



MOVE ANNE ARUNDEL!
*COUNTY TRANSPORTATION
MASTER PLAN*



2009 GDP Recommendation

Establish a Transportation Functional Master Plan to guide the County's future transportation policies, strategies and investments, and to prepare for the next GDP update



What Did The TFMP Study?



Transportation Functional Master Plan

- Part 1: Vision, Goals and Objectives
- Part 2: Provides the planning and land use context for ***Move Anne Arundel!***
- Part 3: Existing transportation system in Anne Arundel County.
- Part 4: Future challenges and demands on the transportation system.
- Part 5: Recommended policies and priority projects that make up ***Move Anne Arundel!***

Vision Statement

Provide safe, efficient, equitable and sustainable multi-modal mobility that provides residents, travelers and visitors with connectivity and choice.



Countywide Goals & Objectives



Goal:

A multimodal transportation system that provides practical and reliable transportation choices and connections for all users.

Objective:

Improve travel system reliability.

Performance Measure:

- » Travel time reliability on major roadway corridors.
- » Travel time reliability on secondary roadway corridors.
- » On-time performance of RTA and County-operated transit services.

Objective:

Provide practical transportation choices throughout the county.

Performance Measure:

- » Directional miles of striped on-street bicycle lanes.
- » Directional miles of protected on-street bicycle lanes.
- » Miles of shared-use path.
- » Number of daily round-trip MARC Trains to Washington DC per day -- Penn Line & Camden Lines.
- » Number of daily commuter bus trips from Anne Arundel County to Washington, DC.
- » Number of daily commuter bus trips from Anne Arundel County to suburban DC employment centers.
- » % of State-owned roadway directional miles within urban areas that have sidewalks that are in compliance with the Americans with Disabilities Act.
- » % of County-owned roadway directional miles within urban areas that have sidewalks that are in compliance with the Americans with Disabilities Act.
- » % of seniors and persons with mobility challenges within one-mile of a bus route.
- » Countywide non-single occupant vehicle mode share for commute trips.

Objective:

Increase non-single occupant vehicle mode share for commuter trips by residents of growth management areas.

Performance Measure:

- » % of residents driving alone.
- » % of residents using transit or bicycle, commuting on foot or working from home.



Goal:

A safe transportation system.

Objective:

Reduce Fatalities and Injuries for all Modes.

Performance Measure:

- » Number of vehicle occupant fatalities annually.
- » Number of bicycle fatalities annually.
- » Number of pedestrian fatalities annually.
- » Number of vehicle occupant serious injuries annually.
- » Number of bicycle user serious injuries annually.
- » Number of pedestrian serious injuries annually.



Goal:

A transportation system that is resilient, protects the environment and minimizes environmental impacts.

Objective:

Improve water quality.

Performance Measure:

- » % of unmanaged impervious acres within County Jurisdictional Municipal Separate Storm Sewer System (MS4) area.

Objective:

Improve Air Quality.

Performance Measure:

- » Number of electric vehicle charging stations in the County.
- » Vehicle miles traveled per capita.
- » % of County Transit Fleet that is low/no-emission.



Goal:

A transportation system that is in good condition.

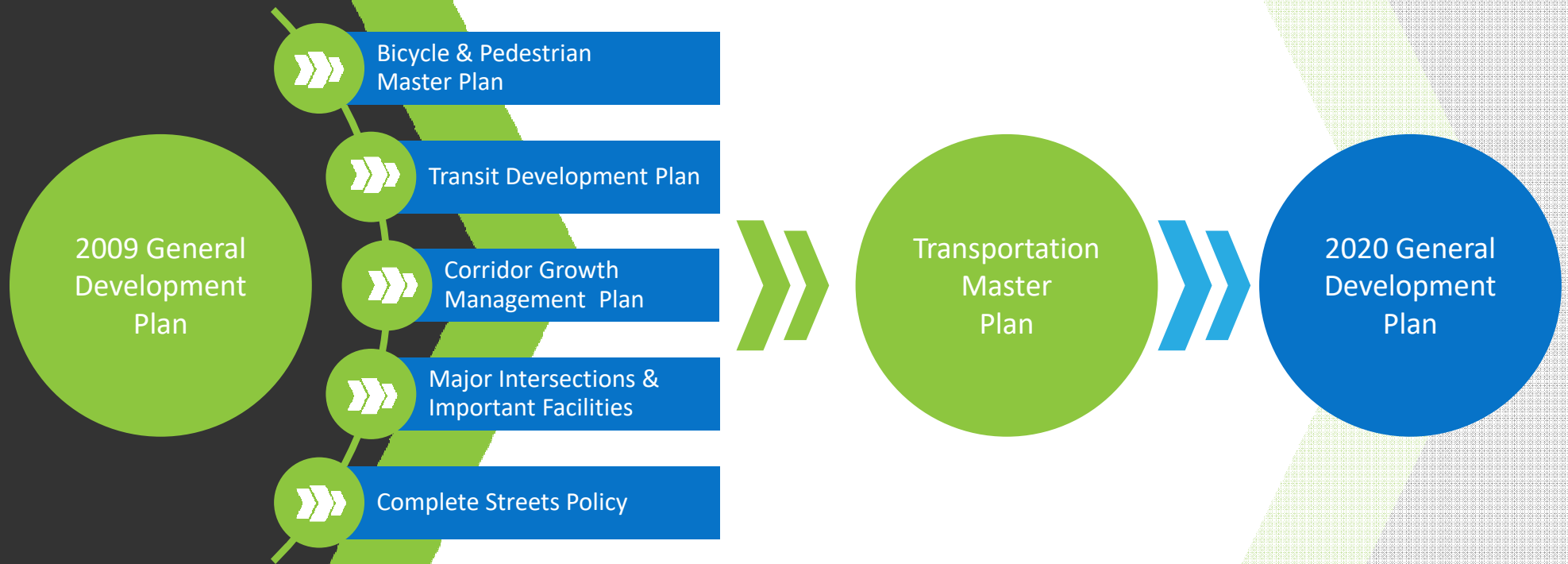
Objective:

All county-owned transportation assets should be in good condition.

Performance Measure:

- » % of roadway lane miles in good condition.
- » % of bridges in good or fair condition.
- » % of miles of shared use paths in good condition.
- » Average age of County-owned transit fleet.
- » Average age of County-owned paratransit fleet.

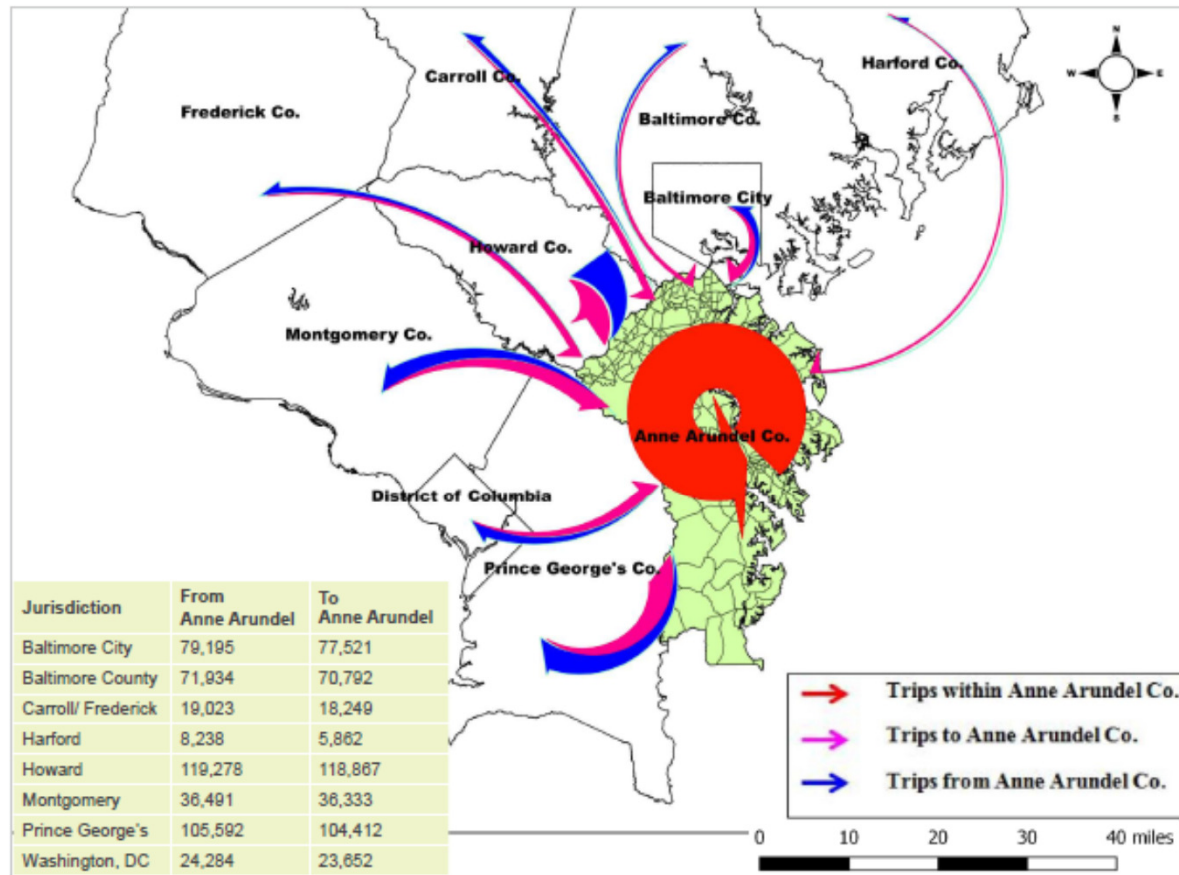
Are We Prepared for the Next Chapter?



THE CHALLENGES WE FACE



Growing and Changing Travel Patterns

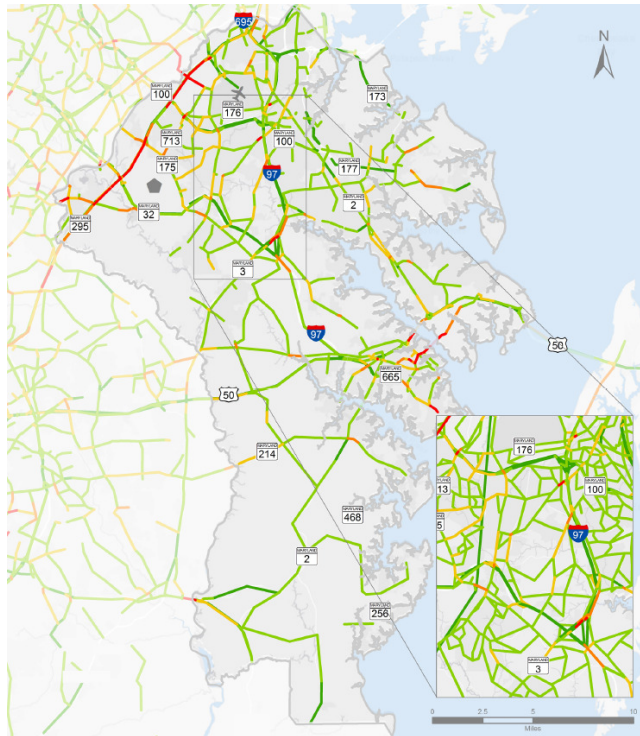


* 1,248,346 trips are made within Anne Arundel County each day.
 Average Daily Trips to and from Anne Arundel County using all modes of transportation

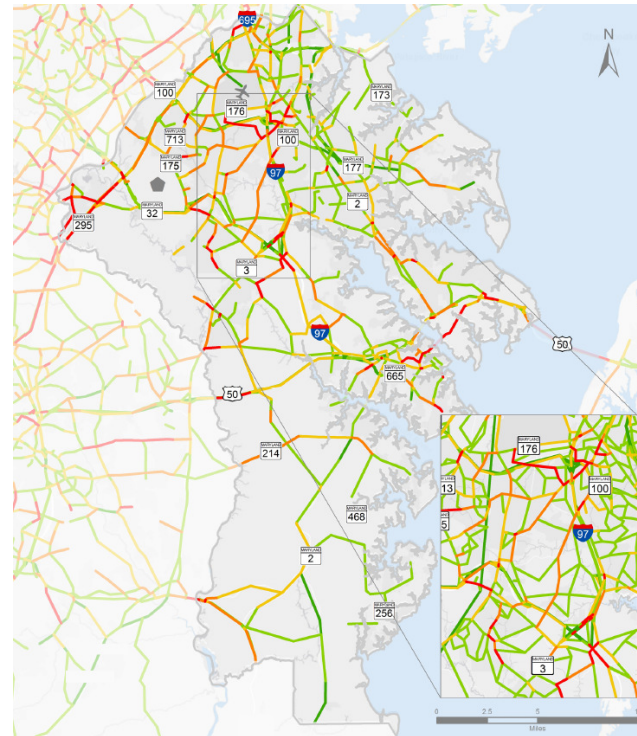
This map shows the relative percentage growth in traffic to and from Anne Arundel County between 2020 and 2040.



Traffic congestion is moving to the interior of the County.



Current PM Peak Period (4-6pm)



**Projected 2040 PM Peak Period
with No Road or Transit
Improvements**



How can this project make the transportation system more safe for all users?

How does this project make the transportation system more reliable for all users?

How can this project result in a transportation system that is more resilient and improves environmental quality?

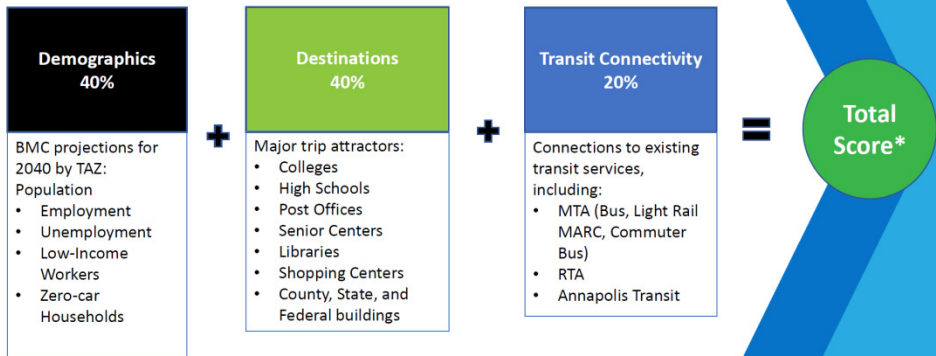
How does this project or policy address the need to maintain the transportation system in good condition?



MOVE ANNE ARUNDEL! COUNTY TRANSPORTATION MASTER PLAN



Transit Service Technical Scoring



*Call-N-Ride zones received a 10% bonus adjustment to the total scores as they provide very flexible operational parameters.

Plan Consistency 35%

Factors relative to inclusion in adopted planning documents:

- County CIP (under study) or MDOT CTP (planning/preliminary engineering)
- BRTB Constrained Long Range Plan
- Priority Funding Area

+

=

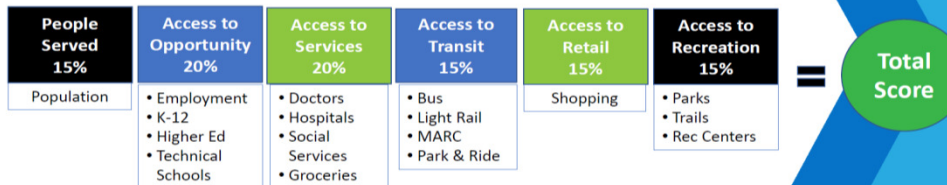
Total Score

Desired Outcomes 65%

The extent to which a project could be used to advance priority outcomes:

- Traffic safety
- Travel Time Reliability
- Improved pedestrian and bicycle facilities
- Community revitalization
- Minimize environmental impacts and improve resiliency

Shared Use Path Technical Scoring



Rankings on improvement to the level of stress in accessing life activities

Summary of Recommendations

Regional Corridors & Commutes

Improving Regional Corridors to Make Commutes More Reliable



- » Convert to a limited access freeway in three phases: MD 32 to Waugh Chapel Road (2.4 miles), Waugh Chapel Road to MD 450 (3.7 miles), and MD 450 to US 50 (2.8 miles).
- » New commuter bus service should be provided from the Waugh Chapel area to Washington, DC and to its suburbs at New Carrollton Metro Station, College Park, and Silver Spring and more park-and-ride lots must be developed along MD 3 to support this service.



- » Prioritize eastbound improvements between MD 295 and MD 198 and westbound improvements between MD 170 and Fort Meade.
- » Add commuter bus service from south County and Parole to Fort Meade
- » Establish a transit center on Fort Meade near NSA to allow for open-door local and commuter bus service on base.



- » Prioritize the section of MD 100 between I-95 and MD 170 to provide safer and smoother merging and weaving areas as vehicles enter and depart the highway; MD 295 and MD 100 is a major bottleneck that must be addressed.



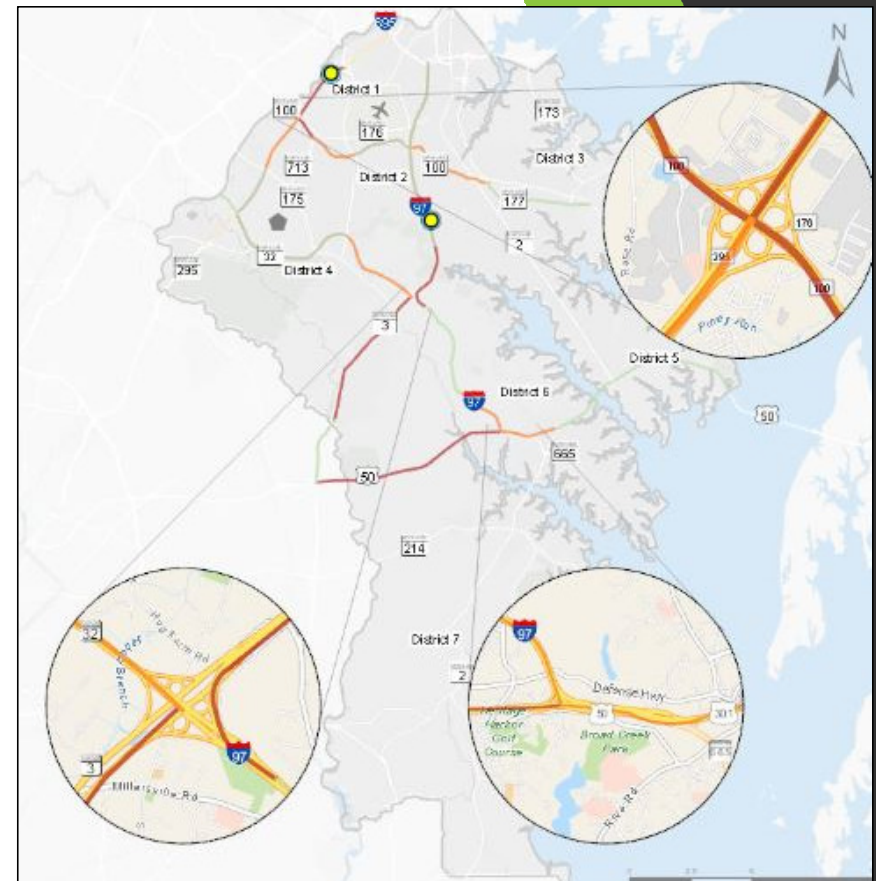
- » Extend HOV lanes from the Prince George's County line to I-97.
- » Add commuter bus service from the park and ride lots in Annapolis and Severna Park to College Park, Silver Spring, and Bethesda.



- » Implement TSMO strategies, including ramp metering and the hardening of shoulders for peak hour use between MD 174 and MD 32.
- » Improve safety and traffic flow at junction of I-97, MD 3, and MD 32 and the junction of I-97 and US 50, especially during the PM peak period.



- » Prioritize the section between MD 175 and I-195 to get ahead of future problems and address the interchange of MD 295 and MD 100
- » Pinpoint operation improvements along MD 295 to limit environmental impacts using strategies such as ramp metering, longer exit lanes, hardening of shoulders for peak hour use



Summary of Recommendations Community Corridors and Cores

Upgrading County Corridors and Community Cores



North County Priority Investments:

- » MD 2 from Brooklyn Park to Glen Burnie to address traffic and pedestrian safety.
- » MD 177 between MD 10 and Edwin Raynor Boulevard to address traffic congestion, improve bicycle and pedestrian facilities, and upgrade the streetscape in commercial areas.
- » Solley Road between MD 173 and MD 177 to address traffic congestion and accommodate planned community and economic growth.
- » Linthicum and Femdale Community Connectors. (Andover Rd, B&A Blvd, Camp Meade and Belle Grove Road)

Central & West County Priority Investments:

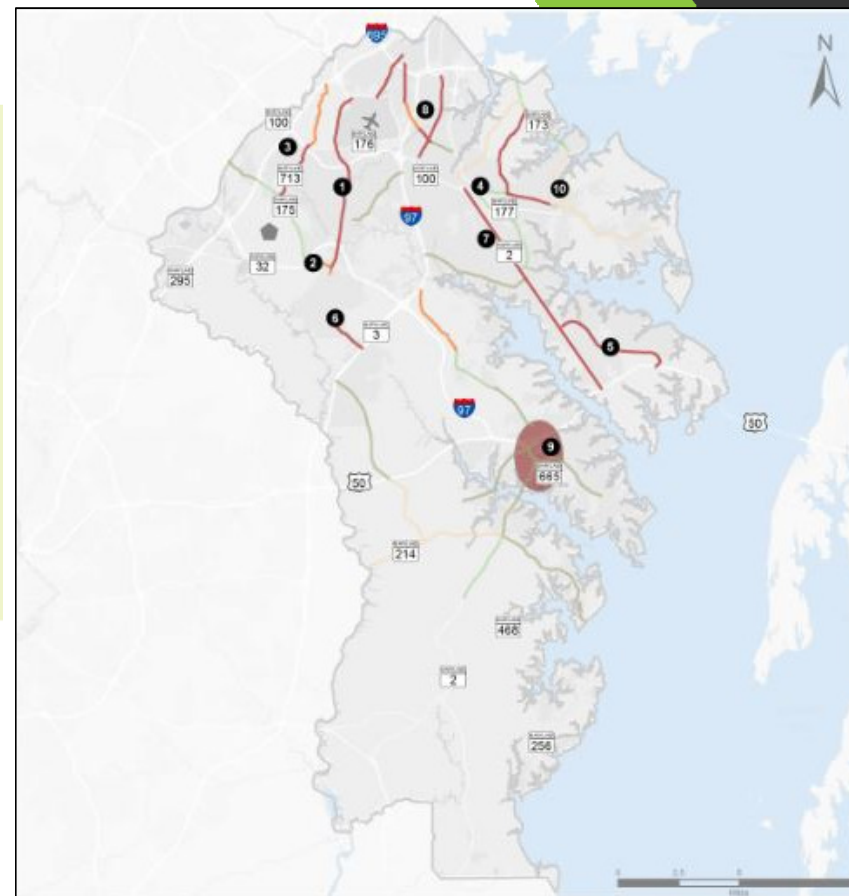
- » Roadway/transit improvements at Odenton Town Center to support new development and manage congestion.
- » MD 170 from Aviation Boulevard to MD 175 to address growing traffic congestion.
- » MD 713 between MD 175 and Arundel Mills Blvd. to address increasing traffic congestion and traffic safety issues and provide additional bicycle facilities.
- » Improving Waugh Chapel area roads to create a street grid network.
- » Improve access management and make safety upgrades along Benfield Boulevard.

Broadneck and Annapolis Area:

- » Access to Annapolis, Parole and Annapolis Neck (MD 2/MD 450/MD 665/Forest Drive) to address congestion and improve traffic and pedestrian safety.
- » College Parkway between MD 2 and US 50 to address traffic congestion and incorporate the Broadneck Peninsula Trail extension.
- » MD 2 through Severna Park to Arnold to reduce congestion hotspots.

South County:

- » Coordinate land use and transportation strategies with Calvert and Prince George's Counties to achieve a safe and consistent transportation network without bottlenecks.
- » Implement minor safety and operational improvements to allow for left-turns, especially along MD 214 and MD 424.
- » Slow traffic through the more populated areas.
- » Building the sidewalk and bicycle network where it makes the most sense for very localized trips.



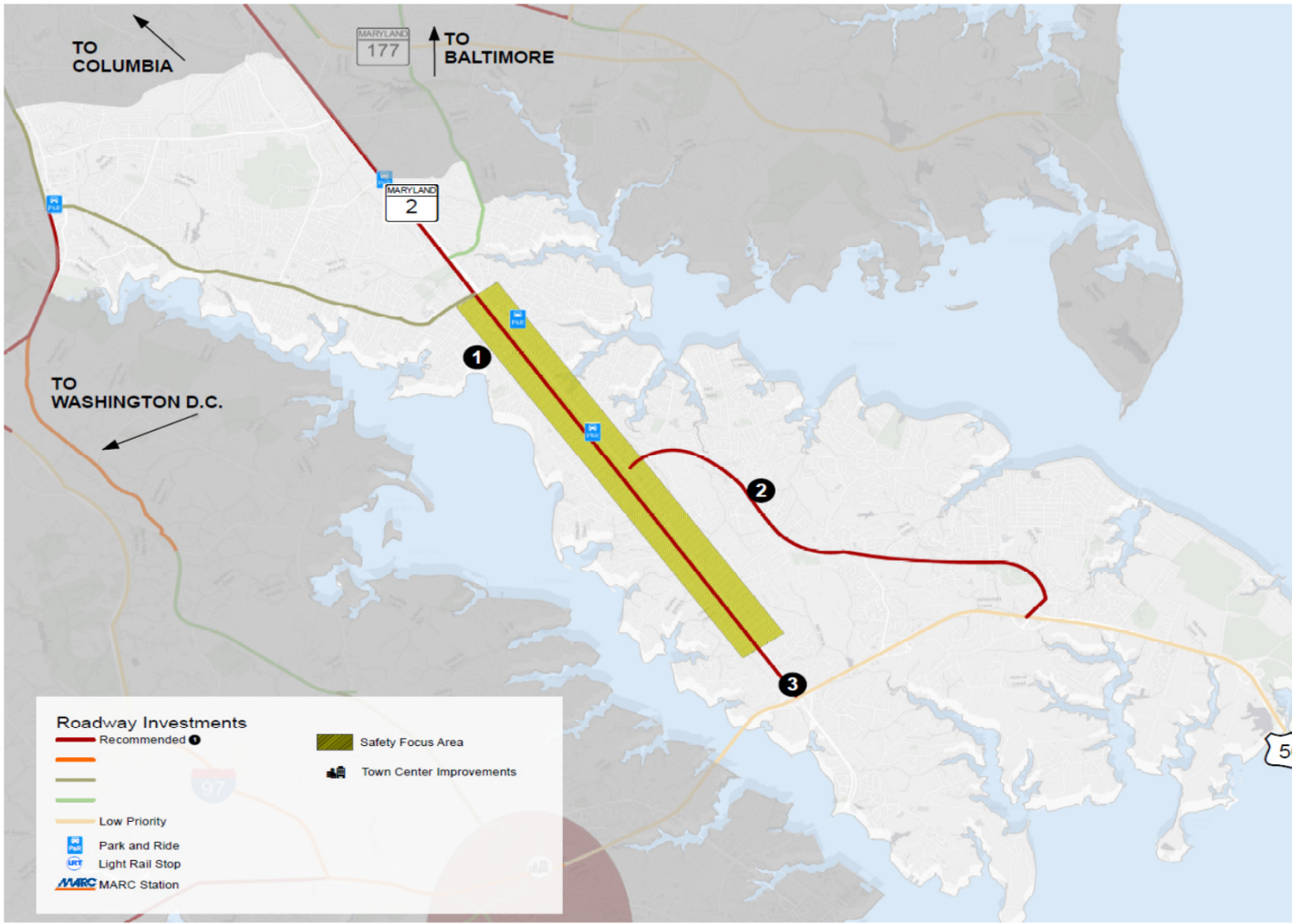
Community Corridors & Cores

Relationship to Plan Goals & Outcomes

Location	Safety	Reliability	Bike/ Ped Connex	Community Development & Economic Growth
MD 170 between MD 175 and Aviation Blvd.	x	x		x
Odenton Town Center Streets, Sidewalks and Trails			x	x
MD 713 between MD 175 and Arundel Mills Blvd.	x	x		x
MD 177 between MD 10 and Edwin Raynor Blvd.	x			x
College Pkwy between MD 2 and US 50		x	x	
Waugh Chapel Road between Dairy Farm Road and MD 3		x		x
MD 2 through Glen Burnie and Pasadena (safety focus area)	x		x	x
Linthicum/Ferndale Community Connectors (MD 648, MD 170, Andover Rd)	x		x	x
Parole Town Center and Forest Drive Traffic Management Plan	x	x		x
Solley Road between MD 177 and MD 173	x			x

COUNCIL DISTRICT 5

Recommended Road Investment Priorities



Summary of Major Projects

- 1** MD 2 to address traffic safety and congestion.

MD 2 (Ritchie Highway) between College Parkway and MD 100 is one of the more dangerous stretches of roadway in Anne Arundel County, and congestion hot spots frustrate reliable commuting times. Residential and commercial growth in the area is expected to be modest in the coming decades and new significant new road capacity should be less of a consideration. Instead, the County and SHA's top priority along MD 2 in this area should be minor operational improvements at key intersections and safety improvements at unsignalized median crossovers, and additional sidewalk connections along the denser areas of the corridor.
- 2** College Parkway between MD 2 and US 50 to address traffic congestion and incorporate the Broadneck Peninsula Trail extension.

College Parkway is projected to carry 36,000 vehicles per day in the year 2035 west of Jones Station Road and almost 22,000 vehicles per day east of Jones Station Road, which exceeds the the daily capacity of 20,000 for a two-lane arterial. Prior recommendations requiring further evaluations include widening of College Parkway from two to four lanes west of Jones Station Road to MD 179; adding a southbound left turn lane on MD 2 at College Parkway intersection; and adding an eastbound left turn lane on College Parkway at MD 179 intersection. In addition to roadway improvements, the County intends to continue the multi-phase extension of the Broadneck Trail to the Baltimore and Annapolis Trail to provide a mobility alternative for residents who live in the area and could reasonably commute to work by bicycle. Several sidewalk gaps on College Parkway need to be filled, as well.
- 3** Commuter Bus Services to the Washington Suburbs.

As commuting patterns by Anne Arundel County residents continue to shift towards Howard County and the Washington, DC suburbs. More than 4,000 trips daily are taken from Odenton and BWI Airport MARC stations to Washington D.C.; approximately 2,300 round trips are made on MDOT MTA commuter buses from park-and-ride lots in Severna Park, Davidsonville, Annapolis and South County. Where quality service is provided, regional commuters will use it. Commuter bus service should be the County's transit priority for regional and state investment eventually tied to HOV lanes along US 50 and/or express toll lanes if they develop along the Capital Beltway from the park and ride lots in Annapolis and Severna Park to College Park, Silver Spring and Bethesda.

Safety Focus Areas have been identified across the county as having the greatest number of vehicle, pedestrian and bicycle crashes. Detailed analysis of crash causes is required to develop a specific plan of engineering and enforcement activities in the Safety Focus Areas.

Summary of Recommendations

Making Communities More Walkable



- » 17 elementary schools are recommended for implementation of the Safe Routes to Schools program including new sidewalk connections, highly visible signage, education and enforcement activities.
- » New public facilities such as schools, libraries, community centers and recreation centers, etc. should be sited and oriented to maximize pedestrian access.
- » Town Centers should be the focal point of investments to close gaps in the sidewalk network using the new Multimodal Improvement Fund.

Creating a Low-Stress Bicycle Network



High priority investment:

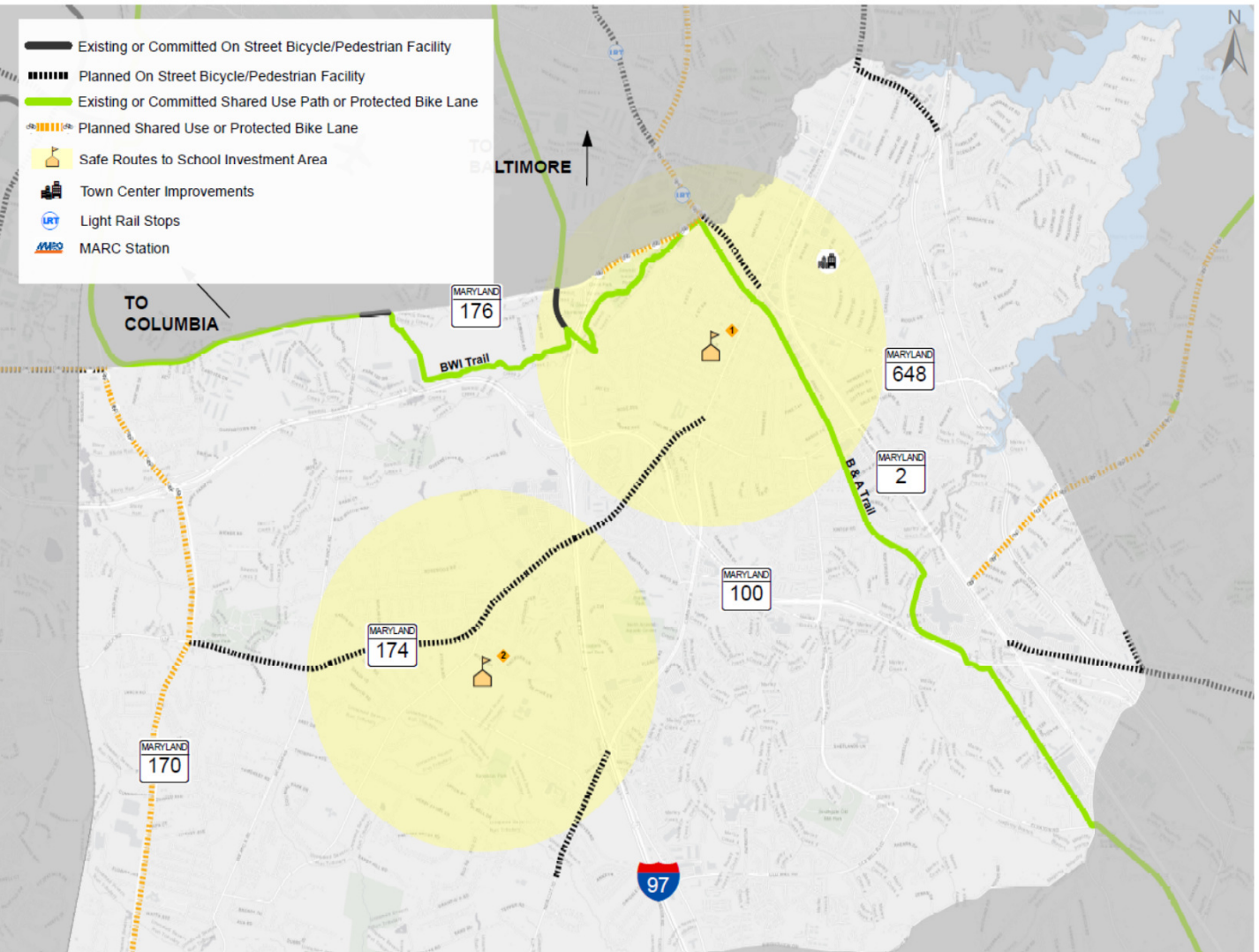
- » WB&A Trail Bridge Crossing over the Patuxent River
- » South Shore Trail from Odenton to Annapolis
- » Shared-use path connection from Odenton to the Baltimore City line.
- » Shared-use paths or separated bikeways on peninsular routes, such as the Annapolis Neck and Mayo Peninsula.
- » Broadneck Peninsula Trail from the B&A Trail to Sandy Point.
- » Extend existing shared use paths, including the Marley Neck Boulevard sidepath, the MD 175 Sidepath, and the Odenton Trails which will provide connections for the northeastern communities.

Other recommendations:

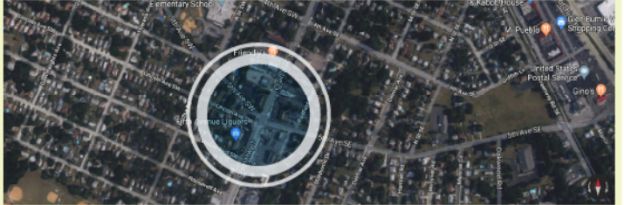
- » Make on-street "last mile" connections from trails to nearby community activity centers
- » Work with MDOT SHA to identify the disconnected segments of on-street bicycle facilities and prioritize filling out the network by extending lanes to logical termini.

COUNCIL DISTRICT 2

Recommended Bicycle and Pedestrian Investments



1 Richard Henry Lee Elementary School

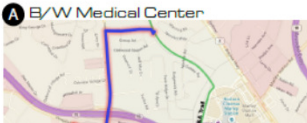


Richard Henry Lee Elementary School in Glen Burnie is located within a street grid that creates a variety of optimal walking routes along residential streets. The walkzone for the school does not currently extend to the neighborhood to the southeast of 5th Avenue and Crain Highway, even though it has sidewalks on every street. The extended crossing distance of Crain Highway in this area, where it is five lanes across, prevents students from walking to school. Improving crossing conditions with median refuges and crossing guards may enable this neighborhood to be included in the walkzone.

2 Quarterfield Elementary School



The walkzone for Quarterfield Elementary School includes the neighborhood on the eastern side of Maryland Route 174 (Quarterfield Road). The walkzone could be expanded by improving crossing conditions of Maryland Route 174 and installing approximately 1000 linear feet of sidewalks along Elmhurst Road between Quarterfield Road and Coldbrooke Drive. Additionally, by installing a sidewalk with signal-controlled pedestrian crossing at Quarterfield Road and Maryland Route 174 would shorten the walking distance for students. These improvements would enable students from the Fourwinds neighborhoods to walk to school.

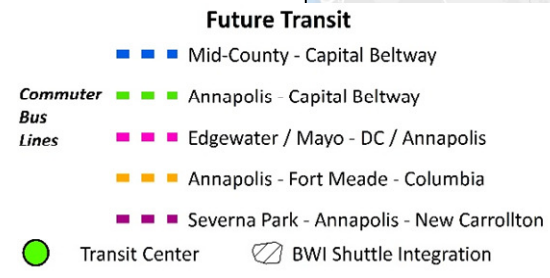
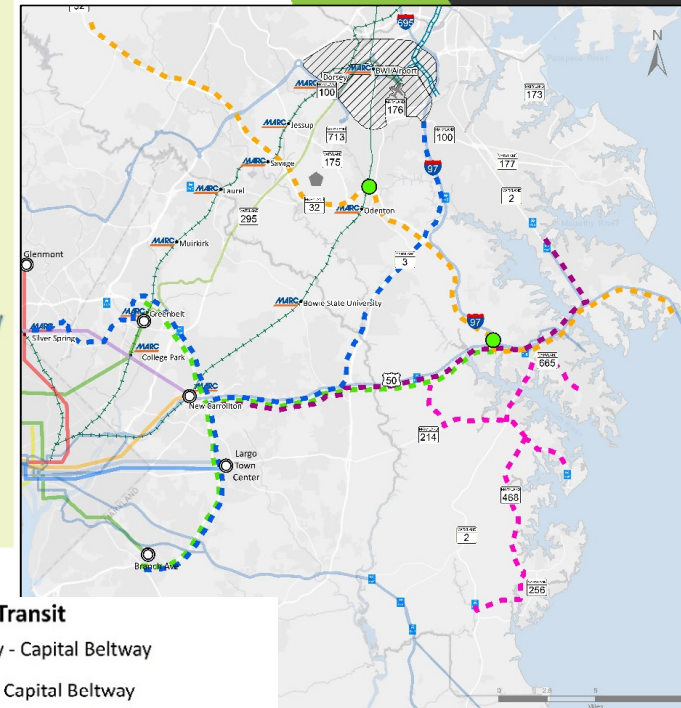


Summary of Recommendations

A New Model for Transit Services



- » Significantly expand commuter bus service with routes from northern and central Anne Arundel County to suburbs along Capital Beltway (College Park, Silver Spring, Bethesda, etc.)
- » Restructure most locally-operated routes to be "Deviated Fixed Routes" or "Zone Routes" and add the following services:
 - » Riviera Beach – Pasadena – UM Baltimore Washington Medical Center
 - » North Glen Burnie Loop – Cromwell Light RailLink Station
 - » Cromwell Shopping Center – Veterans Highway – Old Mill Road - UM Baltimore Washington Medical Center
- » Work with MDOT MAA to explore and expand, if appropriate, the role of the BWI Shuttle to be a higher-frequency "last mile" transit service to within the BWI Business District. This could be a more cost-effective solution to last mile needs than can be provided by MDOT MTA.
- » Construct the Annapolis/Parole Transit Center and identify other opportunities for improved customer connections: Glen Burnie/Pasadena near Marley Station Mall, at Fort Meade, in Maryland City/Laurel, and Crofton/Waugh Chapel/Bowie.



Future Planning Considerations

»» *Land Use/Transportation Transition Areas:* General Development Plan should not get ahead of road network ability to support further density.

- Transit Oriented Development
- Flood Prone Areas

»» *Safety:* Adopt a *Vision Zero* plan and develop multi-agency buy-in.

- Design Manual
- Complete Streets

»» *Circulation and Access Management:* very strong development review tools are needed, sidewalk and road connectivity requirements should be strengthened and enforced, MDOT SHA support and close coordination needed.

»» *Inter-county coordination:* Calvert County (MD 2/4), Prince George's County (MD 214), Howard County (MD 175)

»» *Capital coordination:* Annapolis and County need a strategy for Parole area.

»» *Community Investment Coordination:* What else is happening in the areas where DPW moves forward with projects?

»» *MWCOG:* Anne Arundel County needs a seat at the table (in some form).

»» *Data Collection & Analysis Capacities:* County lacks traffic operations data on County roadways. A routine traffic count process should be established.

»» *Small Area Plans* present the best opportunity to move the needle on some metrics.



MOVE ANNE ARUNDEL!
COUNTY TRANSPORTATION
MASTER PLAN

