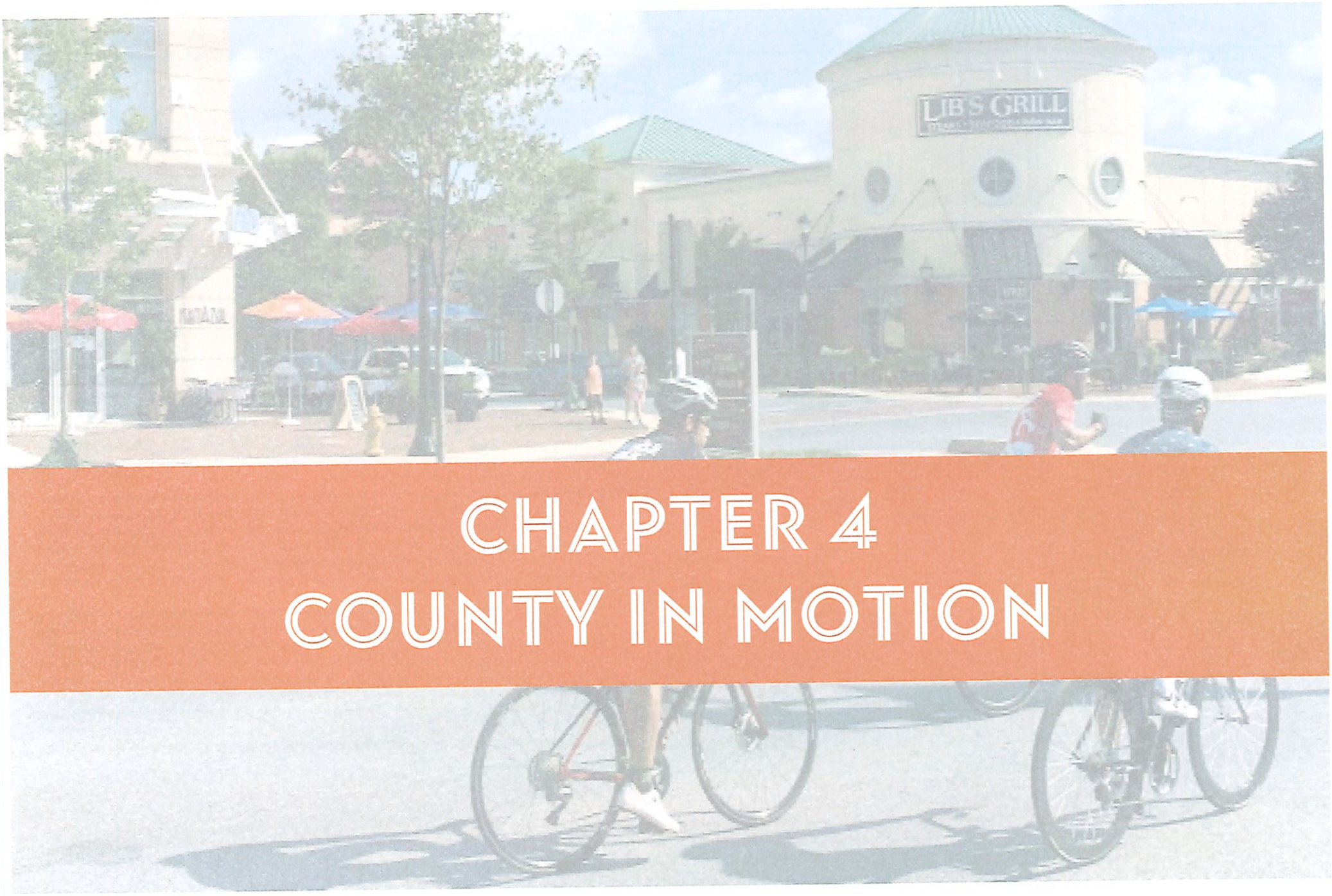


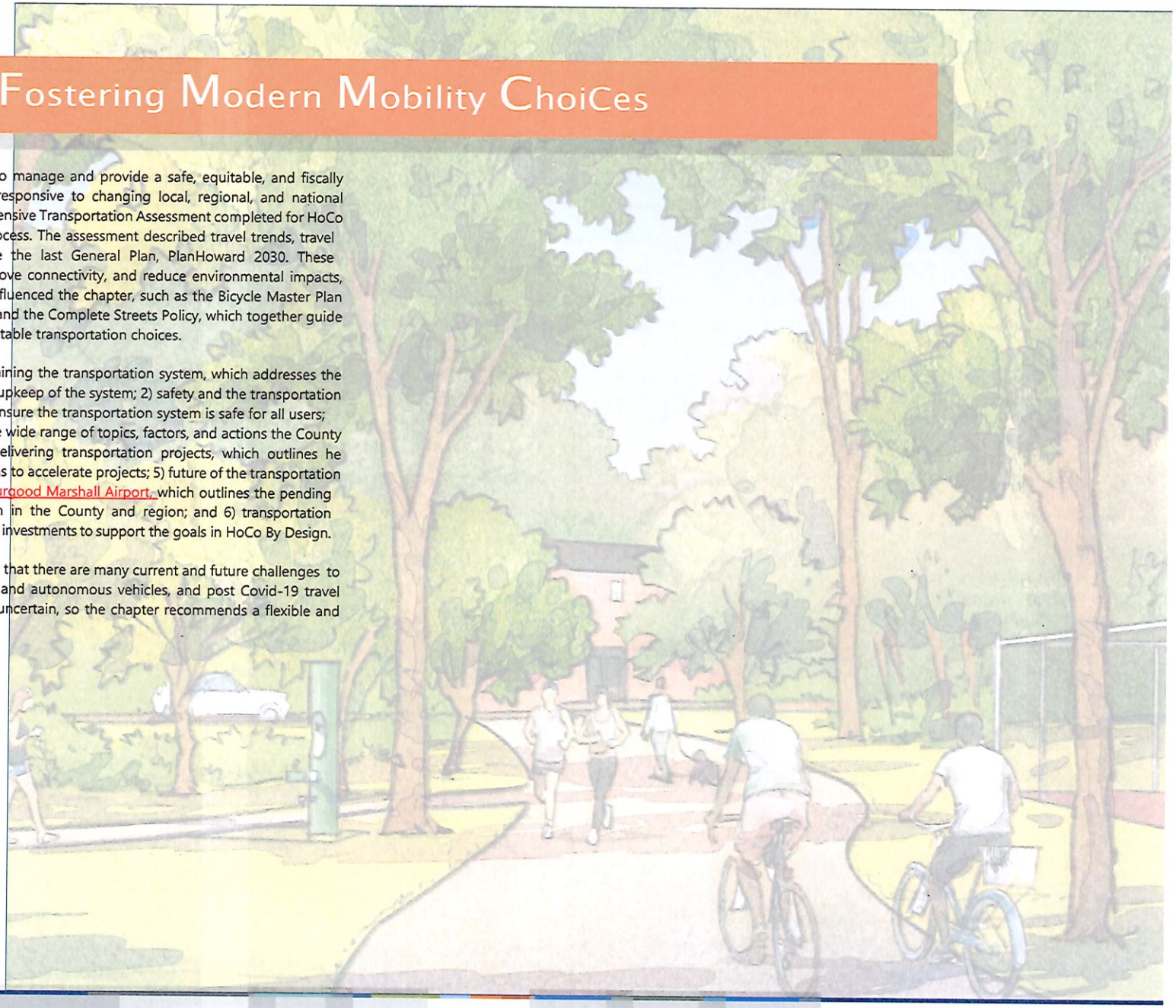
CHAPTER 4
COUNTY IN MOTION

County in Motion : Fostering Modern Mobility ChoiCes

This chapter highlights policies, initiatives, and actions to manage and provide a safe, equitable, and fiscally sustainable transportation system for all users that is responsive to changing local, regional, and national transportation trends. The chapter builds upon a comprehensive Transportation Assessment completed for HoCo By Design and HoCo By Design's public engagement process. The assessment described travel trends, travel forecasts, and county transportation investments since the last General Plan, PlanHoward 2030. These investments included efforts to reduce congestion, improve connectivity, and reduce environmental impacts, among other achievements. Several recent efforts also influenced the chapter, such as the Bicycle Master Plan (BikeHoward), the Pedestrian Master Plan (WalkHoward), and the Complete Streets Policy, which together guide the County's commitment to safety, accessibility, and equitable transportation choices.

This chapter is organized around six key topics: 1) maintaining the transportation system, which addresses the importance of investing in the ongoing maintenance and upkeep of the system; 2) safety and the transportation system, which details the actions the County is taking to ensure the transportation system is safe for all users; 3) transportation mobility and access, which addresses the wide range of topics, factors, and actions the County considers in managing the transportation system; 4) delivering transportation projects, which outlines he challenges in delivering transportation projects and options to accelerate projects; 5) future of the transportation system, including Baltimore/Washington International Thurgood Marshall Airport, which outlines the pending and expected changes facing the transportation system in the County and region; and 6) transportation investment priorities, which details a range of transportation investments to support the goals in HoCo By Design.

Finally, the chapter should be read with the understanding that there are many current and future challenges to which the County will need to react, such as connected and autonomous vehicles, and post Covid-19 travel patterns. The impacts of these and other challenges are uncertain, so the chapter recommends a flexible and nimble policy approach.



What We Heard

Throughout the HoCo By Design public engagement and planning process, community members and stakeholders discussed the importance of transportation to local and regional economies, housing, youth, people with disabilities, and carless community members.

There was general acknowledgement that travel in Howard County is currently dominated by automobiles and is expected to remain so for the foreseeable future. However, some stakeholders strongly emphasized the need for enhancements to the public transit system to ensure equitable access to jobs, services, and amenities. They said the existing system does not adequately meet current or future needs. Business owners and managers also expressed their frustration with the current public transit system and the challenges their staff face getting to work, with limited bus stops and infrequent service. These challenges were echoed by riders who use the system every day to get to work, school, and shopping. Some participants requested more creative, flexible, and efficient transportation choices, such as on-demand micro-transit, e-bikes, and e-scooters.

Some community members worried that redevelopment areas would not provide enough parking spaces and that parking garages may not meet the needs of seniors and disabled drivers. Other participants said that many current parking spaces are unused and parking studies would help "right size" parking lots for redevelopment. These participants suggested smaller parking lots could allow for more green space to meet environmental goals. Others cited challenges related to accommodating connected and automated vehicles.

Participants recognized the strong link between new housing and transportation, acknowledging that the County's current land use pattern does not encourage non-automobile travel or public transit investment. Some participants supported targeted residential density to facilitate meaningful transit connections between employment centers, key activity areas, and Columbia's village centers. Comments also suggested that affordable housing should be accommodated in areas with existing or planned transit, bicycle, and pedestrian infrastructure. Some participants suggested accessory dwelling units (ADUs) and missing middle housing locate in these areas as well.

The County's and Columbia's pathway system was regarded as a treasured amenity that serves as a travel mode for everyone. Similar sentiment was expressed in participants' comments about sidewalks and bike lanes, where they exist throughout the County. Some participants embraced the use of complete streets to enable multi-modal access to school, shopping, and work. They noted that complete streets could reduce car dependency and vehicle miles traveled (VMT) and improve air quality and safety. Other participants expressed concern that the County would move too far in the direction of alternate modes of transportation and not address existing road safety needs.

In a larger context, many respondents identified Howard County's strategic position between Baltimore and Washington, DC as a key asset. There was general agreement that better regional transit connections, including links to MARC and the Purple Line, would strengthen Howard County's attractiveness—a position emphasized by younger respondents seeking increased access to regional jobs and attractions. Finally, there was interest in a strong multi-faceted transportation system that would create opportunity for all community members, employers, and workers.

Diversity, Equity, and Inclusion Focus Groups Findings

- Expand the sidewalk network and bicycle infrastructure, emphasizing safety and ensuring it is well-connected.
- Improve the bus system by addressing headways/wait times, creating direct travel routes to county amenities, providing more bus rider amenities (such as shelters and technology that indicates wait/travel times), and ensuring local transit connects to regional systems.
- Create an affordable and reliable rideshare program.

Equity in Action

The following equity best practices helped identify policies and implementing actions in this chapter that could help advance equity in the County. Each policy or implementing action that contributes to the advancement of equitable outcomes will be noted with a "" symbol.

- Support planning, funding, and process improvements that enhance or expand multi-modal infrastructure, facilities, and dependable transit options that provide access to jobs and amenities, particularly for low-income and transit-dependent community members.
- Plan for improvements that support residents' health outcomes and transportation safety, especially those that target communities with higher percentages of transit-dependent community members.
- Plan for physical activity and healthy lifestyles.

County In Motion Terms

Bicycle Level of Traffic Stress (LTS): A quantitative rating given to a road segment or crossing that indicates the traffic stress it imposes on the users of scooters or bicycles. There are four rating levels, from one (tolerated by cyclists of all ages and abilities) to four (only tolerated by riders who are characterized as 'strong and fearless.')

Connected and Automated Vehicle (CAV): A term used to describe vehicles that can either communicate with other vehicles, infrastructure, and devices through wireless network technology, such as Wi-Fi and radio frequencies, or are equipped with technology that enables them to operate with little to no human assistance.

Delivery as a Service (DaaS): On-demand deliveries of goods arranged through digital platforms. Examples of DaaS include grocery, restaurant takeout, and retail deliveries to consumers via third-party delivery drivers.

Fiscally Unconstrained: A term used in transportation planning that communicates the gap in funding available versus funding to fully address infrastructure needs, including a pipeline of unfunded projects for consideration if/when new funding becomes available.

Level of Service (LOS): Quantitative and qualitative measures of how well traffic flows through an intersection. LOS relates to such factors as number of lanes, percentage of trucks, total traffic volume, turning movements, signal timing, and other factors that affect intersection congestion.

Micro-mobility: A category of transportation modes that includes electric scooters and bicycles, suited for trips over short distances.

Mobility as a Service (MaaS): On-demand transportation arranged through digital platforms. Examples of MaaS include ride-, car-, and bike-sharing services that offer alternatives to using private vehicles for trips.

Multi-modal Transportation: Refers to the many ways people travel, whether by personal vehicle, public transit, or bicycle, or on foot.

County In Motion Terms (Cont.)

Transportation Demand Management (TDM): TDM strategies encourage people to take transit, rideshare, walk, bike, and telework, thereby reducing the number of motor vehicles using the road network.

Transportation Systems Management and Operations (TSMO): A set of strategies focused on operational improvements to maintain and restore the performance of the existing transportation system before extra capacity is needed.

Vehicle Miles Traveled (VMT): A measure used extensively in transportation planning that measures the amount of travel for all vehicles in an area over a set time period.

Maintaining the transportation SysteM

Howard County's transportation system is comprised of facilities and operations that provide transportation services and maintain the existing transportation infrastructure. The system reflects public and private investments that are critical to Howard County community members and businesses. Maintaining this investment requires continuous assessment of—as well as repairs and upgrades to—bridges, roadway pavement, bike lanes, sidewalks, signals, and transit buses, to name just a few key items. Each new facility installed or new vehicle purchased adds to the inventory of assets that require regular maintenance to ensure their safety, accessibility, and operability.

The small sample below shows the scale of the County's investment in the transportation system:

- More than 1,065 miles of sidewalks
- 72 transit buses and support vehicles used to provide transit service
- 8 Regional Transportation Agency (RTA) bus transit lines running service 15 hours a day
- Over 65 miles of bike lanes and pathways
- 1,200 miles of roads, of which 30-40 miles are repaved every year
- Over 100 traffic signals
- 363 bridges
- More than 75 county-owned trucks and heavy equipment used to clear snow, mow roadsides, sweep roads, and repair sidewalks, ramps, roads, and signals

Deferring maintenance and repairs of the transportation system can lead to larger and more frequent repairs, or replacement costs in the future as facilities age or fail. For the public transit system, buses and support vehicles that have exceeded their useful lives become more expensive to maintain and break down more often, which often results in delays and canceled service. In 2021, of the 72 vehicles in the Howard County public transit fleet, 40 vehicles have exceeded their useful life. For the county's road system, despite an anticipated reduction in the number of road miles rated in good condition over the next few years, the County has been able to ensure roads, bridges, and other transportation assets are well-maintained.

Historically, the County has been able to align and adjust transportation budgets to meet most transportation maintenance and replacement needs by annual funding infusions, either from the County or Maryland Department of Transportation. However, these funding infusions can vary widely based on national, state, and local economic conditions. In Fiscal Years 2022 and 2023, the County received an unprecedented level of state and federal funding to replace vehicles, allowing the County to place 28 new vehicles into service, about 39% of the total fleet. However, replacing this many vehicles at one time also means they will exceed their useful lives at the same time. Maintaining a reliable transportation system requires a regular and defined investment program.

The County's challenge over the next two decades will be to prioritize a limited budget for system maintenance to meet a variety of needs across the community, meet climate goals by building a zero-emission fleet, respond to changing maintenance obligations from new engineering and environmental practices, and also communicate how these needs are prioritized. This will require regular evaluation of the maintenance needs of the transportation system and matching these needs to available funding.

To ensure the long-term viability of the transportation system, policies and actions should advance national best practices. In 2021, Howard County participated in the Capital Improvement Program Development and Promoting Healthy Communities Study (CIP Study) with the Baltimore Metropolitan Council. The study's recommendations were developed by comparing the state of the practice across the Baltimore region's jurisdictions with the best practices found nationwide. The recommendations include specific actions that can be taken, barriers to implementation, and metrics to determine success. For example, the study recommends incorporating an equity lens in the capital planning process. Howard County has begun to adopt this approach for transportation with the inclusion of an Equity Emphasis Area index in the Complete Streets Policy (detailed in the next section of this chapter). The CIP Study's recommendations have been used to guide this chapter's implementing actions. The Supporting Infrastructure chapter also references the CIP Study; please refer to the "Equity in Capital Planning" section of the Supporting Infrastructure chapter for details.

CIM-1 Policy Statement

Maintain transportation system assets to ensure the viability of the system and safety of users.

Implementing Actions

1. Develop and regularly update a risk-based asset inventory and management program for all transportation assets and ensure adequate maintenance funding.
2. Closely coordinate system maintenance activities with utilities and private development to minimize future roadway damage.
3. Develop fiscally unconstrained plans for each asset class to communicate the deferred maintenance needs and a pipeline of unfunded projects for consideration.
4. Consider equity emphasis areas in the prioritization of maintenance needs.
5. Encourage the proliferation of non-polluting vehicles by upgrading County fleets and requiring appropriate infrastructure.

> ~~"Pedestrian safety must be improved—I keep seeing pedestrians walking down the middle of Broken Land or Snowden because there's no reasonable public transit or walking paths for them to safely get where they're going."~~
> "Pedestrian safety must be improved – I keep seeing pedestrians walking down the middle of Broken Land or Snowden because there's not reasonable public transit or walking paths for them to safely get where they're going."
> ~~- HoCo By Design process participant~~
> - HoCo By Design process participant

SaFety and the transportation SysteM

Howard County is recognized as one of the best places to live in the United States and is one of the safest jurisdictions in the state to drive, take the bus, walk, and bike. However, crashes continue to be one of the leading causes of death and injuries for pedestrians, cyclists, and motorists. Improving the county transportation system's safety is critical to ensuring Howard County remains an attractive and desirable location to live. Consideration should also be given to improving walking routes to school.

In 2020, Howard County completed its Strategic Road Safety Plan with the goal "to prevent all traffic crash-related fatalities and serious injuries, and to reduce the number and severity of crashes" by articulating realistic, achievable, and data-driven goals and actions. Between 2014 and 2018—the five-year period of data that informed the Strategic Road Safety Plan—Howard County averaged more than 3,900 reported crashes per year for an average of 1,499 people injured per year. During this same time period, 95 community members and visitors died in crashes on roads in the County. As detailed in the plan, of the approximately 19,500 crashes during that time period, the most prevalent factor was distracted driving (involved in 8,800 crashes, or 45%). Another 3,100 crashes involved improper driving behaviors, such as speeding and aggressive driving, and 1,200 crashes involved impaired driving. Finally, 280 crashes involved cyclists or pedestrians. Notably, while two-thirds of all bicycle and pedestrian crashes occurred on local roadways, 85% of all bicycle and pedestrian fatalities occurred on state roadways, which typically have greater traffic volume and higher speeds.

In 2019, the County Council adopted a Complete Streets Policy to ensure that community members using any transportation mode can travel freely, safely, and comfortably throughout the County. The Complete Streets Policy uses an Equity Emphasis Area Index to track implementation, prioritize projects, and evaluate designs. The index uses methodology developed by the Baltimore Metropolitan Council (BMC), which assigns scores to census tracts in Howard County based on multiple factors, including the percent of households in poverty, transit dependent households, non-Hispanic minority individuals, low English-proficiency individuals, Hispanic or Latino individuals, individuals 75 years and older, and disabled individuals. Map 4-1 shows the Equity Emphasis Areas and index scores.

Building on the Complete Streets Policy, the Howard County Design Manual Volumes III and IV (Design Manual) were updated in 2022 to incorporate best practices in street design to accommodate all modes of transportation. The next step in complete streets implementation is to update the Subdivision and Land Development Regulations to ensure that the development process supports the County's vision for complete streets. In early 2020, Howard County also adopted a new pedestrian master plan, WalkHoward, which identifies and prioritizes pedestrian infrastructure needs. A fundamental organizing principle of WalkHoward includes last-mile access, and the plan recommends a series of projects and connections to ensure walking is a safe, effective, and viable recreational and transportation choice. BikeHoward, further described under the "Mobility and Access" section of this chapter, envisions safe bicycling on roads and paths as a means of daily transportation and healthy recreation. BikeHoward calls for the creation of a safe and seamless network of bikeways that connect people to schools, shops, parks, and work, with facilities that serve all skill and comfort levels.

The Strategic Road Safety Plan recommended a safe system approach for the County that identifies the link between priority crash types and the roadway contexts in which they most frequently occur. The system then prioritizes countermeasures that provide a solution to those crash types at the identified location types. This approach is innovative because it can prioritize locations that have a high propensity for crashes to occur even if crashes have not occurred there in recent years. Overall, the system proactively targets road safety improvements in high-risk locations where the most frequent and severe crashes could occur. This effort should also coordinate with and support the Complete Streets Policy and the WalkHoward and BikeHoward capital programs.

Finally, HoCo By Design's Economic Prosperity chapter describes the transportation needs of the agricultural community and conditions that impact safety. Refer to the section "Sustaining our Agricultural Economy" within the Economic Prosperity chapter for details.

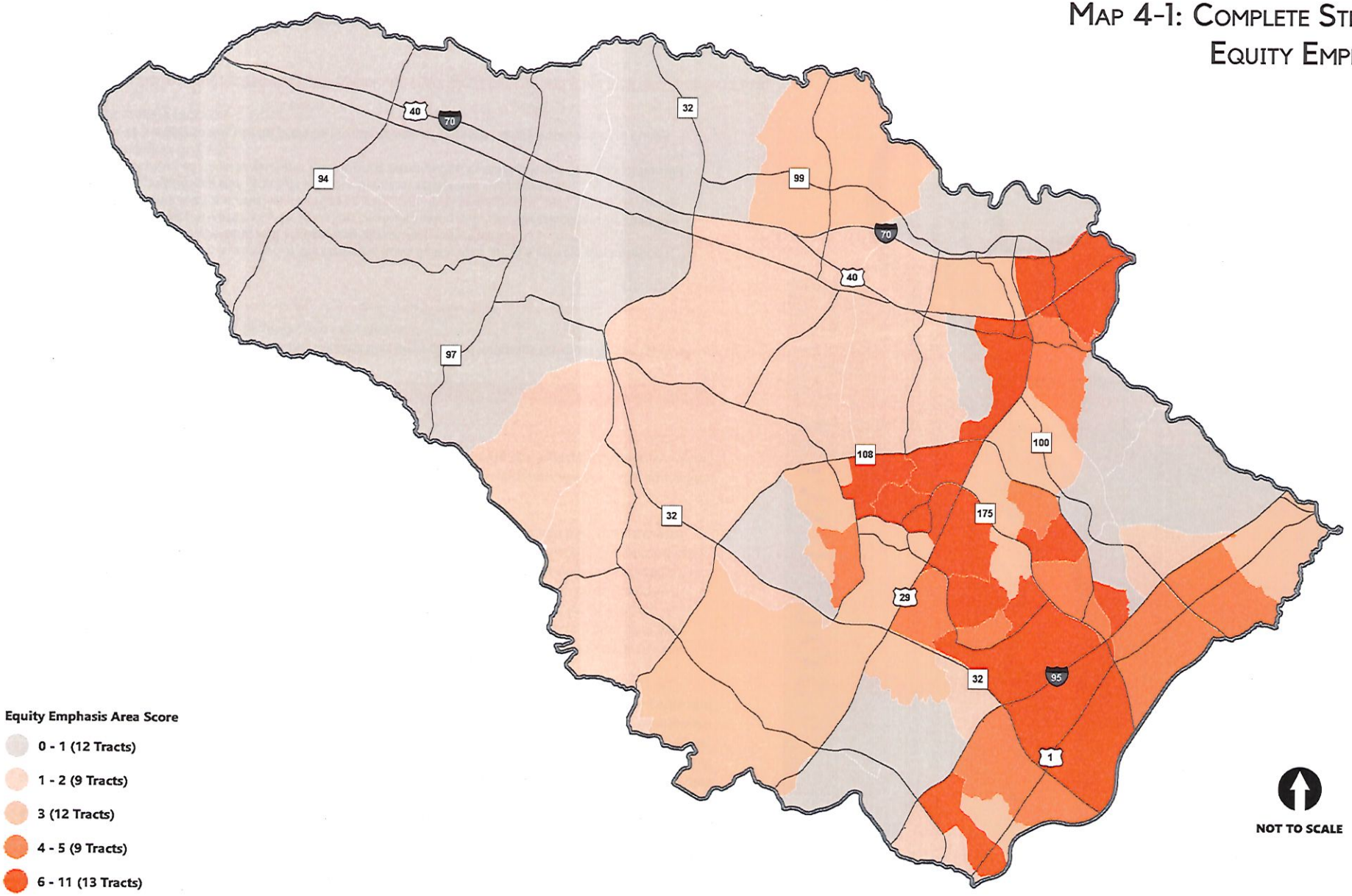
CIM-2 Policy Statement

Design and operate an equitable transportation system that prevents and mitigates the most severe types of crashes for motorists, transit riders, bicyclists, and pedestrians.

Implementing Actions

1. Prioritize and fund measures outlined in the Strategic Road Safety Plan using a safe system approach to focus education, enforcement, and engineering efforts and investments.
2. Advance the Complete Streets Policy by updating the Subdivision and Land Development Regulations to provide accommodations and ~~improve~~ favor land use and development that improves safety, particularly for pedestrians and bicyclists who are the most vulnerable roadway users.
3. Execute the priorities of WalkHoward and BikeHoward through dedicated funding in the capital budget and efficient project delivery.
4. Ensure that all transportation capital projects include review of potential safety improvements during the project scoping process.
5. Pursue State-enabling legislation to allow well-signed, stationary speed cameras and other road safety mechanisms in school walk zones.

Map 4-1: Complete Streets Policy Equity Emphasis Areas



Mobility and aCCess

Transportation systems are based on two transportation concepts: mobility and access. Mobility is generally defined as the ability to use the transportation system to move from place to place, such as on a highway or on a regional train system. Access is generally defined as how many places one can get to safely and easily. The planning and development of transportation systems balance these two concepts to reflect and advance community goals. Traditionally, Howard County's transportation system was more focused on mobility but is evolving to focus on ensuring and improving access for walkers, cyclists, drivers, and transit riders, a process that is guided by some of the highlighted topics below. Increased multi-modal access is important to serve the County's growing senior community, youth, people with disabilities, and carless community members.

Transportation Trends, Patterns, and Facts

Vehicle Miles Traveled

Annual daily vehicle miles traveled in Howard County is in flux as the County and the country emerge from the Covid-19 pandemic. On average, each resident drove approximately 500 more miles per year in 2018 compared to 2013, while the same measure shows that each resident drove approximately 1,300 fewer miles in 2021 compared to 2018. On a per-resident basis, the County's vehicle miles traveled was approximately 37% and 33% higher than the region for those two time periods. This increase is likely a function of longer commute distances between home and work, higher per-resident automobile ownership, and limited transit, bicycle, or pedestrian facilities that support viable non-automobile trips for local travel.

Congestion, Roads, and Highway Infrastructure

The Maryland State Highway Administration monitors road conditions in the region and reports conditions using a Travel Time Index. The Travel Time Index measures travel time during congested periods of the day and compares it to the same trip made during less congested periods. The regional transportation system in Howard County performs well, with just three exceptions: Route 32, Route 29, and Interstate 95. Projects and studies to address travel time reliability on these roads are underway or complete, and conditions continue to be monitored on other roads, including Route 103, Route 108, Route 144, Broken Land Parkway, and Little Patuxent Parkway. In addition to congestion and delay that occur during peak hours on both local and state roads, many users are impacted by non-recurring delay, which is delay caused by crashes, weather, and other events that cannot be forecasted. These non-recurring events can considerably impact travel time and how users plan their trips.

Howard County's authority for transportation planning and investment is limited based on jurisdictional responsibility associated with different roads in the community. In 2022, the County maintained over 1,000 miles of roads; however, these roads supported only 19% of the average daily vehicle miles traveled in the County. The remaining average daily vehicle miles traveled in the County were on state roads or federal interstates, which the County does not have the authority to maintain or expand to meet future year needs. These systems experience the greatest delay in aggregate, which is primarily attributed to regional traffic. However, many users of the transportation system also experience periodic congestion and delay on the local road system.

Best practices that support a balanced and fiscally-driven approach to managing congestion include the following:

- Prioritizing and advocating for road improvements funded by the State, with a focus on Transportation Systems Management and Operations (TSMO) solutions. TSMO is an integrated approach to planning, engineering, operating, and maintaining the transportation network. TSMO looks at improving the performance of the existing system for all modes and can deliver more cost-effective congestion relief than adding new capacity along county roads.
- Advocating to federal, state, and regional partners regional transit solutions that improve Howard County's access to regional job centers.
- Coordinating with state, regional, and local partners to efficiently deploy resources to address recurring and non-recurring congestion.

Bicycle and Pedestrian Access

The Howard County Bicycle Master Plan, BikeHoward, provides a framework to improve conditions for bicyclists and promote bicycling as a safe and convenient travel option for people of all ages and abilities. BikeHoward offers guidance in the following general categories: 1) policy updates; 2) programs providing education, encouragement, and enforcement; and 3) infrastructure improvements to create a connected bicycle network. BikeHoward has been implemented and funded through aggressive efforts to secure grants, in-kind contributions, county investments, and coordination with the County's road resurfacing program and schedule. Since 2016, 35 of 95 miles in BikeHoward's recommended short-term network plan have been completed. New projects that implement BikeHoward's infrastructure recommendations and policy improvements—such as the introduction of a bikeshare pilot, bicycle parking improvements, and a police bicycle pathway patrol unit—have advanced into final design and construction.

WalkHoward sets forth a plan for implementing a connected, comfortable, and safe pedestrian network that accommodates all users and provides a framework to rethink walking as more than a recreational trip in the County. It especially emphasizes improving and expanding pedestrian infrastructure to serve the daily needs of community members, businesses, and visitors. Like BikeHoward, WalkHoward recommends the following: 1) updating policies; 2) providing programs that would allow more residents to walk, support safety goals, and track walking rates; 3) continuing to allocate resources to maintain the existing pedestrian network; and 4) constructing 60 structured projects and high priority connections. As part of the implementation of WalkHoward, county staff also partner with the Howard County Public School System to coordinate WalkHoward projects with efforts to expand and improve the safety of school walking routes.

The Howard County Design Manual, Complete Streets and Bridges, provides guidance on the design of pedestrian and cycling infrastructure by requiring sidewalks on all streets where there is demand for walking and bicycle facilities that operate at a Level of Traffic Stress (LTS) of two or better.

Local and Regional Public Transit

Howard County provides local and some regional public transit service through the Regional Transportation Agency of Central Maryland (RTA). After the adoption of PlanHoward 2030, the County created RTA by joining with Anne Arundel County, the City of Laurel, and Prince George's County to operate shared bus service throughout the four jurisdictions. RTA operates 15 routes, 12 of which serve Columbia, Ellicott City, Elkridge, Jessup, Savage, and North Laurel. The highest ridership stop in the RTA system is the Columbia Mall transit center, which accounts for 500 trips daily—two-thirds of all trip origins and destinations. This location is the pulse point or hub of nearly all services in Howard County. A significant investment to construct a Downtown Columbia Transit Center to replace the existing center is listed at the end of this chapter as part of Table 4-1. Of the remaining highest-ridership stops in the County, six are at apartment complexes, five are at commercial or retail centers, and four are at village centers in Columbia. The RTA service mostly provides access to jobs for those with few mobility options. More than 65% of all trips on RTA are for work-related purposes, and 85% of RTA riders do not own a vehicle. Seventy-six percent of all riders have an average annual income of $40,000 or less. In addition to providing fixed-route service, RTA also provides ADA-complementary paratransit and demand-response service for seniors and persons with disabilities. This ridership market is expected to grow significantly as the County's population ages.

Howard County's Age-Friendly Action Plan

The County's Age-Friendly Action Plan (2021) envisions a varied, efficient, and sustainable multi-modal transportation system that provides safe and affordable transportation for users of all ages and abilities. The system is further described as facilitating active transportation, such as walking, bicycling, and using scooters and similar devices. The plan promotes alternative transportation options and supports implementation of the Complete Streets Policy, WalkHoward, BikeHoward, and the Strategic Road Safety Plan.

Local public transit is also supplemented by a network of local and regional social service nonprofit organizations, such as Neighbor Ride and the Arc of Howard County, that provide transportation services to specific populations in the County, including seniors and people with disabilities. These organizations have the capacity to provide highly specialized services to ensure community residents can continue to go to school, shop, and go to work. These organizations provide a critical service to the community and are a strong complement to RTA service.

The development of local transit service is guided by a series of planning activities and projects. The Howard County Transit Development Plan (TDP) is a five-year plan to guide the management of existing transit service, organizational improvements, customer service, and service expansion. The 2018 TDP focused on service and frequency expansions, supported by a transit budget of $16 million in FY 2022, of which Howard County funded 75%. While expansion is important, leveraging new technology to deliver service efficiently, frequently, and reliably is also critical to continue to equitably serve and better address the needs of underserved populations and meet the county's equity goals. The County also has a bus stop improvement program supported by local and state funds.

Public transit planning is also guided by larger regional planning efforts. The Central Maryland Regional Transit Plan (RTP) identified 30 regional transit corridors, including Route 1, Route 29, and Route 40. The RTP's US 1 Corridor Small Area Plan was one of five small area plans developed to complement the larger regional effort. The US 1 Corridor Small Area Plan identified opportunities to improve transit service from Route 175 to Baltimore and recommended advancing an app-based, demand-response service known as micro-transit to expand local transit coverage and complement the regional transit network through first- and last-mile connections. The RTP also supported the County's continuing efforts to implement new service on Route 29, along with a new east-west regional connection on the Route 40 Corridor.

While Howard County is located between Washington, DC and Baltimore, regional transit connections to the east and south are not robust and don't reflect the County's current economic and geographic position in the region. Connections to Washington, DC and Baltimore are provided by nine commuter bus routes and one express bus route operated by the Maryland Department of Transportation's Maryland Transit Administration (MTA). Five of the routes serve commuters from Clarksville, Columbia, and Ellicott City to Washington, DC, and two routes serve commuters from Columbia to Baltimore. One route each serves commuters from Columbia to Bethesda, Dorsey to Gaithersburg, and Baltimore to Columbia. The MARC Camden Line follows the Howard County and Anne Arundel County border, connecting Washington, DC and Baltimore with stations in Jessup, Savage, Dorsey, and North Laurel.

While the MARC and the commuter bus system are used by some community members, their effectiveness as both a strong transportation service and a tool to manage congestion on the regional road system is limited by the following factors:

- Service that is limited to peak AM and PM periods, a service pattern that has not been changed to reflect changing work patterns and times.
- Camden Line frequency and reliability is limited by track capacity and freight prioritization by the track owner, CSX.
- Camden Line stations are not conveniently located.
- Lower-density land uses around MARC stations in Howard County, Anne Arundel County, and the City of Laurel.
- Commuter bus service routes that use Interstate 95 rather than Route 29 into Washington, DC.

When the Montgomery County Flash Bus Rapid Transit (BRT) line is fully implemented on Route 29, transit travel time will improve and enhance access to job centers in the corridor. The Purple Line light rail will also provide another opportunity for enhanced regional connections to job centers in Bethesda, College Park, and New Carrollton that are currently bypassed by commuter bus services using Interstates 95 and 495.

Howard County is uniquely positioned to foster multi-region transportation solutions. Sitting halfway between Washington, DC and Baltimore, and adjacent to major employment centers at Fort Meade and in Montgomery County, Howard County must view transportation policy and planning issues from the greater regional perspective. The County should leverage its current role in the Baltimore Metropolitan Council (BMC) and Transportation Planning Board (TPB) while also actively enhancing its relationship with the National Capital Region Transportation Planning Board to advance and promote both short- and long-term transportation initiatives and progress. The County has already used this approach to form the RTA, illustrating how the County can convene resources to improve transportation services in a multi-jurisdictional area. This bi-regional approach will be critical in advancing short-term initiatives, such as the expansion of the Montgomery County Flash service to Columbia and the projects highlighted in the Central Maryland Regional Transit Plan, as well as longer-term initiatives to provide separated guideways on the most congested sections of Route 29 for bus rapid transit.

Freight and Goods Movement

The regional and local economies rely on an efficient transportation system to allow people to get to jobs and shopping, move goods to stores, and transport freight throughout the region. The County has an extensive road and highway network linked to one of the nation's largest port facilities, rail terminals, food and retail distribution centers, and major airports. Due to changing distribution and warehousing business practices, freight and goods movement nationally and in the region is expected to grow at an increasing rate. These projections do not account for the impact of Covid-19 on the local and regional freight movement and the warehousing and distribution sectors. Covid-19 accelerated and compressed changes that were expected to take place over a decade into two years.

- From 2012 to 2020, freight pick-ups, drop-offs, and transfers in the County grew from 195,000 to 243,000 tons a day and are projected to grow to just over 292,000 tons a day by 2045.
- In 2012, the freight industry in the Baltimore region moved over 800,000 tons of freight a day. In 2020, this figure rose to over 1 million tons and is expected to rise to 1.3 million tons a day by 2045.

Howard County partners with the Maryland Department of Transportation (MDOT) as part of the Maryland Freight Plan. The Maryland Freight Plan, which is updated on a five-year cycle, assesses state and local freight movements, evaluates multi-modal networks, and details the actions and programs MDOT will employ to meet the goals of plan. These actions and programs can include addressing truck parking needs, congestion on Interstate 95, and the impacts of the freight transportation system on communities.

Transportation Demand Management

Transportation demand management (TDM) is a group of strategies used to manage demand for travel on the local and regional transportation system. These strategies encourage people to take transit, rideshare, walk, bike, and telework, thereby reducing the number of vehicles using the road network.

TDM strategies can involve providing information on the range of transportation options in a community, promoting travel options to community members and businesses, and developing incentives to support using non-automotive travel options, along with disincentives. Strategies will also include parking management and reducing automobile parking requirements to influence which transportation options people choose when they travel and reduce search times for parking. TDM programs can be implemented in specific locations or throughout a region and have been used in many communities to support efforts to reduce vehicle emissions, reduce the need for new road capacity and also support the County's focus on ensuring and improving access for walkers, cyclists, drivers, and transit riders. The County should expand and support TDM.

Transportation Demand Management in Howard County

Howard County's Office of Transportation promotes transportation demand management (TDM) solutions countywide through its Go Howard initiative, part of the regional TDM program. Go Howard provides information to community members and businesses on travel options including ridesharing, transit, bicycling, and other alternatives to driving alone.

While Go Howard promotes TDM solutions countywide, there are also required TDM programs in two Howard County communities: Downtown Columbia and Maple Lawn. Those programs are enabled by Transportation Demand Management Plans (TDMPs) that guide the types of strategies used in each community to manage demand on the transportation system. The Downtown Columbia Master Plan called for the development of a TDMP to ensure Downtown will be multi-modal as it grows. In Maple Lawn, the TDMP was incorporated as part of the Zoning Board's 2000 decision and order pertaining to the development.

CIM-3 Policy Statement

Make the transportation system equitable, close mobility gaps, and improve access to jobs, housing, health care, education, and social services.

Implementing Actions

1. Continue to monitor system performance, gather input from current riders, and allocate existing resources to maximize ridership and enhance service for current public transit riders.
2. ~~Ensure investments in the Regional Transportation Agency system balance improving service frequencies and adding new routes to unserved areas with transit-supportive land use~~ Ensure investments in the Regional Transportation Agency system accomplish increased service frequencies, improved reliability, and additional routes to unserved areas by considering transit-supportive land uses.
3. ~~Continue to~~ Provide, support and enhance community-based mobility programs ~~and non-governmental organizations that serve~~ for seniors and people with disabilities.
4. Explore flexible transit routing, mobility as a service, and other micro-mobility concepts to provide efficient and economic transit service in lower-density areas of the County. Consider subsidies for income-qualified residents to use existing rideshare programs.

CIM-4 Policy Statement

Leverage Howard County's position in the Baltimore and Washington regions to advance transportation projects and policies with regional and local impacts, including focusing efforts on governance, accountability, funding policies, and strategies to address unmet transportation service needs.

Implementing Actions

1. Continue to engage in regional discussions regarding state and federal investment in regional transit systems to ensure funding and support for Howard County projects, meet the County's goals to enhance and improve access to regional job centers, and maintain the County's position as an attractive location to live and work.
2. Continue to support the collaborative efforts to improve the Regional Transportation Agency of Central Maryland.
3. Continue to partner with Montgomery County and the Maryland Department of Transportation to extend the Flash Bus Rapid Transit Service to Howard County.
4. Support and partner with Maryland Department of Transportation and other regional organizations to expand service and improve reliability on the Camden Commuter Rail Line and improve transit connections from Howard County to existing Penn Commuter Rail Line Stations.
5. Continue to engage and participate in regional and state planning and coordination activities to ensure the needs of freight and goods movements are considered and supported.
6. Continue to engage with neighboring, regional and state partners to support and advance regional high-quality connections articulated in local and regional functional plans.

CIM-5 Policy Statement

Deliver transportation system improvements that support efforts to reduce reliance on automobile trips, improve air quality, and give people cost-effective and sustainable choices on how they get to work, home, school, and play.

Implementing Actions

1. Construct and enhance transportation facilities to increase connections across Howard County and support the goals of WalkHoward, BikeHoward, and the Complete Streets Policy, with a focus on the equity goals outlined in the Complete Streets Policy.
2. Continue to plan and implement projects that enhance transportation connections to regional job centers and high-quality transit.
3. ~~Sustain~~ Review and expand efforts to develop and implement Transportation Demand Management programs (such as car share, bikeshare, and shared e-scooter systems; telecommute policies; and vanpools) and expand Park and Ride lots, where appropriate. Improve the reporting process for outcomes and goals.
4. Continue to plan and coordinate investments with the Howard County Public School System to increase safe routes to schools, enhance access to the local transit system, reduce demand for hazard-based school bus service, and decrease driving to school. Assess walking routes for safety and equity.
5. Partner with the Maryland Department of Transportation to align commuter bus routes and funding priorities with current and expected travel patterns and complementary regional public transit initiatives.
6. Continue to work with federal, state, and regional partners on preliminary studies for high-quality connections.
7. Implement Development Regulations that require site plans that allow access to buildings by transit, bicycle, walking and micromobility services.
8. Work with State and Regional Agencies to develop reliable and sustainable methods to measure bike and pedestrian activity.
9. Require safe, non-automobile pathways that connect buildings within commercial and office complexes as well as activity centers to support "park once" behavior.
10. Consider more funding for electric school buses.

CIM-6 Policy Statement

Focus on improvements to the transportation system that improve travel reliability.

Implementing Actions

1. Evaluate the use of Transportation Systems Management and Operations concepts to manage the County's road system.
2. Develop real-time traffic monitoring and coordinate transportation and emergency resources to address non-recurring congestion due to weather and crashes on the local and regional transportation system.
3. Focus on operations at key intersections while ensuring improved safety for bicycle and pedestrian movements.
4. Optimize signal timing and phasing at key intersections in coordination with efforts to improve pedestrian and bicycle movements and safety, and coordinate signals in major commute corridors during peak time periods.
5. Increase street connections in key locations that provide more route choices to system users.
6. Develop access management approaches through updates to the Zoning Regulations and the Subdivision and Land Development Regulations, design approvals, and coordination with the Maryland Department of Transportation State Highway Administration.

> ~~*Walkability in commercial corridors is a big issue in HoCo, so I appreciate solutions to make pedestrian areas a priority. The entire Route 1 Corridor, Route 216, Route 40, and Route 108 come to mind as highly unwalkable and unsafe.*~~
> *Walkability in commercial corridors is a big issue in HoCo, so I appreciate solutions to make pedestrian areas a priority. The entire Route 1 Corridor, Route 216, Route 40, and Route 108 come to mind as highly unwalkable and unsafe.*
>
> ~~*- HoCo By Design process participant*~~
> *- HoCo By Design process participant*

delivering projects

Howard County's Capital Improvement Program (CIP) details how the County is funding transportation projects, either as part of a single project or a program of projects. Funding, planning, designing, and constructing transportation projects is a challenging and lengthy process. Some of these challenges are engineering-based, while others are process and communication focused.

In 2021, Howard County participated in the CIP Development and Promoting Healthy Communities study with the Baltimore Metropolitan Council. This study identified common barriers to communicating how the CIP works, how challenges impact project delivery times and costs, and how the risks of these challenges are incorporated into the CIP process. The study developed a series of best practice recommendations related to the CIP and project delivery:

- Develop a clear internal process to define, identify, and screen capital projects.
- View asset management and State of Good Repair through a resiliency lens. State of Good Repair means a transportation asset is maintained to operate at its full level of performance. Consider the condition of each asset in the prioritization process and the impact that asset's failure could have on transportation services and finances. Maintain a detailed and up-to-date inventory of all assets that includes asset condition. Develop formal processes to monitor the state of assets on a continuous basis.
- Incorporate an equity lens throughout the capital planning process, from start to finish. Equity questions should be considered as needs are identified, measures are prioritized, and impacts are assessed.
- Use digital tools to help the public engage with traditionally lengthy budget documents that may not be easily accessible or understood. Jurisdictions have found ways to improve the flow of information related to capital planning and increase transparency by creating online interfaces that translate the budget.

HoCo By Design's Supporting Infrastructure chapter builds upon the CIP study's recommendations for capital planning.

In 2022, the County initiated a study to develop recommendations for priority sidewalk and safety projects in the Route 1 Corridor and their delivery. It found that a significant amount of local and state funding has been allocated to design and construct projects, but progress has been slow due to challenges with securing rights-of-way for the project, permitting, and contracting. Based on these findings, the County should consider the recommendations from the CIP study. To achieve benefits more quickly while respecting its Equal Business Opportunity Program goals, the County should also adopt programmatic approaches in which the process of design, right-of-way acquisition, permitting, and construction are based on performance-driven design-build contracts.

CIM-7 Policy Statement

Refine processes and policies to deliver transportation improvements strategically, efficiently, and equitably.

Implementing Actions

1. Review existing rules, policies, processes, and procurement procedures to identify opportunities to accelerate the planning, design, permitting, or construction of new and equitable transportation projects, including the recommendations from the Capital Improvement Program study.
2. Identify opportunities to minimize the time needed to acquire right-of-way for planning road, sidewalk, or bicycle projects while respecting the rights of private property owners. Alternatively, reevaluate the scope of projects earlier in the planning process if it is determined that there is strong opposition to land acquisition.
3. Implement contracting methods that shorten construction activities for a project, including, but not limited to, design-build provisions for small projects like sidewalks or intersection improvements, contracts that share risk with contractors and support flexible project phasing for larger projects, and incentives for early project completion.

Future of the Transportation System

Technological and Economic Change

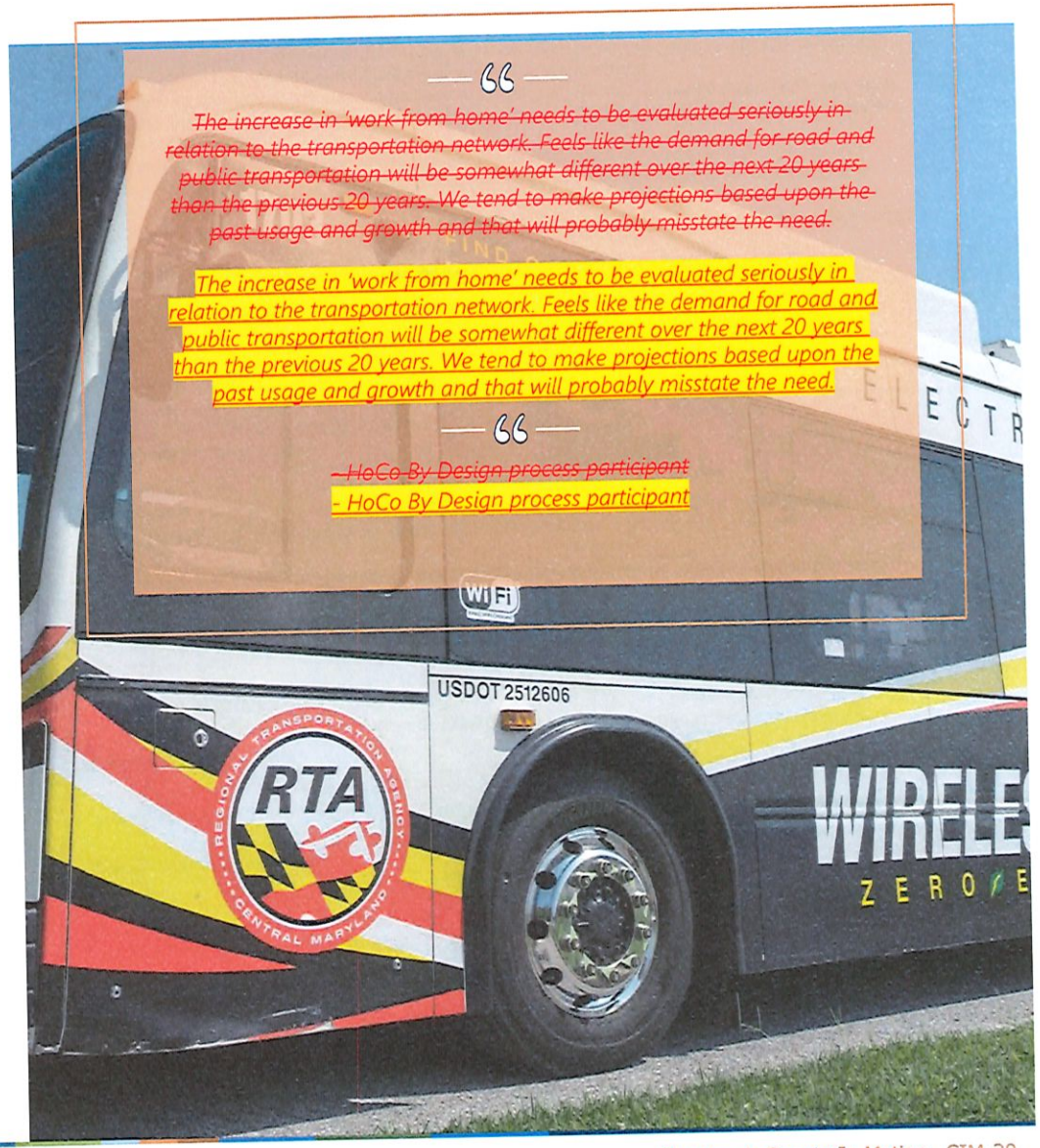
Rapidly evolving transportation technologies and changes to commuting and work patterns accelerated by Covid-19, will likely lead to shifting demands on the transportation system. As a result of this shift in demand, the County might modify its approach to planning its transportation system. In the short-term, it might focus more on integrating technology solutions to address the main effects of connected vehicle (CV) technology and automated vehicles (AV) on safety, mobility, and the environment. In the long-term, the County might focus more on the relationship between evolving transportation developments and shifting employment and housing patterns.

The first waves of change in the transportation industry have been focused on Mobility as a Service (MaaS), such as Lyft, Uber, and ever-evolving micro-mobility technologies deploying e-scooters and bike sharing. MaaS supports living and working in suburban downtowns, as it provides a convenient transportation alternative and can reduce transportation costs for users. The industry is still in its infancy, and the long-term viability of the current business models are not certain.

On the more immediate horizon, connected and automated electric vehicles (CAV) may be prevalent by the early 2030s, and the County should expect them to alter both demand on parking infrastructure and the road system. However, these impacts are very uncertain. Some forecasts claim CAVs will self-park more efficiently than humans can, leading to more efficient use of parking facilities. Changes in parking space needs could have several positive effects. New development in activity centers could share parking with existing projects. Infill and redevelopment could take place without the prerequisite of additional parking facilities, reducing costs. On the other hand, CAVs could also increase vehicle miles traveled (VMT) and cause more congestion as a result of multiple trips when a CAV drops its passenger in front of a destination, parks in a remote lot, and then later returns to pick up its passenger.

In the longer-term, if CAVs mature and are cycled into the vehicle fleet in significant ways, they may alter commuting patterns in the County. CAVs could offer more efficient commutes by reducing travel times, providing community members a greater choice of locations to live in, and shifting demand to areas in the County, or outside, that are further away from job centers or less connected to the highway system. However, like the potential impact on parking demand, the adoption of CAVs may increase VMT as a result of this shift.

The automotive industry is years away from fully leveraging CAV technology and impacts are not yet clear or understood. Further, most regulatory policy will be established at the state and federal levels. The County should monitor the progression of CAV technology and associated regulations, and respond to changes as they occur. The County's response to future changes may include updated road design standards, expanded electric vehicle charging policies, a robust fiber optic communications network, and revised parking requirements. The County may also need to ensure the safety of cyclists and pedestrians if it is not adequately addressed in state and federal regulatory changes.



Climate Change and Air Quality

As outlined in the Ecological Health chapter, climate change can be generally defined as a significant long- term shift in weather patterns for a specific geographic region. Emissions of the long-lived greenhouse gases carbon dioxide (CO_2), methane, nitrous oxide, and fluorinated gases are causing climate change as they build up and trap heat in the atmosphere. A significant contributor to emissions is the transportation sector. In the United States, transportation accounts for 33% of CO_2 emissions, with 65% of that total resulting from gasoline consumption in cars and light trucks. Commercial airplanes and business jets contribute 10% to U.S. total carbon dioxide emissions and nearly 9% of greenhouse gas emissions in the U.S. Annual vehicle miles traveled (VMT) in Howard County has grown slightly in recent years, increasing by just over 400,000 between 2013 and 2018. This growth in VMT represents nearly 500 additional miles driven by every county resident per year. On a per capita basis, the county VMT is approximately 37% higher than the regional average. This difference is a function of slightly longer commuting distances to Baltimore and Washington, DC, high per capita auto ownership, and a limited number of transit options for most commute trips.

Air pollution levels are reported to the general public via the Air Quality Index (AQI), which measures the level of criteria pollutants (air pollutants that contribute to the formation of ozone and particulate matter, including hydrocarbons, carbon monoxide, and oxides of nitrogen, which can have adverse short- and long-term health effects). In the Baltimore-Washington region, the AQI is driven by ground level ozone and particulate matter. The Clean Air Act enables interstate commissions to develop regional strategies for reducing air pollution. Maryland is part of the Northeast Ozone Transport Region, which includes 12 states and the District of Columbia. At the local level, Howard County is a member of the Baltimore Metropolitan Council (BMC) and its Baltimore Regional Transportation Board (BRTB), which coordinate regional transportation planning and work to reduce emissions from transportation. Under the Clean Air Act, the BRTB cannot approve any project, program, or plan that does not conform to Maryland's State Implementation Plan, which guides Maryland's actions to attain and meet air quality standards.

Reducing emissions and air pollutants from the transportation system will take multiple approaches, including the following: 1) reducing direct emissions from vehicles and airplanes; 2) shifting demand and creating ~~to~~ more efficient transportation modes with fewer direct emissions; and 3) reducing VMT. The national, state, and local vehicle fleet is still primarily comprised of gasoline and diesel vehicles; however, electric and hybrid vehicles are becoming more common. In 2022, less than 1% of the US vehicle fleet was electric but sales were increasing rapidly. Meaningful market penetration of electric vehicles will depend on availability of government incentives, alleviating buyers' range anxiety, and facilitating investment in charging infrastructure. The high cost of electric vehicles is often cited as a barrier, as approximately two-thirds of households that own electric or hybrid vehicles have incomes over
$100,000. Therefore any incentives and supporting policies will need to address the County's equity goals. Shifting demand to other modes, such as transit, walking, and biking, is another reliable and equitable method to reduce VMT and emissions. By investing in reliable transit and safe walking and cycling facilities, the County can ensure that community members will have the option to shift their vehicle trips. Additionally, increasing frequency of transit service not only benefits those who depend on it out of necessity, but also improves the attractiveness of transit to those who are able to choose their mode of travel.

Climate change is also forecast to impact the reliability of the transportation system as periods of higher temperatures increase wear on road surfaces; stronger and more sustained rain events increase flooding on roads, bridges, and culverts; and long-term droughts dry out subsurface soils, leading to subsidence. Additionally, reduced capacity, detours, and crashes from flooding impact travel time, reliability, and safety. As articulated in the BMC's Capital Improvement Program study, viewing asset management and county design standards through a resiliency lens will be critical to ensuring the County's transportation system can continue to operate safely and effectively.

The Volume III Design Manual Complete Streets and Bridges requires a noise analysis if the proposed residences are located within a specified number of feet from a roadway or a rail line, or if the location is within an airport noise zone. The Design Manual also requires noise mitigation through the use of buffers, barriers or acoustical insulation, or through building orientation.

CIM-8 Policy Statement

Actively plan for and evaluate the impact of technology and climate change on the transportation system.

Implementing Actions

1. Evaluate and update parking and land development requirements to reflect greater use of mobility and delivery as service models.
2. Amend design standards and asset management approaches to ensure resilience.
3. ~~Support~~ ~~Require~~ Encourage the installation of electric ~~vehicle~~ vehicles (EV), such as electric ~~cars;~~ cars and electric bikes, and charging stations in private and public space, with particular attention to shared parking lots to ensure they are EV ready by including connections and infrastructure.
4. Evaluate and address the potential impact of electric vehicle charging stations on electric power requirements.
5. Participate in regional and state coordination efforts to ensure federal and state regulations on connected and autonomous vehicles account for vulnerable road users such as pedestrians and cyclists.

CIM-9 Policy Statement

Support efforts to improve air quality with an emphasis on communities and populations most threatened by high levels of pollution.

Implementing Actions

1. Develop land use and environmental policy strategies that reduce the impact of diesel particulate matter in communities adjacent to industrial areas.
2. Develop a plan ~~to~~ and transition the County's fleet (including school buses and contracted services) to low/ no emission vehicles.
3. Continue to invest in increasing public transit frequency and walking and cycling infrastructure to support both a more equitable transportation system and shifts away from automobiles to non-automobile modes.
4. Consider targeted financial incentives and the removal of regulatory barriers for property owners and companies that deploy electric vehicle charging infrastructure, idle reduction technology, and other technologies that capture or mitigate diesel emissions at the source.
5. Consider a subsidy program to support low emission vehicles, bicycles, and scooters in traditionally underserved communities.

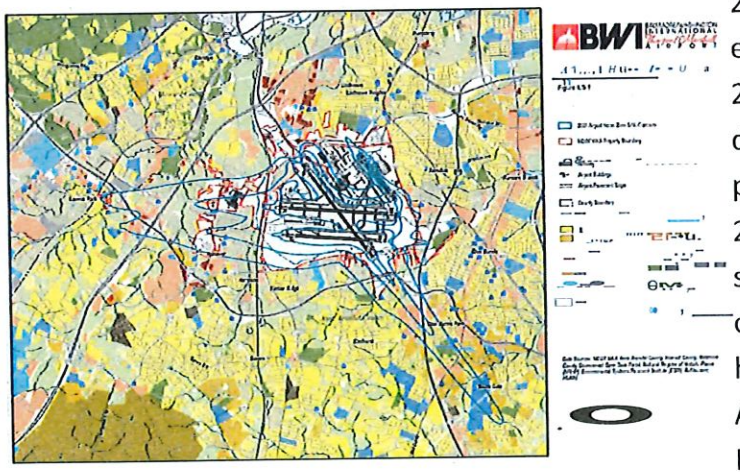
Future of the Transportation System

Baltimore/Washington International Airport Flight Paths

Noise associated with air traffic to and from Baltimore/Washington International (BWI) Thurgood Marshall Airport was recognized as far back as the 1982 General Plan, which described an objective "to ensure that general aviation activity does not produce excessive noise in residential areas." Three years after the adoption of PlanHoward 2030, the Federal Aviation Administration (FAA) implemented NextGen, creating an airspace in which planes are flying lower and longer over residential areas resulting in more noise impacts to residents in Howard County than ever before. Hundreds of thousands of noise complaints have been filed with the Maryland Aviation Administration (MAA) by residents impacted by these flight path changes.

To date, the MAA officially recognizes an Airport Noise Zones (ANZ) that was created "to control the incompatible land development around BWI Airport and develop a Noise Abatement Plan (NAP) to minimize the impact of aircraft noise on people living near the Airport." In order to develop residences or community facilities (such as churches, libraries, schools, and hospitals) in the ANZ, the Board of Airport Zoning Appeals (BAZA) must be petitioned and the proposals must meet specific noise reduction standards.

The first ANZ and NAP for BWI were adopted in 1976 and were most recently updated in 2020. In the 2020 update, the MAA expanded the ANZ by approximately 23%, due to various operational details, including changes in flight paths and the aircraft fleet mix. The 2015 adoption of the FAA's NextGen system contributed to many of these operational changes The ANZ changes have had a significant impact on Anne Arundel County and abutting the Howard County border.



*Source: MOOT MAA Airport Noise Zone Update, December 2020

To address the noise from BWI Airport, the BWI Roundtable was formed in 2017. It includes representatives from Howard and Anne Arundel Counties appointed by State and Local government representatives. The Roundtable called for changes to the operational procedures and flight patterns to lessen the airplane noise disturbances. These changes are anticipated to go into effect in the spring/summer of 2024.

Another concern expressed by residents pertains to the air pollution that may be caused by airplane particulate matter. Airplane exhaust, like car exhaust, contains a variety of pollutants, such as sulfur dioxide and nitrogen oxides. The County should work with State and Federal partners to mitigate any impact of the particulate matter on the air quality of Howard County communities within the flight paths.

While proximity to BWI serves as an economic generator for the movement of goods and provides many benefits to County residents and businesses who desire convenient access to commercial air travel, such proximity is not without its drawbacks. The County should continue to monitor BWI's flight patterns and the health impacts of aircraft noise and particulate matter on residents. The County should also advocate and participate in discussions with the FAA around mitigation of impacts associated with BWI flight paths. Development within Howard County that falls within the ANZ or directly under Next Gen flight paths should utilize best practices in building standards for attenuating noise. This is particularly important given recent studies on the impact of airport noise conducted at the request of the Maryland General Assembly, and FAA's consideration of changes to noise measurement policies to that more accurately reflect the true impact of noise on residents near airports.

CIM-10 Policy Statement: Pursue ways to reduce the impacts of noise and air pollution generated by air travel and ensure that future residential development addresses these evolving conditions.

1. Continue participating in the BWI Roundtable to track the proposed technical changes requested by the BWI Roundtable and agreed to by the FAA.
2. Continue to encourage the MAA and FAA ~~through County participation in the BWI Roundtable~~ to identify and develop additional and necessary changes to NextGen that reduce airplane noise disturbances.
3. Continue to advocate for State and Federal policies ~~Policies~~ to help communities monitor the airplane particulate matter in communities within state or federally defined zones associated with BWI flight paths (existing height and noise). ~~Develop~~ Support efforts by State and Federal partners to develop environmental ~~policy~~ policies and strategies to mitigate the impacts of particulate matter.
4. Research national trends and implement requirements for innovative building designs that reduce airplane noise in areas highly impacted by BWI operations.
5. ~~Partner with the State of Maryland to implement policies and programs that will reduce and/or minimize impacts on the most highly impacted residents and on future developments. Continue to participate in all future updates to the ANZ and NAP updates~~ Work with our State and Federal partners to have them develop environmental strategies to mitigate the impacts of particulate matter.

transportation investment priorities

Howard County's transportation needs and preferences have changed significantly over the last three decades. Travel demands and commuting patterns have settled along major corridors that are now generally built to their ultimate size and configuration.

While automobile travel will continue to dominate travel patterns for the near future, there is growing and demonstrated community interest in improving the safety and efficiency of the transit, bicycle, and pedestrian networks. Many community members continue to express their desires to replace their work, shopping, or other automobile trips with more economic and environmentally-conscious choices. These preferences are starting to be reflected in the County's shift to building a transportation system focused on travel time reliability, safety, and travel choices for all members of the community. Since the adoption of PlanHoward 2030, substantial investments have been made in transit, bicycle, and pedestrian facilities. Eleven percent of capital transportation spending is focused on these three non-automobile categories while operational and capital investments for the transit system are also increasing dramatically. The future mixed-use activity centers envisioned in HoCo By Design complement this shift to greater walking, bicycling, and transit use. Refer to the Quality By Design chapter and Focus Areas appendix for details on how design can facilitate increased use of non-automobile modes.

To continue to support this shift in direction, the County should use the Significant Transportation Investments to Support Growth & Redevelopment Map and Table (Map 4-2 and Table 4-1) to guide county investments in, and support of, transportation projects and activities. The selection of projects is not intended be exclusive since many county projects are focused on specific operational issues and might not be shown on the map. Further, projects are not listed in priority order (they have not been prioritized). The projects shown were selected based on travel trends and forecasts, PlanHoward 2030 transportation projects, and more recent functional planning projects—including the Regional Transit Plan for Central Maryland, Walk Howard, the Strategic Road Safety Plan, and the Complete Streets Policy.

The map and table will not only guide county priorities but also support the County's partnerships and advocacy for large regional transportation projects and initiatives. These regional efforts could be funded and implemented by the Maryland Department of Transportation in the Consolidated Transportation Program or advanced in the Baltimore Metropolitan Council's Long-Range Transportation Plan, which is critical to ensuring projects are eligible for federal funding.

Howard County's transportation investment priorities should also be informed by the reality of county transportation funding. County spending for transportation is divided between operating costs, such as transit services and routine maintenance costs, and capital costs, such as engineering intersections, resurfacing roads, rehabilitating bridges, installing traffic signals, maintaining bicycle and pedestrian facilities, and replacing transit vehicles. Both operating and capital funding in the County are limited and can change significantly from year to year, which makes it difficult to sustain a steady pipeline of projects to plan, engineer, and construct over time. As a result, many projects identified for implementation in the CIP have been delayed due to funding constraints, and some older projects may not advance the policies and goals in HoCo By Design. The County should reevaluate the purpose and need of these delayed projects to ensure they are consistent with HoCo By Design.

Map 4-3 shows the current road system in Howard County by functional class. These functional classifications, coupled with design guidance in the Howard County Design Manual, are used to determine the right-of-way and road improvements required for both private development projects and county capital projects. The map divides roads into five functional classifications, primarily organized based on vehicle throughout. New roads, as they are built and accepted into the county road system, are assigned a functional classification based on their design. These five classifications are matched to multi-modal street types in the Howard County Design Manual, which details the process to design a road based on its full context to meet the goals of the Complete Streets Policy (see pages 39-40 below).

To further identify transportation investment priorities, the County should develop a countywide transportation plan that:

- Results from a comprehensive process that engages the County's diverse population, including users of all transportation modes.
- Builds upon the Significant Transportation Investments to Support Growth & Redevelopment Map (Map 4-2), functional plans, and corridor master plans.
- Incorporates complete streets typologies.
- Reevaluates the purpose and need of the existing transportation system and proposed transportation projects to ensure consistency with county goals and funding.
- Aligns with the equity in capital planning approach described in HoCo By Design's Supporting Infrastructure chapter, and the emission reduction goals in the County's Climate Action Plan.

CIM-10_Policy Statement

Advance transportation planning and transportation investments to support an economically and environmentally sustainable transportation system that moves people safely and efficiently throughout the County and supports the land use and equity goals in HoCo By Design, including its emphasis on mixed-use activity centers. Similarly, advance land use patterns and individual site development that support an economically and environmentally sustainable transportation system.

Implementing Actions

1. Develop a countywide transportation plan and conduct a focused transportation study for each activity center in the Route 1 Corridor.
2. Continue to use the Functional Road Classification Map to guide the design, capacity, and function of roads as they are built or improved.
3. Implement HoCo By Design's recommendations for transit service through future transit service functional plans or master plans.
4. Continue to implement recommendations from WalkHoward and BikeHoward as methods to advance the broad concepts and recommendations in the General Plan.
5. Ensure the Design Manual is consistent with the General Plan as part of the regular update process for the Design Manual.
6. Advance the Complete Streets Policy by updating the Subdivision and Land Development Regulations to favor land use patterns and individual site development that supports an economically and environmentally sustainable transportation system.

Map 4-2: Significant Transportation Investments to Support Growth & Redevelopment

Future improvements to facilities such as Interstates 95 and 70 will be implemented by other transportation organizations. Projects identified, particularly those showing endpoints outside of county boundaries on the map, should be implemented with the County's regional and state partners. Changes to the County's Adequate Public Facilities Ordinance should consider opportunities to fund a portion of the recommended projects depicted on the map. Projects are not listed in priority order.

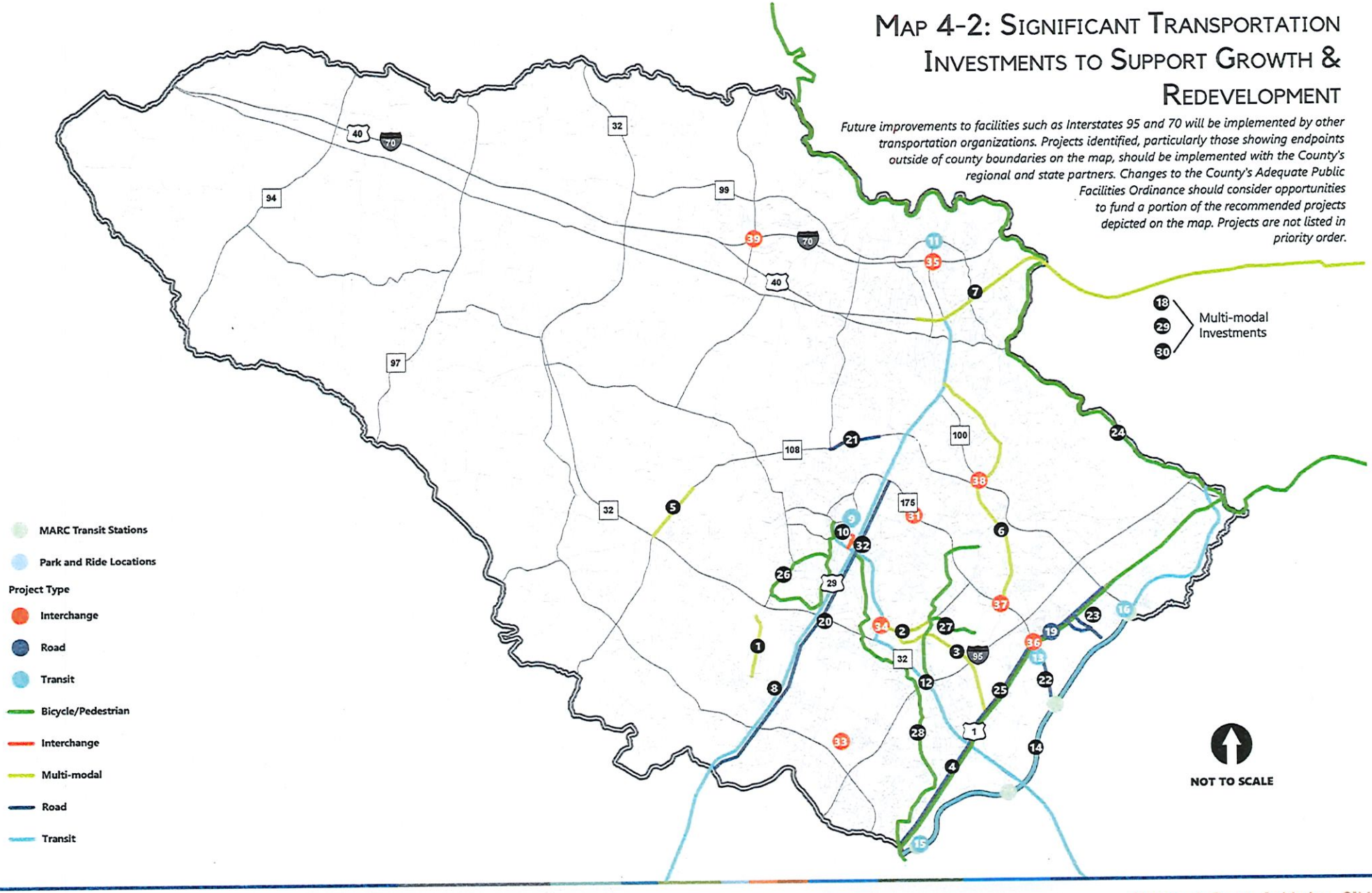


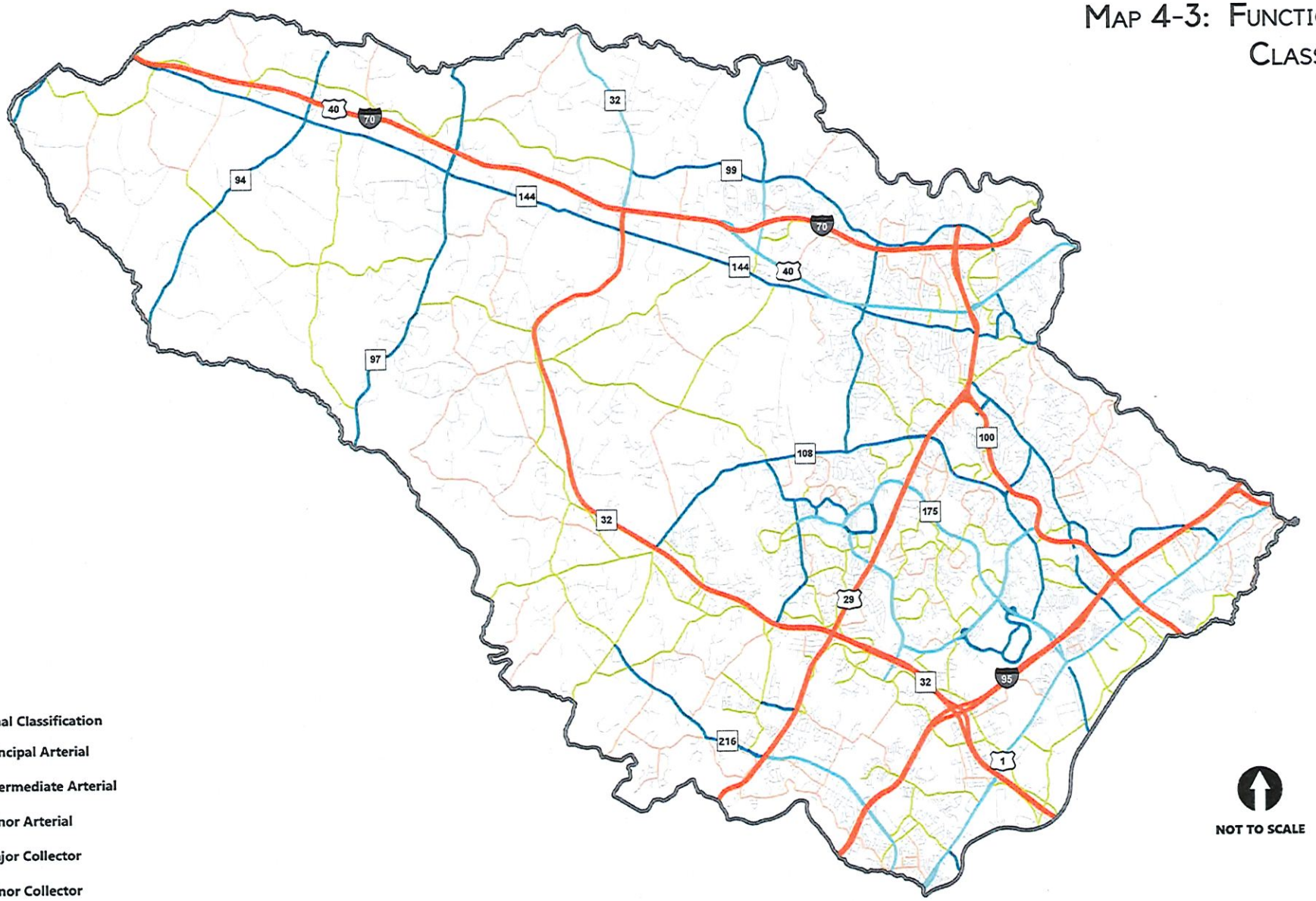
Table 4-1: Significant Transportation Investments to Support Growth & Redevelopment

Project Number	Project Description
1	Sanner Road: Johns Hopkins Road to Guilford Road - improve safety and operations for all modes, along with stormwater management improvements.
2	Snowden River Parkway: Oakland Mills Road to Broken Land Parkway - ~~widen Snowden River Parkway from four to six lanes from Oakland Mills Road to Broken Land Parkway to match segment north of Oakland Mills Road~~ construct all segments of the multi-use pathway and associated intersection modifications to ensure accessibility for all modes.
3	Gateway Regional Activity Center: Create new eastern access point to Gateway and Berger Road via CSX right of way.
4	US 1: MD 100 to Prince George's County Line - continue operational, safety, and streetscape improvements between MD 100 and Prince George's County line, along with advancing regional transit efforts.
5	MD 108: Trotter Road to MD 32 - expand section to accommodate left turns, improve safety, and complete the Clarksville-River Hill Streetscape Project.
6	MD 103/104/108 Corridor: Construct operational and safety improvements along MD 103, 104, and 108, including continuous sidewalk and pedestrian connections between neighborhoods and schools in the corridors.
7	US 40: Chatham Road to Baltimore County Line - construct operational, safety, and access management improvements along US 40, including improved pedestrian connections and regional transit connections.
8	US 29: US 29 from Ellicott City to Burtonsville via Downtown Columbia and Maple Lawn - extend Montgomery County Flash service to provide direct connection to WMATA Red Line and MTA Purple Line with high-quality BRT service.
9	Downtown Columbia: Construct Downtown Columbia Transit Center to improve transit operations, customer services, and service expansion.
10	Downtown Columbia: Establish Downtown Columbia Circulator.
11	MD 99/US 29: Construct Park and Ride lot to create northern terminus for US 29 BRT service and provide capacity for rideshare vanpools.
12	East/West Corridor between Downtown Columbia and Odenton MARC Station: Create new enhanced bus service connecting MARC station via Gateway Regional Activity Center and Fort Meade with eventual regional extension to Annapolis.
13	US: 1 East County Transit Center - construct new transit center to improve transit operations and customer service.
14	MARC Camden Line: Infrastructure, frequency, and service improvements and support MTA efforts to construct third track, sidings, and other infrastructure improvements to allow for mid-day and weekend service.
15	Laurel Park MARC Station: Support MDOT and Howard County efforts to create a mixed-use transit-oriented community.
16	Dorsey MARC Station: Support MDOT and Howard County efforts to create a mixed-use transit-oriented community.
17	Park and Ride Lots: Leverage park and ride lots for co-location of residential and commercial development.
18	Bus Stop Improvements: Continue investments to upgrade rider amenities and access to bus stops.
19	US 1: Montevideo Road and Port Capital Drive - realign intersection for safety and access management

Table 4-1: Significant Transportation Investments to Support Growth & Redevelopment

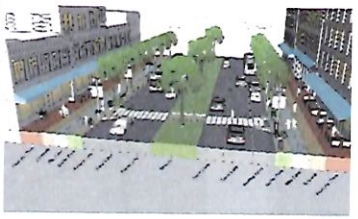
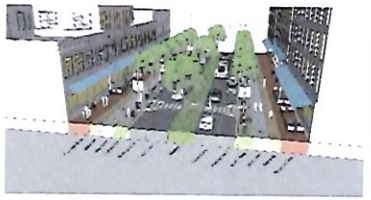
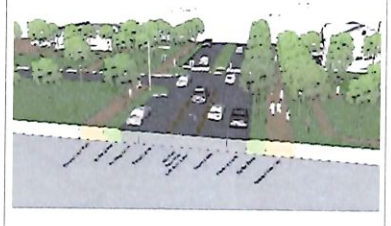
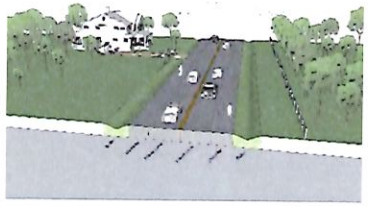
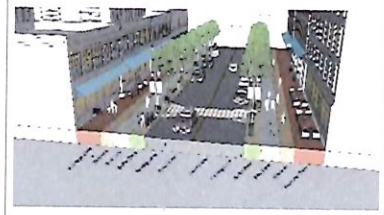
Project Number	Project Description
20	US 29: Middle Patuxent River to MD 175 - widen southbound US 29 from Middle Patuxent River from four to six lanes to accommodate bus rapid transit and improve travel time reliability.
21	MD 108: Woodland Road to Centennial Lane - expand to continuous five lane section to accommodate left turns, improve safety, and add continuous pathway and landscaping.
22	MD 175: Anne Arundel County line to US 1 - establish a coordinated roadway design in conjunction with Anne Arundel County efforts to improve access management, safety, and operations along MD 175 between the county line and US 1.
23	Kit Kat Road/Brookdale Road: Develop unified link to Dorsey Run Road.
24	Patapsco Regional Greenway: Construct new regional trail from Elkridge to Ellicott City in coordination with Carroll and Baltimore Counties.
25	US 1: US 1 access and safety projects - retrofit roadways and construct new pathways to neighborhoods, community centers, and schools in the US 1 corridor to support safety and access.
26	Hickory Ridge Road: Hickory Ridge Bicycle Corridor project will retrofit roadways and construct new pathways from the Hickory Ridge, Owen Brown, and Atholton communities to Howard Community College and Downtown Columbia.
27	Dobbin, Snowden River, and Oakland Mill road corridors: Retrofit roadways and construct new shared use paths to connect corridors to Gateway Regional Activity Center.
28	Columbia to North Laurel Corridor: construct South Entrance, Patuxent Branch, and North Laurel Connections pathway projects to provide high quality four season connections.
29	BikeHoward: Construct structured projects recommended in the Bicycle Master Plan.
30	WalkHoward: Construct structured projects recommended in the Pedestrian Master Plan.
31	MD 175: Oakland Mills Road and MD 175 - create limited access interchange to enable access to Blandair Park North.
32	US 29: Extend Symphony Woods Road to Broken Land Parkway and modify the US 29 interchange to create additional southern access to Downtown Columbia.
33	MD 216: MD 216 at Leisher Road, Sky Lark Boulevard Extended, and Gorman Road - realign Gorman Road and Leisher Road to improve mobility and safety in consideration of development patterns and future extension of Skylark Boulevard from Emerson.
34	Broken Land Parkway: At Snowden River Parkway - improve intersection safety and capacity, including alignments with ramps to MD 32.
35	US 29 / I 70: Improve safety and operations at congested interchange.
36	US 1: US 1 at MD 175 - create urban interchange to improve traffic safety and operations.
37	Gateway Regional Activity Center: At MD 175/MD 108/Columbia Gateway Drive - construct new northern access point to Gateway Regional Activity Center and improve traffic safety and operations with partially grade separated interchange.
38	MD 100: At MD 100, MD 108, and Snowden River Parkway - construct operational and safety improvements for traffic exiting MD 100 to MD 108 and Snowden River Parkway.
39	I 70 and Marriottsville Road: Construct capacity, ramp, and bridge improvements over I 70, expansion of Marriottsville Road from MD 99 to US 40.

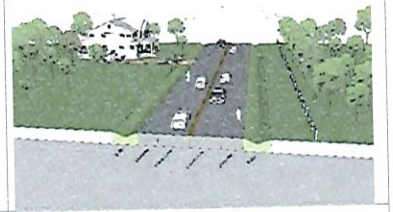
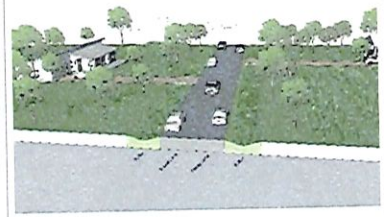
Map 4-3: Functional Road Classifications



Functional Classification and Design Manual Street Types

The road system in Howard County is categorized by functional class. The functional classification, coupled with design guidance in the Howard County Design Manual, determines the right-of-way and the design of the road. There is not a one-to-one relationship between the functional classification and street types in the Design Manual; the selection of street types is based on the land use context and expected volumes.

Functional Classification Description	Functional Class	Design Manual Street Type
Principal Arterials provide for efficient and uninterrupted travel between or across states and large metropolitan areas, including most interstate designated routes.	Principal Arterial	The Design Manual does not provide design guidance on principal arterials.
Intermediate Arterials provide access to principal arterial highways, offering efficient but not necessarily free or uninterrupted motor vehicle traffic flow between major roads in highly developed areas.	Intermediate Arterial	Parkway 
Minor Arterials provide a lower level of travel mobility than intermediate arterials to major towns and communities. They often provide mobility to or through areas of high-density residential, commercial, retail, or industrial land uses. Unlike principal and intermediate arterials, minor arterials may allow occasional access to abutting commercial, residential, and industrial properties.	Minor Arterial	Boulevard 
Collectors provide connections between mobility-oriented arterials and access-oriented local streets. They may allow a limited amount of travel through neighborhoods and non-residential areas, even when that travel does not begin or end in the neighborhood. There are two types of collectors: major and minor. Driveway access to adjacent properties is generally allowed on minor collectors but not major collectors.	Major Collector	Town Center Connector  Neighborhood Connector  Country Road 
	Minor Collector	Town Center Street 

Functional Classification Description	Functional Class	Design Manual Street Type
Collectors provide connections between mobility-oriented arterials and access-oriented local streets. They may allow a limited amount of travel through neighborhoods and non-residential areas, even when that travel does not begin or end in the neighborhood. There are two types of collectors: major and minor. Driveway access to adjacent properties is generally allowed on minor collectors but not major collectors.	Minor Collector	Neighborhood Street 1  Neighborhood Street 2  Country Road 
Local streets are focused on access to adjacent properties, allowing direct driveway access. They are generally not designed to accommodate motor vehicle through traffic, except to connect other local streets with a nearby collector.	Local Street	Rural Development Street 

Functional Classification Description	Functional Class	Design Manual Street Type
Local streets are focused on access to adjacent properties, allowing direct driveway access. They are generally not designed to accommodate motor vehicle through traffic, except to connect other local streets with a nearby collector.	Local Street	Neighborhood Yield Street  Alley  Industrial Street