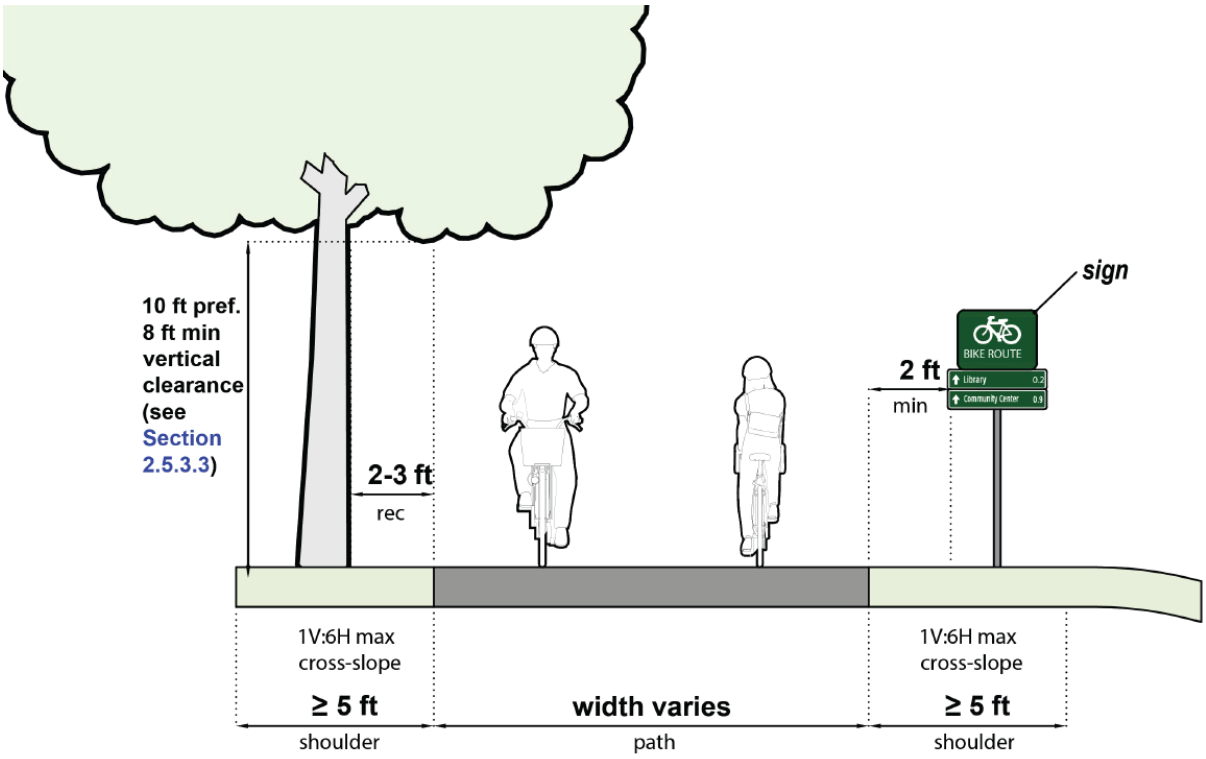
Table 3: Recommended Shared Use Path Widths* to Achieve SUPLOS "C"

SUPLOS "C" Peak Hour Volume	Practical Minimum Operating Width	Recommended Lower Limit Operating Width	Recommended Upper Limit Operating Width	Practical Maximum Operating Width
150 to 300	8 ft	10 ft	12 ft	13 ft
300 to 500	11 ft	12 ft	15 ft	16 ft
500 to 600+	15 ft	16 ft	20 ft	None

Source: AASHTO Guide for the Development of Bicycle Facilities, 5th Edition (2024)

* Operating widths will achieve shared use path level of service (SUPLOS) "C" with a typical mode split of 55% adult bicyclists, 20% pedestrians, 10% runners, 10% in-line skates, and 5% child bicyclists. Paths wider than the practical maximum would provide a higher SUPLOS.

Figure 11: Shoulders and Shy Distance on Shared Use Paths



Source: AASHTO Guide for the Development of Bicycle Facilities, 5th Edition (2024)

While the current SHA Guidelines and the 2012 AASHTO Bike Guide discourage the development of sidepaths due to their negative safety outcomes compared to shared use paths, the 2024 AASHTO Bike Guide treats sidepaths as sidewalk-level separated bike lanes and provides detailed guidance to improve safety outcomes on these facility types. This new section on the design of separated bike lanes and sidepaths is one of the more innovative developments in the new Bike Guide. Guidance from this new section should be incorporated in an update to the SHA Bicycle Policy and Design Guidelines to support trail development in areas where trails must be adjacent to roadways.

Figure 12: Sidepath Segment on Capital Crescent Trail in Bethesda, MD

Ownership and Maintenance

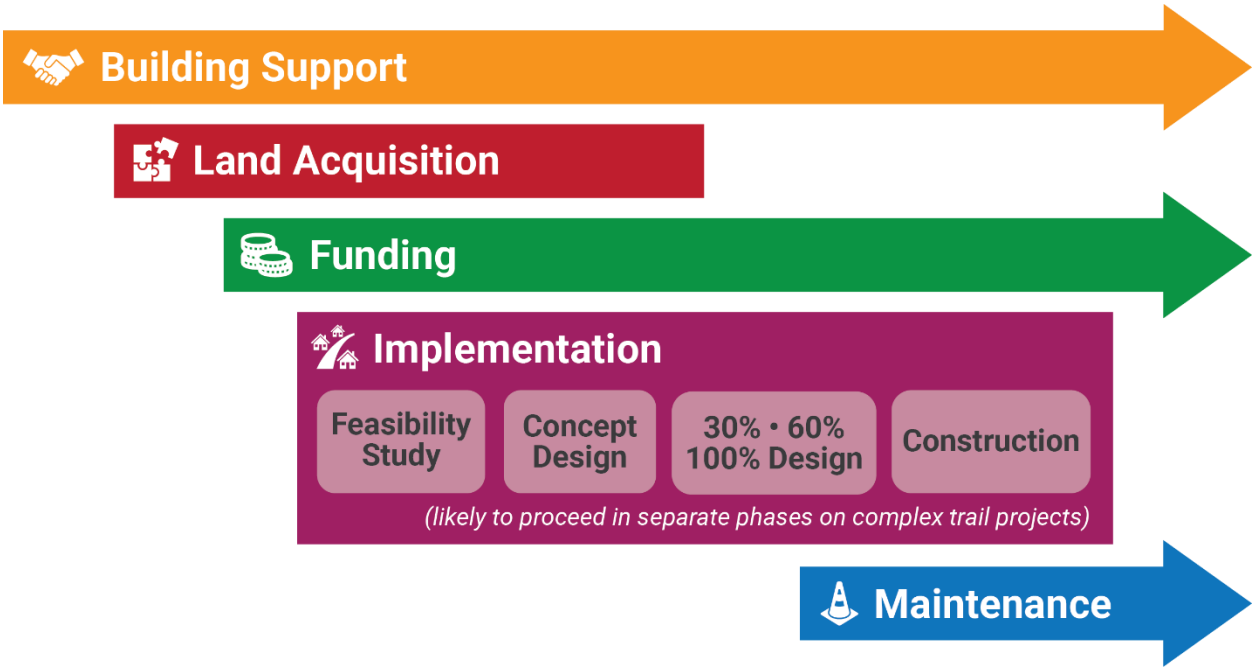
Shared use paths are typically owned and operated by local municipalities or counties. Even when constructed alongside a state or federal highway, ownership of the sidewalk or path is usually passed to the local level in the State of Maryland. Maintenance of shared use paths are ultimately the responsibility of the trail owner or sponsor. Cities and counties that own trails may call upon volunteer groups to assist with maintenance tasks or may form trail coalitions to pool resources needed for trail maintenance activities.

Funding trail maintenance can often be seen as a challenge, especially for smaller jurisdictions. When local budgets are not sufficient to fund trail maintenance activities, communities may apply to grant programs that fund trail maintenance activities such as the Recreational Trails Program (RTP), which is administered by MDOT. Maintaining sidepaths along state highways has been identified as a significant hurdle for many Maryland communities and is sometimes cited as a reason for not wanting a trail to be constructed. Currently, these sidepaths must be maintained using local dollars.

3. Transportation Trail Project Lifecycle Analysis

Understanding the lifecycle of a transportation trail project and where projects come across significant barriers can help illuminate opportunities to support municipalities and other organizations. This section identifies barriers and opportunities within the five major phases of a transportation trail project lifecycle (as seen in Figure 7). It is important to note that long corridor trail projects that are strategically segmented may follow this lifecycle process several times as each segment project is completed. Issues identified in each of the phases are specific to the State of Maryland wherever possible, but topics affecting all trails regardless of location are addressed as well. Each section includes a featured case study that illustrates one or more of the strategies identified as an opportunity for overcoming barriers. Concluding each section is a list of additional resources that provides more guidance about strategies introduced.

Figure 13: General Timeline of Transportation Trail Project Lifecycle Phases



3.1. Building Support

While they commonly start as an idea amongst a small group of individuals, successful trail projects are often backed by a cross-sector coalition of volunteer organizations and governments. Advocates and sponsors can support a future trail through the barriers encountered in a typical trail project lifecycle by growing the network of trail supporters, tying the trail to community goals, and securing government backing for the trail.

Challenges to Building Support

- **Lack of public-private coalitions:** Lack of collaborative efforts between public agencies and private entities create a significant gap in funding opportunities and resource mobilization for trail projects. Partnerships can provide access to private capital (e.g., grants, donations, land, and easements), technical expertise, wider outreach, and bring in innovative solutions that can complement public resources. Without these partnerships, trail projects often rely solely on public budgets, which, in some situations, can serve as barriers to the scale and quality of trails development.
- **Opposition from landowners:** Landowners living alongside or near the trail may resist trail projects due to crime, trespassing, or vandalism concerns. Landowners may also fear liability due to proximity of unmanaged access and might show desires to expand their land holdings into the trail's right-of-way. However, residents and potential trail users who live near proposed alignments are often best positioned to articulate the need for safe, accessible active transportation options—and their voices lend credibility to planning and outreach efforts.
- **Conflicts due to multiple jurisdictions:** A trail project often spans multiple jurisdictions, including states, counties, municipalities or private entities, each with distinct priorities, experiences with public spaces, and regulations. Misaligned priorities could lead to conflict between parties and delay project implementation.
- **Poor public perception**: Trails may be undervalued or viewed as non-essential by some community members, limiting public enthusiasm and support. Additionally, misconceptions about trails' impact on generating criminal activity, devaluing property, or lack of community benefits.

Building Support Opportunities

- **"Friends-of-the-Trail" and Bike/Ped Advocacy groups:** These groups serve as a strong advocate for the trail by mobilizing support from communities. They may also take on other essential responsibilities, such as maintenance, cleanup, safety monitoring, fundraising, education, and promotion of the trail as a desirable community asset.
- **Cross-sector coalitions:** Trails are often desirable to a diverse group of supporters due to their positive benefits on community health, economic development, and the environment. A diverse group of organizations including active transportation groups, environmental organizations,

neighborhood associations, government agencies, land trusts, community-based organizations, business improvement groups, and tourism bureaus can help build a unified front to address the political, legal, and financial challenges of trail projects.

- **Securing support of elected officials:** Supportive officials can provide guidance on advancing trail projects, gather data, provide official letters of support for grant opportunities, increase a project's visibility to the media, and garner support from other agencies and elected officials who may be needed to advance the project.
- **Using media to build momentum and support:** Social media platforms and local journalism can offer avenues to educate the public on trail benefits, foster positive messaging, and attract broader support. Targeted media coverage on successful trail projects and potential economic and social benefits can also sway public opinion in favor of development.
- **Cross-state trail advocate networks:** Connecting with trail supporters that work at the state level or in other regions of the state can help people navigate the various stages of and barriers to trail implementation. The State of Maryland has a 22-member Maryland Bicycle and Pedestrian Advisory Committee (MBPAC) that is appointed by the Governor to advise state government agencies, including MDOT, on issues directly related to bicycling activity including funding, public awareness, safety, and education.

Building Support Case Study

MCT Goshen Trail, Illinois

Madison County Transit (MCT) Goshen Trail in Illinois exemplifies successful support building between multiple parties for trail development. Opened in 2020, the scenic MCT Goshen Trail connects five trails in the region via 19.5 miles of trails and eight bridges over active railroad tracks, enhancing connectivity between two counties, central Madison County and northern St. Clair County. Attracting over 112,000 visitors annually, the MCT Goshen Trail owes it success to the intergovernmental cooperation between two counties, two transit districts, and municipalities along the trail, and the broad coalition of communities working together to make it happen. Besides enhancing transport network connectivity, the trail has spurred economic growth in nearby towns, like Edwardsville, where new businesses now serve the influx of hikers and bikers to relax and refuel.

Figure 14. MCT Goshen Trail Bridge Over Active Railroad Tracks

Source: Rails-to-Trails Conservancy

Additional Resources

- Rails-to-Trails Conservancy's Trail Building Toolkit Organizing section
- PeopleForBikes Advocacy Academy: Building Bike Networks video

3.2. Land Acquisition

Securing the trail corridor, at least in part if not in full, is necessary to advance the trail from idea into implementation. Trails are often built on public lands and rights-of-way, with private land acquisitions or easements when necessary. This section introduces corridor types that are frequently considered in trail planning due to the advantage of dealing with fewer landowners. Opportunities to move through barriers and set trail projects up for success from a policy perspective are also provided.

Challenges to Land Acquisition

- **Working with multiple landowners:** When a trail corridor crosses or is adjacent to multiple parcels that are each owned by a different individual or entity, it can be extremely difficult to secure a contiguous corridor. This barrier can be even more challenging when working with corridors that are routed through residential areas where parcels tend to be smaller, thus increasing the number of landowners to coordinate with which can impact the timing, cost, and even feasibility of a contiguous corridor and/or connection-specific projects. While the projects adjacent to residential properties often raise concerns about privacy and safety, proximity is also a key factor in trail use. Residents frequently seek close-to-home options for recreation and transportation, making these alignments both sensitive and strategically important.
- **Working with railroads and utilities:** Trail projects that rely on shared corridors depend on collaboration with railroads and/or utility companies such as overhead powerlines, gas mains, sewer or canal and drainageways. Engaging with these entities can be a confusing and intimidating process for trail advocates and often need governmental support. While most utility and railroads do not have standards for trail development, CSX Transportation and some other Class 1 railroads have provided public project information guides for construction and improvement projects that may involve the railroad to provide better guidance. However, even when public project information guides are provided, most do not offer clear standards for setbacks or other trail-specific design elements.
- **Railbanking process complexity:** Railbanking is used to secure a no-longer active rail corridor prior to abandonment for trail use. Railbanking is an established process that is set at the federal level; however, trail advocates and municipalities may need support in understanding the steps involved. Identifying suitable trail sponsors needed for railbanking has also been noted as a challenge in Maryland. Some rail-banking opportunities with private railroad owners may require the purchase of the corridor by the trail sponsor, which increases project costs significantly.

Land Acquisition Opportunities

- **Strategies for working with actively used corridors:** Routing trails within road rights-of-way, along railroads, overhead utility lines, sewer easements, canal/drainageways, or fiber-optic broadband has the advantage of requiring coordination with a single or limited number of property owners. These corridors exist widely throughout Maryland. Identifying principles for working with

MDOT and relevant modal agencies, county highway department, and local public works division as well as railroads and utility companies can help trail advocates strategize their outreach and collaboration efforts with these entities. The potential upside of working with a more limited set of property owners should be weighed with the possibility for extensive coordination and flexibility needed to comply with stricter engineering requirements to accommodate a trail with the active use of the corridor. Early stakeholder engagement is key for this to be viable.

- **MDOT Rails-with-Trails design guidance:** Developing design guidance for rails-with-trails along appropriate MDOT controlled active rail corridors would provide clear direction for trail advocates looking to develop trails within MDOT-controlled railroad right-of-way. Lack of design standards is typically one of the biggest challenges that trail advocates face when pursuing rail-with-trail projects. In 2021, the Federal Highway Administration (FHWA) in partnership with the Federal Railroad Administration (FRA) released the Rails-with-Trails Best Practices and Lessons Learned publication to provide guidance on how to establish trails along active rail corridors. Coinciding with the publication's release, MDOT and MTA partnered with Frederick County and the Walkersville Scenic Railroad (WSR) to develop a rail-with-trail along the WSR's MDOT-owned corridor between Monocacy Boulevard and Walkersville.
- **Developer agreements:** Local governments can encourage developers to designate easements or construct trails as part of a new development, especially when rezoning or zoning variances are needed for the project. The trail corridor should be previously identified in a plan or transportation priority letter to build rationale in a future negotiation process. Successful outcomes depend on clear design standards, detailed agreements, and strong and capable oversight from local agencies. Without these, trails may be constructed to minimal standards or deteriorate quickly due to poor materials or inadequate design.
- **Conservation easements:** In areas that are experiencing development pressure, landowners with an interest in preserving the landscape may be interested in donating or selling a conservation easement to their property to limit development on the land in perpetuity. New easements can be structured so that public access to the land is allowed, and trail development can occur, while existing easements could be amended to allow for it.
- **Supportive materials for property acquisition process:** SHA's Office of Real Estate has prepared two bi-lingual booklets, to inform people about the right-of-way process, educate private landowners about their rights, and explain the process used by SHA to purchase land and buildings for public projects. These booklets focus primarily on roadway projects but could be amended to cover trail projects. A version that is written for the trail planner perspective could also be valuable in local uses.

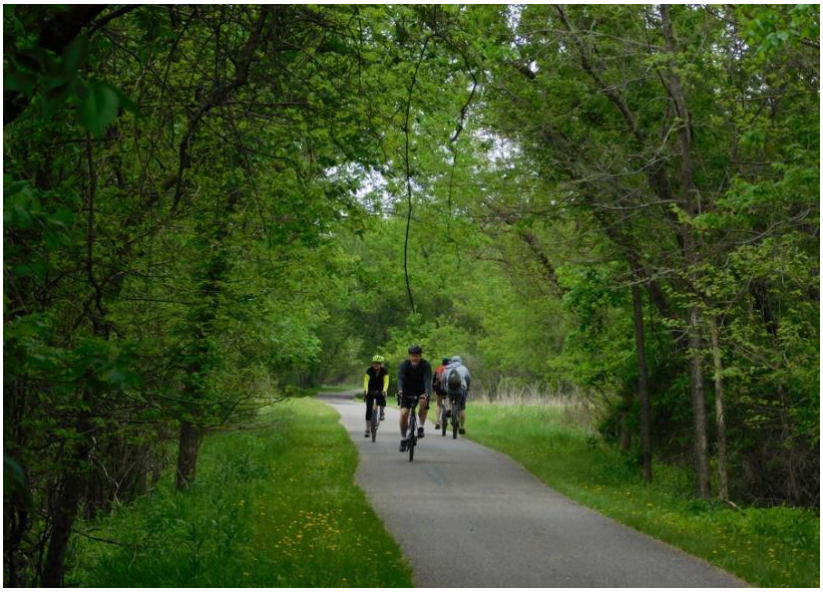
Land Acquisition Case Study

Cannon Valley Trail, Minnesota

Paralleling the scenic Cannon River, the 19.7-mile Cannon Valley Trail connects the cities of Cannon Falls, Welch, and Red Wing in southeastern Minnesota. The trail was completed in 1992 and showcases the important role that nonprofit organizations can play in trail corridor acquisition.

The corridor was once a railroad owned by the Chicago & North Western Railway Company. When the railroad made the decision to abandon the line, they approached the Minnesota Department of Natural Resources (DNR) about purchasing the corridor for rail-trail development. The DNR was unable to purchase the railroad corridor for trail use due to legalities associated with the Cannon River's designation as a State Scenic River. The Parks & Trails Council of Minnesota (P&TCM), a nonprofit statewide citizen advisory board for Minnesota state parks, stepped in to raise funds to purchase the corridor and remove the old railroad trestles. P&TCM also played a major role in organizing the Cannon Valley Trail Joint Powers Board, which is responsible for developing and maintaining the trail. The Joint Powers Board has representation from Goodhue County and the cities of Red Wing and Cannon Falls.

Figure 15: Cannon Valley Trail



Source: Parks & Trails Council of Minnesota

Additional Resources

- 2050 Maryland Bicycle and Pedestrian Plan Appendix F Railbanking Process (page 135)
- Rails-to-Trails Conservancy's Trail Building Toolkit (Acquisition section)
- FRA's Rails with Trails: Best Practices and Lessons Learned, 2022

3.3. Funding

Funding from a combination of private and public sources is key to support full buildout of a transportation trail. While grants from federal agencies are often used to support design and construction of a transportation trail, these grants are competitive funding opportunities, and they often require a local match of 20% of the total cost. Funding from local governments, organizations, or generous donors is needed for the local match, as well as for land acquisition, precursor studies, and other activities to keep the momentum going.

Challenges to Funding

- **High acquisition costs of right-of-way (ROW):** Funding programs often do not cover ROW acquisition, which can be expensive, especially in urban or high-demand areas. Trail planners must typically rely on financing mechanisms outside of grants to cover ROW acquisition costs.
- **Limited funding opportunities for trail projects, particularly for smaller municipalities:** Intense competition for limited federal and state funds, often favor larger projects and municipalities with greater resources. Grant applications can be a heavy lift administratively and financially, which often puts smaller communities at a disadvantage.
- **Required match for grants:** Many grant opportunities require a match, which is a percentage of the total project cost that needs to be covered at the local level. Match requirements can vary across different grant opportunities and can deter agencies with limited funds from applying. High match requirements can create barriers, especially for small municipalities with restricted budgets. For reimbursable grant programs, the grantee must initially provide all project costs and request reimbursement. Having the burden of all expenses up front greatly hinders potential trail sponsors from undertaking projects or applying for reimbursable grants.
- **Trail maintenance costs:** Funding sources for trail construction often do not cover long-term maintenance costs. Maintenance costs require ongoing resources for repairs, staffing, and seasonal cleaning whether for summer overgrowth, leaf removal, or snow removal. This lack of dedicated maintenance funding can strain local budgets, particularly in smaller communities that may lack capacity for upkeep.
- **Federal funding uncertainty:** Many trail projects rely on federal funding sources, which can be subject to shifting political priorities and budgetary constraints. Programs such as the Recreational Trails Program provide critical funding, but their availability can fluctuate and be subject to scrutiny based on federal budget decisions, changes in administration, and policy direction.

Funding Opportunities

- **Diversity of grant opportunities:** Several types of funding programs – federal, state, and non-federal programs – fund bicycle/pedestrian projects to enhance transportation access, connectivity, safety, recreation, and environmental restoration. In 2021, Congress passed the

Infrastructure Jobs and Investment Act (IIJA). This bill significantly increased funding for trails and active transportation programs by authorizing more funds to the Transportation Alternatives Program and creating new competitive grant programs, including the Active Transportation Infrastructure Investment Program (ATIIP).

- **Multiple financing strategies:** Trail -implementing organizations should develop a comprehensive funding strategy, incorporating multiple funding sources through all stages of a trail project, including land acquisition, construction, and maintenance. Phased development of trail implementation could help diffuse costs over time, allowing for incremental funding allocations as budgets allow. Other funding sources, such as local bonds, tax revenue, and state funding sources, especially dedicated to outdoor recreation or conservation could also help close funding gaps.

Table 4. Selected Trail Funding Programs

Federal Programs	State Programs	Non-federal Programs
• Transportation Alternatives Program (TAP) • Recreational Trails Program (RTP) • Active Transportation Infrastructure Investment Program (ATIIP) • Congestion Mitigation and Air Quality Improvement Program (CMAQ) • Community Development Block Grants (CDBG) • Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grants • Safe Streets and Roads for All (SS4A) • Land and Water Conservation Fund (LWCF)	• Maryland Heritage Areas Financial Assistance Programs (MHT) • Kim Lamphier Bikeways Network Program (MDOT) • Program Open Space (DNR) • Chesapeake and Atlantic Coastal Bays Trust Fund	• Local bonds and tax revenue • Rails-to-Trails Conservancy (RTC) grants • Trust for Public Land (TPL) grants • American Trails grants • PeopleForBikes Community grants

- **Local match strategies:** Trail implementing organizations can use a diversified approach with a mix of state and local funds, leveraging support from state legislative allocations, municipal budgets, and county contributions. Some federal grants can be used as a local match to a bigger federal grant, also known as “braiding”, while grants geared to rural communities may have lower local match requirements. Implementers can also pursue partnerships with local businesses, non-profits, or public-private partnerships to bridge funding gaps with in-kind support with construction materials, volunteer labor and donations.
- **Strategies for funding transportation trail maintenance:** Trail-managing jurisdictions should establish dedicated maintenance funds within local budgets to ensure transportation trail upkeep. Trails and other active transportation facilities are typically considered separate from roadways. By reclassifying trails as part of the transportation network, sufficient resources for routine

maintenance may be better accounted for. Developing volunteer programs or partnerships with local organizations can help make trail maintenance more manageable when staffing is limited. Municipalities can also explore opportunities for endowments and support from non-profits and foundations that focus on outdoor recreation, conservation, and community development.

- **Streamlined grant opportunity announcements:** MDOT currently supports local communities in identifying upcoming grant opportunities by maintaining a Federal Discretionary Grants Mailing List. The Federal Grants-Local Opportunities webpage also hosts a list of current grant programs and resources for grant applicants, including recordings of past webinars and links to websites with additional resources. MDOT provides additional information and resources on the Recreational Trails Program (RTP), which includes trail funding administered by the agency.

Funding Case Study

Burlington-Camden Trail, New Jersey

The Burlington-Camden Trail is a 10-mile trail designed to link Moorestown with the Delaware riverfront in New Jersey. The trail is being developed incrementally, utilizing a combination of state, federal, county, and nonprofit resources for design, construction, and maintenance. One segment in Pennsauken Township (shown in the figure below) used state funds for its design and federal Transportation Alternative (TA) funds for construction. Another segment benefited from pro bono support from a nonprofit organization that conducted a feasibility study, along with county funding for a bridge condition analysis and regional funds for its design. Both county and TA funds were allocated for its construction, while ongoing maintenance will be funded by the township.

Figure 16. Ribbon Cutting on the Pennsuaken Section of the Burlington-Camden Trail

Source: Circuit Trails

Additional Resources

- 2050 Maryland Bicycle and Pedestrian Plan Appendix H Funding Sources (page 156)

- FHWA Pedestrian and Bicycle Funding Opportunities spreadsheet
- Rails-to-Trails Conservancy's Trail Building Toolkit (Funding section)

3.4. Implementation

Implementation involves the planning, design, and construction phases of a trail project. As illustrated by the transportation trail project lifecycle chart at the beginning of this section, the implementation phase is quite complex and requires numerous inputs of funding, public and stakeholder engagement, and iterations of design. Government partners and/or well-resourced non-profit organizations often take the lead during this phase of the trail building process.

Challenges to Implementation

- **Public engagement:** There may be uncertainty about how to conduct meaningful public engagement within the context of a trail project. Trail advocates may have questions about when and how often to engage the public during a project, what type of feedback should be collected, and which methods and/or tools to use to collect the feedback. Certain funding types may also require specific public participation methods and reporting.
- **Environmental permitting and approvals:** The environmental permitting and approvals process can be complex and lengthy. Trail advocates without a background in these areas may not be aware of the steps needed in various circumstances for trail planning and design to advance to construction or have the available experts within their organization(s) to guide the process. The lengthy process can delay implementation and permit status can also impact grant funding awards.
- **Climate and extreme weather events:** Climate/geography-based issues common in Maryland, including flooding, winter weather, and tropical storms, can be unpredictable and interrupt or delay many parts of the implementation process, from existing conditions assessment and surveying to construction. Construction projects are often scheduled during mild weather throughout the seasons, but as these climate trends and events are occurring with more frequency and severity, they affect other infrastructure which competes with resources needed for response and rehabilitation. Competing priorities during impacted construction seasons can affect implementation.
- **Complexity of trail project lifecycle:** Depending on their backgrounds, trail advocates may lack an understanding of the planning to design process and sequence of steps that must be followed for a successful trail project. Trail projects require patience and persistence. The time it takes for a transportation trail project to progress from feasibility study to construction can sometimes span decades. Trail advocates need to be organized, keep detailed records, and have a network of support to see success.

Implementation Opportunities

- **Public engagement plans:** Developing a public engagement plan template or benchmarks that should be achieved can help guide trail advocates in carrying out meaningful engagement. Plans should identify what level of engagement (e.g., informing, consulting, collaborating) are appropriate for the specific project, its stage of development, and potentially its funding source. They should also help foster equity and belonging through the engagement, planning, and design phases of a trail project to help ensure that the trail is equitable and welcoming to all.
- **Resources for planning and design:** Listing categories of professionals that can provide necessary services throughout the trail project lifespan can help trail advocates understand who to involve and when. Different practitioners are needed for initial feasibility study, various stages of design, and environmental permitting and approvals processes.
- **Simplifying and streamlining permitting processes:** As noted above, permitting and approvals processes can be complex and lengthy—and expensive. Developing a way to streamline application and review processes can help ease the burden. Developing additional guidance and process checklists can also help ensure that they are done correctly and completely the first time.

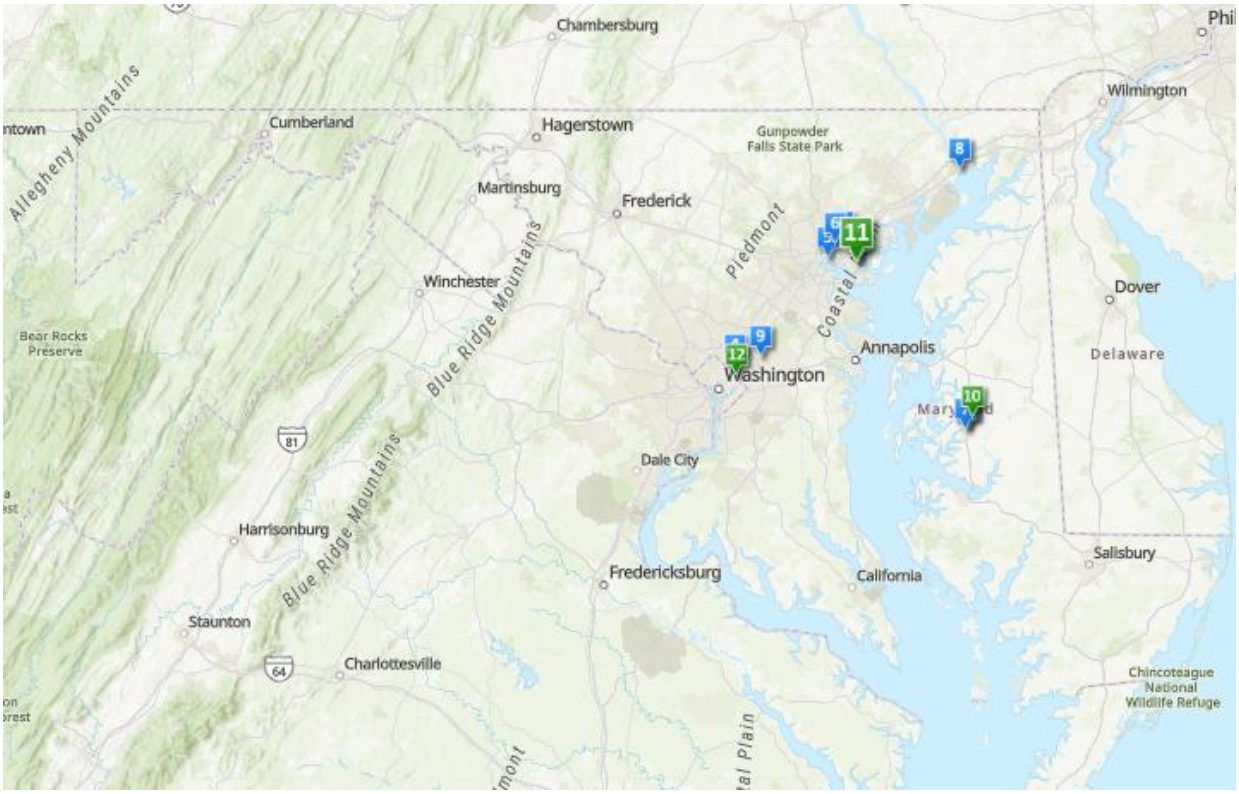
Implementation Case Study

NPS-RTCA Projects in Maryland

The National Park Service's Rivers, Trails, and Conservation Assistance (NPS-RTCA) Program has been providing technical assistance to various communities in Maryland to further develop local conservation and recreation projects. Projects do not have to be in or near a National Park Service site and project applicants may be non-profit organizations or community groups. NPS-RTCA awardees are not granted financial assistance; instead, they are given access to professional services at little to no cost to the project applicant.

While NPS-RTCA has assisted with a variety of projects in Maryland, from strategic planning for a new park to helping develop equitable after-school outdoor recreation opportunities, nine out of the twelve NPS-RTCA projects in Maryland relate to a transportation or recreational trail, and seven projects were specifically scoped to generate a feasibility study or a concept plan. These studies and plans are often key to demonstrate project readiness when applying for federal and state funding opportunities for trails. Figure 10 highlights the geographic spread of the NPS-RTCA projects in Maryland.

Figure 17: Map of NPS-RTCA Projects in Maryland



Source: National Park Service

Additional Resources

- Rails-to-Trails Conservancy's Trail Building Toolkit (Planning and Design Section)
- NPS-RTCA Projects in Maryland

3.5. Operations and Maintenance

Maintaining trails to a high standard is important for protecting a community's investment, ensuring a positive user experience, and sustaining community support of the trail. Unfortunately, trail maintenance is oftentimes an afterthought in the trail development life cycle and often is narrowly defined as surface repair or mowing. Ongoing trail stewardship involves a wide range of operational responsibilities including land and infrastructure management, legal agreements, signage and wayfinding, routine inspections, and more. These functions are often spread across agencies that may not see trails as core infrastructure. Maintenance should be considered early on in the trail planning process and the resources available for maintenance should be a consideration in trail and amenity design decisions.

Challenges to Maintenance

- **Division of responsibility:** Determining responsibilities for trail facilities can be challenging in Maryland, especially when it comes to transportation trails. Municipalities may be reluctant to advocate for transportation trail facilities within MDOT right-of-way if they feel that they do not have the resources to maintain them. Trail-implementing agencies may be deterred from applying for financial assistance through grants or other means for the planning or construction of a project if the maintenance responsibilities are not determined beforehand.
- **Climate and extreme weather events:** Climate/geography-based maintenance issues for Maryland including flooding, ice storms, and tropical storms can be challenging to prepare for and respond to. Extreme weather can cause unexpected damage or degradation to the transportation trail and rehabilitation can be an added and unplanned for cost. These climate trends and events are occurring with more frequency and severity and affect other infrastructure which competes with resources needed for response and rehabilitation of other priority projects.
- **Tracking maintenance needs:** Keeping an updated inventory of maintenance needs can be challenging with limited resources and difficult to accurately program for due to variable costs. Tracking maintenance needs is an essential step in prioritizing maintenance and ensuring a safe and positive trail user experience. Trail pavement and bridge inspections are critical components of long-terms asset management, helping to identify deterioration early and inform capital planning. However, many small jurisdictions may lack the in-house engineering capacity to conduct these assessments.
- **Tracking trail use:** Accurately tracking trail use/visitation is an important step in understanding how to appropriately allocate resources for trail maintenance. Keeping current records of trail use can be challenging due to the need to install trail counters and/or rely on manual counts. Vandalism of counters and the need to routinely service some counter models can present additional barriers.

- **Funding trail maintenance:** Funding sources for trail construction often do not cover long-term maintenance costs, which require ongoing resources for repairs, staffing, and volunteer support. This lack of dedicated maintenance funding strains local budgets, particularly in smaller communities that may lack capacity for upkeep. Lack of maintenance funding can impact the state of good repair for the transportation trail and require more funding for rehabilitation, repair, or replacement of facility features.

Maintenance Opportunities

- **Early planning for trail maintenance:** Incorporating maintenance in the trail planning phase is an approach that identifies and potentially minimizes transportation trail maintenance needs, and ensures a plan is in place to maintain facilities once they are constructed.
- **Maintenance plan and inspection programs:** Identifying basics that should be included in maintenance plans and inspection programs can help set trail managers up for success. Trail use data is an important input for an efficient maintenance program. A comprehensive maintenance and operations plan is currently being developed by the Baltimore Metropolitan Council for the various facilities within the region, which can serve as a reference for other long-distance multijurisdictional trails in Maryland.
- **Maintenance agreements:** When multiple entities are involved in maintaining and managing a trail, maintenance agreements can be used to assign responsibilities and lay out expectations for maintenance standards. Agreements can be drawn up between multiple jurisdictions, or the trail managing entity may decide to partner with another agency, organization, or volunteer group, such as a “friends of” group, to delegate some or all maintenance responsibilities.
- **State code updates:** Updating Maryland Annotated Code, Transportation Chapter, Title 8, Subtitle 6, Part VI, Section 8-630 could address the concern and reluctance municipalities may have about pursuing transportation trail projects in MDOT rights-of-way. The code could be updated to more clearly specify maintenance responsibilities and potentially allow for MDOT to provide maintenance in more circumstances. The state code was last updated October 1, 2013.
- **Trail use tracking technology:** Technologies, such as fitness apps, which offer publicly available heat maps and track trail usage in a passive/anonymous way can offer an inexpensive option for trail managers to monitor use and allocate maintenance resources accordingly.
- **Trail condition reporting systems**: These systems allow for crowdsourcing maintenance issue identification. Allowing trail users to report maintenance issues can help trail managers respond to issues in a timelier manner. Monitoring reports for duplicates and managing public expectations for response times should be incorporated into a plan when adopting these systems. Existing 311 systems used for roadway maintenance reporting could also be adapted to support trail maintenance by allowing users to report issues such as surface damage, obstructions, or vandalism. Promoting these tools for trail-related concerns could improve responsiveness and encourage public participation in trail stewardship.

Maintenance Case Study

Two Rivers Greenway Trail Maintenance Plan, New York

Developed by the Binghamton Metropolitan Transportation Study in New York State, the Two Rivers Greenway Trail Maintenance Plan provides recommendations for maintenance on the trail sections that comprise the Greenway. The plan identifies responsible parties, offers suggested maintenance activities based on best practices, and identifies opportunities for collaboration between municipalities. The plan also includes on-site assessments of trail conditions and recommendations for updating assessments every two years.

Figure 18: Volunteer Maintaining Two Rivers Greenway

Source: WIVT Binghamton

Additional Resources

- Kansas DOT Walk, Bike, Roll Kansas Trail Maintenance Webinar (slides, recording)
- Rails-to-Trails Conservancy's Trail Building Toolkit (Management and Maintenance section)

4. Conclusion and Next Steps

The State of Maryland has a strong foundation of trails and regional networks from which to expand. There are clear opportunities in both trail implementation and policy change that will help advance the state's transportation trail network. The next step in the development of the Maryland State Transportation Trails Strategic Plan will be to analyze trail data collected from counties, MPOs, and local advocacy groups, and collect feedback from the public and stakeholders to identify gaps and needs. This step will inform the development of statewide trail network goals, identify top transportation trail policy and project recommendations, and will guide the creation of toolkits to aid trail managers and advocates during key phases of trail building and implementation.

Acronyms

AASHTO	American Association of State Highway Transportation Officials
ADT	American Discovery Trail
B&A	Baltimore & Annapolis (Railroad)
BMC	Baltimore Metropolitan Council
BPMP	Bicycle and Pedestrian Master Plan
BWI	Baltimore-Washington International (Airport)
C&O	Chesapeake & Ohio (Canal)
CPRP	Climate Pollution Reduction Plan
DC	District of Columbia
DNR	(Maryland) Department of Natural Resources
ECG	East Coast Greenway
FHWA	Federal Highway Administration
GAP	Great Allegheny Passage (Trail)
GART	Great American Rail-Trail
GHG	Greenhouse Gases
GIS	Geographic Information Systems
LTS	(Bicycle) Level of Traffic Stress
MARC	Maryland Area Rail Commuter
MBPAC	Maryland Bicycle and Pedestrian Advisory Committee
MDE	Maryland Department of the Environment
MDOT	Maryland Department of Transportation
MDTA	Maryland Transportation Authority

MPA	Maryland Port Administration
MPO	Metropolitan Planning Organization
MRUS	Maryland Recreational Use Statute
MTA	Maryland Transit Administration
MVA	Motor Vehicle Administration
MWCOG	Metropolitan Washington Council of Governments
NHT	National Historic Trail
NPS	National Park Service
NST	National Scenic Trail
OHV	Off-Highway Vehicle
OMOC	One Maryland One Centerline
PHNST	Potomac Heritage National Scenic Trail
ROW	Right-of-Way
RTCA	Rivers, Trails, and Conservation Assistance
RTP	Recreational Trails Program
SHA	(Maryland) State Highway Administration
SRP	State Rail Plan
STB	Surface Transportation Board
SUPLOS	Shared Use Path Level of Service
SWAFR	Statement of Willingness to Assume Financial Responsibility
TA(P)	Transportation Alternatives (Program)
TDM	Transportation Demand Management
USBR(S)	United States Bicycle Route (System)
VMT	Vehicle Miles Traveled

VRU	Vulnerable Road User
WB&A	Washington, Baltimore, & Annapolis (Railroad)
WMATA	Washington Metropolitan Area Transit Authority