

*The Commission to Study Southern
Maryland Transportation Needs*



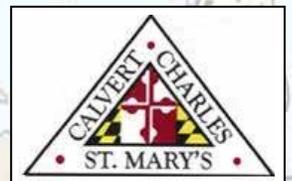
**Southern Maryland
Transportation Needs Assessment**

Final Report

In Partnership with:

**The Tri-County Council for Southern Maryland
The Maryland Department of Transportation (MDOT)**

**Prepared by:
Cambridge Systematics, Inc.
with:
A.G. Samuel Group, Inc.
Sabra, Wang & Associates, Inc.**



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June 25, 2008

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Executive Summary

The *Southern Maryland Transportation Needs Assessment* has been developed in support of Maryland Senate Bill 281 which established a 21-member Commission to study transportation needs in Southern Maryland. The *Transportation Needs Assessment* will enable the Tri-County Council to update the *Southern Maryland Regional Strategy – An Action Plan for Transportation* completed in 1998. Substantial growth in the region and changing commuting patterns have created the need to update the 1998 effort.

ES.1 SOUTHERN MARYLAND CONTEXT

Southern Maryland, located southeast of Washington, D.C., is surrounded on three sides by the Chesapeake Bay and the Potomac River, and divided by the Patuxent River. The region is linked to the rest of Maryland and the Washington, D.C. metropolitan area through Prince George's and Anne Arundel Counties to the north and to Virginia to the south via a bridge across the Potomac River. Southern Maryland's unique geographic location limits its connections to the rest of Maryland and to the United States transportation network. Three major highways connect the region to the north, MD 210, U.S. 301/MD 5, and MD 4, but only U.S. 301 connects the region to King George County, Virginia to the south. Two bridges across the Patuxent River link Calvert County with Charles and St. Mary's Counties. This unique geography influences regional development patterns which in turn impacts the region's demographic and economic trends.

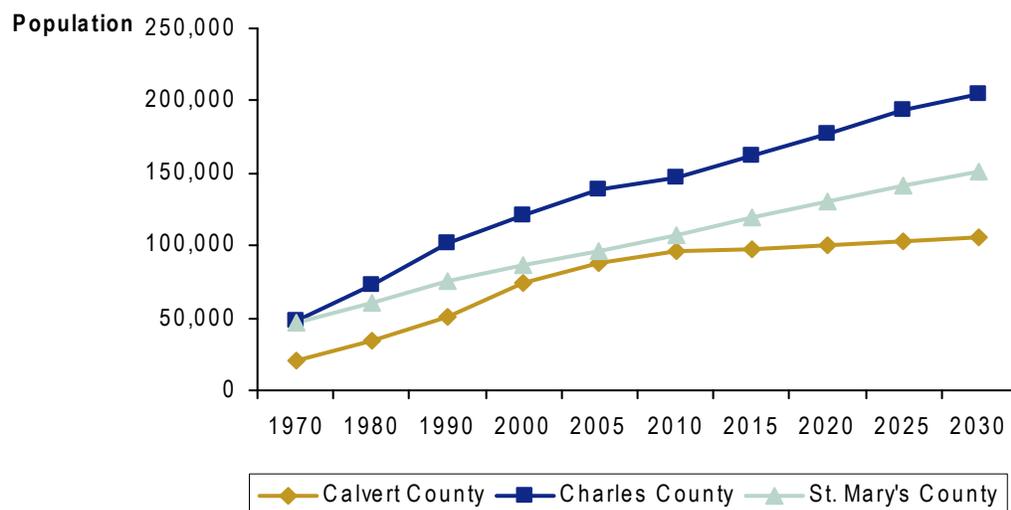
Population

Southern Maryland's population grew from 167,000 in 1980 to 322,000 in 2005, an increase of 2.6 percent per year. This is over twice as fast as the annual rate that Maryland's population grew during the same period (1.1 percent) and makes Southern Maryland the fastest growing region in the State. More than 40 percent of the overall population growth in Southern Maryland occurred in Charles County (65,000), while 34 percent (53,000) occurred in Calvert County and 23 percent (36,000) in St. Mary's County, respectively.

Figure ES.1 displays the historic and projected population growth of Charles, Calvert, and St. Mary's counties. Every household demands goods and services and generates trips for work, school, shopping, and other purposes. These population forecasts, generated prior to the recent sharp increases in fuel and other commodity prices, indicate that Southern Maryland will experience increased demand on its transportation infrastructure as well as increased mobility and accessibility needs over the next 25 years. In the event of continued increases in fuel and other transportation-related costs, it will be necessary to

revisit these forecasts in the next couple of years. In any case infrastructure renewal, system preservation, and maintenance needs will continue.

Figure ES.1 Historic and Projected Population Change in Southern Maryland Counties



Source: Maryland Department of Planning, Planning Data Services.

Economy

Maryland’s economy has grown consistently over recent years. According to the United States Bureau of Economic Analysis, Maryland’s gross state product, a measure of the value of all goods and services produced in the State, grew from \$229 billion in 2004 to \$244 billion in 2005 and \$258 billion in 2006. Maryland’s expanding economy has created employment opportunities for the growing labor force of Southern Maryland (Table ES.1), however, many Southern Maryland residents are employed outside the region. In 2006, over one third of the 167,005 residents of Southern Maryland in the labor force were employed outside the region, with most of those employed in the Washington, D.C. area.

Table ES.1 Labor Force, Employment, and Unemployment in Southern Maryland
2002 to 2006 (in Thousands)

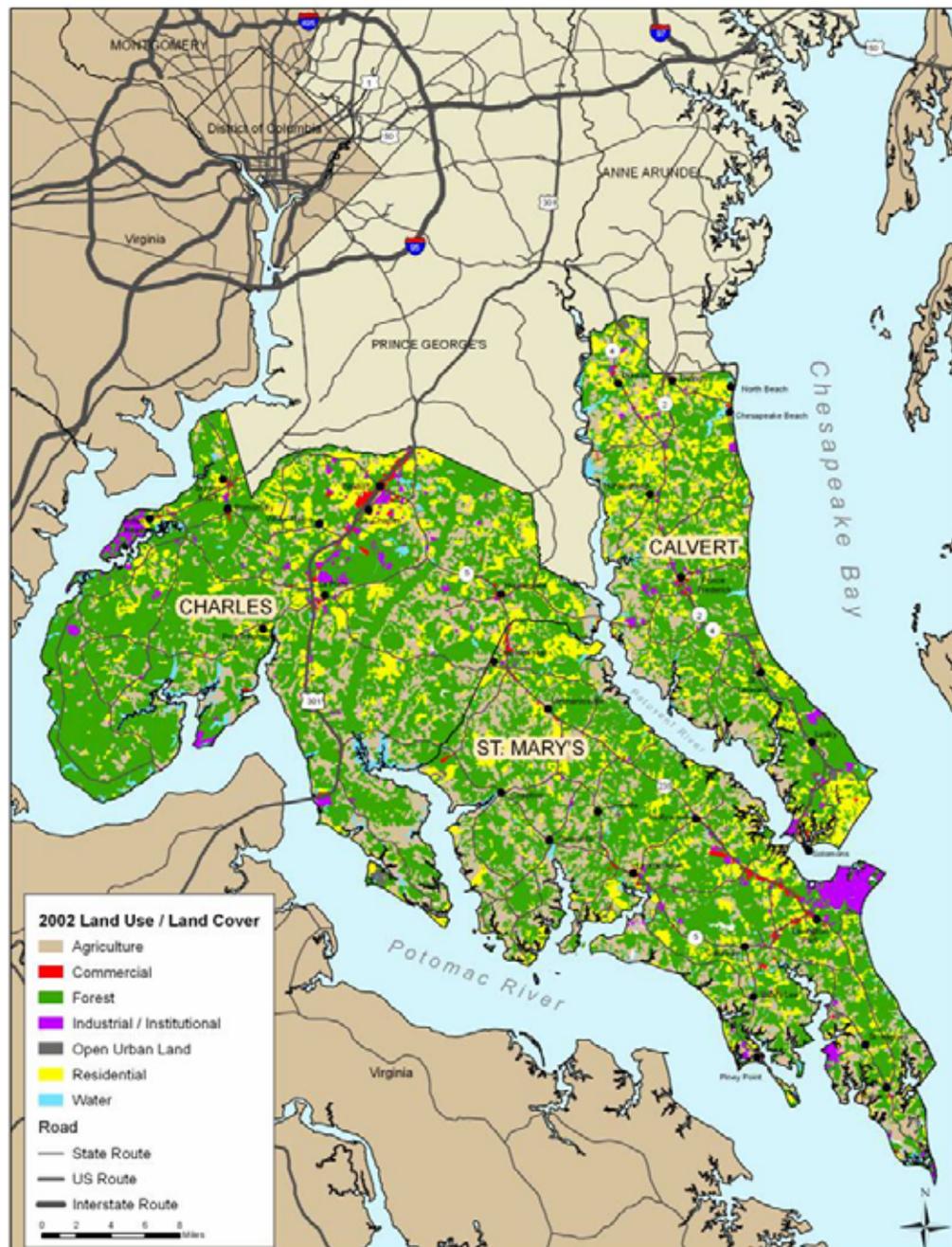
	2002	2003	2004	2005	2006
Labor Force	157.6	162.7	165.5	168.9	172.6
Employment	152.0	157.0	159.8	163.1	167.0
Unemployment	5.6	5.7	5.7	5.9	5.6
Unemployment Rate	3.6 %	3.5 %	3.5 %	3.5 %	3.2%

Source: United States Department of Labor, Bureau of Labor Statistics.

Land Use

Forest and agricultural land uses comprise over 75 percent of the total land cover in Southern Maryland while 16 percent of land cover is used for residential purposes and less than 10 percent is used for other purposes (Figure ES.2).

Figure ES.2 Southern Maryland Land Use



Source: Maryland Department of Planning.

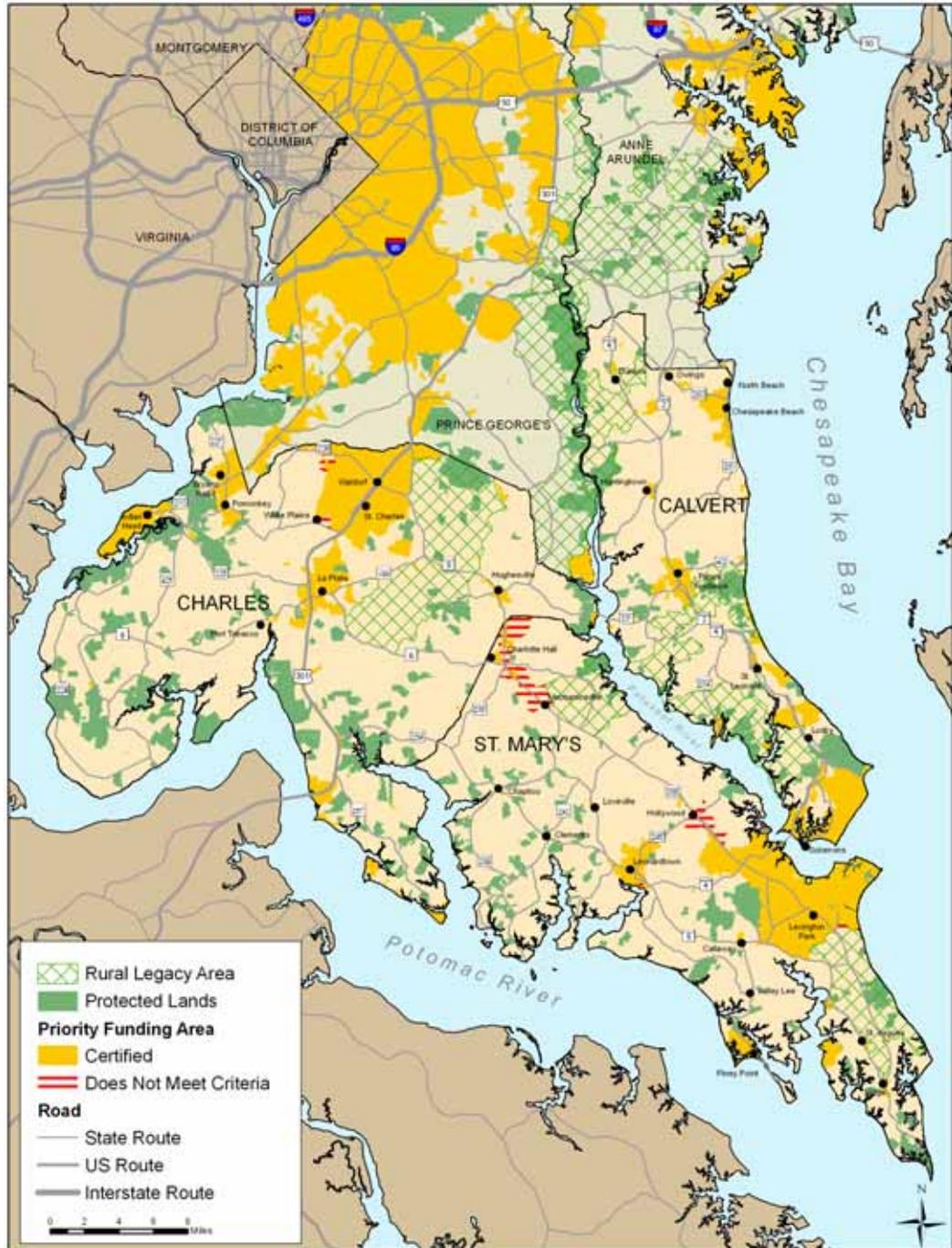
In 1997, the Maryland legislature passed the Priority Funding Areas Act, which directs State spending on projects that support growth and development such as highways, sewer and water construction, and economic development assistance. Priority Funding Areas (PFA) include existing municipalities, as they were defined in 1997, communities inside the Washington Beltway, areas designated as enterprise zones, neighborhood revitalization areas, or heritage areas, and existing industrial land.¹

Counties can designate PFAs to focus development into areas in accordance with comprehensive plan goals.² Conversely, jurisdictions may discourage development from occurring in certain areas to support environmental preservation, maintenance of viable agricultural land uses, or other comprehensive plan goals. Figure ES.3 illustrates Priority Funding Areas as well as protected lands and agricultural districts.

¹ The Priority Funding Areas Act of 1997 is described on MDOT's Department of Planning web site: <http://www.mdp.state.md.us/fundingact.htm>.

² The Maryland Department of Planning must certify County-designated PFAs before State funds can be used in them under this program.

Figure ES.3 Priority Funding Areas and Preservation Areas



Source: Maryland Department of Natural Resources.

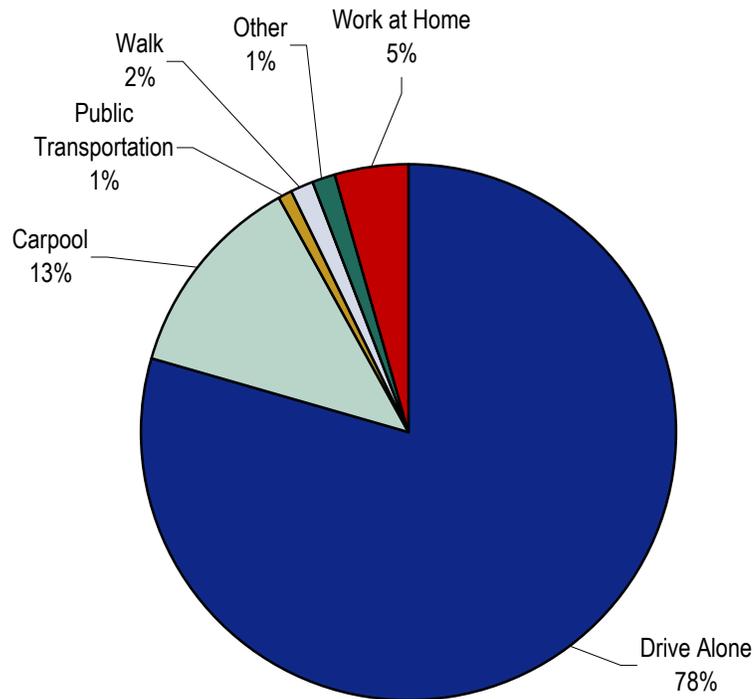
Protected Lands represent Federal-, state-, and county-owned lands, private conservation lands, easements, and agricultural districts.

Priority Funding Areas denoted as “Does Not Meet Criteria” indicate areas where the State and the County disagree on whether or not the PFA criteria are satisfied. Any proposals for projects in these areas will be referred to the Smart Growth and Neighborhood Conservation Coordinating Subcommittee for review and may require action by the Board of Public Works.

Transportation and Travel Trends

Over three quarters of the trips made in Southern Maryland are in personal vehicles (Figure ES.4). Carpooling accounts for 13 percent and public transportation accounts for one percent of work trips. About five percent of people in the region work at home. Walking, biking, or other methods account for approximately three percent of travel.

Figure ES.4 Mode of Travel to Work Southern Maryland
2000



Source: United States Census.

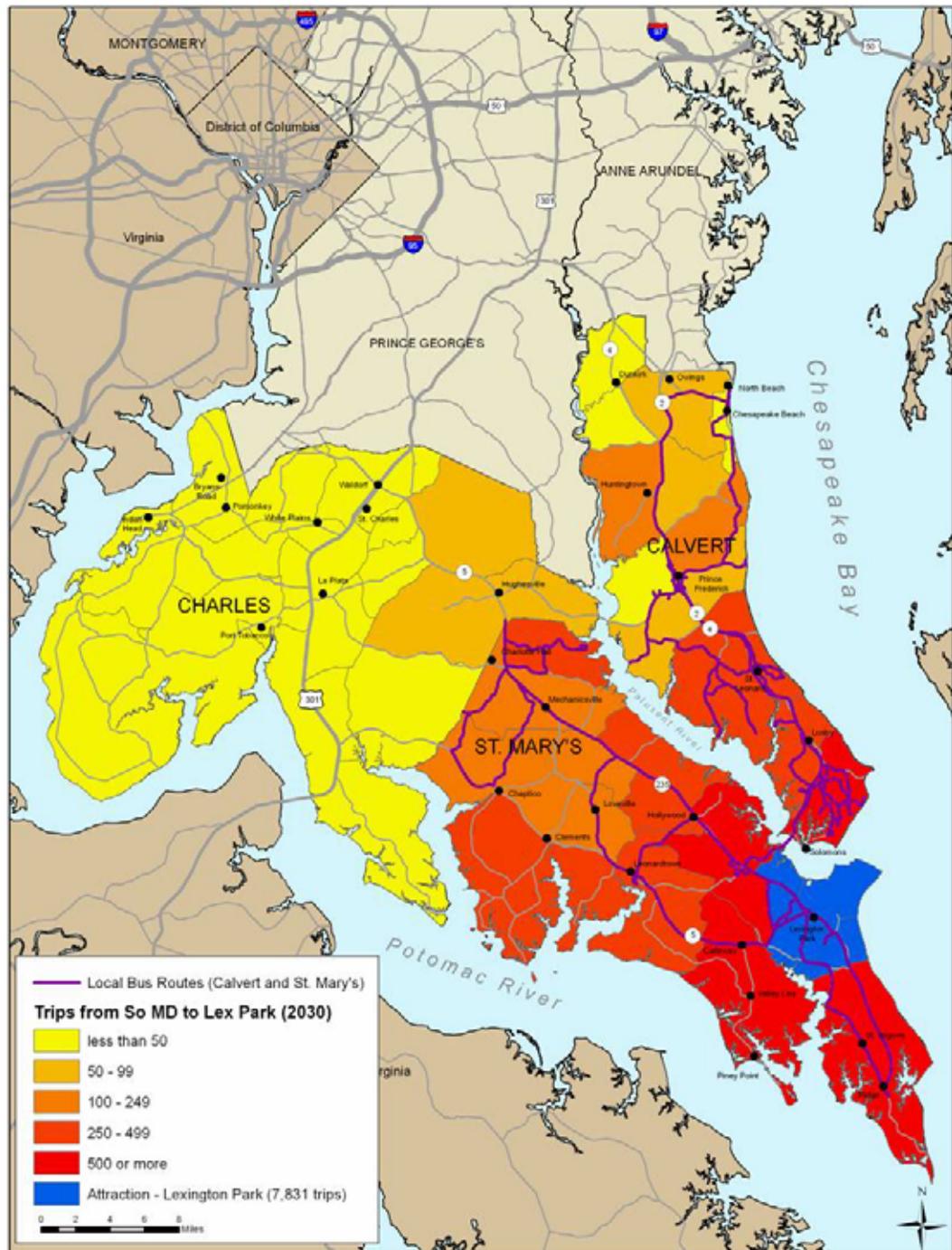
Commuting times in Southern Maryland are among the highest in the nation. In 2000, the average travel time to work in Southern Maryland was just over 35 minutes compared to a Maryland statewide average of 30 minutes and a U.S. average of 25 minutes. A slightly larger proportion of Southern Maryland commuters drive alone and a lower proportion use public transportation than for the nation as a whole. In addition, a somewhat higher percentage of workers in Southern Maryland work at home.

Projected 2030 Commuter Origins and Destinations

The Metropolitan Washington Council of Governments (MWCOC) regional model indicates that home-based work trips are projected to grow by more than 50 percent over the next 22 years. Certain areas show a large increase in transit mode share, such as from Southern Maryland to Downtown Washington, D.C., Arlington County, Montgomery County, and Western Prince George's County. These commute patterns can help identify areas for future commuter bus service.

Figures ES.5 and ES.6 show travel demand (projected and A.M. peak trips) from Southern Maryland to downtown Washington, D.C. and Lexington Park, respectively. These figures clearly indicate the need for improving commuter bus services to the Washington, D.C. area, and illustrate the great potential for improved public transportation services to the Patuxent River Naval Air Station and the Lexington Park area.

Figure ES.6 Trips from Southern Maryland to Lexington Park
2030



Source: Metropolitan Washington Council of Governments.

ES.2 EXISTING TRANSPORTATION SYSTEM CONDITIONS

Highway System

The Southern Maryland highway network is the primary mode of transportation for both personal and freight travel within the State. Southern Maryland has 2,351 miles of roads, of which 1,591 miles are classified as rural and 760 miles are classified as urban. In 2006, there were 2.9 billion annual vehicle miles of travel (VMT) on Southern Maryland roadways. Table ES.2 presents centerline road mileage by functional class.

Table ES.2 Centerline Mileage of Southern Maryland Highways by Functional Classification
2006

Functional Class	County			Total
	Calvert	Charles	St. Mary's	
Urban				
Interstate	0.0	0.0	0.0	0.0
Other Expressway	3.4	0.0	0.8	4.3
Principal Arterial	14.8	31.0	18.2	64.0
Minor Arterial	9.4	28.9	8.7	47.0
Collector	28.8	33.7	17.2	79.8
Local	183.9	257.0	123.9	564.9
<i>Subtotal Urban</i>	<i>240.3</i>	<i>350.7</i>	<i>168.9</i>	<i>759.8</i>
Rural				
Interstate	0.0	0.0	0.0	0.0
Principal Arterial	31.9	32.2	16.0	80.1
Minor Arterial	3.6	25.7	50.1	79.5
Collector	68.1	141.2	138.5	348.3
Local	246.8	404.2	432.7	1,083.6
<i>Subtotal Rural</i>	<i>350.3</i>	<i>603.8</i>	<i>637.3</i>	<i>1,591.5</i>
Total	590.7	954.4	806.2	2,351.3

Source: Maryland State Highway Administration.

There are significant differences in traffic volumes carried on the various road systems. The expressway and principal arterial systems comprise just over 6 percent of the total roadway mileage, but carry over 53 percent of all vehicle traffic. By contrast, the region's collectors³ and local roads comprise about 88 percent of total miles but carry only 31 percent of vehicle traffic. Despite their

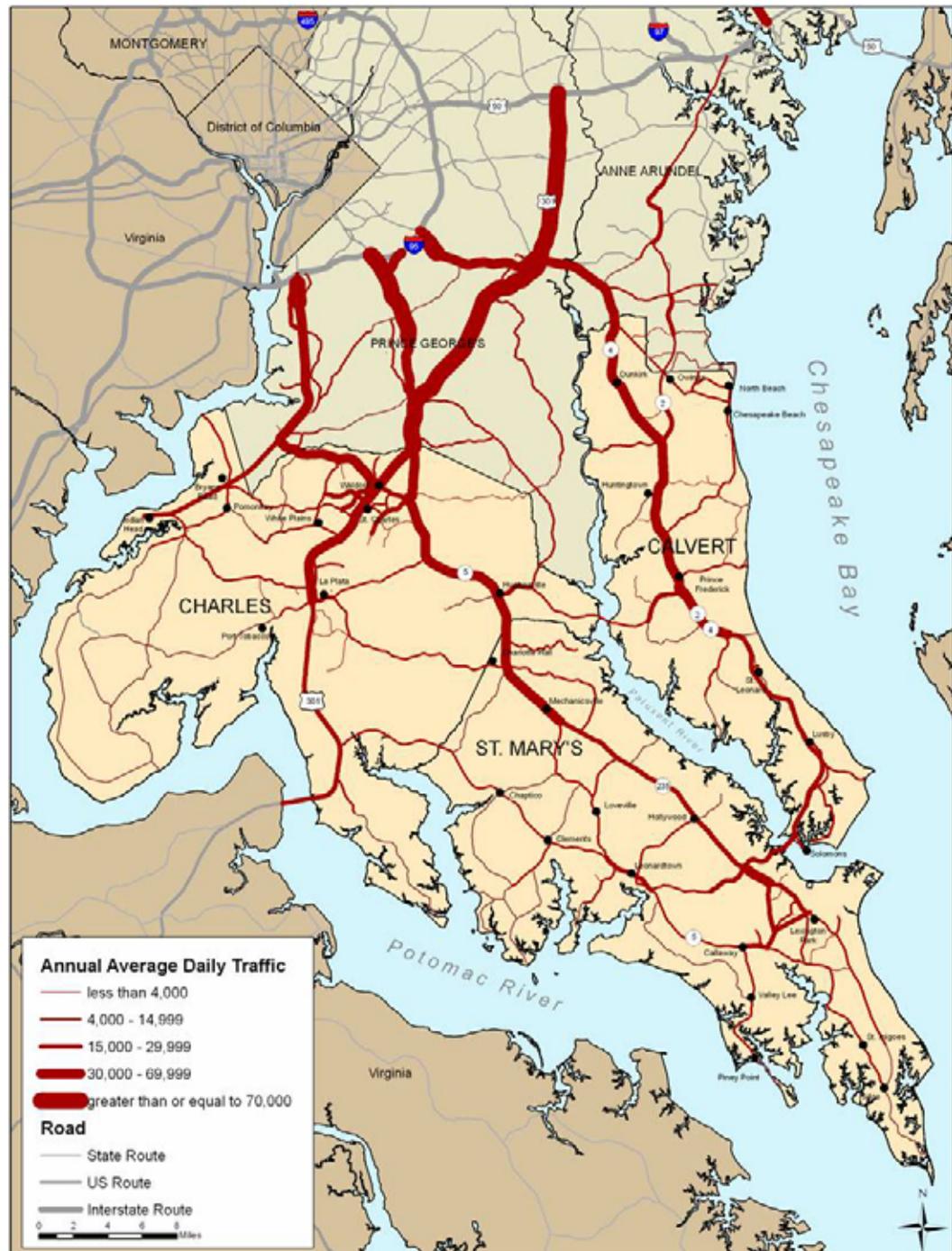
³ The Federal Functional Classification System has two categories of rural collectors – major and minor. They have been combined in the table.

lower usage, lower volume roadways are important for a functioning transportation system and cannot be neglected.

Figure ES.7 shows traffic flows along State-maintained routes. The routes with Average Annual Daily Traffic (AADT) volumes of more than 30,000 vehicles per day include the following:

- U.S. 301 from La Plata to the Charles County/Prince George's County Line;
- MD 5 from south of Mechanicsville to the intersection with U.S. 301 north of Waldorf;
- MD 228 from U.S. 301 in Waldorf to MD 210 in Prince George's County;
- MD 2/4 from MD 264 to Sunderland and MD 4 from Sunderland to the Anne Arundel County line; and
- MD 235 from MD 4 to MD 237.

Figure ES.7 Average Annual Daily Traffic (AADT)
2006



Source: State Highway Administration.

Public Transportation System

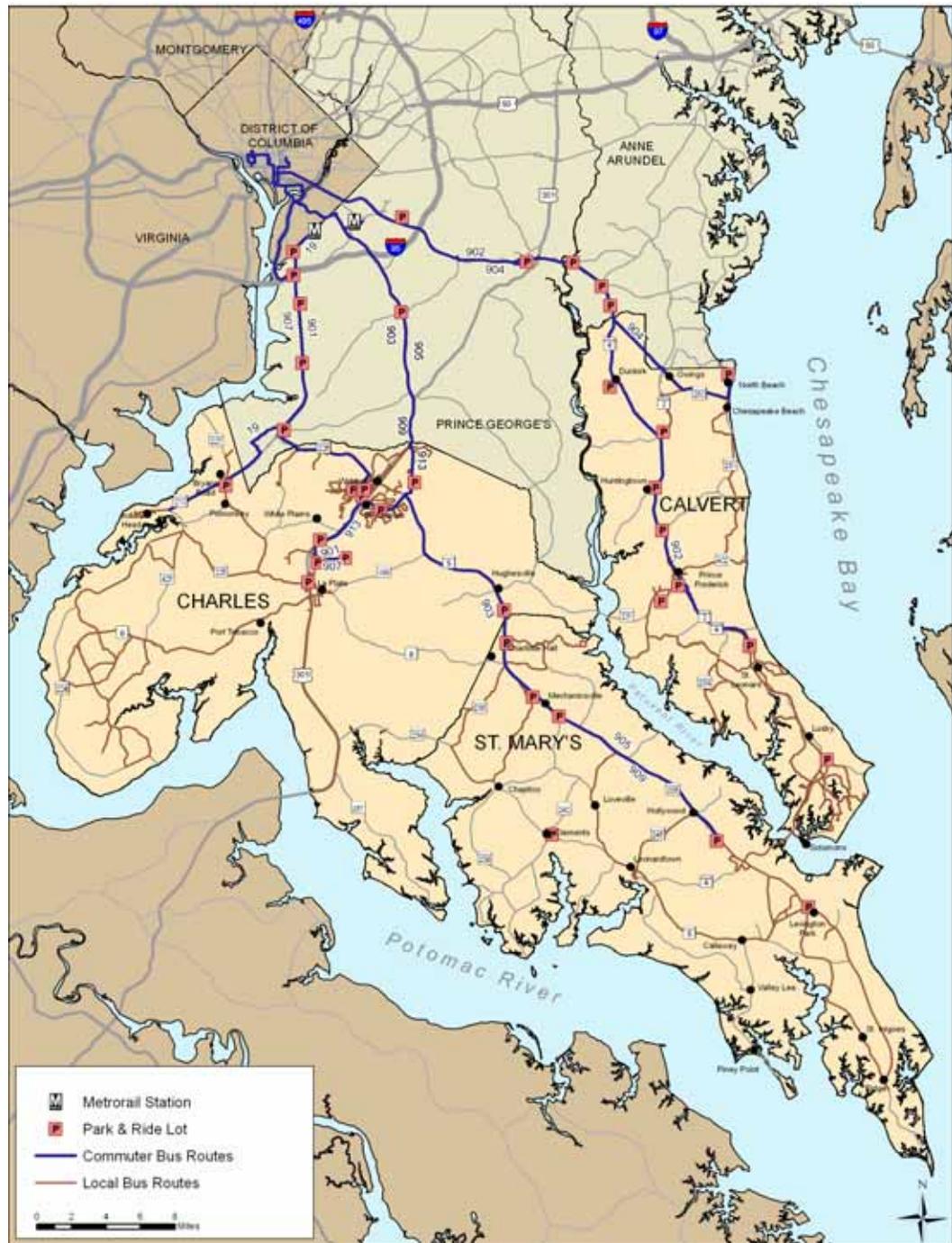
Long-distance commuting to the Washington, D.C. metropolitan area coupled with increasing congestion have increased demand for public transportation in Southern Maryland. There are five providers of transit service in the region (Table ES.3.)

Table ES.3 Transit Providers in Southern Maryland

Provider	Routes	Service Classification	Destinations
MTA	8	Commuter	D.C., Metro in Prince George's County
WMATA	1	Commuter	Metro in Prince George's County
Charles VanGO	10	Fixed/Deviated Fixed Routes, Suburban/Rural	Within Charles County, St. Mary's County
Calvert County Transit	6	Fixed/Deviated Fixed Routes, Suburban/Rural	Within Calvert County
St. Mary's SMS	9	Fixed/Deviated Fixed Routes, Suburban/Rural	Within St. Mary's

The Maryland Transit Administration (MTA) and the Washington Metropolitan Area Transit Authority (WMATA) provide fixed route commuter bus service to the region via nine routes that serve park-and-ride lots and other major attractors (Figure ES.8).

Figure ES.8 MTA and WMATA Bus Routes



Source: Maryland Transit Administration; Maryland State Highway Administration.

Each county in Southern Maryland provides a combination of fixed and deviated fixed-route services. Deviated fixed-route services typically pick up passengers along a fixed route, but allow drivers to deviate slightly to drop off riders.

ES.3 SOUTHERN MARYLAND GOALS AND OBJECTIVES

The mission of the Southern Maryland Transportation Needs Assessment is to support the development of a *multimodal transportation system* in Southern Maryland that enhances the *quality of life* for residents of the region through integrated transportation and land use planning, improved economic opportunities, and stewardship of the natural environment.

Five goals have been identified to support the mission:

1. **Mobility and Accessibility** – Support the continued development and economic growth of the region by providing multimodal transportation options to improve the mobility and accessibility of people and facilitate the movement of goods within the region.
2. **Safety and Security** – Provide a transportation system that minimizes loss of life, health, and property and allows for a response to natural or manmade emergencies.
3. **Efficiency** – Ensure the best use of existing and future transportation networks, resources, and infrastructure.
4. **Environmental Stewardship** – Ensure that transportation investments are planned and implemented in a manner that is sensitive to the natural, cultural, and social environment.
5. **Integrated Planning** – Ensure that transportation investments are consistent with land use, environmental, economic development planning, and decisions of local and neighboring jurisdictions.

The complete set of goals, goal definitions and objectives, are presented in Table ES.4. and are used as a framework for evaluating transportation projects.

Table ES.4 Southern Maryland Transportation Needs Assessment Goals and Objectives

Goal	Definition	Objectives
1. Mobility and Accessibility	Support the continued development and economic growth of the region by providing multimodal transportation options to improve the mobility and accessibility of people and facilitate the movement of goods within the region.	<ul style="list-style-type: none"> • Increase transportation choices available for commuting from and traveling within Southern Maryland. • Maintain and enhance levels of circulation (e.g., reduced congestion) on highways, arterials, and major collectors. • Maintain and enhance levels of service on transit. • Incorporate pedestrian and bicycle improvements into roadway improvement projects. • Improve access to and from activity centers for all modes and populations. • Improve connections between modes.
2. Safety and Security	Provide a transportation system that minimizes loss of life, health, and property and allows for a response to natural or manmade emergencies.	<ul style="list-style-type: none"> • Reduce the rate of crashes, fatalities, and injuries for motor vehicles, bicycles, and pedestrians. • Develop safety improvements for the region that are consistent with the Maryland Strategic Highway Safety Plan and County Traffic Safety Programs. • Support transportation improvements and programs that enhance the transportation system’s capability to plan for and respond to natural and manmade security and emergency challenges. • Ensure that safety needs are considered in mobility improvements.
3. Efficiency	Ensure the best use of existing and future transportation networks, resources, and infrastructure.	<ul style="list-style-type: none"> • Increase person movement capacity of highway and transit modes. • Preserve and maintain critical existing infrastructure for maximum system performance. • Protect highway functional capacity by implementing access control as appropriate. • Improve the availability and quality of real-time information to increase the ease of use and attractiveness of both highways and transit. • Develop cost-effective transportation improvements that maximize the use of available resources.
4. Environmental and Cultural Stewardship	Ensure that transportation investments are planned and implemented in a manner that is sensitive to the natural, cultural, and social environment.	<ul style="list-style-type: none"> • Maintain air quality in the region by providing alternatives to single-occupant vehicle travel and the use of clean air technology. • Minimize the impact of transportation investments on significant natural resource areas, watersheds, and habitats. • Identify and preserve transportation infrastructure with historic, cultural, social, and/or recreational value. • Minimize the contribution of transportation investments to air, water, and noise pollution in Southern Maryland.
5. Integrated Planning	Ensure that transportation investments are consistent with environmental, economic development planning, and decisions of local and neighboring jurisdictions.	<ul style="list-style-type: none"> • Develop transportation investments that serve established Maryland communities and support designated growth areas (Priority Funding Areas). • Coordinate with existing and ongoing land use, environmental and economic development planning efforts. • Promote and support dynamic regional and intermodal activity centers. • Plan and develop transportation improvements cooperatively with neighboring jurisdictions and other relevant agencies.

ES.4 NEEDS ANALYSIS

A primary purpose of this effort is to provide a comprehensive understanding of transportation needs within Southern Maryland. The needs analysis has been organized by transportation mode around a set of policies and strategies that can improve the functioning of all transportation modes in the region. Where possible, specific transportation projects that can help address growing traffic and congestion in Southern Maryland have been identified. Other policies and strategies can be used to improve transportation without physical roadway construction.

Highway and Bridge

The toolbox of highway-related policies and strategies recommended for southern Maryland includes:

- Access management;
- Operational improvements;
- Travel demand management;
- Ridesharing, including carpooling and vanpooling;
- Safety strategies; and
- Strategic capacity expansion.

These strategies can be related, integrated, and combined with other non-highway strategies.

Access Management

The roadway network serves various functions, from carrying through traffic at high speeds to handling slower moving local traffic. Access management refers broadly to the systematic control of access to roadways and varies according to the roadway's function. Access control is the highest form of access management and refers to the prohibition of direct private access to an arterial. Access management employs the following general strategies:

- Maintaining proper spacing between signals and interchanges;
- Managing driveway location, spacing, and design;
- Adding exclusive turning lanes, either at intersections and driveways, and utilizing continuous left or right-turn lanes where appropriate;
- Installing median treatments, including raised medians, to prevent movements across a roadway;
- Constructing service or frontage roads and providing connectivity between parcels such that a local roadway network can be developed and maintained

that serves local trips between development pods and neighboring, compatible land uses; and

- Close coordination between State and local governments on land use and transportation planning decisions, plans, programs, and development review.

Highway Operations

Maryland has a set of strategies designed to maximize the efficiency of the transportation system using operational and technological strategies. The Coordinated Highways Action Response Team (CHART) is Maryland's integration of traveler information, incident management, and ITS technology. It includes five elements:

- **Traffic and Roadway Monitoring** – Real time data collection;
- **Incident Management** – Responding to incidents quickly and efficiently;
- **Traveler Information** – Provide real time information to travelers;
- **Traffic Management** – Strategies to control vehicular movements, increase the efficiency of the highway system, and encourage alternate modes of travel; and
- **System Integration and Communications** – Interagency and intermodal coordination and data sharing.

CHART recently completed a Rural Management and Operations/Intelligent Transportation Systems (M&O/ITS) Strategic Deployment for the State of Maryland. The plan identifies several strategies for Southern Maryland that should be implemented as soon as practical, including:

- Creating a new CHART traffic operation center (TOC) in Southern Maryland;
- Deploying dynamic message signs (DMS), closed circuit television cameras, roadway weather information systems, and traffic speed detectors at appropriate locations;
- Installing emergency evacuation guide signs; and
- Expanding CHART's freeway incident traffic management plan into Southern Maryland.

Different types of operational strategies can be used to address recurring and nonrecurring congestion (Table ES.5).

Table ES.5 Types of Congestion with Usual Mitigation Strategy

Type of Congestion	Representative Causes of Delay	Mitigation Strategy
Recurring	Infrastructure capacity shortfalls	Capacity increases
	Interchange bottlenecks	
	Weave and merge friction	
	Non-optimized traffic signal timing ^a	
Nonrecurring	Breakdowns and crashes	Systems operations and management
	Construction work	
	Weather	
	Vehicle Mix	

Source: Maryland CHART Nonconstrained Deployment Plan, 2006.

^a Though non-optimized signal timing will lead to recurring congestion, it is addressed through operations and management, not new capacity.

Some intersection problems can be addressed using operational improvements such as:

- Changing the type of traffic control, such as from stop signs to signals or roundabouts;
- Adjusting signal timing at a single intersection or series of intersections (signal interconnects);
- Adding exclusive turning lanes;
- Grade separation; and
- Removing conflicting movements, such as forbidding left-turn movements.

As a matter of policy, it is recommended that ITS and systems management features be added to the transportation system, particularly as components of roadway reconstruction projects. Sensors and cameras for real-time monitoring of traffic conditions, combined with providing the information to motorists via radio, Internet, and dynamic message signs can help individuals avoid delays and move traffic onto less congested facilities.

Travel Demand Management and Ridesharing

Travel demand management (TDM) strategies are relatively low-cost solutions to reduce vehicular traffic at a regional level. These strategies include or are related to carpools, vanpools, biking, walking, telecommuting, alternative work-hour or workplace programs, and parking management.

Ridesharing is already in practice in Southern Maryland, with the SHA, MTA, and local governments providing ridesharing lots both exclusively for carpooling as well as with transit service (park-and-ride). Ridesharing helps to reduce congestion and VMT while providing more modal options and accessibility. Because rideshare passengers tend to have relatively long commutes, mileage

reductions can be significant. Rideshare programs typically reduce up to 8.3 percent of commute VMT, up to 3.6 percent of total regional VMT, and up to 1.8 percent of regional vehicle trips.

Safety

In 2006 there were 5,124 crashes on Southern Maryland roadways causing 68 fatalities and 2,994 serious injuries. The resulting human and economic consequences are unacceptably high. Reducing crashes, injuries, and deaths is a high priority for the region and for the State as whole, which is indicated not only in statewide priorities via plans such as the Maryland Transportation Plan, but also through county and local plans.

Maryland's Strategic Highway Safety Plan (SHSP) is a working document that provides a framework for reducing highway fatalities and serious injuries on **all** public streets and highways. The SHSP applies the 4E's of highway safety: Enforcement, Education, Engineering, and Emergency Medical Services, across the following emphasis areas:

- Reduce Impaired Driving;
- Improve Information and Decision Support Systems;
- Eliminate Hazardous Locations, including:
 - Keep Vehicles on the Roadway;
 - Improve Safety at Intersections;
 - Create Safer Work Zones; and
 - Make Walking and Crossing Streets Safer.
- Increase Occupant Protection;
- Improve Driver Competency, including:
 - Reduce Distracted Driving;
 - Enhance Safe Driving for Older Drivers;
 - Develop Safe Young Drivers;
 - Improve Motorcycle Safety; and
 - Make Truck and Bus Travel Safer.
- Curb Aggressive Driving; and
- Improve Emergency Response System.

Current SHSP efforts are focused on creating regional implementation plans based on crash data analysis. The Tri-County Council for Southern Maryland is playing a key role in this effort by facilitating cooperation and coordination of the SHSP implementation efforts among Calvert, Charles, and St. Mary's

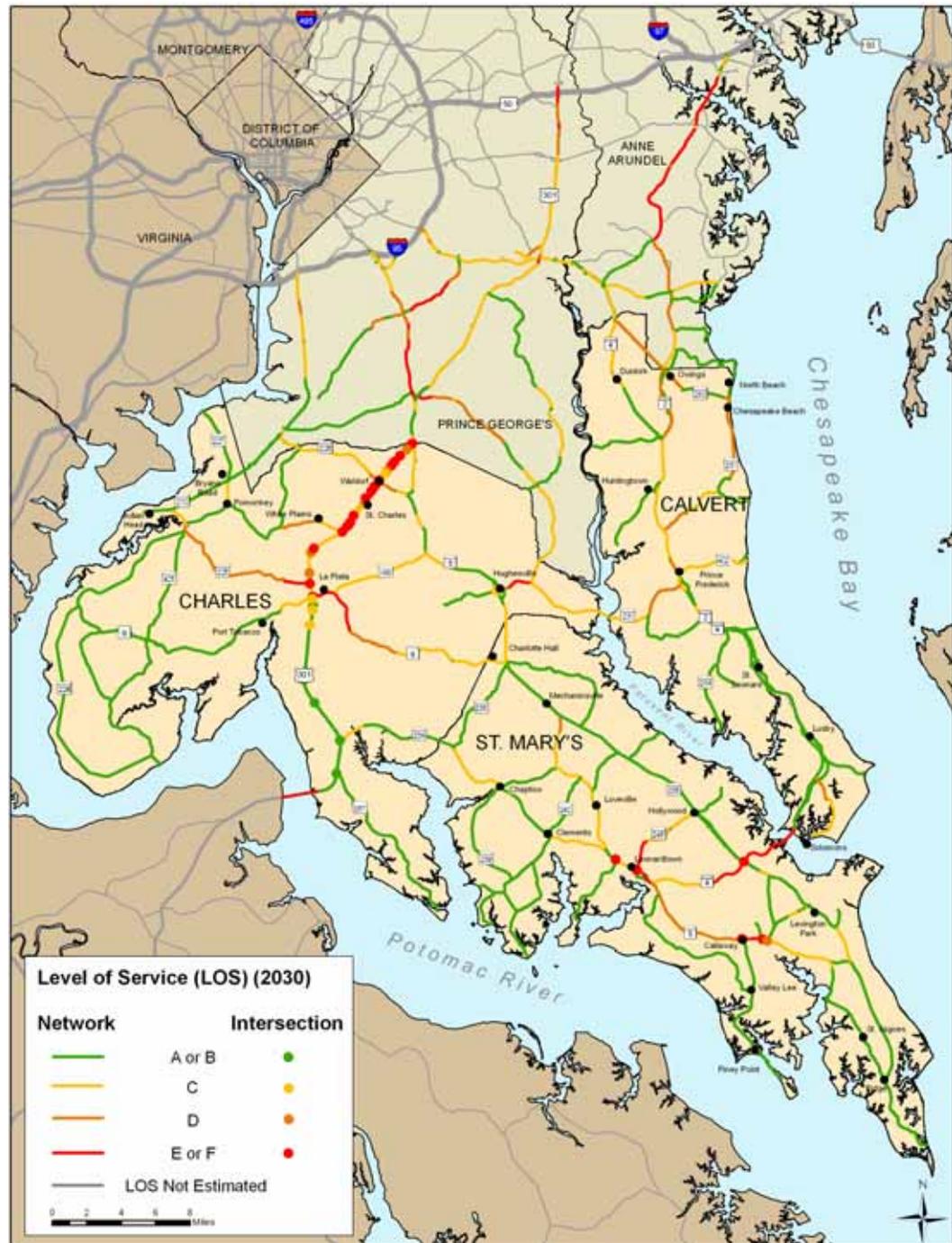
counties and by organizing the political support required to implement the identified behavioral and infrastructure safety priorities for the region.⁴

Strategic Capacity Expansion

Highway level of service (LOS) has been used to identify current and future congestion deficiencies. These deficiencies indicate the potential need for new capacity or other highway improvements and strategies. SHA considers LOS E or F to be an unacceptable level of service for a State highway. Figure ES.9 presents the LOS for mainline highway segments and selected intersections in the study area for 2030. Segments and intersections that have reached LOS E or F are colored in red. The calculations are based on the best available data and methods from the SHA, MWCOG travel demand model, and the Highway Capacity Manual procedures.

⁴ Maryland Safety Summit, November 2007.

Figure ES.9 2030 Level of Service



Source: Cambridge Systematics, Inc. with data from State Highway Administration.

Public Transportation

Several strategies to improve existing transit service in Southern Maryland were identified for the Needs Assessment, including:

- Improve Local Transit Service and Coordination;
- Expand Commuter Bus Service and Park-and-Ride Lots;
- Enhance Transit Information and Dissemination; and
- Implement Feasible High-Capacity Transit Options.

Improve Local Transit Service and Coordination

Among the routes provided by the three agencies operating transit services in Southern Maryland, only two currently operate across county borders: VanGO's Waldorf/Charlotte Hall Connector (Charles to St. Mary's) and STS's Calvert Connection (St. Mary's to Calvert). In recent years these transit agencies have made progress by providing more coordinated service to users, but long trip distances and transfer requirements make it difficult for local transit systems to attract choice riders.

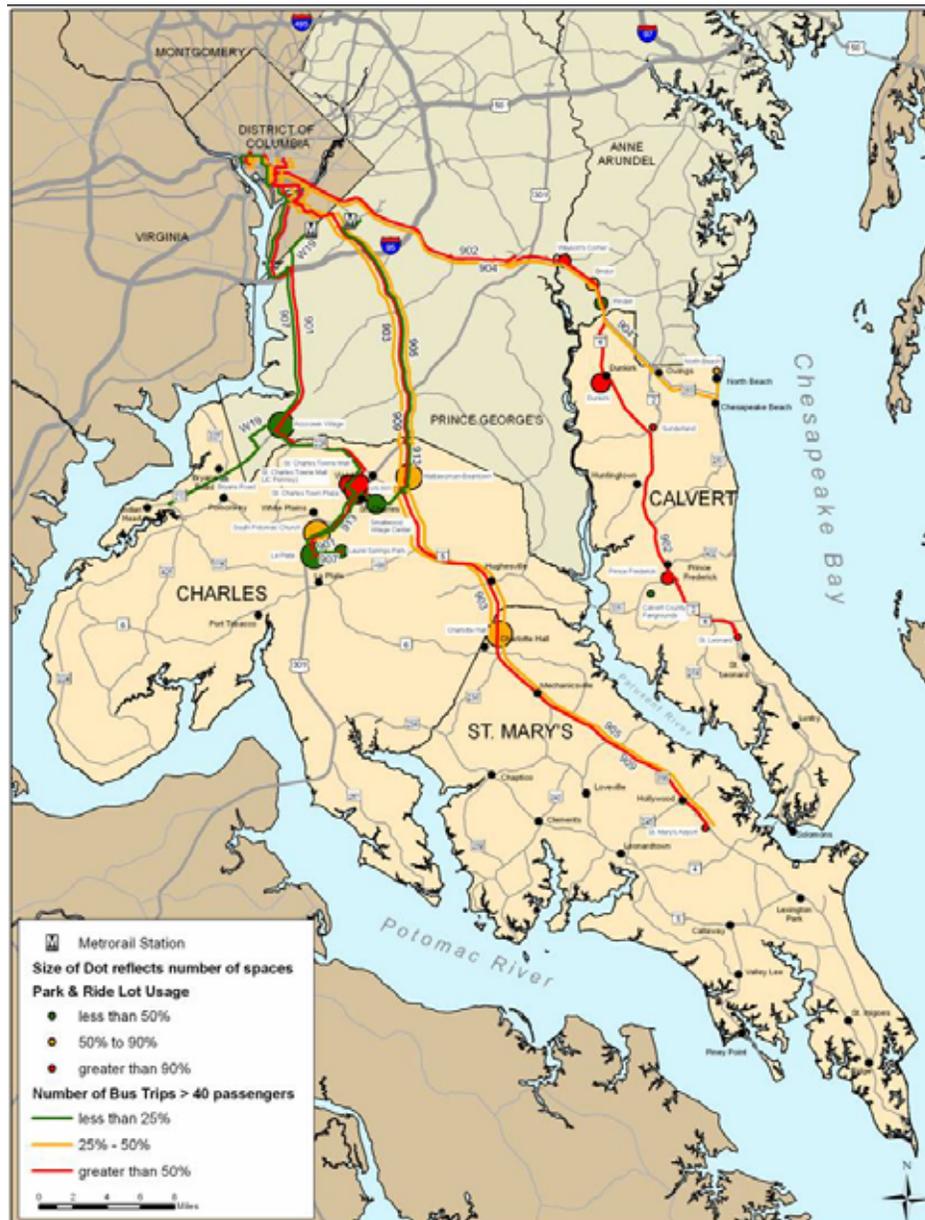
Expanded service options for local transit are likely to become increasingly viable as Southern Maryland continues to grow and as land use patterns become more mixed and dense. Options include:

- Improve Convenience for Intraregional Work Trips;
- Regionalize Local Bus Routes; and
- Coordinate Transit with Social Service Agencies.

Expand Commuter Bus Service and Park-and-Ride Lots

Commuter bus routes and the park-and-ride lots they serve are a key component of Southern Maryland's transportation system. These two components were evaluated by examining the extent of use and crowding on buses and at park-and-ride lots. Figure ES.10 displays route and park-and-ride level of service. Routes and lots that are colored red are used more intensively and are more likely to be crowded.

Figure ES.10 Commuter Bus Park-and-Ride Level of Service



Source: Maryland Transit Administration.

There are several potential methods to improve service and attract more riders to commuter buses, including:

- Coordinating transfers to and from other transit services;
- Implementing operational improvements (e.g., transit signal priority) to reduce delay at signals;

- Utilizing innovative lane designs on shoulders or medians to allow for free movement of buses in congested conditions (e.g., dedicated busway); and
- Addressing parking shortages by introducing feeder services such as shuttles, deviated fixed routes, and subscription bus service in low-density areas.

Based on a detailed analysis of home-based work trips originating in Southern Maryland, three transit corridors will benefit from improved services:

- **Charles County to Prince George's County** – Though current ridership numbers on MTA route 913 between White Plains and the Suitland Federal Center are lower than other Southern Maryland routes, the region's long-term needs will require more transit between Charles and Prince George's counties.
- **Calvert County to Prince George's County** – Over 21 percent of Calvert County-based workers commute to Prince George's County (2000 Census).
- **Enhance Service along MD 5/U.S. 301** – MTA's eight bus routes currently carry just over 7,000 passengers per day, with 4,695 of them in the U.S. 301 Corridor. The five MTA routes that operate in that corridor are projected by 2025 to have, without any major enhancements to the existing service, 6,800 riders.⁵

As the commuter bus system sees increased ridership, additional park-and-ride facilities will be required. Many of the park-and-ride lots in Southern Maryland are well-utilized, and MTA already has plans to provide an additional 3,000 spaces by 2011. Southern Maryland and the MTA will need to regularly review the use of both park-and-ride lots and buses to ensure that sufficient capacity is available to meet rider demand.

Additional recommendations to improve the existing park-and-ride lots in Southern Maryland include:

- Improved amenities at bus stops, such as shelters and improved information (see below);
- Local bus service to park-and-ride facilities and coordination with MTA and WMATA bus route schedules;
- Encourage multiple uses of park-and-ride facilities, including ridesharing or off-hour uses; and
- Encourage sidewalk and bikeway connectivity from park-and-ride lots to surrounding areas.

⁵ MD 5/U.S. 301 Transit Service Staging Plan, October 2004.

Enhance Transit Information and Dissemination Techniques

Providing accurate and easy to understand information about available transit options is important to attracting and maintaining transit ridership. Potential improvements to customer information include:

- Enhance wayfinding signage to park-and-ride facilities;
- Provide clear transit information such as routes served and bus departure times at park-and-ride facilities, on the Internet, and by telephone.
- Create consistent signage for local transit systems.
- Make information user-friendly.

Implement Feasible High-Capacity Transit Options

Given its growing population and traffic congestion, Southern Maryland is exploring the potential to add a high-capacity transit service. Light rail or bus rapid transit (BRT) systems can move more people at greater speeds than current transit options can. Although current ridership on the commuter bus system does not yet justify high-capacity service, planning efforts are required now to ensure that such service can be implemented when justified by ridership.

In October 2004, MTA completed the *MD 5/U.S. 301 Transit Service Staging Plan*, which outlined four alternatives for staged implementation of higher capacity transit in the corridor. The four alternatives are: Enhanced Commuter Bus; BRT (Moderate Level); BRT (High Level); and Light Rail Transit. MTA is currently conducting a transit corridor right-of-way preservation study to identify land needs for a potential high-capacity transitway alignment, stations, and park-and-ride lots along the 18-mile corridor between the Branch Avenue Metrorail Station in Prince George's County and Waldorf in Charles County. The study is scheduled for completion in 2009 and will provide information for Charles and Prince George's counties to use to protect right-of-way for a high-capacity transit system. MTA used a similar approach in the past and is currently conducting a planning study for a transitway in Montgomery and Frederick Counties for which land has been set aside through a similar process.

In addition to the ongoing corridor right-of-way preservation study, the MTA is beginning a study of the feasibility of commuter rail service between Washington, D.C. and St. Mary's County (Patuxent River Naval Air Station).

Bicycle/Pedestrian

The implementation of appropriate policies and strategies can increase bicycle and pedestrian activity in Southern Maryland. Increased bicycling and walking results in significant transportation and public health benefits and, in the case of bicycle tourism in Southern Maryland, provides direct economic benefits as well.

The recommendations in this report are consistent with MDOT's *20-Year Bicycle and Pedestrian Access Master Plan*, with the Tri-County Council for Southern

Maryland's *Southern Maryland Regional Trail and Bikeway System Study*, and with various County comprehensive plans.

Policies and strategies to promote bicycle and pedestrian activity relate to improved facilities, improved connectivity, improved safety, and land use that promotes a better quality of life.

Land Use

Preparing for the expected growth in Southern Maryland through rational, ordered land use planning will minimize required transportation system expenditures and support multimodal transportation systems. Many of the most densely populated areas of Southern Maryland have developed according to auto-oriented land use principles. This style of development has contributed to the high levels of traffic congestion currently experienced by many residents in the region. Future development and redevelopment should be accommodated through Smart Growth principles to promote activity centers and more dense development in designated growth areas, or Priority Funding Areas and to mitigate potential negative environmental impacts. A balance in transportation and land use is essential to maintain a healthy quality of life in Southern Maryland.

The following land use policies and strategies will enable the region to meet the thresholds of population and land use densities required to create highly functioning and progressive transit systems.

- **Regional Growth Management** – Develop land use plans that are integrated with transportation plans.
- **Focus on Development Nodes** – Continue to focus development in Priority Funding Areas (PFA)/Activity Centers/Mixed Use Developments to concentrate trip origins and destinations.
- **Develop Design Guidelines** – Develop transit-supportive design guidelines that promote beneficial suburban design.
- **Transit-Oriented Development (TOD)/Smart Growth** – Focus land use policies to support TOD and Smart Growth, including intensification of development along transit routes.

ES.5 PROJECT EVALUATION

Many of the transportation needs identified can be addressed by implementing policies and strategies or by strategically building improved physical infrastructure or implementing operational improvements. Because the cost of addressing these identified needs are greater than available resources, some means to determine where the limited resources should best be applied is needed. This section outlines the methodology used to identify and evaluate these projects.

Evaluation Methodology

Project Selection

Projects evaluated for the Southern Maryland Transportation Needs Assessment come from these sources:

- MDOT's 2008 CTP – all projects are included;
- 2007 Tri-County Council's priority letter – all projects are included, with the exception of:
 - Intersection signalization projects;
 - Streetscape projects;
 - Sidewalk projects;
 - Projects to add turn lanes to specific intersections; and
 - Other projects that are very local in nature, related to improving vehicle fleets, or similar items;
- SHA Highway Needs Inventory (HNI) – all “Primary” projects and “Secondary” projects that are also listed in each of the county's priority letter are included;
- County projects of regional significance;
- Public input; and
- Any roadway section projected in this Needs Assessment to experience a level of service (LOS) of E or F by the year 2030.

Project Evaluation

Projects within each county are evaluated on how well they address the study's goals and objectives (Table ES.4). The evaluation process was performed collaboratively by staff from MDOT, SHA, MTA, MdTA, and the Tri-County Council for Southern Maryland.

Each project is evaluated as meeting, partially meeting, or minimally addressing each of the study goals. The degree to which a project “meets” a goal is contingent upon whether or not the project affects each objective within the goal, as well as the magnitude of that effect. The magnitude, in turn, is a function both of the project design and severity of the need it is addressing.

Environmental and Cultural Stewardship: The environmental and cultural goal must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area; rather each project must be planned and constructed in a manner that minimizes its social, environmental, and cultural impact.

Table ES.6 presents the set of decision rules used to evaluate the projects.

Table ES.6 Decision Rules for Project Evaluation Analysis

Goal	Decision Rules
Mobility and Accessibility	<ul style="list-style-type: none"> Projects that meet this goal provide significant circulation or mobility benefits to at least one mode – highway, transit, bike/ped; increase transportation choices or improve modal connections; and improve access to major activity centers. Projects on the primary system generally meet this goal. Projects that partially meet this goal provide circulation benefits to one mode or improve access and linkages to activity centers. Projects that minimally address this goal provide limited circulation benefits or only limited access to activity centers or connections between modes.
Safety and Security	<ul style="list-style-type: none"> Projects that meet this goal are significantly likely to reduce crashes or provide for emergency response.
Efficiency	<ul style="list-style-type: none"> Projects meet this goal if they significantly increase the person movement capacity of highways or transit service (persons per mile, etc.) or provide access controls or limits or achieve high scores on each criteria or goal, relative to their cost.
Environmental and Cultural Stewardship	<ul style="list-style-type: none"> The environmental and cultural goal must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area; rather each project must be planned and constructed in a manner that minimizes its environmental and cultural impact.
Integrated Planning	<ul style="list-style-type: none"> Projects that meet this goal serve established communities (Priority Funding Areas); link existing land use with environmental and economic development planning efforts; and are consistent with comprehensive plans.

To see evaluations for the projects, please see the tables in Section 5.0 in the main document.

ES.6 FUNDING

Southern Maryland Transportation Funding Needs

Between \$6.0 and \$7.3 billion in transportation system needs have been identified through the Southern Maryland Transportation Needs Assessment. Of this total, between \$2.1 and \$2.4 billion has been identified as the top regional priorities, and another \$3.3 to \$4.1 billion has been identified as county projects of regional importance.

Table ES.7 Total Funding Needs in Southern Maryland

Level of Need Established	Low	High
Top Regional Priorities	\$2,140	\$2,430
County Projects of Regional Importance	\$3,282	\$4,136
Other Important Projects	\$602	\$687
Total	\$6,024	\$7,254

The \$2.1 to \$2.4 billion does not include funding for the MD 5/U.S. 301 high-capacity transit alignment currently under study. The capital costs for the proposed high-capacity transit service are likely to vary substantially, depending on the type of service developed (bus rapid transit or light rail) and the number of significant structures (bridges, overhead structures, tunnels, etc.) that are required for the proposed alternative. Some portion of the total cost may be available through the Federal New Starts program, depending on the level of benefits that are expected.

Table ES.8 presents rough ranges of costs for a typical service that requires few major structures. Bus rapid transit costs depend primarily on the extent to which the service will require an entirely separate right-of-way or will operate at times in mixed traffic. Costs for either system type will depend on the number of stations developed. These costs are for informational purposes only – detailed cost estimates will be developed as part of the Southern Maryland Transit Corridor Preservation Study.

Table ES.8 Typical Cost Ranges for BRT and Light Rail Transit Projects

Service Type	Cost per Mile (Millions)		Capital Cost for 24-Mile Alignment (Millions)		Annual Operating Costs (Millions)
	Low	High	Low	High	
Bus Rapid Transit	\$5	\$15	\$120	\$360	\$27-\$29
Light Rail Transit	\$30	\$50	\$720	\$1,200	

Source: Cambridge Systematics analysis of existing new starts-funded bus rapid transit and light rail projects completed within the last five years. Costs do not include preliminary engineering or right-of-way costs.

Funding Gap

The Maryland DOT has estimated that Southern Maryland can be expected to receive between \$640 and \$770 million between 2012 and 2030 in 2008 dollars (the year of project cost estimates). This amounts to roughly 30 percent of the top regional priority needs identified in the Needs Assessment and about 10 percent of the total need, again excluding the cost of the proposed high capacity transit alignment.

Most of the top regional priority projects identified by this Needs Assessment are large projects (a new span of the Thomas Johnson Memorial Bridge and a bypass around the Waldorf area) that will be challenging to fund, given the current resources available to the region and the State.

ES.7 RECOMMENDATIONS

The State of Maryland has an existing process for establishing local priorities through county and regional priority letters and public meetings with political

leaders in each county and region, known as the Secretary's Annual Capital Program Tour. The three counties of Southern Maryland have been working together for many years to develop joint priorities for the region and submit a Tri-County Council's priority letter each year as part of the capital programming process.

The recommendations presented here are not intended to supersede the existing process within Maryland for establishing recommendations and priorities. The Needs Assessment does lend analytic support to the existing set of priorities outlined in the Tri-County Council for Southern Maryland's priority letter, and the specific support for these recommendations are noted throughout this section.

In addition to the projects identified, these recommendations also list strategies and policies that can and should be implemented to support the development of the transportation system in Southern Maryland. These policies and strategies represent best practices in transportation system development that are appropriate for Southern Maryland and help ensure that future capital investments will provided the expected benefits.

Land Use Policies and Strategies

Preparing for the expected growth in Southern Maryland through rational, ordered land use planning will minimize required transportation system expenditures and support multimodal transportation systems. Many of the most densely populated areas of Southern Maryland have developed according to auto-oriented land use principles. This style of development has contributed to the high levels of traffic congestion currently experienced by many residents in the region. **It is strongly recommended that future development and redevelopment be accommodated through Smart Growth principles to promote activity centers and more dense development in designated growth areas, or Priority Funding Areas and to mitigate potential negative environmental impacts. This should be accomplished using transit-friendly land use strategies to allow for transit services to be expanded and improved in step with this new development and allow for transportation corridors, including highways, to be maintained in a safe and efficient manner. A balance in transportation and land use is essential to maintain a healthy quality of life in Southern Maryland. This includes key elements such as multimodal transportation planning, integrated planning, promoting transit and non-motorized transportation uses (hiker/biker trails), ridesharing, and access management.**

There are four fundamental land use criteria that must be in place to enable a successful transit program.⁶ These are:

⁶ Guidelines For Transit-Sensitive Suburban Land Use Design, by Edward Beimborn, Harvey Rabinowitz, and Peter Gugliotta, The Center for Urban Transportation Studies, The University of Wisconsin Milwaukee.

1. **Population Size** – Are the number of people who live and work along the transit route sufficient for transit service?
2. **Density** – Is the population sufficiently concentrated to provide a market for transit services?
3. **Concentrated Locations** – Are the locations of land uses concentrated near potential transit stops?
4. **Mixed Use** – Are there a mix of land uses to minimize travel to frequently used places?

The following **land use policies and strategies, if implemented, will enable the region to meet the thresholds of population and land use densities required to create highly functioning and progressive transit systems.**

Regional Growth Management

Regional growth management efforts seek to influence urban form at a regional level by using a regional agency to support local planning efforts. The recommendations for implementing regional growth management include:

- **Develop a Regional Growth Strategy Led by the Tri-County Council for Southern Maryland.** Currently, each county has their own comprehensive plan. Though these are critical to ensuring that development occurs in accordance with each county's specifications, Southern Maryland could develop a land use and growth vision to be used as an overall guide. This vision would help ensure the use of a common set of principles for all land use planning within the region and an understanding of the region's development capacity.
- **Continue to develop and implement access management strategies.** Each of the counties of Southern Maryland has access management policies in place. These will need to continue to be developed as part of the comprehensive planning process, corridor planning, and review of new developments. Given the growth expected in Southern Maryland, it is especially important that new developments provide an effective local network so that the State highway system can effectively provide for interregional and through trips.

Focus on Development Nodes

Development nodes are areas of focused development, such as population concentrations, major employment centers, and commercial districts.

- **Focus Majority of Development in Activity Centers/Town Centers.** Land use patterns are one of the largest influences on trip-making. Concentrating new development can positively impact intraregional travel and enhance the viability of alternative modes of transportation.
- **Ensure a Mix of Uses within each Node.** Transit, walking, and biking to and within an activity center is easier when people have access to multiple types of development. The concentration of various types of activities also improves transit viability.

Develop Design Guidelines

Design guidelines focus at the site level, facilitate pedestrian access to transit, and allow for efficient transit operations.

- **Focus on transit when conducting development and site plan reviews.** As the counties conduct development reviews, they should include criteria to consider transit accommodation, from both the customer and operator perspectives.
- **Focus on transit customer needs.** Accessibility of transit service should be considered when reviewing plans for new developments or changes to existing developments.
- **Focus on transit operator needs.** Efficient transit operations require maneuverability. Appropriate design ensures that transit vehicles are accommodated and can quickly enter and leave bus stops and transit stations.

Transit-Oriented Development/Smart Growth

Transit-Oriented Development (TOD) initiatives generally operate at the *community* level, and aim to create neighborhoods that are compact, mixed-use, pedestrian-friendly, and near transit stops. TOD and smart growth recommendations include forming partnerships between land use planners and transit operators and developing planning studies in priority areas.

- **Form partnerships between land use planners and transit operators.** Land use planners should work closely with local bus operators, MTA, and WMATA to ensure that land use plans are consistent with transit plans.
- **Develop planning studies in priority areas.**⁷ Conceptual plans should be prepared for priority areas that focus on transit-oriented development and smart growth principles.

Transit

Policies and Strategies

Primary transit strategies and policies for Southern Maryland to pursue have been identified in the areas of park-and-ride lots, commuter bus service, local transit coordination, transit information and dissemination, and high-capacity transit service. **To fully realize the potential of transit to improve the quality of life in Southern Maryland, the land use strategies outlined in the previous section must be implemented.**

⁷ Charles County Comprehensive Plan, 2006.

Expand/Improve Commuter Bus Service

Commuter bus service can be expanded by adding trips to existing routes and by adding new routes. Operational improvements can improve travel time reliability for bus riders and can provide a competitive advantage over use of a personal vehicle. Increasing the ridership on the commuter bus system improves the performance of the regional transportation system. The following strategies should be considered to expand and improve the commuter bus system in Southern Maryland:

- **Perform a comprehensive review of commuter bus service serving Southern Maryland and make recommendations for change.** Origin destination analysis suggests that additional service between Southern Maryland and Prince George's County may be warranted. It also suggests a market for increased bus service to the Lexington Park area including the Patuxent River Naval Air Station. MDOT and MTA should regularly review the services provided to Southern Maryland to maximize their use and efficiency.
- **Study the feasibility of operational improvements.** Queue jump lanes, transit signal priority, and access to expressway shoulders for commuter buses can provide a competitive advantage over use of a personal vehicle. Southern Maryland, SHA, and MTA should jointly identify the potential for these types of improvements.
- **Improve amenities at park-and-ride lots,** including bus shelters and stations to limit exposure to rain, snow, sun, and cold temperatures.
- **Provide easily accessible information on the web and at park-and-ride lots,** including routes and destinations served, schedules, maps, trailblazing signs, lot status signs, and, to the extent possible, real-time bus arrival and departure information.
- **Provide local bus service to park-and-ride lots** on schedules coordinated with MTA commuter buses and develop intermodal transfer stations to help concentrate local bus routes around major park-and-ride facilities and enable sharing of the operating costs of these facilities.
- **Encourage multiple uses of park-and-ride lots** such as carpools and vanpools.
- **Add park-and-ride lot capacity** where needed to support growth of the commuter bus system, including working with local jurisdictions and other partners to identify both long-term lot development opportunities and short-term lots, such as those at malls and churches.
- **Streamline planning, development, and construction of park-and-ride lots.** MTA, SHA, and County planners need to work together to ensure that park-and-ride lots, once approved and funded, are brought on line in a smooth and efficient manner.

Improve Local Transit Service and Coordination

Each county in Southern Maryland operates an independent local transit service. Increasing commuting between counties and general growth require that the region examine potential coordination and expansion of services. Specific recommendations include:

- **Study regional coordination of local bus routes.** To better serve riders, the counties of Southern Maryland should consider a regional approach to route planning, including increased cooperation and information sharing among local transit agencies; formal coordination of decisions and actions among the agencies; or consolidation of operational authority into a single regional agency.
- **Improve convenience for intraregional work trips.** With increasing growth and traffic, local transit agencies should evaluate intraregional commuter services and local circulator services within major activity centers, such as Waldorf and Lexington Park.

Implement Feasible High-Capacity Transit Options

As Southern Maryland continues to grow, options for high-capacity transit will become increasingly feasible. The MD 5/U.S. 301 corridor will likely be the first to be able to support a high-capacity route.

In October 2004, MTA completed the *MD 5/U.S. 301 Transit Service Staging Plan*, which outlined four alternatives for staged implementation of higher capacity transit in the corridor: Enhanced Commuter Bus; Moderate-Level Bus Rapid Transit (BRT); High-Level BRT; and Light Rail Transit. MTA is currently conducting a study to identify right-of-way needs for a transitway alignment, for stations, and for park-and-ride lots along the 18-mile corridor between the Branch Avenue Metrorail station and White Plains. High-capacity transit in Southern Maryland should be supported in the following ways:

- **Preserve right-of-way along the transitway identified in the MTA study.** Preserving right-of-way for the transitway will maintain the feasibility of this option. Without preservation, residential and commercial development along the transitway will make it much more difficult and expensive to build.
- **Support the results of the commuter rail feasibility study.** The MTA is about to study the feasibility of establishing commuter rail service between Washington, D.C. and St. Mary's County.

Transit Projects

The following set of transit projects have been identified for Southern Maryland based on the Tri-County priority letter and the analysis contained within the Needs Assessment. Regionally significant highway projects are listed first, followed by a specific list of additional priority projects for each county.

Regionally Significant Projects

- Accelerate Transit improvements in Southern Maryland including the accelerated implementation of the Transit Service Staging Plan in the U.S. 301/MD 5 corridor including. Implementation of regional transit improvements would include:
 - Enhanced commuter bus service from Calvert, Charles, and St. Mary’s Counties to the metropolitan Washington area – including Prince George’s County;
 - Construction of six additional park-and-ride lots – two in each county;
 - Identification and preservation of a transit right-of-way in the U.S. 301/MD 5 corridor from White Plains to the Branch Avenue Metrorail station (*map location T3*);
 - Bus rapid transit in the U.S. 301/MD 5 corridor; and
 - Fixed-rail transit in the U.S. 301/MD 5 corridor from Waldorf-White Plains to the Branch Avenue Metrorail station (*map location T3*).

Table ES.9 County Transit Projects of Regional Importance

Description	Map Location ^a
<i>Calvert County</i>	
Construct park and ride lots at Dunkirk and Prince Frederick	T1
Establish commuter bus service from Calvert County to the Suitland Metrorail Station and/or other employment destinations in Prince George’s County	T2
Continue to monitor park-and-ride lot needs. Acquire land and develop park-and-ride lots as required	N/A
<i>Charles County</i>	
Construct park-and-ride lots at Waldorf and La Plata	T1
Enhance commuter bus service from Charles County to employment centers in the Washington, D.C. area including Prince George’s County	N/A
Build a transfer station for Charles County VanGO service at the U.S. 301 park-and-ride lot	T6
Continue to monitor park-and-ride lot needs. Acquire land and develop park-and-ride lots as required	N/A
<i>St. Mary’s County</i>	
Construct park-and-ride lots at Charlotte Hall and New Market	T1
Continue to monitor park-and-ride lot needs. Acquire land and develop park-and-ride lots as required	N/A
Enhance commuter bus service along the MD 235/MD 5 corridor	T5
Explore commuter bus service to the Patuxent River Naval Air Station to include additional transit service on-base and shuttle service between the base and local businesses along MD 235	N/A
Explore light rail and bus rapid transit to current and future rail stations	N/A

^a Map locations are for Figure ES.11.

Highway

Southern Maryland is a peninsula bisected by the Patuxent River. As a result, the region relies on elements of highway infrastructure to provide connections within Southern Maryland, to the rest of Maryland, and to the U.S. as a whole. This includes the Governor Thomas Johnson Memorial, Governor Harry W. Nice Memorial, Benedict, and other bridges, several of which are in need of additional capacity. The following set of strategies, policies, and projects are intended to identify the capacity needs of the region and the set of policies and strategies that can help Southern Maryland address expected future growth.

Strategies and Policies

Primary highway strategies and policies for Southern Maryland to pursue have been identified in the areas of access management, operations, and travel demand management. Highway strategies should be implemented in conjunction with land use strategies to ensure an organized pattern of development in Southern Maryland and increase the efficient use of the transportation system.

Access Management

As the population of Southern Maryland continues to grow, increased long-distance commuting will result in greater demands on the region's arterials. Allowing unrestricted access to these arterials from new and existing developments will exacerbate congestion and safety issues over and above that caused by increasing through traffic. Implementing the following recommendations will help to preserve arterial capacity for through traffic and improve traffic safety.

- **Formally address access management in all county transportation plans and State or local corridor plans.** The legal and policy components of access management should be in place in corridors before extensive development occurs. Counties should require access control plans that meet their policy goals and minimize new accesses to arterials for new developments.
- **Partner with MDOT and SHA to strengthen access management.** County and SHA planners should work together to ensure that county land use plans and arterial access management plans are coordinated. Since private interests frequently use the political process to obtain direct access to arterials, State and County elected leaders and policy makers should be aware of the importance of access management to traffic flow and safety.
- **Require circulation plans for municipalities and new large-scale development that conform to access management guidelines in the region.** As the Counties of Southern Maryland review new development plans, the counties of Southern Maryland should ensure an acceptable level of local circulation that protects the capacity of the State and regional arterial system.

- **Increase spacing of signalized intersections on major arterials where possible.** In locations where closely spaced signalized intersections already exist along arterials, one or more of the following actions should be considered:
 - Restrict cross movement from the side roads and use J-turns;
 - Limit arterial left-turn movements;
 - Remove the signalized intersection and force right-turn movements at the intersection or construct overpasses or underpasses;
 - Build service or frontage roads to consolidate access points; or
 - Replace intersections with grade-separated interchanges.
- **Reduce private access to arterials.** Fewer driveways spaced farther apart allow for more orderly merging of traffic.
- **Create an effective local roadway network.** An effective local roadway network enables traffic to access local developments without using arterial highways thereby preserving their functional capacity for through trips and provides alternate routes for local and through traffic in the event of a mainline emergency.

Operations

Different types of operational strategies can be used to address recurring and nonrecurring congestion. Maryland's Coordinated Highways Action Response Team (CHART) recently completed a Rural Management and Operations/ Intelligent Transportation Systems (M&O/ITS) Strategic Deployment Plan for the State of Maryland. The Plan identifies several strategies for Southern Maryland that should be implemented as soon as practical, including:

- Creating a new CHART Traffic Operations Center (TOC) in Southern Maryland;
- Deploying dynamic message signs (DMS), closed circuit television cameras, roadway weather information systems, and traffic speed detectors at appropriate locations;
- Installing emergency evacuation guide signs; and
- Expanding CHART's Freeway Incident Traffic Management Plan into Southern Maryland.

An additional operations improvement strategy is to improve and coordinate signal timing in key corridors. Currently, the State Highway Administration (SHA) examines traffic signal timing on a three-year rotation. Southern Maryland and the SHA should continue to refine the timing of individual traffic signals and consider coordinating signal timing along key corridors, such as U.S. 301 from White Plains to the Prince George's County line and the MD 2/4 Corridor through Prince Frederick.

Safety

Maryland's Strategic Highway Safety Plan (SHSP) is a working document that provides a framework for reducing highway fatalities and serious injuries on all public streets and highways. The SHSP applies the 4E's of highway safety: Enforcement, Education, Engineering, and Emergency Medical Services, across the following emphasis areas:

- Reduce Impaired Driving;
- Improve Information and Decision Support Systems;
- Eliminate Hazardous Locations;
- Increase Occupant Protection;
- Improve Driver Competency;
- Curb Aggressive Driving; and
- Improve Emergency Response System.

Current SHSP efforts are focused on creating regional implementation plans based on crash data analysis. The Tri-County Council for Southern Maryland is playing a key role in this effort by facilitating cooperation and coordination of the SHSP implementation efforts among Calvert, Charles, and St. Mary's counties and by organizing the political support required to implement the identified behavioral and infrastructure safety priorities for the region.⁸

In addition to the SHSP, many of the highway strategies related to access management and operations, if implemented, will have a positive impact on highway safety. Access management strategies improve safety by removing conflict points and managing access to the regions arterials, while operations strategies improve safety by improving response time to incidents, providing real-time incident information to the public, and monitoring roadway weather conditions.

Security

Each county in Southern Maryland has emergency evacuation information available on their web sites. This information is primarily focused on evacuation routes and locations of shelters hospitals, police stations, etc.

The Maryland CHART (Coordinated Highways Action Response Team) Program, a joint effort of MDOT, MTA, and Maryland State Police, published the *Rural Management and Operation Systems (M&O)/Intelligent Transportation Systems (ITS) Strategic Deployment Plan* in March 2007. The document outlines a strategy for deploying ITS in the rural areas of the State, including Southern Maryland.

⁸ Maryland Safety Summit, November 2007.

The primary focus of this Plan is to define the M&O and ITS planning and deployment needs of rural Maryland that would lead toward reduced seasonal highway congestion, better information to motorists of evacuation and emergency procedures, and improved communications with neighboring areas.

Specific recommendations related to evacuation planning for Southern Maryland include:

- Installation and testing of 700 to 800 MHz radios for emergency operation control;
- Digital Message Signs for vital decision points for diversion routes;
- Installation of guide signs directing motorists to specific routes in the event of an emergency situation;
- Improved regional coordination in advance of emergency evacuations to develop workable strategies for detours and sheltering;
- Update of each County's Evacuation Plan to reflect the destinations and routing of evacuees; and
- Establishment of a working group in Southern Maryland to support the use and maintenance of the Strategic Plan.

Travel Demand Management

Travel Demand Management (TDM) strategies are relatively low-cost solutions to reduce vehicular traffic at a regional level. These strategies include or are related to carpools, vanpools, biking, walking, alternative work-hours or work-place programs, and parking management. Strategies to preserve important places, landscapes, and critical features can support TDM strategies by promoting more compact development which in turn encourages carpools, vanpools, etc. The following low-cost strategies should be pursued to reduce regional travel:

- **Promote telecommuting, alternative work hours, and compressed work week programs.** State and county agencies can promote these programs through marketing or incentives. These methods have the greatest effectiveness when combined.
- **Continue to encourage ridesharing and vanpooling.** The Tri-County Council for Southern Maryland has a full-time staff person dedicated to outreach on this topic. Ridesharing helps to reduce congestion and VMT while providing more modal options and accessibility. Strategies to increase ride-sharing and vanpooling include:
 - Targeted incentives to employers or participants;
 - Education and outreach programs that increase the awareness of ride-sharing opportunities;

- A one-stop Internet portal that provides ridematching services and information on connecting modes; and
- A guaranteed ride home program that accommodates unforeseen work schedule changes.

Highway Projects

The following set of highway projects have been identified for Southern Maryland based on the Tri-County Council for Southern Maryland's priority letter, the CTP, the HNI, public input, and the analysis contained within the Needs Assessment. Regionally significant highway projects are listed first, followed by a list of additional priority projects for each county. Note that while the identified projects are located within Calvert, Charles, and St. Mary's counties, projects in Prince George's and Anne Arundel counties are also important to the residents of Southern Maryland. In particular, implementation of identified CTP and HNI projects along the MD 210, MD 5, and MD 4 corridors in Prince George's County and along the MD 2, MD 4, and MD 260 corridors in Anne Arundel County will reduce travel time and improve safety for Southern Maryland residents who commute to destinations north of Calvert and Charles counties.

Top Regional Priorities

- Construct a Western Bypass of Waldorf with controlled access, selecting the alignment with the least environmental impact on the Mattawoman Creek watershed.⁹ Construct a limited upgrade of U.S. 301 through Waldorf to facilitate traffic flow and relieve congestion at failing intersections and create a "boulevard" design for Charles County's "main street" with minimum impact on commercial businesses in the Corridor (*map location 17 in Figure ES.11*); and
 - The northernmost portion of U.S. 301 through Waldorf currently is operating at level of service (LOS) E or F. Many intersections along the route are currently or will soon be operating at LOS E or F. Many others are predicted to be at LOS D. Completion of a Western Bypass should improve the LOS on existing U.S. 301.
- Build a second span of the Governor Thomas Johnson Memorial Bridge. Widen MD 4 from the Governor Thomas Johnson Memorial Bridge to MD 235. Upgrade the intersection of MD 4 and MD 235 (*map location 1 in Figure ES.11*).

⁹ Prince George's County prefers an upgrade of U.S. 301 rather than a bypass of Waldorf.

- MD 4 currently operates at a poor LOS from the Thomas Johnson Memorial Bridge to the MD 235 intersection. Analysis of 2030 conditions show continued poor LOS along this roadway segment and beyond the MD 235 intersection to MD 5 near Leonardtown.

Regionally Significant Projects

- Reconstruct the intersection of MD 2/4 and MD 231 in Prince Frederick (*map location 7 in Figure ES.11*);
- Widen MD 2/4 from south of MD 765A to north of Stoakley Road through Prince Frederick (*map location 6 in Figure ES.11*); and
- Widen MD 2/4 from MD 264 to MD 765A south of Prince Frederick (*map location 5 in Figure ES.11*).

County Projects of Regional Importance

Table ES.10 County Highway Projects of Regional Importance

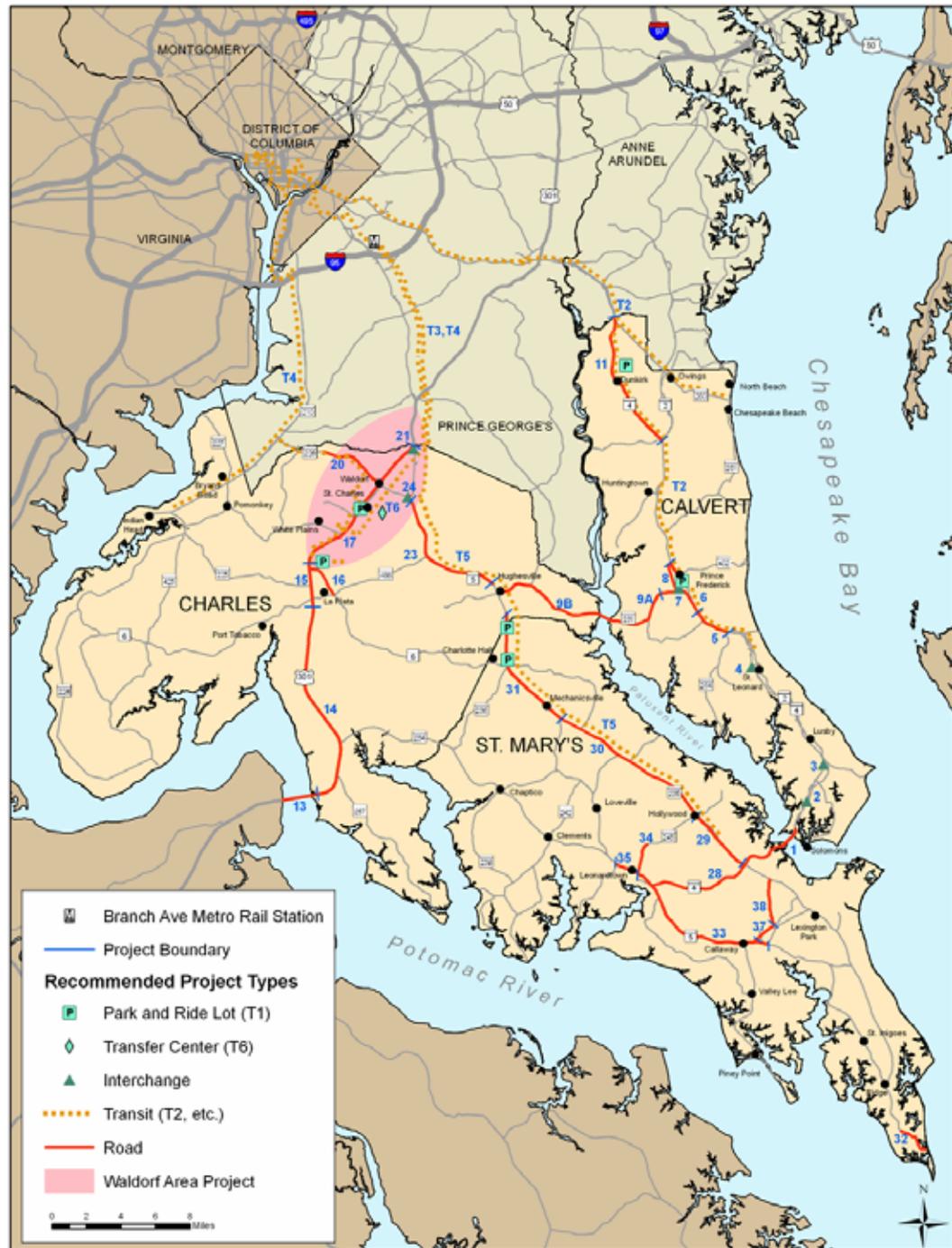
Road	Description	Map Location ^a
<i>Calvert County</i>		
MD 231	Widen from Barstow Road to MD 2/4 in Prince Frederick	9A
Prince Frederick Loop Road	Complete construction of the Prince Frederick Loop Road	8
MD 4	Widen from MD 2/4 to MD 258 with a focus on the section though Dunkirk	11
MD 2/4	Construct an interchange at Lusby Southern Connector Road	2
MD 2/4	Construct an interchange at MD 497	3
MD 2/4	Construct an interchange at Ball/Calvert Beach Roads	4
<i>Charles County</i>		
U.S. 301	Accelerate completion of the SHA Project Planning Study and Environmental Impact Statement for the U.S. 301 Study – Waldorf Upgrade/Bypass	17
MD 6	Build the MD 6 connector in the town of La Plata from MD 6 at Willow Lane to U.S. 301. This segment is projected to be heavily congested by 2020	16
MD 5	Improve the intersection at St. Charles Parkway by building an interchange	24
U.S. 301/MD 5	Construct an interchange at U.S. 301 and MD 5. The intersection will soon be operating at LOS E or F	21
MD 231	Widen between MD 5 and the Benedict Bridge with a focus on the section between MD 5 and MD 381. This section will function at LOS E/F by 2030.	9B

^a Map locations are for Figure ES.11.

Road	Description	Map Location ^a
<i>Charles County (continued)</i>		
U.S. 301 Governor Harry W. Nice Memorial Bridge	Expand the Governor Harry W. Nice Memorial Bridge to facilitate the flow of traffic at the toll facilities and improve access from Maryland to Virginia. While currently operating at LOS D, the Bridge is projected to operate at LOS E by 2030	13
U.S. 301	Implement access controls from South of La Plata to the Potomac River	14
U.S. 301	Widen from South of La Plata to White Plains	15, 17 (part)
MD 5	Widen from North of Hughesville to MD 5 Bus/St. Charles Parkway	23
MD 228	Widen from Middletown Road to U.S. 301	20
<i>St. Mary's County</i>		
MD 237	Widen Chancellors Run Road (MD 237) from Pegg Road to MD 235 in Lexington Park	38
Pegg Road	Extend Pegg Road to MD 5	37
MD 5	Widen from MD 243 to MD 245	35
MD 5	Widen from MD 246 to MD 245 with a focus on the section between MD 4 and MD 245. Some segments currently operate at LOS E or F with more expected to deteriorate to this level by 2020.	33
MD 4	Widen from MD 5 to MD 235. The section between MD 235 and Indian Head Road is projected to be at LOS E or F by 2030.	28
MD 235	Widen from MD 4 to MD 245. Five intersections in this segment are currently operating at LOS E or F. Widening this section with access controls will benefit a highway segment that currently has no access control and reduce delay at the poorly functioning intersections.	29
MD 245	Widen from MD 5 to McIntosh Road. This section is projected to operate at LOS E or F by 2030	34
MD 5	Widen from MD 235 to the Charles County Line	31
MD 235	Implement access controls from MD 245 to MD 5	30
MD 5	Reconstruct from Ranger Station to Camp Brown Road. This section has narrow lanes and no shoulders. Summer traffic is heavy on this section and enforcement efforts will be improved with the addition of shoulders	32

^a Map locations are for Figure ES.11.

Figure ES.11 Locations of Transit and Highway Project Recommendations



Source: Cambridge Systematics, based on data from State Highway Administration, Maryland Transit Administration, and Tri-County Council for Southern Maryland.

Bicycle and Pedestrian Policies and Strategies

Policies and strategies to promote bicycle and pedestrian activity relate to improved modal and neighborhood connectivity, improved facilities, and improved safety.

Improve Connectivity

To allow for increased bicycling and walking connections among transit facilities, residential areas, activity centers, parks, and tourist attractions should be maintained where existing and established where missing. The following strategies support increased connectivity.

- **Focus on improving Bicycle Level of Comfort (BLOC)** along key roadway segments identified in the Maryland Bicycle and Pedestrian Access Master Plan and on appropriate County and local roadways.
- **Expand the off-road trail system and create linkages among existing trails** by implementing the recommendations of the *Southern Maryland Regional Trail and Bikeway System Study*. Connect bike paths, sidewalks and trails to fill in any gaps.
- **Enhance and expand bicycle and pedestrian access to transit.**

Improve Facilities

To ensure that bicycle and pedestrian facilities are improved and appropriately maintained, the following strategies are recommended.

- **Integrate bicycle and pedestrian facilities into roadway development projects at both the State and local level.** These facilities can include wider lanes, bike lanes, paved shoulders, and bike safe storm drains.
- **Integrate bikeway and sidewalk maintenance and cleaning into established roadway maintenance routines.**

Improve Safety

To improve safety for bicyclists and pedestrians, the following strategies are recommended.

- **Develop bicycle and pedestrian safety plans for each County in cooperation with the State's Strategic Highway Safety Plan.**
- **Plan, design, and construct bicycle and pedestrian facilities using appropriate design standards.**
- **Provide pedestrian and bicycle traffic control devices where appropriate.**
- **Provide bicycle and pedestrian route signage as appropriate.**

Barriers and Challenges

Southern Maryland will face barriers and challenges to implementing the identified projects and strategies. These barriers and challenges generally fall into the following categories:

- Funding challenges;
- Growth, planning and zoning challenges;
- BRAC issues; and
- Geographical limitations.

Funding Challenges

Several of the top priority projects for the Southern Maryland region are for significant investments in new capacity or improved infrastructure that easily exceed the funding that has typically been available to transportation projects in the region. Notable examples include additional capacity for the Governor Thomas Johnson, and the Governor Harry W. Nice Memorial Bridges. Major infrastructure projects, such as these, will require careful examination of potential revenue sources. There will be no easy solutions, and Southern Maryland and the State of Maryland may need to explore potential Federal funding options, pricing strategies, innovative financing arrangements, and other strategies.

Federal Funding

One key funding challenge facing Southern Maryland, as well as the State of Maryland and the nation as a whole, is the growing surface transportation investment gap. In testimony before the U.S. House of Representatives Committee on Transportation and Infrastructure on January 15, 2008, the National Surface Transportation Policy and Revenue Study Commission stated that addressing this investment gap would require annual investments of between \$225 billion and \$340 billion (compared the current \$68 billion) over the next 50 years to upgrade all modes to a state of good repair.

This gap has resulted from a funding mechanism (the gas tax) that has not grown at the Federal level in over 20 years; the Federal transportation trust fund continues to lose purchasing power each year. In combination with rising construction costs due to increases in oil and material costs, it has become difficult for states to generate enough revenue to address major projects.

Similar investment gaps are evidenced throughout all states, regions, and localities, including Southern Maryland. The high demand for transportation infrastructure projects combined with limited funding results in an environment where even worthy projects may not be funded due to greater needs demonstrated somewhere else.

State and Local Funding

Between \$6.0 and \$7.3 billion in total unfunded transportation system needs have been identified through the Southern Maryland Transportation Needs Assessment, but only between \$640 and \$770 million are expected to be available to Southern Maryland over this period. Considering only the top priority projects leaves a gap of at least \$1.5 billion, not including the proposed high capacity transit service in the MD 5/U.S. 301 Corridor, which could cost up to \$1.2 billion. The top priority projects identified for Southern Maryland include several 'mega projects' such as a new span of the Thomas Johnson Memorial Bridge and a bypass around Waldorf. Projects of this magnitude will always pose funding challenges. In addition, the size of the projects and natural resource constraints in Southern Maryland may add time and complexity to the project development process.

Finding funding for mega projects and addressing the overall gap in resources will require a combination of federal, State, and local efforts, as well as potential toll revenues. The State, through a fall 2007 special legislative session generated new funding for key projects in Southern Maryland, including planning for upgrades to MD 4 and the Thomas Johnson Memorial Bridge, the Waldorf bypass, and the Southern Maryland Commuter Bus program. However, the current fiscal challenges facing the State and nation will present additional hurdles challenges in the years ahead.

Local government participation in projects will be essential to further their development, including assisting in purchasing or otherwise preserving right-of-way for new transportation infrastructure. Other methods existing to generate funding for transportation, including local option sales taxes, tax increment financing and other value capture methods, property taxes, payroll taxes and others. Some of these methods would require State enabling legislation (such as a local option sales tax) and all would have to be carefully evaluated for their ability to generate revenue and their appropriateness for Southern Maryland.

Base Realignment and Closure (BRAC) Challenges

Maryland has been fortunate to benefit from the most recent round of BRAC. Although the military bases in Southern Maryland were not significantly impacted, the BRAC process highlights the value of military installations to all of Maryland. For example, Andrews Air Force Base in Prince George's County will experience significant job growth as a result of this most recent BRAC round. This will impact traffic volumes along MD 4 and U.S. 301, key commuter corridors for Southern Maryland residents employed in the Washington D.C. area. Within Southern Maryland proper, it will be important to maintain access to the Patuxent River Naval Air Station and the Indian Head Naval Surface Warfare Center as they are key components of the regional economy. At the same time, State resources are needed to provide improved access to Maryland military bases that received additional personnel in the most recent round of BRAC.

Growth, Planning, and Zoning Challenges

Southern Maryland is expecting to continue its rapid growth over the next 20 years. This rapid growth is increasing the need for new transportation investments and presenting new planning and zoning challenges. This assessment has presented a set of potential strategies for Southern Maryland to consider, several of which are oriented towards improving the efficiency of the transportation system through improved land use policies and investments in the transit system.

One challenge that the region will face is the difficulty that long-time residents of rural areas may have in embracing the transition from low-density land use patterns to higher-density suburban and urban land use patterns. Yet to prevent widespread sprawl, and the congestion associated with it, it will be vital to develop high-density, mixed-use centers to encourage transit use and walkable and bikeable pedestrian-oriented lifestyles.

Similarly, there will be significant potential challenges getting multiple jurisdictions to work together to implement the land use policies and strategies that will help make Southern Maryland more transit accessible. Individual counties and jurisdictions have authority over land use within their jurisdictions and it will take significant work to get each of the individual actors to agree with the policies identified in this needs assessment.

Geographical Limitations

Some challenges are related to the fact the Southern Maryland comprises a peninsula bounded by water on three sides and split by the Patuxent River. This is a benefit in that it reduces through travel and helps the region maintain its charm and rural character. However, the bridges integrating and connecting the region can become chokepoints that are very expensive to alleviate.

A specific challenge will occur during construction of any additional reactors at the Calvert Cliffs Nuclear Power Plant in Lusby. It is likely that many of the potentially thousands of workers would travel north over the Thomas Johnson Memorial Bridge from St. Mary's County and many others would travel south along the MD 2/4 Corridor in Calvert County. Prior to this event a traffic management plan should be developed and implemented to mitigate the increased traffic generated by this potential multi-year construction project.

ES.8 CONCLUSIONS

The Southern Maryland Transportation Needs Assessment was developed collaboratively by the Commission to Study Southern Maryland Transportation Needs, the Tri-County Council for Southern Maryland, and the Maryland Department of Transportation. Through an extensive outreach process and a detailed analysis of transportation system conditions, needs, and projects, a set of

recommended projects and strategies have been identified. The top priority projects identified include:

- A western bypass of Waldorf and limited upgrade to U.S. 301;
- A second span of the Thomas Johnson Memorial Bridge; and
- Expanded transit service to Southern Maryland with a focus on developing a high capacity transit service in the MD 5/U.S. 301 Corridor.

The Commission also recommends that the State and counties continue to promote strategies to reduce traffic congestion and promote strategic funding for transportation improvements in Southern Maryland, including:

- Providing improved transit options through analysis of and investments in high capacity transit options, park-and-ride facilities, commuter bus routes, and local transit;
- Enhancing the extent of information available for transit and highway users on the web, at transit stops and park-and-ride lots, and on the roadside;
- Promoting access management, operational improvements, and travel demand management strategies, including ridesharing, to improve the efficiency of the transportation system;
- Promoting strategic capacity expansions that address the mobility, safety, and accessibility of the transportation strategically; and
- Providing multimodal trail, bike, and pedestrian infrastructure and connectivity where needed.

Funding some of the large infrastructure projects identified in this report may require new funding mechanisms that are not currently under consideration, including local option sales taxes, tax increment financing, property taxes, or other sources. Additionally, the State and region may wish to pursue potential revenue generating strategies for the roadway system, such as tolls of bridges (e.g., as is currently done on the Governor Harry W. Nice Memorial Bridge) or of new limited access highway facilities. Given the significant transportation financing challenges facing both the State of Maryland and the nation as a whole, it will become ever more important to identify alternative funding and financing mechanisms for new transportation infrastructure investments and for local governments to participate actively in development of projects. The Southern Maryland Transportation Needs Assessment represents a good example of how State, regional, and local staff and elected officials can work together to address important transportation investment challenges.

1.0 Introduction

The *Southern Maryland Transportation Needs Assessment* is developed in support of Maryland Senate Bill 281 from the 2006 legislative session. The Needs Assessment will enable the Tri-County Council to update the *Southern Maryland Regional Strategy – An Action Plan for Transportation* completed in 1998. Substantial growth in the region and changing commuting patterns have created the need to update this previous effort. The study was conducted from July 2007 through May 2008.

Senate Bill 281 also included a requirement to study the potential for high capacity transit in the MD 5/U.S. 301 corridor. This study is being conducted separately and will be completed in 2009. The two studies have coordinated closely throughout the course of the Needs Assessment.

1.1 STUDY AREA

The Southern Maryland region is composed of Calvert, Charles and St. Mary's Counties and includes six incorporated towns - Chesapeake Beach, Indian Head, La Plata, Leonardtown, North Beach, and Port Tobacco (Figure 1.1). The three counties of Southern Maryland as well as the two counties directly to the north (Anne Arundel and Prince George's) are members of the Commission established by SB 281.

Located southeast of Washington, D.C., Southern Maryland is surrounded on three sides by the Chesapeake Bay and the Potomac River and divided by the Patuxent River. The region is linked to the rest of Maryland and the Washington, D.C. metropolitan area through Prince George's and Anne Arundel Counties to the north. Southern Maryland's unique geography limits its connections to the rest of Maryland and to the U.S. transportation network more generally. Three major highways connect the region to the north, MD 210, U.S. 301/MD 5, and MD 4, but only U.S. 301 connects the region to King George County, Virginia to the south. Two bridges across the Patuxent River link Calvert County with Charles and St. Mary's Counties. This geography influences regional development patterns which in turn impacts the region's demographic and economic trends.

One effect of the region's restricted access to the east, south, and west is to limit the volume of through-traffic. The nearest major east-west through route is the U.S. 50 corridor in Prince George's and Anne Arundel Counties. Some north-south through-traffic uses U.S. 301, but the vast majority of national north-south through-traffic uses I-95 to the west.

Figure 1.1 Southern Maryland



Source: Maryland State Highway Administration.

1.2 STUDY STRUCTURE AND OUTREACH

The study has been managed by the Maryland Department of Transportation in coordination with the Tri-County Council for Southern Maryland (TCCSMD) and the Commission to Study Southern Maryland Transportation Needs. This

section describes the formal coordination and outreach efforts as part of the *Needs Assessment*, including:

- The Commission to Study Southern Maryland Transportation Needs;
- Coordination with the TCCSMD; and
- Public outreach.

Commission to Study Southern Maryland Transportation Needs

Maryland Senate Bill 281, passed in the 2006 legislative session, established a 21-member Commission to Study Southern Maryland Transportation Needs. The legislation required the Tri-County Council for Southern Maryland (TCCSMD) to provide technical and staff support to the Commission and required the Commission to study and make recommendations with regard to transportation in Southern Maryland. The commission includes members of the Maryland Senate and House of Delegates representing Southern Maryland, County commissioners, the U.S. Representative from Southern Maryland, and others.

The commission met on four occasions to discuss study progress and review interim and final deliverables, including:

- May 31, 2007 to review the work plan for the effort;
- October 11, 2007 to review goals and objectives and existing conditions in the study area and to review information to be presented at the first round of public involvement;
- January 7, 2008 to review the findings from needs analysis;
- March 17, 2008 to review the final needs analysis, project evaluation, recommendations approach, and materials to be presented at the second round of public involvement; and
- May 30, 2008 to review draft final document and recommendations.

Though the study focuses primarily on the counties of Calvert, Charles, and St. Mary's, the commission includes representation from Anne Arundel and Prince George's Counties, recognizing the important role these counties play in linking Southern Maryland to the Washington D.C. metropolitan area and the rest of Maryland.

Coordination with Tri-County Council

The TCCSMD has provided an important resource for the review of study progress and deliverables. Members of the TCCSMD participated in a core project review team, that also included Maryland DOT, State Highway Agency (SHA), Maryland Transit Administration (MTA), and Maryland Transportation Authority (MdTA) staff.

In addition, the Regional Infrastructure Advisory Committee (RIAC) of the TCCSMD provided technical review of study deliverables as they were being

developed. This review helped ensure that the products both met the requirements of SB 281 and captured local conditions in Southern Maryland. The RIAC group met with study staff on five separate occasions to review progress and deliverables:

- August 22, 2007 to review the work plan for the effort;
- September 26, 2007 to review goals and objectives and existing conditions in the study area;
- December 12, 2007 to review the findings from needs analysis;
- February 25, 2008 to review the final needs analysis and project evaluation; and
- April 18, 2008 to review report recommendations and executive summary.

Staff from the TCCSMD provided updates to the full Tri-County Council at regular Council meetings.

Public Outreach

The *Needs Assessment* also included outreach to the public. This outreach took place over two rounds:

- Round 1 addressed goals and objectives and existing conditions;
- Round 2 addressed transportation system needs.

For each round, three meetings were held (one in each of the three counties). Table 1.1 identifies the dates of those meetings by county.

Table 1.1 Public Outreach Meetings

County	Round 1		Round 2	
	Date	Attendees ^a	Date	Attendees ^a
Calvert	Oct 30, 2007	25	Mar 31, 2008	19
Charles	Oct 24, 2007	26	Apr 2, 2008	13
St. Mary's	Oct 25, 2007	23	Apr 3, 2008	7
Total		74		39

^a Attendees include members of the public only and not elected officials.

Each of the meetings was organized as an open house, with display boards presenting key findings from the study to date. Several methods were available for the public to provide comments on the study, including:

- Comment cards with specific questions and a space for open comments;
- Interactive exercises for the public to identified their preferred goals, projects, and strategies; and

- Flip charts to allow for identification of potential transportation needs or other issues.

Information on the public comments received is interspersed throughout this report.

1.3 TRANSPORTATION SYSTEMS ANALYZED

The *Needs Assessment* captures regional, multimodal transportation system needs. The specific systems evaluated as part of this effort include:

- Roadways – major arterials, primarily the state highway system that carries the majority of intercity trips. Senate Bill 281 required identifying needs on the following major facilities: U.S. 301, MD 2/4, MD 4, MD 5, MD 210, MD 228, MD 235, and MD 260. These facilities have been evaluated for capacity, reconstruction, and operational needs. Preservation needs (i.e., the regular resurfacing of major roadways) have not been addressed. Local streets are also not included in this analysis.
- Bridges – there are three major bridges in the study area: the Harry W. Nice Memorial Bridge, the Thomas Johnson Memorial Bridge, and the Benedict Bridge.
- Transit – both commuter and local services are considered in this analysis. The Maryland Transit Administration (MTA) and the Washington Metropolitan Area Transportation Authority (WMATA) provide commuter services to Southern Maryland. Local services are provided in each County by Charles County VanGO, St. Mary’s SMS, and Calvert Transit. Though the focus of this effort is primarily on local and commuter bus services, the potential for high capacity transit is considered. The MTA is also conducting an ongoing study of right-of-way preservation for high capacity transit in the U.S. 301/MD 5 corridor that will be completed in 2009.
- Bicycle/Pedestrian – needs for supportive infrastructure on major roadways (sidewalks, bicycle facilities) have been considered. Additionally, the regional bicycle and trail network in Southern Maryland has been evaluated. Bicycle/pedestrian needs on local streets are not part of this analysis.
- Airports – significant airports with potential for commercial service have been identified and evaluated.

1.4 ORGANIZATION OF THE REPORT

- Section 2.0 presents the goals and objectives established for this study;
- Section 3.0 presents the existing conditions within the study area;
- Section 4.0 presents the needs analysis for the transportation systems identified above;

- Section 5.0 presents the project prioritization analysis;
- Section 6.0 presents funding issues and opportunities for Southern Maryland;
and
- Section 7.0 presents recommendations and barriers and challenges.

2.0 Goals and Objectives

Goals, objectives, and policies or strategies exist in a hierarchy. Goals illustrate broad overarching directions, visions, and values. Objectives provide specificity to the goals, are concrete, and can be measured. Strategies, policies, and projects support the achievement of goals and objectives and are identified in Sections 4.0 and 7.0 of the Needs Assessment process.

2.1 PROCESS FOR DEVELOPMENT

Developing goals and objectives for this transportation study was an iterative process. The results capture the range of issues facing the region and relate specifically to the regional context. The Goals and Objectives Technical Memorandum identifies the existing goals of relevant agencies in the region, including the Tri-County Council for Southern Maryland (TCCSMD), the three counties that make up Southern Maryland, the two adjacent jurisdictions of Anne Arundel County and Prince George's County, and the Maryland Department of Transportation (MDOT). The goals from these sources form the basis of the goals and objectives for the transportation needs assessment (TNA). The most common existing long-range transportation goals from the agencies and jurisdictions listed above are:

- Efficiency;
- Multi-Modal/Alternative Modes;
- Safety and Security; and
- Coordination of Transportation and Land Use Planning.

Table 2.1 summarizes the types of goals and objectives found in these regional agencies.

Table 2.1 Long-Range Transportation Goals in Maryland/Southern Maryland

	Maryland Transportation Plan	Charles County	St. Mary's County	Calvert County	Anne Arundel County	Prince George's County
Frequent Goals						
Efficiency	●	●	●	●	●	
Multimodal/Alternative Modes	●	●	●	●	●	●
Safety and Security	●	●	●	●		●
Coordination of Transportation and Land Use Planning	●	●	●	●	●	●
Less Frequent Goals						
System Maintenance	●	●				
Accessibility and Mobility	●	●		●	●	●
Minimum Negative Impact on Business and Neighborhoods	●	●			●	
Economic Development and Opportunity	●	●	●	●	●	●
Integrated with Community	●	●	●	●	●	●
Economic Efficiency	●	●	●	●		●
Environmental Stewardship	●	●	●	●	●	
Regional Coordination	●	●		●		

In addition to looking at regional and local goals, other plans were reviewed as part of the comprehensive scan of possible goals and objectives for the TNA. Plans reviewed included: The Metropolitan Washington Constrained Long-Range Plan; Baltimore Metropolitan Council Long-Range Transportation Plan; TransAction 2030 (Northern Virginia); DVRPC Destination 2030 (Philadelphia); WILMAPCO 2030 Plan (Wilmington, Delaware); Annapolis Regional Transportation Vision; UnJAM 2025 (Charlottesville, Virginia); and the U.S. DOT Strategic Plan. Some of the common goals in these plans relate to:

- Mobility and Accessibility;
- Connectivity and Modal Balance; and
- Environmental Protection.

2.2 PRINCIPLES

In developing these goals and objectives for the TNA, the following principles were followed:

- Use the minimum number of goals that reasonably capture the major issues that will be addressed by the TNA;
- Ensure that each goal addresses a distinct issue;
- Capture the needs expressed thus far by stakeholders including MDOT, TCCSMD, the Regional Infrastructure Advisory Committee (RIAC) and the Commission;
- Reflect goals and objectives from the 1998 plan and other studies within the region and update them to address new concerns; and
- Ensure that the goals, goal definitions, and objectives capture a broad range of potential needs and allow for competing types of investments to be identified within the TNA.

2.3 GOALS AND OBJECTIVES

Table 2.2 presents the goals and objectives identified for the *Needs Assessment*. A complete description of the development of goals and objectives is available in Appendix A.

Table 2.2 Goals and Objectives for the Southern Maryland Transportation Needs Assessment

Goal	Definition	Objectives
1. Mobility and Accessibility	Support the continued development and economic growth of the region by providing multimodal transportation options to improve the mobility and accessibility of people and facilitate the movement of goods within the region.	<ul style="list-style-type: none"> • Increase transportation choices available for commuting from and traveling within Southern Maryland. • Maintain and enhance levels of circulation (e.g., reduced congestion) on highways, arterials, and major collectors. • Maintain and enhance levels of service on transit. • Incorporate pedestrian and bicycle improvements into roadway improvement projects. • Improve access to and from activity centers for all modes and populations. • Improve connections between modes.
2. Safety and Security	Provide a transportation system that minimizes loss of life, health, and property and allows for a response to natural or manmade emergencies.	<ul style="list-style-type: none"> • Reduce the rate of crashes, fatalities, and injuries for motor vehicles, bicycles, and pedestrians. • Develop safety improvements for the region that are consistent with the Maryland Strategic Highway Safety Plan and County Traffic Safety Programs. • Support transportation improvements and programs that enhance the transportation system’s capability to plan for and respond to natural and manmade security and emergency challenges. • Ensure that safety needs are considered in mobility improvements.
3. Efficiency	Ensure the best use of existing and future transportation networks, resources, and infrastructure.	<ul style="list-style-type: none"> • Increase person movement capacity of highway and transit modes. • Preserve and maintain critical existing infrastructure for maximum system performance. • Protect highway functional capacity by implementing access control as appropriate. • Improve the availability and quality of real-time information to increase the ease of use and attractiveness of both highways and transit. • Develop cost-effective transportation improvements that maximize the use of available resources.
4. Environmental and Cultural Stewardship	Ensure that transportation investments are planned and implemented in a manner that is sensitive to the natural, cultural, and social environment.	<ul style="list-style-type: none"> • Maintain air quality in the region by providing alternatives to single-occupant vehicle travel and the use of clean air technology. • Minimize the impact of transportation investments on significant natural resource areas, watersheds, and habitats. • Identify and preserve transportation infrastructure with historic, cultural, social, and/or recreational value. • Minimize the contribution of transportation investments to air, water, and noise pollution in Southern Maryland.
5. Integrated Planning	Ensure that transportation investments are consistent with environmental, economic development planning, and decisions of local and neighboring jurisdictions.	<ul style="list-style-type: none"> • Develop transportation investments that serve established Maryland communities and support designated growth areas (Priority Funding Areas). • Coordinate with existing and ongoing land use, environmental and economic development planning efforts. • Promote and support dynamic regional and intermodal activity centers. • Plan and develop transportation improvements cooperatively with neighboring jurisdictions and other relevant agencies.

One of the stations in the first round of public involvement included a review of the proposed goals developed for the *Needs Assessment*. Although all goals were supported by the public, the public provided more weight to the mobility, safety, and environmental and cultural stewardship goals than to the efficiency and integrated planning goals (Table 2.3).

Table 2.3 Public Feedback on Goal Areas

Goal	Charles County	St. Mary's County	Calvert County	Total
1. Mobility and Accessibility	11	7	9	27
2. Safety and Security	1	6	9	16
3. Efficiency	3	1	3	7
4. Environmental and Cultural Stewardship	12	5	4	21
5. Integrated Planning	0	6	1	7

Source: Southern Maryland Transportation Needs Assessment Public Meetings, October, 2007.

3.0 Existing Conditions

3.1 POPULATION, LAND USE, AND ECONOMIC CONTEXT

Population

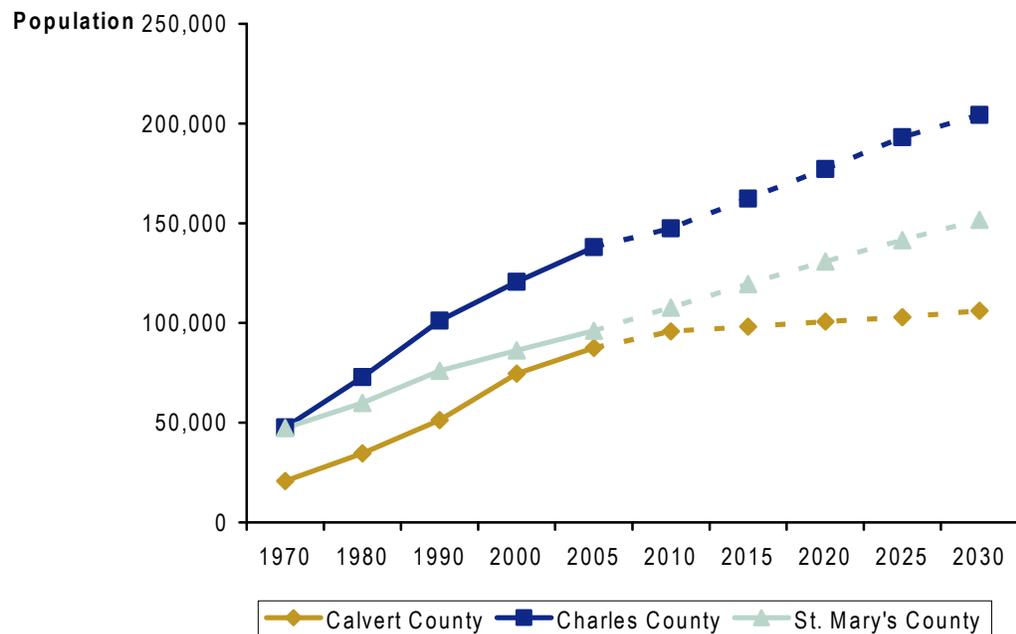
Charles County is the most populous in Southern Maryland with 138,050 residents in 2005. St. Mary's and Calvert Counties have similar-sized populations with 96,100 and 87,500 residents respectively.

Southern Maryland's population grew from 167,000 in 1980 to 322,000 in 2005, an increase of 2.6 percent per year. This is over twice as fast as the annual rate that Maryland's population grew during the same period (1.1 percent) and makes Southern Maryland the fastest growing region in the State. More than 40 percent of the overall population growth in Southern Maryland occurred in Charles County (65,000), while 34 percent (53,000) occurred in Calvert County and 23 percent (36,000) in St. Mary's County, respectively.

Figure 3.1 displays the historic and projected population growth of Charles, Calvert, and St. Mary's counties. Every household demands goods and services and generates trips for work, school, shopping, and other purposes. These population forecasts, generated prior to the recent sharp increases in fuel and other commodity prices, indicate that Southern Maryland will experience increased demand on its transportation infrastructure as well as increased mobility and accessibility needs over the next 25 years. In the event of continued increases in fuel and other transportation-related costs, it will be necessary to revisit these forecasts in the next couple of years. In any case infrastructure renewal, system preservation, and maintenance needs also will continue.

Though the forecast average annual growth rate for Southern Maryland between 2005 and 2030 is lower than that experienced between 1980 and 2005, the region is still expected to grow over twice as fast as the State as a whole. Much of this growth will occur in Charles and St. Mary's counties with somewhat less growth in Calvert County.

Figure 3.1 Historic and Projected Population Change in Southern Maryland Counties



Source: Maryland Department of Planning, Planning Data Services.

Employment

Maryland’s economy has grown consistently over recent years. According to the U.S. Bureau of Economic Analysis, Maryland’s gross state product, a measure of the value of all goods and services produced in the State, grew from \$229 billion in 2004 to \$244 billion in 2005 and \$258 billion in 2006. Maryland’s expanding economy has created employment opportunities for the growing labor force of Southern Maryland (Table 3.1), however, many Southern Maryland residents are employed outside the region. In 2006, of the 167,005 residents of Southern Maryland that were employed, just 61 percent (101,703) were employed within the region with most of those remaining employed in the Washington, D.C. area.

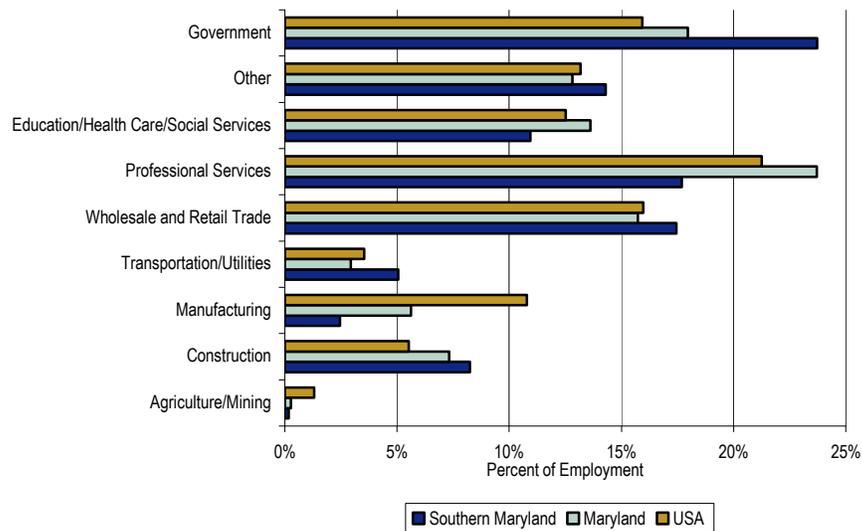
Table 3.1 Labor Force, Employment, and Unemployment in Southern Maryland
2002 to 2006 (in Thousands)

	2002	2003	2004	2005	2006
Labor Force	157.6	162.7	165.5	168.9	172.6
Employment	152.0	157.0	159.8	163.1	167.0
Unemployment	5.6	5.7	5.7	5.9	5.6
Unemployment Rate	3.6 %	3.5 %	3.5 %	3.5 %	3.2%

Source: United States Department of Labor, Bureau of Labor Statistics.

Figure 3.2 presents the distribution of employment by industry for Southern Maryland, for the State of Maryland, and for the United States. Employment in Southern Maryland is more concentrated in the government, wholesale and retail trade, transportation/utilities, and construction sectors, and less concentrated in the manufacturing, professional services, and education/health care/social services sectors than it is in either the State of Maryland or the nation as a whole.

Figure 3.2 United States, Maryland, and Southern Maryland Employment Concentrations by Industry
2005



Source: United States Department of Labor, Bureau of Labor Statistics.

Land Use

Forest and agricultural land uses comprise over 75 percent of the total land cover in Southern Maryland while 16 percent of land cover is used for residential purposes and less than 10 percent is used for other purposes (see Table 3.2).

Table 3.2 Southern Maryland Land Use/Land Cover
Proportions per Jurisdiction – 2002

Land Use Category	Calvert County	Charles County	St. Mary's County	Southern Maryland
Agriculture	20.2 %	19.5 %	26.1 %	22.0 %
Commercial	1.0 %	1.1 %	1.4 %	1.2 %
Forest	50.7 %	60.6 %	51.3 %	55.3 %
Industrial/Institutional	1.9 %	2.1 %	2.9 %	2.3 %
Open Urban Land	0.4 %	0.4 %	0.3 %	0.3 %
Residential	23.6 %	13.6 %	16.3 %	16.6 %
Water	2.2 %	2.6 %	1.6 %	2.2 %
Total	100.0 %	100.0 %	100.0 %	100.0 %

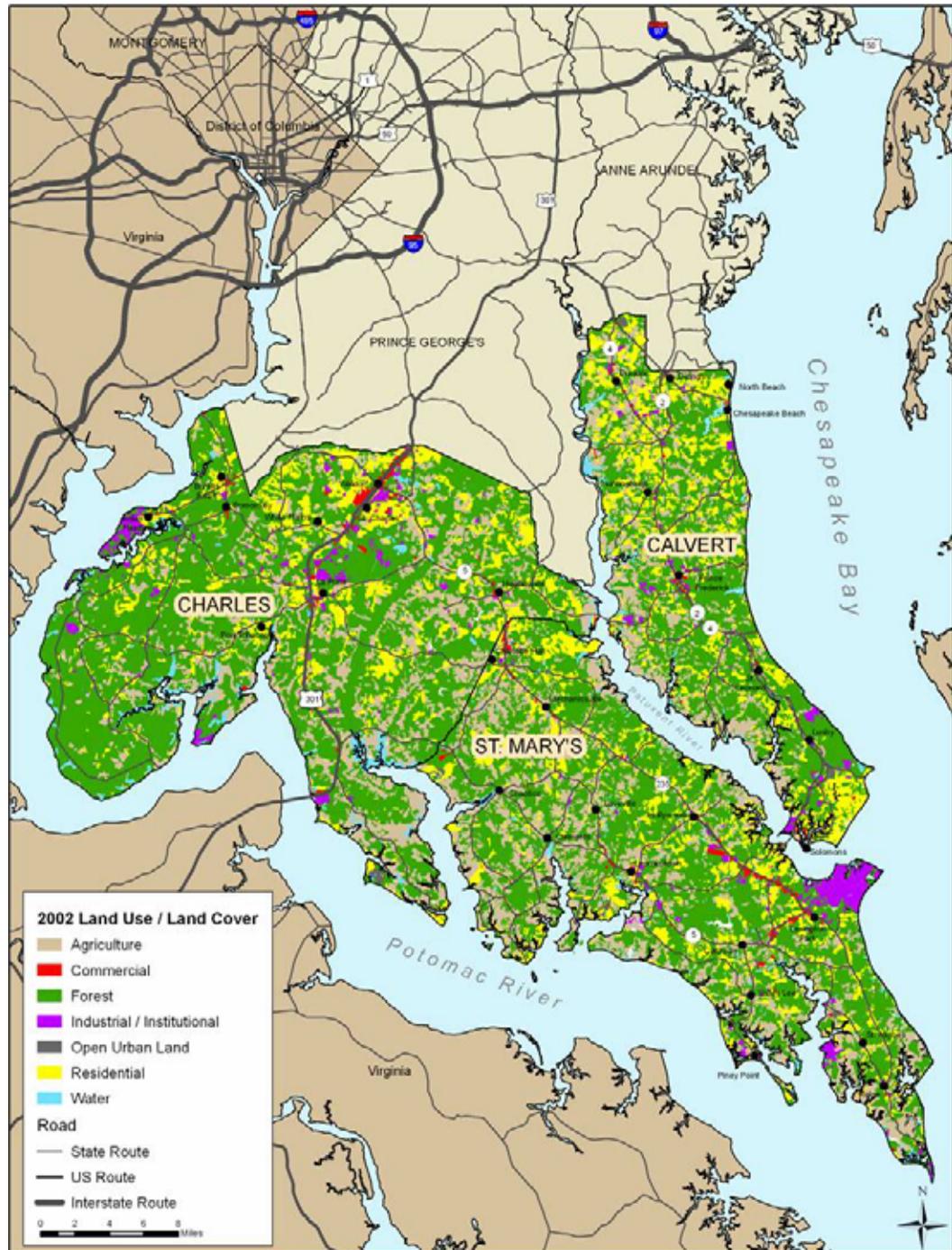
Source: Maryland Department of Planning 2002 Land Use/Land Cover.

Figure 3.3 presents the existing land use in Southern Maryland. In Charles County, medium-density residential, commercial, and industrial land uses dominate in the Waldorf area. Other pockets of development within Charles County include the Bryans Road/Indian Head area (a designated mixed-use district), La Plata, and areas along the Route 5 corridor from Hughesville to the St. Mary's County Line.

The most intense commercial and residential development within St. Mary's County is located along MD 235, MD 237, and MD 246 in and around Lexington Park, California, and Great Mills. Leonardtown, the County seat, is less intensely developed and contains medium to low-density residential and commercial land uses. Concentrations of residential development also occur at the tips of various peninsulas, such as Coltons Point and Piney Point.

In Calvert County, medium-density residential development is characteristic of much of the Solomons area, including Chesapeake Ranch Estates and Drum Point. Most existing and future commercial and residential development in Calvert County is concentrated in "Town Centers." The County currently has seven Town Centers: Dunkirk, Owings, Huntingtown, Prince Frederick, St. Leonard, Lusby, and Solomons.

Figure 3.3 Southern Maryland Land Use



Source: Maryland Department of Planning.

Each of the counties in Southern Maryland designates major activity centers – locations of focused development, such as population concentrations, major employers, and commercial districts.

Priority Funding Areas

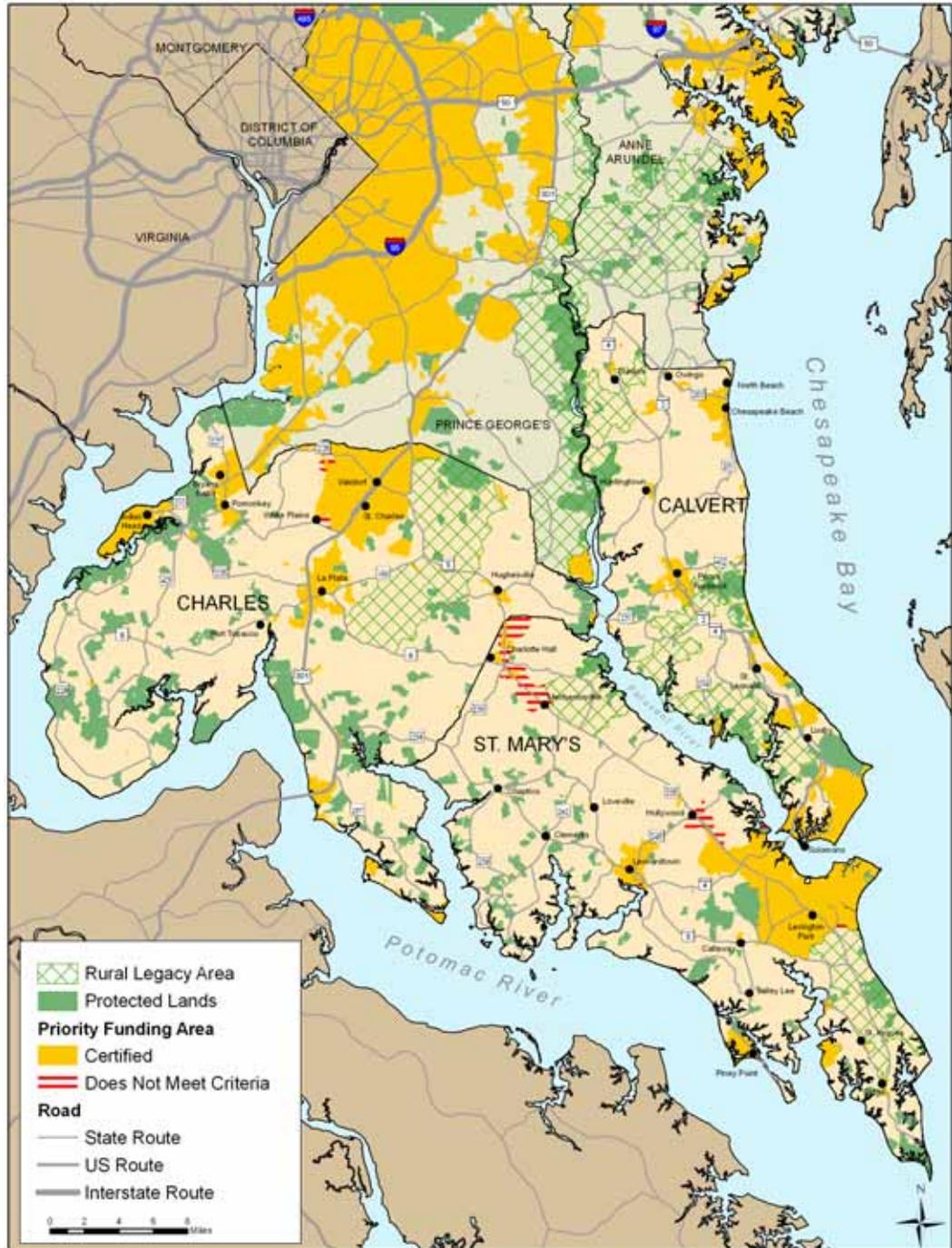
In 1997, the Maryland legislature passed the Priority Funding Areas Act, which directs State spending on projects that support growth and development such as highways, sewer and water construction, and economic development assistance. Priority Funding Areas (PFA) include existing municipalities, as they were defined in 1997, communities inside the Washington Beltway, areas designated as enterprise zones, neighborhood revitalization areas, or heritage areas, and existing industrial land.¹⁰

Counties can designate PFAs to focus development into areas in accordance with comprehensive plan goals.¹¹ Conversely, jurisdictions may discourage development from occurring in certain areas to support environmental preservation, maintenance of viable agricultural land uses, or other comprehensive plan goals. Figure 3.4 illustrates Priority Funding Areas as well as protected lands and agricultural districts.

¹⁰The Priority Funding Areas Act of 1997 is described on MDOT's Department of Planning web site: <http://www.mdp.state.md.us/fundingact.htm>.

¹¹The Maryland Department of Planning must certify County-designated PFAs before State funds can be used in them under this program.

Figure 3.4 Priority Funding Areas and Preservation Areas



Source: Maryland Department of Natural Resources.

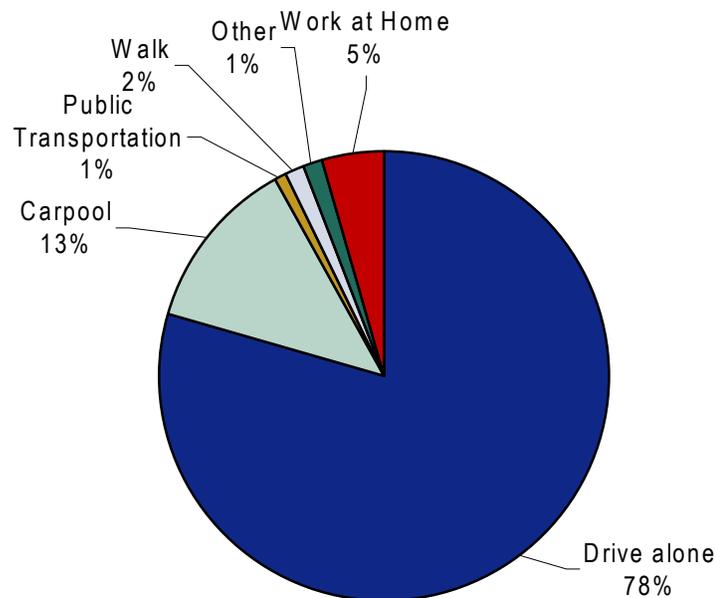
Protected Lands represent Federal-, state-, and county-owned lands, private conservation lands, easements, and agricultural districts.

Priority Funding Areas denoted as “Does Not Meet Criteria” indicate areas where the State and the County disagree on whether or not the PFA criteria are satisfied. Any proposals for projects in these areas will be referred to the Smart Growth and Neighborhood Conservation Coordinating Subcommittee for review and may require action by the Board of Public Works.

Transportation and Travel Trends

Over three quarters of the trips made in Southern Maryland are in personal vehicles (Figure 3.5). Carpooling accounts for 13 percent and public transportation accounts for one percent of work trips. About five percent of people in the region work at home. Walking, biking, or other methods account for approximately three percent of travel.

Figure 3.5 Mode of Travel to Work Southern Maryland 2000



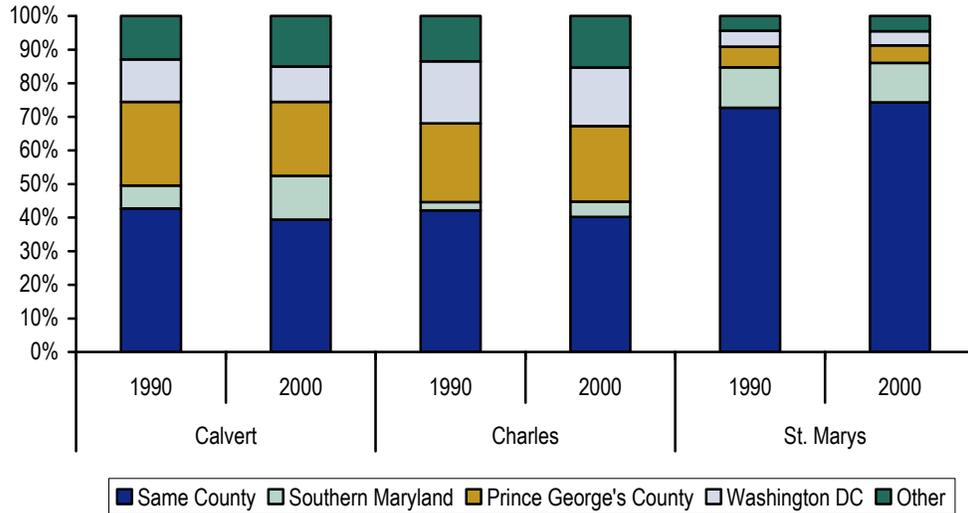
Source: United States Census.

Commuting times in Southern Maryland are among the highest in the nation. In 2000, the average travel time to work in Southern Maryland was just over 35 minutes compared to a Maryland statewide average of 30 minutes and a U.S. average of 25 minutes. A slightly larger proportion of Southern Maryland commuters drive alone and a lower proportion use public transportation than for the nation as a whole. In addition, a somewhat higher percentage of workers in Southern Maryland work at home.

Figure 3.6 presents commuting destinations for residents of each of the three counties for 1990 and 2000. Calvert and Charles County residents have been more likely to work outside of their home county than St. Mary's County residents. Primary work locations for these commuters are Prince George's County and Washington, D.C., with an increasing share of Calvert County residents commuting to Charles and St. Mary's counties between 1990 and 2000. The share of residents from Calvert and Charles counties commuting to D.C. has declined,

though not the total number. This reflects the growth in commuting to other destinations. St. Mary's County residents largely work within the County.

Figure 3.6 Commuter Destination Patterns in Southern Maryland
1990 and 2000



Source: United States Census, 1990 and 2000.

Note: Each bar in the figure shows the share of commuters by destination.

About 39 percent of Prince George's County residents work in their home county. Other top destinations for Prince George's County residents are Washington, DC (31 percent), Montgomery County (10 percent), and Arlington County (five percent). Just over one percent commute to Southern Maryland.

Anne Arundel County is similar to St. Mary's County in that a majority of its employed residents work in their home county (56 percent). Other top commuting destinations are; Prince George's County (10 percent), Baltimore City (eight percent), and Howard County (five percent). Less than one percent commute to Southern Maryland.

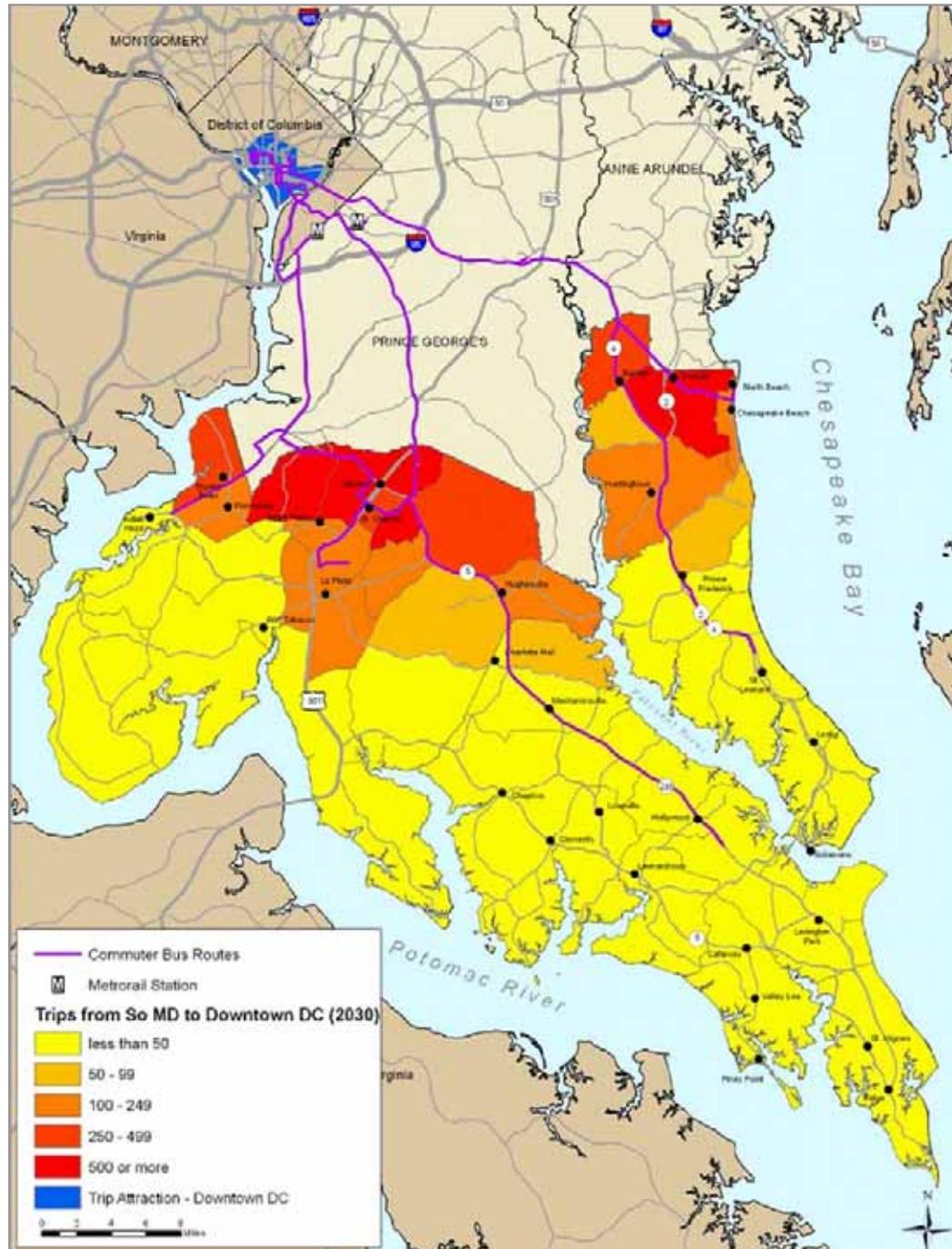
Projected 2030 Commuter Origins and Destinations

The Metropolitan Washington Council of Governments (MWCOC) regional model indicates that home-based work trips are projected to grow by more than 50 percent over the next 22 years. Certain areas show a large increase in transit mode share, such as from Southern Maryland to downtown Washington, D.C., Arlington County, Montgomery County, and Western Prince George's County. These commute patterns can help identify areas for future commuter bus service.

Figures 3.7 and 3.8 show travel demand (projected and A.M. peak trips) from Southern Maryland to downtown Washington, D.C. and Lexington Park, respectively. These figures clearly indicate the need for improving commuter

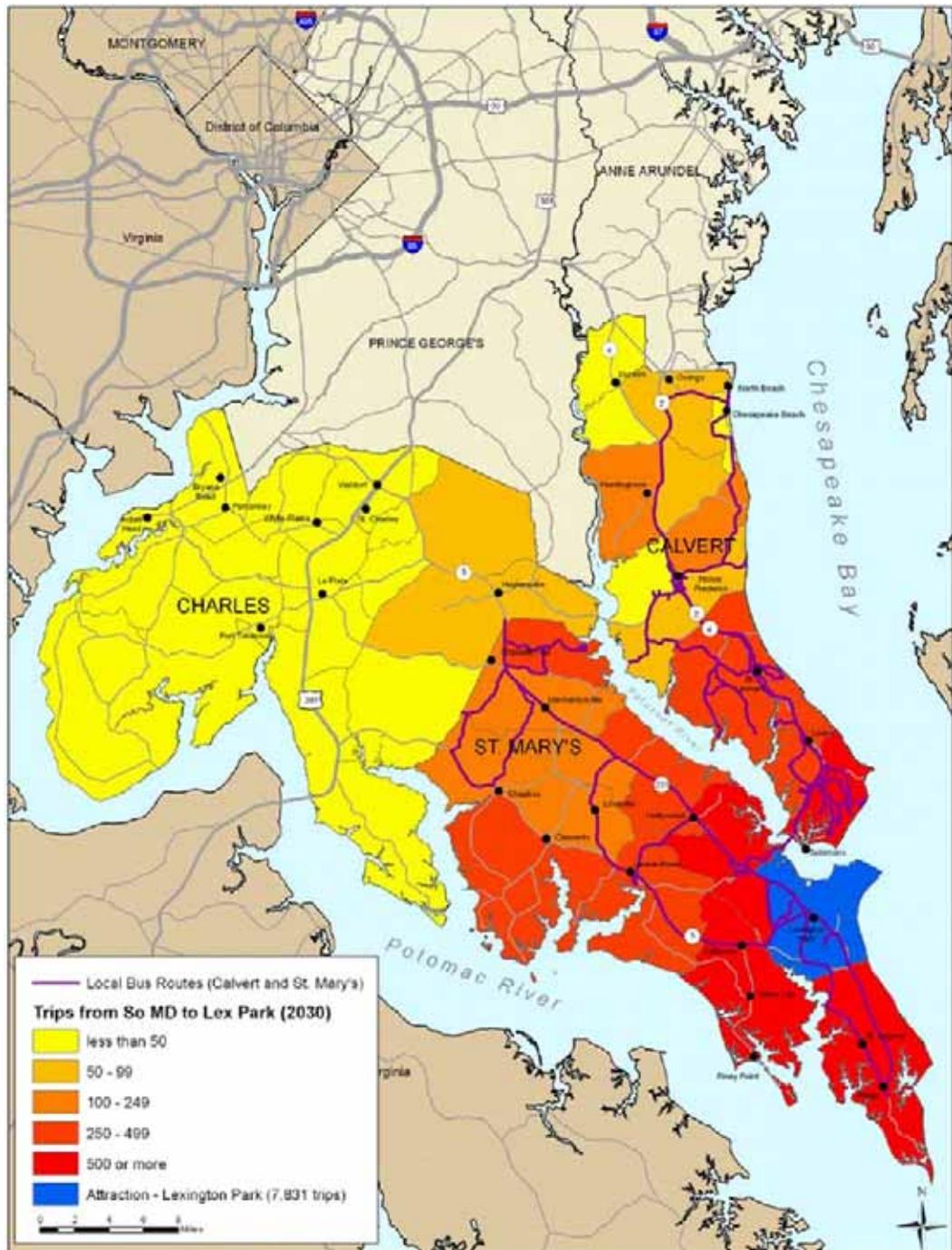
bus services to the Washington, D.C. area, and illustrate the great potential for improved public transportation services to the Patuxent River Naval Air Station and the Lexington Park area.

Figure 3.7 Trips from Southern Maryland to Downtown Washington, D.C. 2030



Source: Metropolitan Washington Council of Governments.

Figure 3.8 Trips from Southern Maryland to Lexington Park
2030



Source: Metropolitan Washington Council of Governments.

3.2 TRANSPORTATION SYSTEM CONDITIONS

Highway System

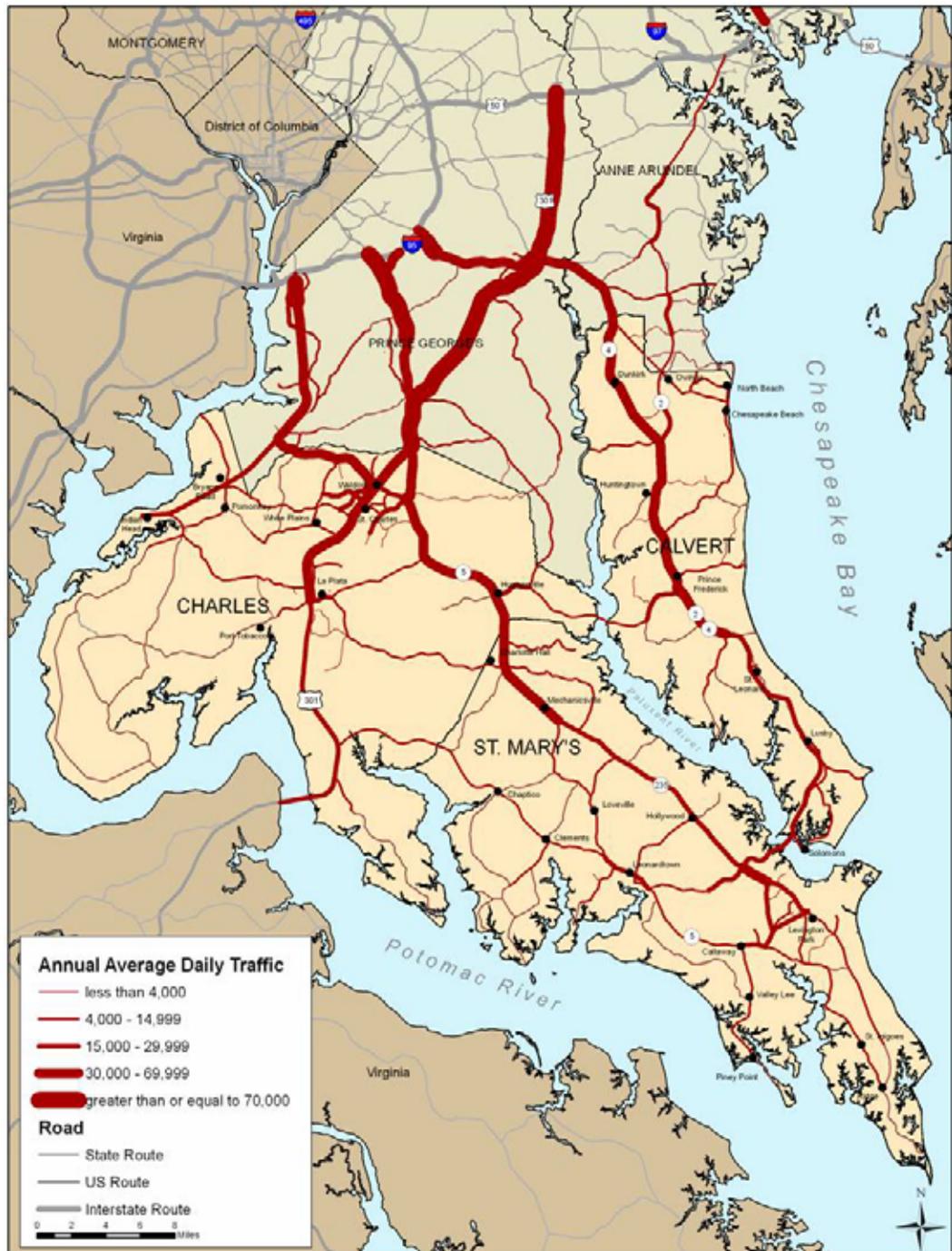
The Southern Maryland highway network is the primary mode of transportation for both personal and freight travel within the State. Southern Maryland has 2,351 miles of roads, of which 1,591 miles are classified as rural and 760 miles are classified as urban. In 2006, there were 2.9 billion annual vehicle miles of travel (VMT) on Southern Maryland roadways.

The expressway and principal arterial system is vital for transportation in Southern Maryland. Though this system comprises just over six percent of total system mileage, it carries over 53 percent of all vehicle traffic. By contrast, the region's collectors and local roads comprise about 88 percent of miles but carry only 31 percent of vehicle traffic. Despite their lower usage, these lower volume roadways are important for a functioning transportation system and cannot be neglected.

Figure 3.9 presents traffic flows along state-maintained routes. The highest volume with Average Annual Daily Traffic (AADT) volumes of more than 30,000 vehicles per day include the following:

- U.S. 301 from La Plata to the Charles County/Prince George's County line;
- MD 5 from south of Mechanicsville to the intersection with U.S. 301 north of Waldorf;
- MD 228 from U.S. 301 in Waldorf to MD 210 in Prince George's County;
- MD 2/4 from MD 264 to Sunderland and MD 4 from Sunderland to the Anne Arundel County line; and
- MD 235 from MD 4 to MD 237.

Figure 3.9 Average Annual Daily Traffic (AADT)
2006



Source: State Highway Administration.

Bridges

There are three well-known bridges in Southern Maryland:

- **Harry W. Nice Memorial Bridge** – This 1.7 mile, metal cantilever two-lane MdTA toll bridge is part of U.S. 301 and connects Charles County, Maryland with King County, Virginia. It is the only Potomac River crossing in the Southern Maryland region and carries 18,000 vehicles per day. A study, the Nice Bridge Improvement Project, is currently underway to evaluate different options to improve the flow of traffic across the bridge. This project is scheduled for completion in 2009 with the publication of a final decision document. This bridge was originally built in 1939 and reconstructed in 1984.
- **Thomas Johnson Memorial Bridge** – Completed in 1977, this 1.37 mile, two-lane bridge spans the Patuxent River and connects Calvert and St. Mary's counties on MD 4. It is one of two Patuxent River Crossings in Southern Maryland and carries 25,000 vehicles a day. A study of the Thomas Johnson Memorial Bridge is currently underway.
- **Benedict Bridge** – This 3,340 foot bridge, completed in 1952, spans the Patuxent River and carries 11,000 vehicles per day on MD 231 between Calvert and Charles counties. It is a swing bridge that accommodates 102 openings per year.

Safety

In 2006, there were 5,124 crashes on roads in Southern Maryland resulting in 68 fatalities and 2,994 injuries (Table 3.3). The estimated total cost of these crashes was \$617 million.¹²

Table 3.3 Traffic Fatalities by Year

Jurisdiction	2002	2003	2004	2005	2006	Average
Calvert County	5	19	16	10	21	14.2
Charles County	27	20	16	40	30	26.6
St. Mary's County	17	16	4	14	17	13.6
Southern Maryland	49	55	36	64	68	54.4

Source: Maryland State Highway Administration.

¹²Costs include productivity losses, property damage, medical costs, rehabilitation costs, travel delay, legal and court costs, emergency services, insurance administrative costs, and costs to employers. Intangible costs such as physical pain and lost quality of life are not included.

The highway traffic fatality rate per 100 million vehicle miles of travel (VMT) is higher for Southern Maryland than it is for the State (Table 3.4), yet the crash rate is nearly the same (Table 3.5). This may be at least partially due to the rural nature of Southern Maryland compared to the rest of the state. Fatality rates are generally higher on rural roads than urban roads. Because Southern Maryland has a greater proportion of rural roadways than the State, similar crash rates can lead to higher fatality rates.

Table 3.4 Traffic Fatality Rate by 100 Million VMT by Year

Jurisdiction	2002	2003	2004	2005	2006
Calvert County	0.7	2.6	2.1	1.3	2.7
Charles County	2.4	1.7	1.3	3.1	2.3
St. Mary's County	2.1	2.1	0.5	1.7	2.0
Southern Maryland	1.9	2.1	1.3	2.2	2.4
Maryland	1.2	1.2	1.2	1.1	1.2
United States	1.5	1.5	1.5	1.5	1.4

Source: Maryland State Highway Administration, National Highway Traffic Safety Administration.

Table 3.5 Traffic Crash Rate by 100 Million VMT by Year

Jurisdiction	2002	2003	2004	2005	2006
Calvert County	155	157	148	150	141
Charles County	227	236	222	221	210
St. Mary's County	156	176	185	167	162
Southern Maryland	186	197	191	186	178
Maryland	195	200	189	181	180
United States	221	219	208	206	199

Source: Maryland State Highway Administration, National Highway Traffic Safety Administration.

The Maryland Strategic Highway Safety Plan (SHSP) updated in late 2006 has established a target to reduce statewide motor vehicle fatalities to fewer than 550 by 2010. This SHSP is a coordinated, comprehensive, traffic safety plan that provides a framework for reducing highway fatalities and serious injuries on all public roads. It outlines strategies to improve highway safety organized within seven key emphasis areas:

1. Reduce impaired driving;
2. Improve information and decision support systems;
3. Eliminate hazardous locations;
4. Increase occupant protection;
5. Improve driver competency;

6. Curb aggressive driving; and
7. Improve emergency response system.

Crashes are categorized based on types and causes. Nearly half of all crashes in Southern Maryland are categorized as either rear-end crashes (24 percent) or fixed object crashes (23 percent). Driver inattention was a contributing factor in more than 36 percent of crashes in the region. Older drivers and newly licensed young drivers may be especially impacted because distraction affects the driving skills of people in these age groups to a greater extent than it does for the driving population as a whole. Data indicate that drivers under 25 years of age are at fault in more than one-third of all crashes in Southern Maryland.

Public Transportation System

Long-distance commuting to the Washington, D.C. metropolitan area coupled with increasing congestion have increased demand for public transportation in Southern Maryland. There currently are five key providers of transit service in the region (Table 3.6)

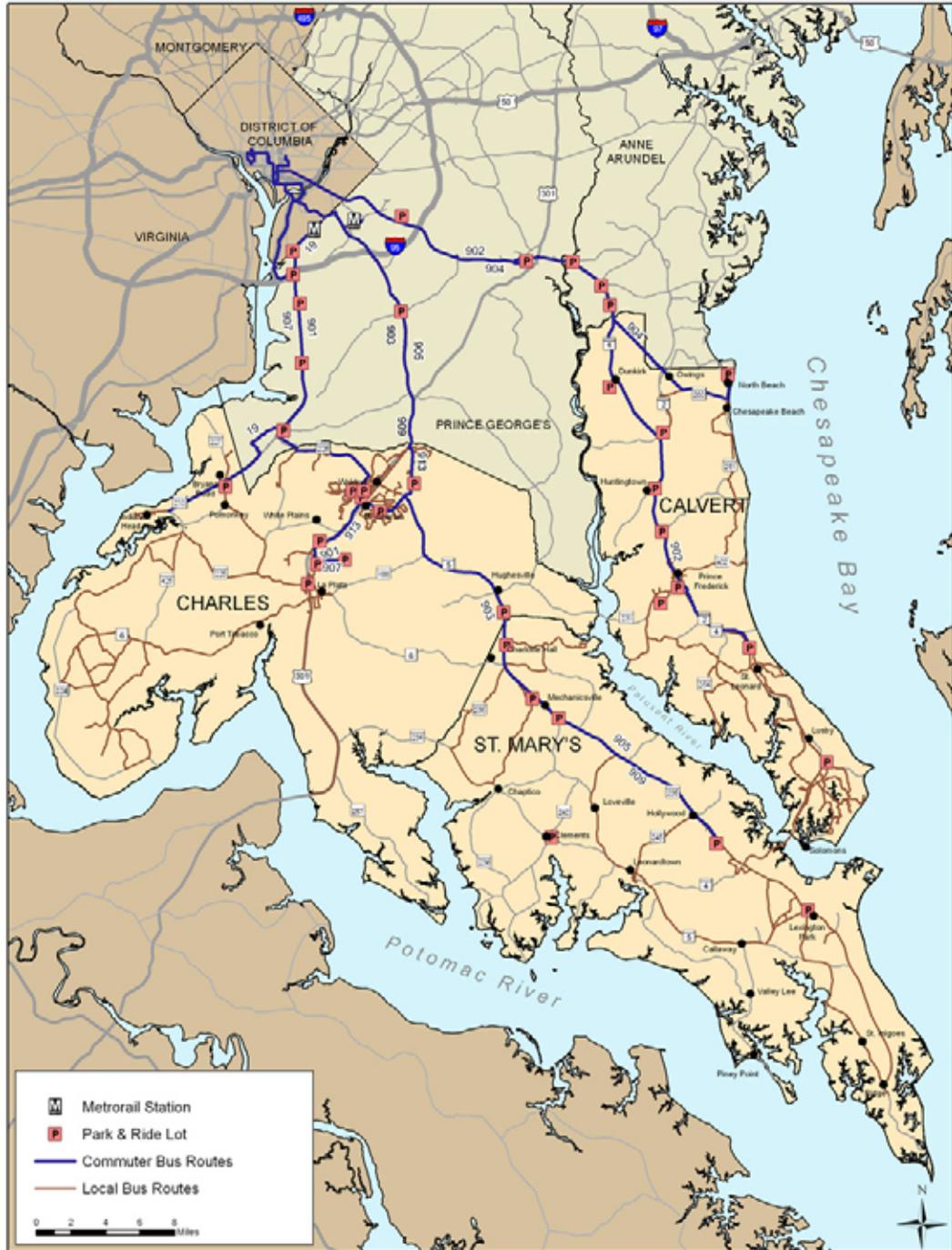
Table 3.6 Transit Providers in Southern Maryland

Provider	Routes	Service Classification	Destinations
MTA	8	Commuter	D.C., Metro in Prince George's County
WMATA	1	Commuter	Metro in Prince George's County
Charles VanGO	10	Fixed/Deviated Fixed Routes, Suburban/Rural	Within Charles County, St. Mary's County
Calvert County Transit	6	Fixed/Deviated Fixed Routes, Suburban/Rural	Within Calvert County
St. Mary's SMS	9	Fixed/Deviated Fixed Routes, Suburban/Rural	Within St. Mary's

Commuter Service

Commuter service is provided by the Maryland Transit Administration (MTA) and the Washington Metropolitan Area Transit Authority (WMATA). MTA provides commuter bus service to the tri-county area via eight routes that serve park-and-ride lots and other major attractors. All but one of the routes provides service to Washington, D.C.; one route provides service to the Suitland Federal Center and the Suitland Metrorail Station in Prince George's County. WMATA currently operates one route in the region, from Indian Head in Charles County to the Southern Avenue Metrorail station in Prince George's County. Figure 3.10 shows the existing commuter routes and park-and-ride lots serving the tri-county area.

Figure 3.10 MTA, WMATA, and County Bus Routes



Source: Maryland Transit Administration; Maryland State Highway Administration.

Table 3.7 presents total trips, ridership, and passengers per day on the MTA and WMATA lines. From 2004 to 2007, MTA added 26 trips to its service to Southern Maryland, bringing the total number of trips per day serving Southern Maryland to 210. During that time, ridership grew by 14 percent and the number of

passengers per trip grew by 12 percent, with some routes experiencing significant growth. For example, the MTA 902 out of Calvert County experienced passenger per trip growth of 33 percent, and passenger growth per trip on the MTA 909 route out of St. Mary’s County grew by 38 percent.

Table 3.7 Commuter Bus Services in Southern Maryland

	MTA	WMATA	Total
Number of Routes	8	1	9
Trips per Day	210	27	231
Passengers per Day	7,072	657	7,729
Passengers per Trip	35	24	33

Source: Maryland Transit Administration; Washington Metropolitan Area Transportation Authority.

Local Service

Each county in Southern Maryland provides a combination of fixed and deviated fixed-route services. Deviated fixed-route services typically pick up passengers along a fixed route, but allow drivers to deviate slightly to drop off riders. The services provided include:

- **Charles County VanGO** integrates deviated fixed and fixed-route services with specialized services, including demand response, medical assistance, and ADA transportation. The VanGO system operates 10 routes serving Waldorf, La Plata, Indian Head, and Nanjemoy, mainly the western side of the County plus routes along U.S. 301 and MD 5. Over the last few years, VanGO has experienced tremendous growth to accommodate increased demand. In FY 2006, The VanGO system had an average weekday ridership of 1,335 over 188 trips. VanGO service revisions continue to be implemented to improve overall accessibility and service opportunities for residents.
- **Calvert County Transit** provides its residents with six fixed or deviated fixed routes (Monday through Saturday) throughout the County, as well as four demand response routes (Monday through Friday.) Recent data for Calvert County Transit show an average weekday ridership of 420 over 44 trips per day, resulting in approximately 10 passengers per trip
- **St. Mary’s Transit System (STS)** offers nine fixed or deviated fixed routes throughout the County. The system covers most of the MD 235 corridor from the northern to the southern end of the County. In 2006, STS had an average weekday ridership of 1,430 over 121 trips, an average load of nearly 12 passengers per trip. This is fairly standard for suburban/rural transit service operating with one-hour headways.

Table 3.8 presents the number of routes, ridership, and trips for each of the counties in Southern Maryland.

Table 3.8 Local Bus Services in Southern Maryland

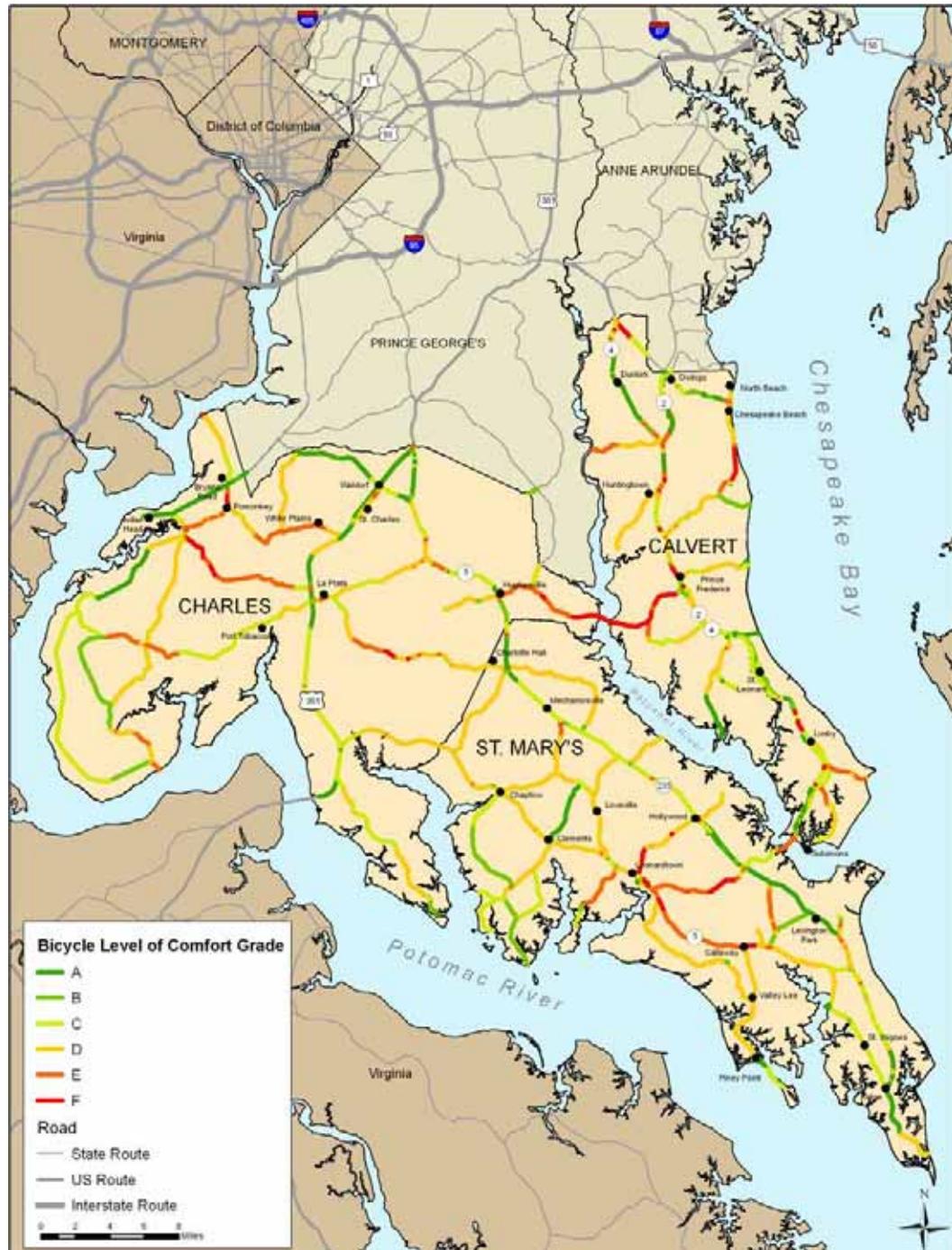
	Charles VanGO	Calvert County Transit	St. Mary's Transit System	Total
Number of Routes	10	10	9	25
Fixed Route	7	2	4	13
Deviated Fixed Route	3	4	5	12
Trips per Day	188	44	121	352
Average Weekday Ridership	1,335	420	1,430	3,193
Passengers per Trip	7	10	12	9

Source: Charles 2008 Annual Transportation Plan, 2007; Calvert County Transit; St. Mary's Transportation Development Plan, 2007.

Bicycle and Pedestrian System

The Maryland Department of Transportation undertook a comprehensive Bicycle and Pedestrian facility inventory in the Twenty Year Bicycle & Pedestrian Access Master Plan (2002). Current bicycling conditions were analyzed using the Bicycle Level of Comfort (BLOC) model. The BLOC model provides a measure of bicyclists' perceived safety and comfort within the existing roadway environment. The BLOC model is based on a number of factors such as roadway width, bike lane width, traffic volume, number of lanes on the road, pavement surface conditions, motor vehicle speed and type, and presence or absence of on-street parking. The BLOC model provides a grading system (A-F) for rating bicycle riding conditions on each roadway segment. Level A reflects the best conditions for bicyclists; level F represents the worst conditions.

Figure 3.11 Bicycle Level of Comfort (BLOC) in Southern Maryland



Source: Maryland State Highway Administration.

Note: "A" indicates excellent conditions for bicycling; "F" indicates poor conditions for bicycling.

Rail System

There is no existing commuter rail service in Southern Maryland, but one operating freight line is present. CSX Transportation Inc. (CSXT) operates a line that roughly parallels U.S. 301 from the Mirant Power Plant in Morgantown through Charles County and into Prince George’s County.

Figure 3.12 Rail System in Southern Maryland



Source: Federal Railroad Administration; Metropolitan Washington Council of Governments.

Air Facilities

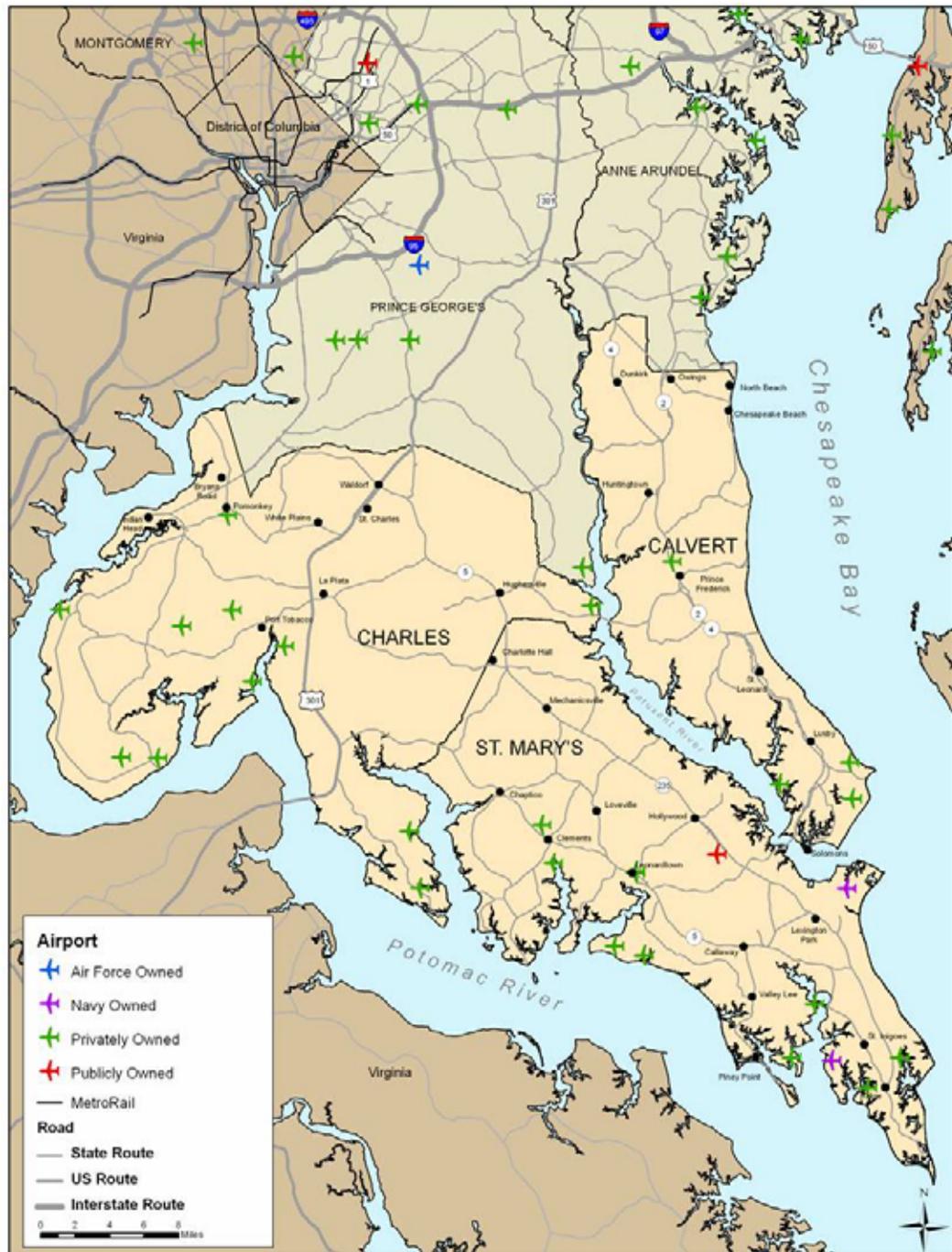
There is no commercial aviation service in Southern Maryland. The closest commercial airports are the Baltimore/Washington Thurgood Marshall International (BWI) Airport near Baltimore, Maryland and the Ronald Reagan National Airport near Washington, D.C. The inventory of airports in Southern Maryland consists primarily of private and military airports and heliports. There are 23 privately owned airports (one of which is available for public use), one publicly owned airport and two Navy-owned airports in the region. Air travel from these airports is primarily recreational, although charter service is available at many of them. Table 3.9 identifies the four airports that are public or available for public use, their general usage and available facilities. Figure 3.13 shows the locations of airports in Southern Maryland.

Table 3.9 Public and Publicly Accessible Airports in Southern Maryland

Airport	Location	Ownership	Usage	Facilities
Maryland Airport	Pomonkey, Charles County	Private	Public (70% Charles County residents)	<ul style="list-style-type: none"> • Primary runway for aircraft less than 12,500 pounds • 60-90 aircraft based there • Plans are in place to add a 4,300 foot runway to accommodate corporate jets
Captain Walter Francis Duke Regional Airport at St. Mary's	California, St. Mary's County	Public	Public	<ul style="list-style-type: none"> • One 4,150-foot runway for aircraft less than 12,500 pounds • Charter service • Expansion plans to allow eventual commuter air service are in place
Patuxent River Naval Air Station	Lexington Park, St. Mary's County	Military	Testing and evaluation of naval aircraft	<ul style="list-style-type: none"> • 3 heavy-duty runways (12,000, 9,700, and 6,400 feet) • 50,000 square miles of airspace
Webster Naval Outlying Landing Field	Priest Point, St. Mary's County	Military	Mainly unmanned aircraft landing	

Source: Federal Aviation Administration.

Figure 3.13 Airports in Southern Maryland



Source: Federal Aviation Administration.

4.0 Needs Analysis

A primary purpose of this effort is to provide a comprehensive understanding of transportation needs within Southern Maryland. The needs analysis has been organized by transportation mode around a set of policies and strategies that can improve the functioning of all transportation modes in the region. Where possible, specific transportation projects that can help address growing traffic and congestion in Southern Maryland have been identified. Other policies and strategies can be used to improve transportation without physical roadway construction.

4.1 NEEDS EVALUATION METHODOLOGY

This section of the report describes the methodology for identifying needs and the application of this methodology to each of the transportation modes within Southern Maryland. There are two outputs from the needs analysis:

- A set of policies and strategies that will improve the functioning of all transportation modes in Southern Maryland; and
- A list of specific transportation needs to help address growing traffic and congestion in Southern Maryland.

Policy and Strategy Analysis

Policies are specific courses of action pursued by government agencies. They can be developed within the bounds of existing legislation or developed in response to new legislative mandates. In this context policies are actions that an agency or jurisdiction can take to guide the development of transportation, land use, or related goals. Strategies are less formalized means to achieve those goals. They are initiatives that an agency can pursue to improve the transportation system. Neither policies nor strategies necessarily require investments in new infrastructure.

To develop policies and strategies for the *Needs Assessment*, a thorough literature review of best practices has been conducted. This review identified policies and strategies for each transportation mode – highway, transit, and bicycle/pedestrian – as well as land use practices that support an efficient, multimodal transportation system.

Potential policies and strategies were screened for their applicability to Southern Maryland.

Project Analysis

An initial draft list of potential transportation needs was derived from several sources, including:

- The priority letters generated by the three counties in Southern Maryland, as well as by the Tri-County Council for Southern Maryland;
- The Maryland State Highway Administration (SHA) Highway Needs Inventory (HNI);
- Completed studies of highways, transit, bicycle/pedestrian, and other modes; and
- Projects identified at the fall 2007 open houses conducted for the Transportation Needs Assessment.

A second list of project needs was identified using thresholds for highway, transit, and bicycle/pedestrian modes (Table 4.1). These thresholds help identify when new transportation investments are needed.

Table 4.1 Needs Analysis Thresholds

Mode	Threshold Variables	Threshold Source
Highway	Level of Service (LOS)	Maryland SHA
Transit	Ridership/Cost-Effectiveness Land use intensity Population density	Federal Transit Administration (FTA) New Starts Requirements and Data Transit Cooperative Research Program (TCRP) Best Practices Maryland Transit Guidelines
Bicycle/Pedestrian	Bicycle Level of Comfort (BLOC)	Maryland Bicycle Level of Comfort Analysis

Section 4.0 is organized by mode. Each modal section has a policy and strategy subsection that outlines key ideas and thresholds for the mode. This is followed by a project analysis subsection. The land use section includes a review of relevant policies and strategies that can support a multimodal transportation system in Southern Maryland, increase transit use, and improve quality of life.

4.2 HIGHWAY AND BRIDGE

Policies and Strategies

The toolbox of highway-related policies and strategies for Southern Maryland can be grouped as follows:

- Access Management, including policies, right-of-way purchases, and construction efforts (building medians, etc.) that can improve the functional capacity of the roadway system;
- Operational Improvements, including signal timing, ITS investments, incident management, minor or spot capacity improvements such as turn lanes and traffic control devices, and related investments in the operation of the roadway system that can improve functional capacity;

- Travel Demand Management designed to reduce single occupancy vehicle trips and encourage use of alternative modes, including transit and bicycles;
- Ridesharing, including carpooling and vanpooling;
- Safety Strategies focused on minimizing the loss of life and property that result from vehicular crashes; and
- Strategic Capacity Expansion, including the addition of mainline capacity (new lanes, bypasses, etc.).

These strategies can be related, integrated, and combined with other non-highway strategies.

Access Management

The roadway network serves various functions, from carrying through traffic at high speeds to handling slower moving local traffic. Access management refers broadly to the systematic control of access to roadways and varies according to the roadway's function. Access control is the highest form of access management and refers to the prohibition of direct private access to an arterial. Access management employs the following general strategies:

- Maintaining proper spacing between signals and interchanges;
- Managing driveway location, spacing, and design;
- Adding exclusive turning lanes, either at intersections and driveways, and utilizing continuous left or right-turn lanes where appropriate;
- Installing median treatments, including raised medians, to prevent movements across a roadway;
- Constructing service or frontage roads and providing connectivity between parcels such that a local roadway network can be developed and maintained that serves local trips between development pods and neighboring, compatible land uses; and
- Close coordination between state and local governments on land use and transportation planning decisions, plans, programs and development review.

Increased arterial capacity and safety are two of the key benefits of access management. Access management increases the functional capacity of roadways by reducing delay and increasing progression. These strategies reduce speed differentials and conflicting traffic movements, thereby improving highway safety. By causing less delay, these strategies can also improve air quality. Compared to roadway expansion, many access management strategies are relatively inexpensive ways to provide capacity. Implementing access management is often a matter of enacting policies that require it to be included in plans for the construction of new roadways or reconstruction of existing roadways. However, depending on the conditions of a particular highway corridor, implementing effective access management (particularly in the form of full access control) may

require the acquisition of land and construction of frontage roads, resulting in significant costs.

Failure to implement appropriate access management strategies can result in:

- Increased numbers of vehicle crashes;
- Increased crashes involving pedestrians and cyclists;
- Reduced roadway efficiency;
- Unsightly commercial strip development;
- Degraded landscape views;
- Increased cut-through traffic in residential areas due to overburdened arterials;
- Adverse impacts to homes and businesses due to road widening; and
- Increased commuting time, fuel consumption, and vehicle emissions, as closely spaced driveways and traffic signals intensify congestion and delay along major roads.¹³

Appropriate access management strategies vary according to roadway function. Access management is generally applied only to the highest functional classifications, with access controls being limited to selected arterial corridors.

Existing Conditions

Southern Maryland is partially committed to identifying access management as a general policy as reflected in long-term plans and through completed access management projects. Maryland's "access control concept plans" use a minimum of quarter-mile spacing for public road access points. Since effective implementation of access management strategies require appropriate land use policies, the cooperation of county and local government entities is essential. However, there is currently no requirement for local or county jurisdictions to implement SHA access management plans.

Charles County's zoning ordinances have included access management regulations for the U.S. 301, MD 5, MD 210, MD 5 Business, and MD 228 corridors for the past 15 years. These regulations include standards for minimum driveway spacing, driveway widths, access locations, turning lanes, and for the preservation of right-of-way for service roads. As part of the 1997 Comprehensive Plan, supplementary access management control guidelines were developed, which were subsequently added to the County's Road Ordinance in 2003. They address locations and spacing of intersections, access points, and median openings, as well as interparcel connections.

¹³TR News 228 September–October 2003.

Despite these general ordinances, no portion of U.S. 301 in Charles County is fully access controlled except the Nice Bridge.

The Charles County Comprehensive Plan includes access management as a specific policy to be promoted in the special “development district” in the northern portion of the county. Access management plans for several specific roads have also been developed as part of the 2002 Transportation Strategy. Roads with specific access management plans include:

- Cross County Connector;
- St. Charles Parkway;
- Middletown Road;
- Rosewick Road; and
- Western Parkway.

Charles County and SHA coordinate access management on a case-by-case basis for new development and redevelopment projects. Current plans for U.S. 301 improvements call for partial access control or other forms of access management along various roadway segments within the county. Several sections of this roadway already have effective access control, while others do not.

St. Mary’s County outlines specific access management policies in its comprehensive plan, including:

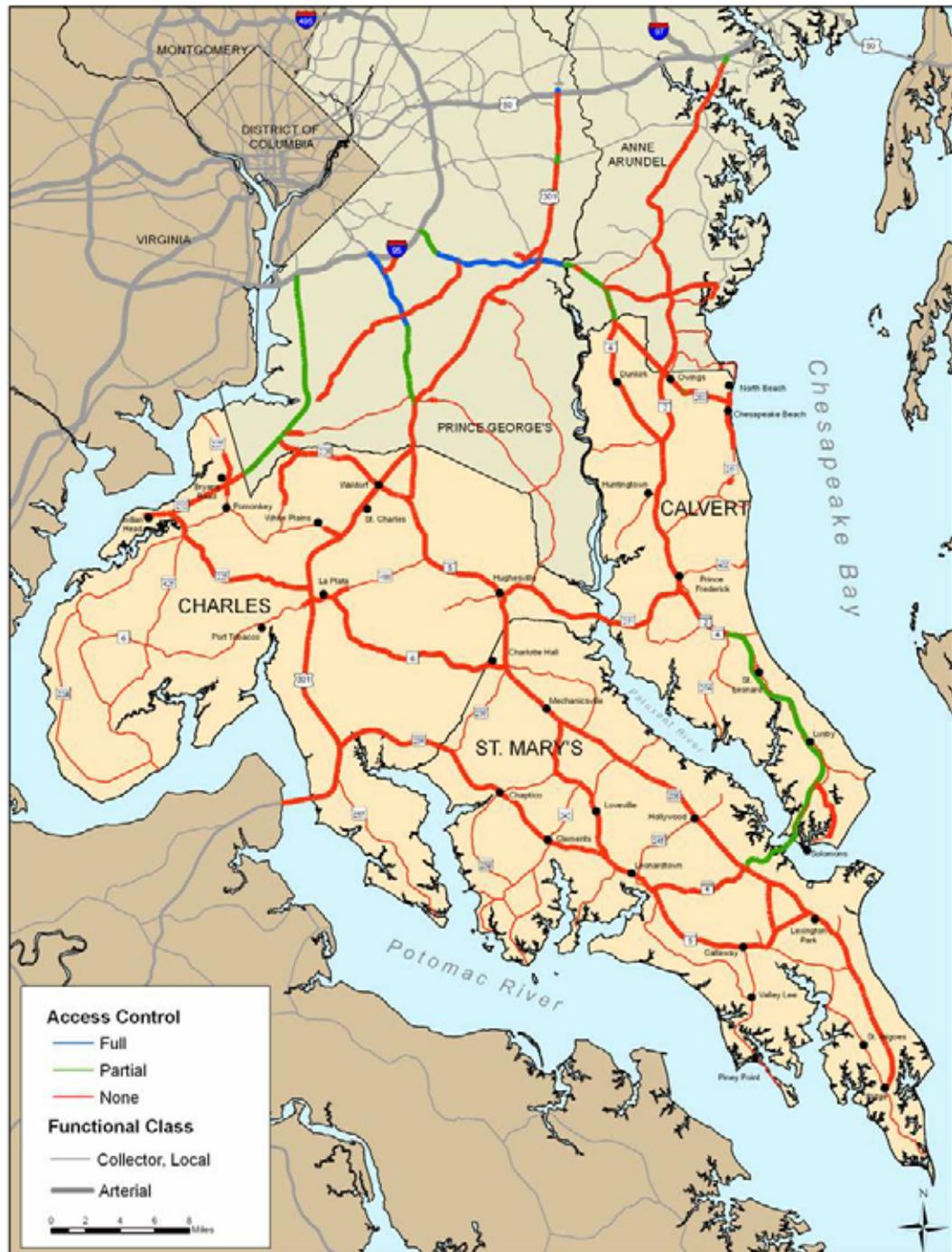
- Creation of local roads parallel to but well back from arterial routes to combat strip development patterns;
- Vehicular and pedestrian interconnection requirements between adjacent parking lots and subdivisions;
- Requirement of joint use access driveways for ingress/egress to contiguous properties; and
- Requirement of access driveway consolidation to reduce the existing number of ingress and egress points.

The plan further designates specific sections of MD 4, MD 5, MD 234, and MD 235 as restricted access traffic arteries. The SHA has worked with St. Mary’s County to develop access control concept plans for MD 5 and MD 235 between the Charles County line and MD 4.

Calvert County’s transportation plan also promotes access management. County planners are concerned about controlling access along MD 2/4, which is partially access controlled in the southern half of the county. The SHA is working with Calvert County to develop access control plans for MD 4 and MD 2/4.

Figure 4.1 shows access control along Maryland’s highways.

Figure 4.1 Access Control



Source: Cambridge Systematics, Inc. with data from State Highway Administration.

Median treatments improve safety through reducing turning conflicts and separating opposing directions of traffic, and, in some cases, increase functional capacity through increased progression. Medians are more relevant for highways with four or more lanes than they are for two-lane highways. Major median treatments include two-way left turn lanes (TWLTL) and raised medians. Currently in Southern Maryland, most primary State highways with four or more lanes have some type of median treatment, though 75 percent are unprotected. About two percent of all primary State highways in southern Maryland have TWLTL. A discussion of TWLTL and other turning lane treatments is presented in the Highway Operations section.

Access Management Strategies

As the three counties of Southern Maryland continue to transform from rural to low-density urban and long-distance commuting continues to grow, the pitfalls of unbridled access to major facilities will become more apparent. Because it becomes more difficult (both from an engineering and political perspective) and expensive to implement access management after roadways are constructed and roadside development has taken place, it is prudent to implement these strategies before problems become evident. Access management should be considered in every arterial highway plan. The legal and policy components of access management should be in place in corridors before extensive development occurs. A key element of this is tying zoning and development regulations to compliance with specific access management plans.

One component of access management that can significantly impact congestion and safety is signalized intersection spacing. Decreasing the spacing of signalized intersections from two per mile to eight per mile can increase travel time by nearly 40 percent (Table 4.2), though the specific increase will vary depending on local conditions. Studies in Texas and Colorado reveal significant travel time (total hours of delay reduced by 59 percent) and environmental (575,000 saved gallons of fuel) benefits from increasing signal spacing from one-quarter mile to one-half mile.¹⁴ Depending on land-use in a corridor, increased spacing can also improve safety. In addition to signalized intersection spacing, synchronization of the traffic lights along the primary corridors can have a significant positive impact on the movement of traffic for relatively low cost.

¹⁴Benefits of Access Management Brochure.

Table 4.2 Effect of Signal Spacing on Travel Time

Signals/Mile	Increase in Travel Time (Percent)
2	–
3	9
4	16
5	23
6	29
7	34
8	39

Source: Benefits of Access Management Brochure, 2003.

When possible, signalized intersections should be spaced out as much as possible along newly constructed or reconstructed primary arterial highways. According to the SHA Traffic Signals Brochure:

Where a signal is not justified, the unnecessary delay frustrates drivers. They become more apt to disobey the signal and to increase their speeds to avoid stopping or to make up for lost time after stopping. Noise from traffic stopping and starting at a signal can be irritating in both residential and commercial areas. An inappropriate signal also can cause some drivers to use alternate routes, thereby increasing traffic on lower volume residential streets. Additionally, a signal located too near another signal on a two-way road prevents a beneficial signal progression.

In places where closely spaced signalized intersections already exist along major arterials carrying through traffic, one of the following actions can be considered, although these solutions tend to be expensive:

- Remove the signalized intersection entirely, and realign the minor cross street to intersect a different nearby roadway. The nearby roadway should be of a greater functional classification than the realigned minor street, and should intersect the major arterial;
- Build service or “frontage” roadways along the arterial to eliminate the need for numerous access points along the arterial itself;
- Build grade-separated interchanges;
- Build overpasses or underpasses, eliminating the intersection entirely; or
- Remove the signal and use median treatments to force right-turn movements only at the intersection (right-in/right-out).

The overall spacing of access points, whether signalized or not, impacts the flow of traffic and traffic safety. Numerous driveways or minor roads connecting to primary roadways can be distracting and confusing and creates numerous conflict points. Fewer driveways spaced further apart allow for more orderly

merging of traffic and present fewer challenges to drivers. Free-flow speeds have been shown to be reduced by an average of 0.25 miles per hour for every access point per mile.¹⁵ Crash data also indicate a strong relationship between the number of crashes and the number of access points.¹⁶

Raised medians can reduce crashes by over 40 percent in urban areas and by over 60 percent in rural areas. Additionally, by removing “friction” between opposing directions of travel where medians are relatively small or nonexistent, raised medians increase the speeds people are willing to travel. Installing additional positive barriers along Southern Maryland highways can be an effective strategy for increasing safety and capacity. Some barriers, such as curbed medians, are only appropriate for Maryland roadways where the design speed is less than 50 mph.

When implementing access management, particular properties may be cut off from the nearby primary thoroughfare through the removal of access or prohibition of certain turning movements. Most concerns about access management relate to perceived reductions in revenue to local businesses that depend on pass-by traffic, though studies have indicated the negative impact to be minor or nonexistent.¹⁷ Nevertheless, these perceived negative impacts must be considered when developing access management strategies.

As Southern Maryland continues to grow, it is important to ensure the orderly development of the local circulator system. Having an effective local roadway system that allows traffic to access local developments without having to use Maryland’s arterial highways will preserve the functional integrity of the system for through trips. Access management and related policies can help ensure that new local developments are accessed through local roads with limited, but sufficient links to arterial highways.

Highway Operations

Maryland has a set of strategies designed to maximize the efficiency of the transportation system using operational and technological strategies. The Coordinated Highways Action Response Team (CHART) is Maryland’s integration of traveler information, incident management, and ITS technology. It includes five elements:

1. Traffic and Roadway Monitoring – real time data collection;
2. Incident Management – responding to incidents quickly and efficiently;
3. Traveler Information – provide real time information to travelers;

¹⁵Highway Capacity Manual, 2002.

¹⁶Benefits of Access Management Brochure.

¹⁷Benefits of Access Management Brochure.

4. Traffic Management – strategies to control vehicular movements, increase the efficiency of the highway system, and encourage alternate modes of travel; and
5. System Integration and Communications – interagency and intermodal coordination and data sharing.

Different types of operational strategies can be used to address recurring and nonrecurring congestion (Table 4.3).

Table 4.3 Types of Congestion with Usual Mitigation Strategy

Type of Congestion	Representative Causes of Delay	Mitigation Strategy
Recurring	Infrastructure capacity shortfalls	Capacity increases
	Interchange bottlenecks	
	Weave and merge friction	
	Non-optimized traffic signal timing ^a	
Nonrecurring	Breakdowns and crashes	Systems operations and management
	Construction work	
	Weather	
	Vehicle Mix	

Source: Maryland CHART Nonconstrained Deployment Plan, 2006.

^a Though nonoptimized signal timing will lead to recurring congestion, it is addressed through operations and management, not new capacity.

CHART recently completed a Rural Management and Operations/Intelligent Transportation Systems (M&O/ITS) Strategic Deployment Plan for the State of Maryland in March 2007. The plan has Rural Maryland divided into three regions (the Eastern Shore, Western Maryland and Southern Maryland). It was developed with input from the various stakeholders, which include state, county, and local agency officials, in the three regions through separate meetings and review and comment sessions. The Plan includes strategies and cost estimates for the future expansion of CHART into each of the three rural regions to help address growing transportation issues such as highway congestion, safety, incident-related delays, and emergency evacuation and homeland security-related issues. For Southern Maryland, the strategies identified include:

- A new CHART Traffic Operations Center (TOC) at a location to be identified in the region. This is part of an overall CHART Statewide Strategic Plan;
- Deployment of dynamic message signs (DMS) at various locations in the region already identified in the plan as part of CHART’s overall Traveler Information and Emergency Evacuation/Homeland Security functions;
- Installation of emergency evacuation guide signs directing motorists to specific routes or destinations such as the Nice Bridge, MD 210 and Calvert

County as part of an overall Emergency Evacuation/Homeland Security strategy;

- Expansion of CHART’s Freeway Incident Traffic Management (FITM) plans as part of CHART’s Incident Management and Traffic Management functions; and
- Deployment of closed circuit television (CCTV) cameras, roadway weather information systems (RWIS), and traffic speed detectors at various locations in the region already identified in the plan as part of CHART’s Traffic and Roadway Monitoring function.

The strategies are currently unfunded, with the exception of two of the 10 identified DMS locations.

Potential short- and long-term issues that may be relevant for Southern Maryland are included in Table 4.4.

Table 4.4 Potential Highway Operations Strategies for Southern Maryland

Strategy Area	Description	Responsibility
Traffic and roadway monitoring	New technologies for counting vehicles and use of alternate methods of tracking congestion, such as through probe data, mean potentially lower-cost roadway monitoring. These include items such as CHART cameras.	MDOT/SHA
Traffic management	Improve signal timing and coordination	SHA/local jurisdictions
Incident management	CHART patrols for quicker incident response	
Traveler information	Information about park-and-ride use and availability	SHA/local
	Dynamic Message Signs	SHA
	Real-time travel time/distance information for motorists	
	Alternate route advisories	
	Traffic advisory radio	SHA

Crashes, breakdowns, weather events, and construction now cause 50 percent of the delays on Maryland’s major highways.¹⁸ By expanding the coordinated quick response of public safety and highway personnel and alerting drivers to incidents in Southern Maryland, these systems can reduce congestion and increase reliability.

Basic, low-cost transportation system management alternatives, such as improved signal timing and coordination, are already being implemented.

¹⁸Maryland Transportation Plan.

Infrastructure improvements at intersections can also improve highway operations. These strategies increase roadway capacity, particularly at poorly performing intersections or along arterials with numerous driveways or minor intersecting streets.

When an intersection is the determining factor in a roadway's poor LOS, intersection redesign may be required. Solutions include changing the type of traffic control, such as from stop signs to signals or roundabout; adding exclusive turning lanes; grade separation; and removing conflicting movements, such as forbidding left-turn movements.

Exclusive turning lanes for vehicles remove stopped vehicles from through traffic lanes. Left-turn lanes at intersections substantially reduce rear-end crashes. Exclusive turn lanes have been shown to reduce crashes from between 18 and 77 percent (50 percent average) and reduce rear-end collisions from between 60 and 88 percent. A shared left turn and through lane has about 40 to 60 percent of the capacity of a standard through lane. A 25 percent average increase in capacity has been experienced on roadways that added a left-turn lane. Right turn lanes also add capacity, reduce delay, and decrease rear-end collisions.

A major intersection's left turn movement can also be moved to a different location. In New Jersey, the jug-handle left turn requires a right turn onto a feeder street, followed by a left onto a cross street. Michigan has extensively used an indirect U-turn that requires a U-turn after an intersection followed by a right turn. Crashes decline by 20 percent on average and 35 percent if the indirect turn intersection is signalized. Capacity typically increases by 15 to 20 percent.

Two-way left turn lanes (TWLTL)¹⁹ in one Iowa corridor reduced crashes by as much as 70 percent, improved level of service by one full grade in some areas, and increased lane capacity by as much as 36 percent.²⁰ TWLTLs help to move left-turning vehicles out of the traffic stream reducing delays in areas with numerous driveways.

TWLTLs are recommended in low-density urban areas with numerous roadway access points along two-lane arterials, where it is infeasible to reduce those access points due to right-of-way constraints or local opposition.

Continuous right-turn lanes have been employed along U.S. 301 in the Waldorf area. These lanes remove cars slowing to make right turns at numerous driveways from the through traffic stream. Each additional car waiting for a right turn increases the delay more than the previous car, creating an exponentially growing delay. In areas with many right-turn movements into closely spaced driveways, particularly where rear-end collisions have been a concern, a con-

¹⁹TWLTL's allow turn movements in multiple directions from a center lane.

²⁰Benefits of Access Management Brochure.

tinuous right-turn lane may be an effective strategy. However, it is sometimes difficult to enforce proper use of continuous right-turn lanes.

Travel Demand Management

Travel demand management (TDM) strategies are relatively low-cost solutions to reduce vehicular traffic at a regional level. These strategies include or are related to carpools, vanpools, biking, walking, alternative work-hour or workplace programs, and parking management. Carpools and vanpools are discussed in the “Ridesharing” section below.

The Charles County Comprehensive Plan, as well as some corridor feasibility studies in Southern Maryland, promotes telecommuting and teleservices as potential strategies. Measuring the transportation impacts of investing in such strategies is difficult, but the costs are minimal.

State and county agencies can promote alternative work-hour or workplace programs through marketing and incentives. Compressed work-week programs, flextime, telework and telecommuting, and promotion of home-based businesses are examples of TDM strategies. City agencies can investigate parking pricing and availability, including parking requirements for new developments, since parking supply and cost directly influence highway demand.

These measures are most effective when combined. Studies have shown anywhere from a 0.5 to a 1.5 percent reduction in travel from telework programs. Compressed work weeks have been shown to reduce regional VMT by 0.6 percent. Employees with flexible work schedules save an average of seven minutes per day in commute time. Flexible work schedules combined with telework programs can be extremely effective.²¹

Ridesharing

Existing Conditions

Ridesharing is already in practice in Southern Maryland, with the SHA, MTA, and local governments providing ridesharing lots both exclusively for carpooling as well as with transit service (park-and-ride). The MTA’s Commuter Assistance Office, as well as corresponding coordinators from the Tri-County Council for Southern Maryland and the Metropolitan Washington Council of Governments Commuter Connections Program, provide information on carpooling and match potential carpoolers through a computerized database. They also provide information on park-and-ride lots.

Vanpools are a form of ridesharing. They normally carry up to 15 people, with costs determined by the number of passengers, length of trip, insurance,

²¹TDM Encyclopedia, Victoria Transport Policy Institute.

maintenance, gas, and parking fees. The driver rides free and has personal use of the van on evenings and weekends.

Numerous other privately created rideshare matching services are currently in use in Southern Maryland. These include web sites such as erideshare.com, car-poolworld.com, and craigslist.com.

Operations Strategies

Ridesharing helps to reduce congestion and VMT while providing more modal options and accessibility. Because rideshare passengers tend to have relatively long commutes, mileage reductions can be significant. Rideshare programs typically reduce up to 8.3 percent of commute VMT, up to 3.6 percent of total regional VMT, and up to 1.8 percent of regional vehicle trips. Rideshare programs that include HOV and parking incentives often reduce commute trips by 10 to 30 percent. For specific worksites, ridesharing programs can reduce daily vehicle commute trips by five to 15 percent, and by up to 20 percent or more if they are combined with parking incentives (or disincentives for other vehicles). Another study estimates that a 10 percent reduction in vanpool fares increases ridership by about 15 percent. From the user perspective, ridesharing also reduces commuting costs: a three-rider carpool reduces individual costs by about 67 percent, while a 10-rider vanpool reduces them by about 87 percent.²²

Several strategies can be used to improve performance and increase ridesharing usage:

- Increased resources, including manpower, facilities, and money;
- Increased and targeted incentives; and
- Increased and targeted marketing.

Government agencies can boost the convenience and appeal – and therefore the usage – of ridesharing through provision of additional resources. The construction of HOV lanes on congested highways can provide a time savings incentive for ridesharing, if the highways are access controlled.

Park-and-ride lots can incorporate features to make them as amenable to ridesharing as they are to transit. These include separate parking and/or staging areas, enclosed waiting areas and other facilities, and well-marked and visible signage.

Though ridesharing participants currently have access to information through government web sites, a one-stop Internet portal providing easier, faster on-line rideshare registration, on-line ridematching, general ridesharing information, and information on other connecting modes such as transit routes and schedules or bicycle routes and services can increase the level of ridesharing. Government

²²TDM Encyclopedia, Victoria Transport Policy Institute.

resources in the form of manpower to help maintain web sites and facilitate the ridematching process can also help increase ridesharing.

A guaranteed ride home (GRH) program is essential for encouraging potential rideshare participants who currently choose not to participate because of the fear of being stranded due to unpredicted schedule changes or absent drivers. Guaranteed ride home programs are generally government subsidized rides by taxi or other available modes, with a certain monthly maximum limit.

Agencies such as the MTA can dedicate financial resources to ridesharing through various incentives. Incentives can be provided to participants directly or via employers; incentives can also be provided to employers themselves in exchange for promotional efforts they take. Types of incentives include preferential parking spaces, awards and contests, cash payments or tax incentives to employees who carpool or vanpool, vouchers that cover vanpool fees, an “empty seat subsidy” for vanpools, and incentives for first-time users.

Education and outreach through advertising and promotional campaigns are necessary to make more people aware of the existence of ridesharing, tell them how to participate, and inform them of its benefits. Special targets include areas with limited or nonexistent transit services, special events (including “special event ridematching”), and advertising in heavily traveled and congested commute corridors. Strategic marketing campaigns should incorporate both public and private participation.

Safety Strategies

Existing Conditions

In 2006 there were 5,124 crashes on Southern Maryland roadways causing 68 fatalities and 2,994 serious injuries. The resulting human and economic consequences are unacceptably high. Reducing crashes, injuries, and deaths is a high priority for the region and for the State as whole, which is indicated not only in statewide priorities via plans such as the Maryland Transportation Plan, but also through county and local plans.

Safety Strategies

The recently updated Maryland Strategic Highway Safety Plan (SHSP) provides a framework and an approach for reducing crashes on Maryland’s roadways.

Maryland’s Strategic Highway Safety Plan (SHSP) is a working document that provides a framework for reducing highway fatalities and serious injuries on **all** public streets and highways. The SHSP applies the 4E’s of highway safety: Enforcement, Education, Engineering, and Emergency Medical Services, across the following emphasis areas:

- Reduce Impaired Driving;
- Improve Information and Decision Support Systems;

- Eliminate Hazardous Locations, including:
 - Keep Vehicles on the Roadway;
 - Improve Safety at Intersections;
 - Create Safer Work Zones; and
 - Make Walking and Crossing Streets Safer.
- Increase Occupant Protection;
- Improve Driver Competency, including:
 - Reduce Distracted Driving;
 - Enhance Safe Driving for Older Drivers;
 - Develop Safe Young Drivers;
 - Improve Motorcycle Safety; and
 - Make Truck and Bus Travel Safer.
- Curb Aggressive Driving; and
- Improve Emergency Response System.

Current SHSP efforts are focused on creating regional implementation plans based on crash data analysis. The Tri-County Council for Southern Maryland is playing a key role in this effort by facilitating cooperation and coordination of the SHSP implementation efforts among Calvert, Charles, and St. Mary's counties and by organizing the political support required to implement the identified behavioral and infrastructure safety priorities for the region.²³

Charles County's current priority program areas are impaired driving, occupant protection, young driver safety, older drivers, aggressive driving, distracted driving, motorcycle safety, and pedestrian/bicycle safety.²⁴ Along U.S. 301, several sections have higher than average rear-end and truck crash rates. These may be caused in part by a lack of proper access management.²⁵ Access management strategies, therefore, can play a major role in increasing highway safety.

In St. Mary's County, a focus has been placed on improving unsafe intersections, adding shoulders to collectors and other locally important roadways that have automobile safety issues as well as large volumes of bicycles or carriages, improving the pedestrian environment within communities to improve pedestrian safety, and bicycle route planning and community education to increase

²³Maryland Safety Summit, November 2007.

²⁴Charles County Comprehensive Plan.

²⁵U.S. 301 Waldorf Area Transportation Improvements Study.

bicycle safety.²⁶ One of the objectives of the Calvert County Transportation Plan is to provide “a transportation system which provides for increased safety for motorists, bicyclists, and pedestrians.” More specifically, it recommends that traffic control at intersections should maximize safety, with preference given to grade separation; acceleration and deceleration lanes, crosswalks, and roundabouts should be used to increase safety; and transportation improvements should be bicycle and pedestrian compatible.

Many of the strategies recommended in the above sections can increase safety. Access management strategies have proven to be effective for increasing traffic safety. Intersection redesign and geometric improvements at substandard locations can also improve safety.

Strategic Capacity Expansion

Most highway-related improvement strategies involve increasing capacity in some way. Access management and operational strategies (Intelligent Transportation Systems, incident management, and related strategies), all increase the number of vehicles that can fit within a roadway within a certain time period. However, this section deals with traditional high-impact capacity enhancements related to the physical highway infrastructure.

These strategies are the traditional highway capacity solutions that are in every agency’s toolbox. They are typically among the highest-cost solutions. In the last several decades these capacity expansion solutions are considered only when lower-cost solutions are unable to solve the identified capacity problems alone.

Capacity Expansion Strategies

Absent other variables, doubling the number of lanes of a roadway doubles its capacity. However, there are numerous potential confounding variables. If intersections have poor LOS, and particularly if those intersections are closely spaced, they could be the controlling factor for the roadway’s LOS and not the mainline capacity, and additional lanes may not improve speed much. Also, if congestion is occurring at a single point, the issue could be a geometric-related bottleneck. For added lanes to be effective, the widened segments should have logical termini. Without well-considered starting and ending points for the project, the congestion may simply move downstream. Numerous projects in the three counties’ transportation plans, the MTP, the CTP, and the HNI involve the addition of lanes.

High-occupancy vehicle (HOV) lanes are often considered a more acceptable approach for adding mainline capacity since they encourage carpooling and transit use. HOV lanes can be restricted to vehicles with greater than two or greater than three occupants; buses; taxis; or even vehicles willing to pay a toll

²⁶St. Mary’s County Transportation Plan.

(these facilities are known as high-occupancy/toll, or “HOT,” lanes). These lanes may be separated by a barrier or simply by striping. In some places where HOV lanes have been implemented, vehicles can enter and exit the lanes continuously, and at some locations entries and exits to these lanes are limited. In some regions, such as southern California, HOV lanes have their own exclusive interchange ramps. In some cases the HOV lanes are restricted to HOVs only during peak periods.

HOV lanes are usually employed on expressways. To be effective, they should be employed over longer distances on higher-speed facilities without many at-grade intersections (though they could be implemented at a specific bottleneck as well). The roadway should be congested enough such that the use of the HOV lanes has a noticeable benefit. It is also helpful if local origin-destination patterns facilitate carpooling.

Currently HOV lanes are not in operation in Southern Maryland. As segments of major facilities such as U.S. 301 are upgraded to expressway-like designs, HOV lanes can be considered. Where traffic volume and congestion warrant in the future, high-occupancy/toll (HOT) lanes can be considered as well. HOV and HOT options are more likely to be applicable during peak times along major commuter corridors leading towards Washington, D.C. as well as congested chokepoints, such as the Governor Harry W. Nice and Governor Thomas Johnson Memorial Bridges.

New roadways add capacity and improve connectivity. According to the MTP, “construction of key missing links is sometimes the most cost-effective approach to eliminating bottlenecks and improving regional transportation service.” The U.S. 301 Waldorf Area Transportation Improvements Study suggests several possible options for a new bypass in northern Charles County for U.S. 301, and several other new roadways are currently in design, construction, or newly opened.

Widening lanes and shoulders requires less ROW than adding lanes, but it is only effective and necessary if lane width and shoulder width are substandard. On two-lane primary arterials with higher speeds, the Highway Capacity Manual suggests that lanes should be at least 12 feet and shoulders six feet. Due to safety issues, difficulty passing, delay from stalled or stopped vehicles, and a natural tendency to drive slower on narrower roadways, narrower lanes and shoulders generally reduce the free-flow speed on highways (Table 4.5). Similarly, substandard geometrics, such as tight curves or steep grades, may cause specific bottlenecks. Geometric causes of congestion should be considered before looking to additional lanes as a solution.

Table 4.5 Impact of Lane and Shoulder Width on Free-Flow Speed for Two-Lane Highways (mph)

Lane Width (Feet)	Shoulder Width (feet)			
	≥0<2	≥2<4	≥4<6	≥6
9<10	6.4	4.8	3.5	2.2
≥10<11	5.3	3.7	2.4	1.1
≥11<12	4.7	3.0	1.7	0.4
≥12	4.2	2.6	1.3	0.0

Source: Highway Capacity Manual 2000.

The benefits of well designed roadway capacity expansion include significantly reduced congestion, higher speeds, and reduced delay. This, in turn, can decrease pollution and fuel consumption. Increased roadway capacity can also be a catalyst for development.

However, these strategies also tend to have great time, monetary, and environmental costs. They almost all require additional right-of-way and should be considered far in advance. Large amounts of added capacity can increase highway demand and trip lengths to the disadvantage of other modes; the increased highway demand could reverse some of the pollution and fuel consumption benefits garnered through the reduced congestion.

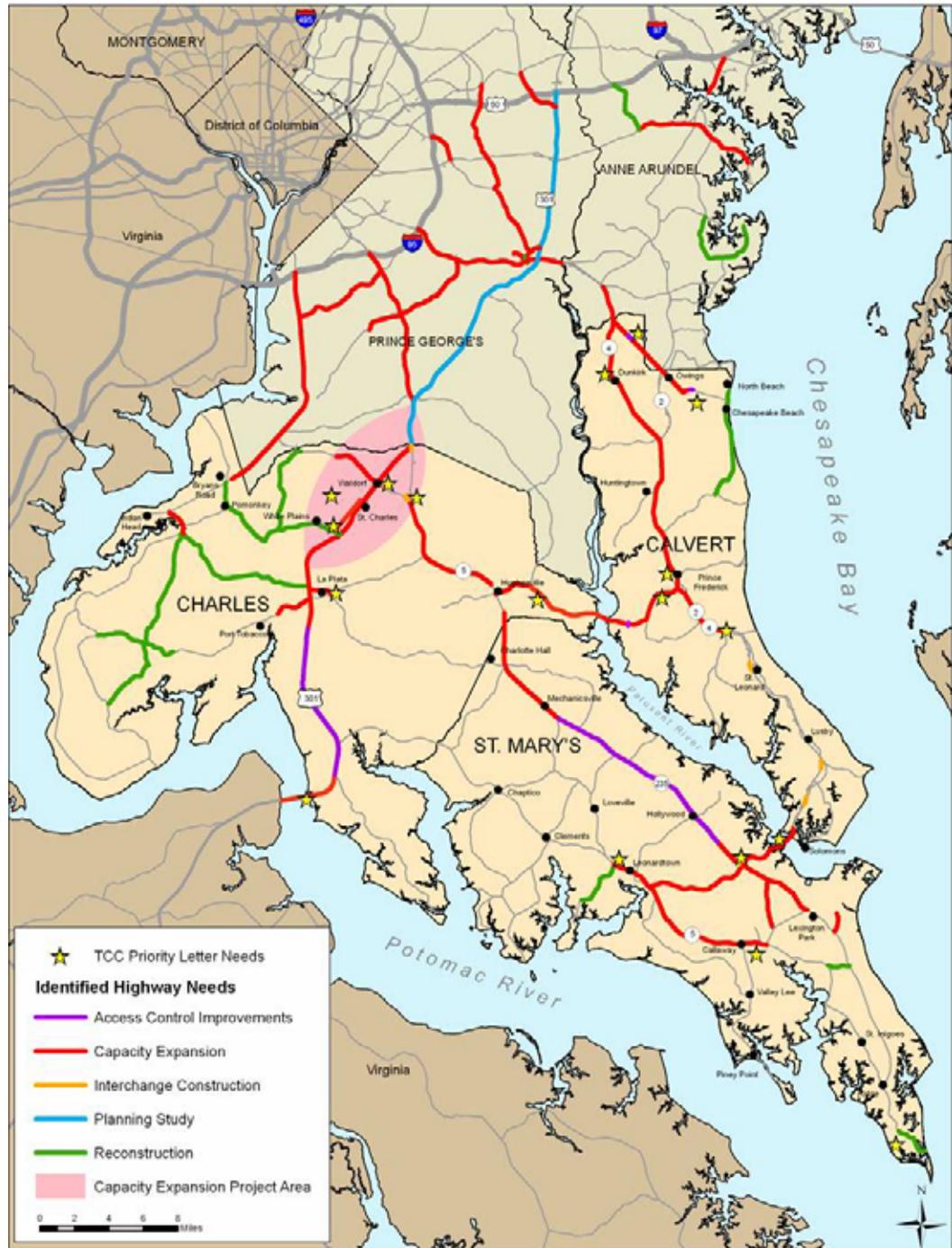
Capacity expansion strategies are best coordinated with other policies and solutions, such as land-use and TDM strategies.

Highway System Needs

The first step in identifying transportation system needs is to list the projects identified in previous prioritization and planning exercises. For the Southern Maryland Transportation Needs Assessment, this includes the existing priority letters from the three counties and the Tri-County Council, the Maryland SHA Highway Needs Inventory, and other existing studies. Figure 4.2 presents the highway projects identified for these sources grouped into several types:

- Mainline capacity additions;
- Access control improvements;
- Interchange construction;
- Roadway reconstruction; and
- Additional planning and studies.

Figure 4.2 State Highway Needs in Southern Maryland



Source: State Highway Administration.

Highway Deficiencies

In addition to identifying potential projects from the priority lists, a highway level of service (LOS) threshold is used to identify current and future highway deficiencies. These deficiencies indicate the need for new capacity or other highway improvements and strategies. SHA considers LOS E or F to be an unacceptable level of service for a state highway.

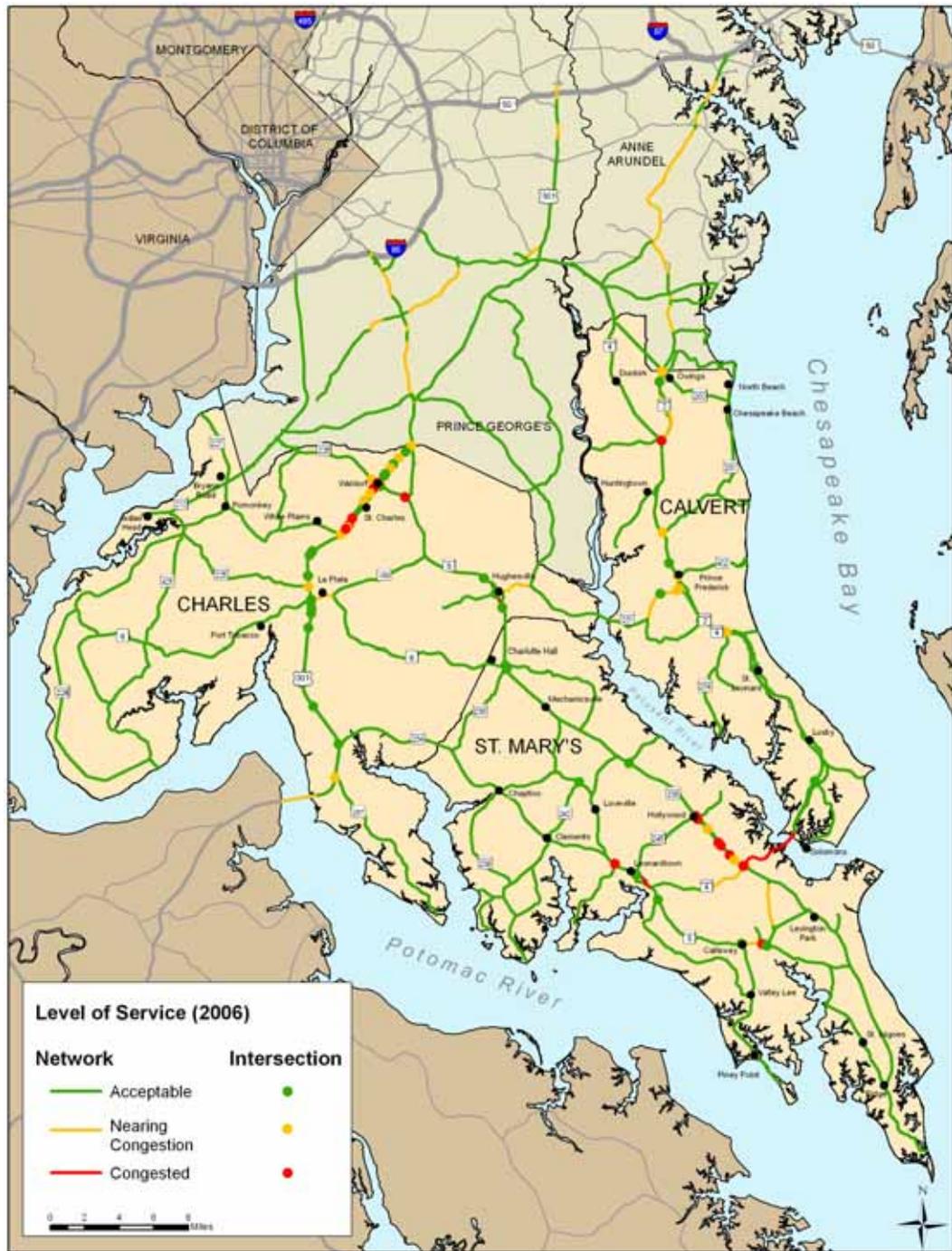
Figures 4.3 and 4.4 present the LOS for mainline highway segments and selected intersections in the study area.²⁷ Segments and intersections that have reached LOS E or F are colored in red. The analysis of highway LOS utilizes existing SHA daily traffic count and geometric data for 2006, with traffic growth rates from the Metropolitan Washington Council of Governments (MWCOC) travel demand model and all projects within the current CTP for future volumes and geometric data. Both 2006 and 2030 highway LOS were calculated using standard Highway Capacity Manual procedures applied to estimated peak-hour volumes. Intersection LOS were taken directly from SHA intersection studies.

Table 4.6 identifies highway locations that are deficient. These deficient locations are places where capacity enhancement or other strategies may be useful. They also may overlap with previously identified projects (Figure 4.3).

Based on traffic growth projected in the MWCOC model, various functional deficiencies arise in the near, mid, or long-term. Table 4.6 shows the approximate timeframe and the approximate population threshold at which the deficiencies are likely to arise. Since population is a major driver of traffic growth, the table presents these data as a gauge for planners to use in determining when improvements will be necessary.

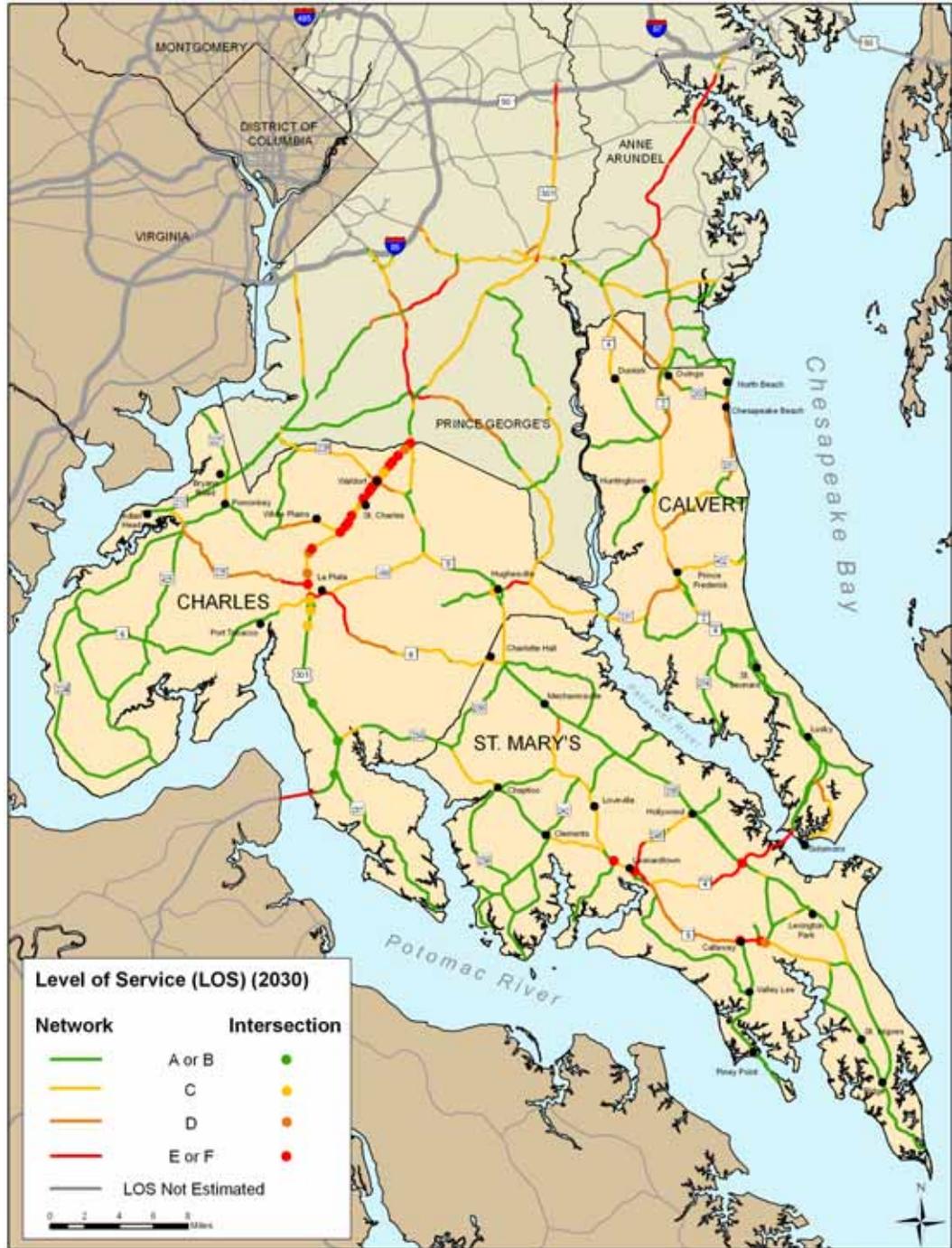
²⁷Based on available intersection LOS data from SHA. Not all intersections were included in this analysis.

Figure 4.3 2006 Level of Service



Source: Cambridge Systematics, Inc. with data from State Highway Administration.

Figure 4.4 2030 Level of Service



Source: Cambridge Systematics, Inc. with data from State Highway Administration.

Table 4.6 Identified Highway Functional Deficiencies in Southern Maryland

Road	From	To	County	Deficiencies				Expected Timeframe
				LOS		Median	Access Control	
				Segment	Intersection			
U.S. 301	Nice Bridge	–	Charles	●				2010-2020
U.S. 301	Prince George’s County	MD 227	Charles	●	●		●	Now
U.S. 301	Mitchell Road	MD 6	Charles		●	●	●	2020-2030
MD 2	MD 4	–	Calvert		●	●	●	Now
MD 4/Governor Thomas Johnson Bridge	MD 235	MD 2	St. Mary’s/Calvert	●	●			Now
MD 4	Indian Bridge Road	MD 235	St. Mary’s	●	●		●	2020-2030
MD 5	MD 4	MD 243	St. Mary’s	●	●		●	2010-2020
MD 5	MD 246	MD 249	St. Mary’s	●	●		●	Now
MD 5	St. Charles Pkwy	–	Charles		●		●	Now
MD 6	U.S. 301	Bel Alton Newtown Road	Charles	●	●	●	●	2010-2020
MD 225	Mitchell Road	U.S. 301	Charles	●	●		●	2020-2030
MD 228	U.S. 301	–	Charles		●		●	Now
MD 231	MD 5	MD 381	Charles	●			●	2020-2030
MD 235	MD 245	MD 4	St. Mary’s		●	●	●	Now
MD 245	MD 5	McIntosh Road	St. Mary’s	●				2010-2020
MD 260	MD 4	Mt. Harmony Road	Calvert	● ^a			●	2006-2010

Source: Cambridge Systematics Analysis

^a Segment included with LOS D as roadway of interest for Maryland DOT.

Major Capacity Needs

Table 4.7 highlights major capacity needs independent of those identified through the HNI and through other state and regional plans. Segments with substandard LOS are identified in Figures 4.4 and 4.5. Some of these major capacity needs overlap with projects identified previously (Figure 4.3).

Table 4.7 Potential Major Capacity Needs Based on Deficiency Analysis

Road	From	To	County
U.S. 301	Nice Bridge	–	Charles
U.S. 301	Prince George County	MD 227	Charles
MD 4/Governor Thomas Johnson Bridge	MD 235	MD 2	St. Mary's
MD 4	Indian Bridge Road	MD 235	St. Mary's
MD 5	MD 4	MD 243	St. Mary's
MD 6	U.S. 301	Bel Alton Newtown Road	Charles
MD 225	Mitchell Road	U.S. 301	Charles
MD 231	MD 5	MD 381	Charles
MD 245	MD 5	McIntosh Road	St. Mary's

Source: Cambridge Systematics, Inc. Analysis.

Where additional lanes are not feasible due to social, right-of-way, or cost constraints, other capacity increasing projects with lower impacts can be considered, such as lane or shoulder widening. Access management projects can also be considered as well as targeted geometric improvements to remove a specific bottleneck. However, such lower impact strategies are unlikely to improve roadways at LOS E or F by more than one grade.

Major capacity projects should incorporate into their planning and design elements of the other strategies to maximize the benefits from large infrastructure investments.

Access Management Needs

Areas with poor segment-level LOS, many closely spaced intersections with poor LOS, no access control, no medians, and many intersections and driveways are candidates for access management strategies. The segments with access management needs in Table 4.8 are derived from the segment and intersection LOS analysis as well as input from SHA. These segments overlap with many of the segments with major capacity enhancement needs outlined in the section above. These projects should be jointly considered: when full or partial access control is implemented, it is likely to require roadway reconstruction, and the two can be done in tandem. Access control may require the construction of grade-separated

interchanges or service roads to provide access to properties with no other access points. Access control improvements can be applied to selected State Primary Highways and on arterial relocations.

Table 4.8 Potential Access Management Needs Based on Deficiency Analysis

Road	From	To	County
MD 4	Indian Bridge Road	MD 235	St. Mary's
MD 5	MD 4	MD 243	St. Mary's
MD 6	U.S. 301	Bel Alton Newtown Road	Charles
MD 225	Mitchell Road	U.S. 301	Charles
MD 231	MD 5	MD 381	Charles
MD 235	MD 472	MD 4	St. Mary's
U.S. 301	Prince George County	MD 227	Charles
U.S. 301	Mitchell Road	MD 6	Charles

Where lower impact access management strategies, such as restrictions on the number of driveways per property, minor rearrangement of access points, or construction of a median to prevent mid-block turns can be effective they should be pursued as less expensive alternatives to major capacity enhancements. These techniques can be employed on other arterial reconstructions outside of arterial relocation or specifically identified State Primary Highways.

Because many access management strategies are a matter of policy and are easier to implement before access issues arise, all major arterial corridors projected to be at LOS D in 2030, or that are predicted to have other access management-related deficiencies in the future according to SHA, should also be considered for low-cost access management treatments. These corridors are likely to continue to degrade beyond 2030 if strategies are not put into place to maintain capacity and safety on these roadways. These arterial corridors include:

- Calvert County roads:
 - MD 260;
 - MD 261;
 - MD 231;
 - Segments of MD 2/4;
 - Segments of MD 2; and
 - Segments of MD 4.

- Charles County roads:
 - MD 6 near La Plata; and
 - MD 225 near La Plata.
- St. Mary’s County roads:
 - MD 5 between MD 4 and MD 246;
 - MD 5 in Newmarket; and
 - MD 5 in Mechanicsville.

Ridesharing and Travel Demand Management

Specific carpooling, vanpooling, and TDM needs overlap heavily with those of park-and-ride transit users (see “Park-and-Ride Facility Recommendations” in Section 4.3). Expansion of existing carpool or park-and-ride lots and the addition of new lots can increase carpooling as well as transit usage. Park-and-ride facility upgrades should be done in concert with carpool and vanpool planning to ensure consistent objectives. TDM strategies tend to complement transit strategies as well by helping to increase their impact.

According to current usage information, the following park-and-ride lots are well used and may be in need of expansion:

- MD 235 lot north of MD 4 in St. Mary’s County (St. Mary’s Airport);
- Several Waldorf area lots in Charles County; and
- Most lots along MD 2/4, MD 2, and MD 4 in Calvert County.

An analysis of the most popular origin destination pairs for home-based work trips reveals prime corridors for carpooling, vanpooling, and transit. Resources should be focused in these corridors ensure increased ridesharing. Park-and-ride and carpool lots in these corridors should be expanded if they are currently full and new lots should be built if none exist. New lot development currently entails substantial overlap and coordination between SHA and MTA.

According to 2002 trip data from the MWCOG model, more than 20 percent of trips to work in Charles, St. Mary’s, and Calvert Counties originate in the Waldorf area. More than 20 percent of these trips are destined for Washington, D.C. Many already use existing park-and-ride facilities to access transit or to rideshare. Another 15 to 20 percent of the trips originating in Southern Maryland are destined for workplaces south and southeast of Washington, D.C.

Another 10 percent of work trips in Southern Maryland originate from the north end of Calvert County. About 15 percent are headed to Washington, D.C. More than 30 percent are headed to jobs east of the urban core in Prince George’s and Anne Arundel Counties.

Seven percent of trips to work in Southern Maryland originate in southern Calvert County. This is one of the largest concentrations of trip origins outside

of northern Calvert and Charles Counties. Many of these trips head to work-places within southern Calvert County, but more than 40 percent travel across the Governor Thomas Johnson Memorial Bridge to areas in eastern St. Mary’s County, including the Patuxent River Naval Air Station.

These areas above should be targeted for further promotion of TDM and ride-sharing strategies (Table 4.9).

Table 4.9 Potential Ridesharing and TDM Focus Areas

Geographic Focus Area	Types of Strategies
Waldorf Area	<ul style="list-style-type: none"> • Increased park-and-ride lot capacity (with transit service) • Increased access to real-time traffic/PNR information • Increased promotion of carpooling/vanpooling for trips to Washington, D.C. and suburbs
Prince George’s/Anne Arundel Counties	<ul style="list-style-type: none"> • Promotion/subsidies of employer-based TDM programs
Northern Calvert County	<ul style="list-style-type: none"> • Increased PNR lot capacity (with transit service) • Increased access to real-time traffic/PNR information • Increased promotion of carpooling/vanpooling for trips to Washington, D.C. and suburbs
Southern Calvert County	<ul style="list-style-type: none"> • Increased promotion of carpooling/vanpooling for trips to St. Mary’s County
Eastern St. Mary’s County	<ul style="list-style-type: none"> • Promotion/subsidies of employer-based TDM programs

Highway Operations

Intersections in need of redesign are identified in Table 4.10. An investigation of the specific issues causing delay at each intersection should be performed to identify the best solutions. Projects are likely to consist of one or more of the following items:

- Changing the type of traffic control, such as from stop signs to signals or roundabouts;
- Adjusting signal timing at a single intersection or series of intersections (signal interconnects);
- Adding exclusive turning lanes;
- Grade separation; and
- Removing conflicting movements, such as forbidding left-turn movements.

Table 4.10 Potential Intersection Needs Based on Deficiency Analysis

Road 1	Road 2	County
U.S. 301	MD 5 (north)	Charles
U.S. 301	MD 5 (south)/MD 228	Charles
U.S. 301	MD 6	Charles
U.S. 301	MD 225	Charles
U.S. 301	MD 227	Charles
U.S. 301	Acton Lane	Charles
U.S. 301	Billingsley Road	Charles
U.S. 301	Demar Road	Charles
U.S. 301	Holly Tree Lane	Charles
U.S. 301	Middleport Lane	Charles
U.S. 301	Pierce Road	Charles
U.S. 301	Plaza Drive	Charles
U.S. 301	Smallwood Road	Charles
U.S. 301	St. Patrick's Drive	Charles
U.S. 301	Theodore Green Boulevard	Charles
U.S. 301	Turkey Hill Road	Charles
MD 4	MD 235	St. Mary's
MD 5	MD 243	St. Mary's
MD 5	MD 245	St. Mary's
MD 5	MD 246	St. Mary's
MD 5	MD 249	St. Mary's
MD 5	MD 471	St. Mary's
MD 235	MD 245	St. Mary's
MD 235	MD 944	St. Mary's
MD 235	Airport Drive	St. Mary's
MD 235	Airport View Drive	St. Mary's
MD 235	Commerce Lane	St. Mary's
MD 2	MD 4	Calvert

As a matter of policy, ITS and systems management features should be added to the transportation system, particularly as components of roadway reconstruction projects. Sensors and cameras for real-time monitoring of traffic conditions, combined with providing the information to motorists via radio, Internet, and dynamic message signs can help individuals avoid delays and spread traffic onto

less congested facilities. If placed near park-and-ride lots, it can alert motorists to other modal options. Such systems are best placed in heavily traveled corridors where alternative routes and modes are available, including U.S. 301 in Charles County and the MD 235/MD 5 corridor from St. Mary's County to Charles County.

4.3 TRANSIT

Policies and Strategies

Several broad strategies to improve existing transit service in Southern Maryland are identified as follows:

- **Improve Local Transit Service and Coordination** – Improve service and coordination among transit agencies, including locally operated services, commuter bus services and (potentially) future fixed transit.
- **Expand Commuter Bus Service** – Add trips to existing routes and add new routes to better serve the commuter market.
- **Improve Park-and-Ride Lots** – Improve multimodal access to park-and-ride lots and expand the existing supply.
- **Enhance Transit Information and Dissemination** – Increase the availability and quality of transit and park-and-ride lot information.
- **Implement Feasible High-Capacity Transit Options** – Address ridership thresholds needed to support high-capacity transit services, preserve right-of-way for a future high-capacity transit, and acquire land for future parking lots and park-and-ride sites at future transit stations.

Land use policies supportive of transit are described in Section 4.6.

Improve Local Transit Service and Coordination

Three separate agencies operate local transit services in Southern Maryland: Charles County VanGO, St. Mary's County STS, and Calvert County Transit. VanGO offers specialized services (demand response and medical assistance transportation) as well as public transportation routes that operate on limited hourly schedules Monday through Saturday. St. Mary's County STS offers specialized services as well as public routes with some routes having extended evening and weekend service. Calvert County Transit operates demand response services Monday through Friday as well as deviated fixed route services Monday through Saturday. Many users of the three locally operated systems have few other transportation options.

There are only two routes that currently operate across county borders: VanGO's Waldorf/Charlotte Hall Connector (Charles to St. Mary's) and STS's Calvert Connection (St. Mary's to Calvert). In recent years these transit agencies have made progress by providing more coordinated service to users, but long

trip distances and transfer requirements make it difficult for local transit systems to attract choice riders.

Expanded service options for local transit are likely to become increasingly viable as Southern Maryland continues to grow and as land use patterns within priority funding areas become more mixed and dense. Transit service options typically used in suburban areas include:

Fixed Route – Predetermined alignment and schedule;

Deviated Fixed Route – Flexible in that vehicles can travel within a given service area as long as vehicles abide by various time point schedules:

- Two time points on either end but vehicles can deviate all along the route
- Four or five time points throughout route but allows deviations
- Follow a fixed route but vehicles can deviate off the route up to a fixed distance, usually one-half to three-quarters of a mile;

Demand Responsive – Curb-to-curb service within a service area; and

Subscription Service – Tailored transit service to individuals who pay a subscription fee.²⁸

Successful transit service, as measured by passengers per hour, exhibits the following characteristics:

- Minimum route flexibility (e.g., fixed route);
- Connections to multiple land use types (e.g., residential, commercial, retail); and
- Service to transit dependent populations (e.g., students or seniors).

Planning for mobility in suburban areas requires consideration of many types of transit services and knowledge of transit market segments. A route that attracts as few as 30 to 50 passenger trips per day, for example, may be considered successful if it fulfills an important purpose, such as providing connections to a commuter bus service.

Key guidelines for better serving suburban markets include:²⁹

- Develop service around focal points (transit and people hubs);
- Operate along moderately dense suburban corridors: connect land use mixes that consist of all-day trip generators;

²⁸TCRP Report 116: *Guidebook for Evaluating, Selecting, and Implementing Suburban Transit Services.*

²⁹TCRP Report 55: *Guidelines for Enhancing Suburban Mobility Using Public Transportation.*

- Serve transit's more traditional markets, such as low-income, blue-collar neighborhoods;
- Link suburban transit services, especially local circulators and shuttles, to the broader regional line-haul network;
- Target markets appropriately;
- Economize on expenses;
- Adapt vehicle fleets to customer demand; and
- Creatively adapt transit service practices to the landscape.

Transit Coordination Strategies

The following strategies, based on the principles outlined above, may improve transit services in Southern Maryland. Due to funding challenges confronting the State as a whole and the dispersed, low-density land use patterns prevalent in much of Southern Maryland, some of these recommendations may be difficult to implement in a cost-effective manner.

- *Improved Convenience for Intraregion Work Trips.* Most of the local routes in Charles County, St. Mary's County, and Calvert County have peak headways of 60 minutes. Infrequent headways make transit a less attractive option for work trips and for riders with less flexibility in their schedules. For example, Calvert County buses operate on a deviated fixed route, making the effective headway even greater. Furthermore, high transfer rates (40 percent in St. Mary's County – 2007 TDP) and long trip times (average travel time of 60 minutes in St. Mary's County – 2007 Transit Development Plan) are generally not a competitive option for choice riders. Providing more frequent service and establishing convenient connections between major residential and employment centers would likely capture more riders traveling within the region. Since many of the more popular origin-destination pairs within Southern Maryland are contained within activity centers, such as Waldorf and Lexington Park, local circulator service could reduce traffic within those areas.
- *Regionalized Local Bus Routes.* Though regionalization, to varying degrees, has been discussed in the past, it has many advantages that make it worth revisiting. Currently, the majority of transit service in the tri-county area is provided only within the jurisdictional boundaries of each county. Such fragmented service and the limited availability of intercounty bus routes requires that riders know route and schedule details of three separate transit systems if they wish to travel beyond county borders. An alternative would be to approach route planning from a regional perspective to allow agencies to meet demand for travel between counties. For example, a regionally planned bus system could serve an origin/destination pair in different counties with a single route. Another option is to consolidate responsibility for local and interregional bus service into one agency with funding from the

three counties. There are three levels of integration local bus services could investigate to increase regionalization:

- **Cooperation** – Working together in a loose association, perhaps focusing primarily on information sharing, in which all agencies retain their separate identities and authorities.
 - **Coordination** – Joint decisions and actions of a group of agencies with formal arrangements to provide for the management of resources of the distinct systems as well as to provide passengers the ability to transfer between systems.
 - **Consolidation** – Vesting all operational authority in one agency that directly provides transit services or utilizes service agreements or other contractual relationships to provide services.
- *Coordinated Transportation with Social Service Agencies.* Rural community coordinated transportation typically refers to an agreement between a transit provider and another type of provider, generally social service providers, departments of employment, and education and private nonprofit agencies.³⁰ Since many transit users often use other social services, many transit agencies have established agency partnerships in order to provide mobility for this population to essential social services.

Expand Commuter Bus Service

With two previously noted exceptions, local bus service does not cross county boundaries. However, many Southern Maryland residents travel to workplaces beyond the tri-county region. One transit option for this population segment is commuter buses providing service from Southern Maryland to Metrorail stations and to Washington, D.C. Commuter buses can compete successfully with personal vehicles because their express routes provide high-quality service with convenient transfers to the important origins and destinations. Methods to improve service and attract more riders to commuter buses include:³¹

- Coordinate timed transfers to and from other transit services;
- Implement operational improvements to reduce delay at signals;
- Utilize innovative lane designs on shoulders or medians to allow for free movement of buses in congested conditions (e.g., dedicated busway); and
- Address parking shortages by introducing feeder services such as shuttles, deviated fixed routes, and subscription bus service in low-density areas.

³⁰TCRP Report 101, *Toolkit for Rural Community Coordinated Transportation Services*.

³¹TCRP Report 95: Chapter 3 – Park-and-ride/Pool.

Commuter Bus Strategies

One way to improve travel time reliability for riders is to focus on operational improvements. For example, allowing commuter buses access to freeway shoulders, providing queue jump lanes, and enabling transit signal priority on major corridors each have the potential to provide a competitive advantage over use of a personal vehicle. Technology such as real-time arrival and departure information that a customer could access from their home, office or cell phone would make people more comfortable using the system.

In addition to these approaches to increase the use of existing commuter bus services, there will be a need to expand commuter bus services in Southern Maryland as demand and population increase. One option is to add additional trips on busy routes. Current MTA commuter bus service provides 210 trips, 194 to and from downtown Washington, D.C. and 16 trips to and from Prince George's County and the Suitland Metrorail Station. Other commuters are served by the Washington Metropolitan Area Transit Authority (WMATA), which offers 27 daily bus trips between Charles County and the Southern Avenue Metrorail Station. Every route terminating in Washington, D.C. maintains high ridership and averages more than 35 passengers per trip. MTA's commuter buses can carry 55 seated passengers. Of the 210 trips a day, 19 commuter buses carry 50 or more passengers and four operate at maximum load.

Another option is to add new routes to serve growing origin destination pairs. As the regional population continues to grow and existing development nodes and activity centers expand, opportunity will arise to add new commuter routes. In fact, this potential already exists. For example, as of the 2000 Census more than 20 percent of Calvert County travelers commuted to Prince George's County, but commuter bus service between these two counties does not yet exist.

Park-and-Ride Lots

Much of the current residential development in Southern Maryland is low-density. In such an environment, park-and-ride lots are the most cost-effective way to operate a commuter transit service. From an operational standpoint, park-and-ride lots are an effective way to gather large groups of commuters with dispersed origins and transport them to a fixed destination.

The MD 5/U.S. 301/MD 228 Park-and-Ride Feasibility Study Site Identification Report identified a list of 16 potential new park-and-ride lot sites along that corridor. To date, one of these (La Plata) has been constructed, another (Waldorf) is being designed, and three (Dunkirk, New Market, and Charlotte Hall) are being planned. The remaining sites will remain under consideration as high-capacity transit is studied in this corridor. Funding for several of the remaining locations is being provided by the State through the Southern Maryland Commuter Bus Initiative.

Park-and-Ride Lot Strategies

Recommendations to improve the existing park-and-ride lots in Southern Maryland include:

- *Improved Amenities.* Exposure to rain, snow, sun and cold temperatures can deter commuters from using services that require them to wait in uncovered conditions. Well-designed bus shelters and stations for rider comfort, especially at the larger park-and-ride facilities, could help attract and maintain ridership.
- *Improved Information.* Real-time bus arrival and departure information available at the lot and to the customer at their home or office via the Internet would help commuters plan their departures reduce frustration. Though commuters can currently sign up for e-mail notices alerting them to bus delays and schedule changes, this method of communication does not work for those who have already left their home or who do not check their e-mail before they leave.
- *Improved Lot Signage.* Park-and-ride lot signage, including trailblazing signs and lot status signs, are also important. Trailblazing signs direct people to the lots. Status signs identify when lots are full and can potentially direct commuters to alternate lots. Even static signs directing customers to nearby lots in the event a given lot is full can be helpful.
- *Local Bus Service to Park-and-Ride Facilities.* Currently, local bus service to park-and-ride lots is not a viable means to access the commuter bus system. Charles County's VanGO is the only local system to provide connections to park-and-ride lots that serve MTA commuter buses; however, these local buses with very little time for passengers to transfer to the last three 901 buses in the morning. Suggested improvements include:
 - Coordinating local bus and MTA commuter bus schedules to enable a smooth transfer of passengers. This service would likely be viable only at lots that fill up early on a regular basis.
 - Developing intermodal transfer stations to help concentrate local bus routes around major park-and-ride facilities and enable sharing of the operating costs of these facilities. This can provide benefits for both regional and local services. In fact, some park-and-ride lots already serve as intermodal transfer stations.
- *Encourage Multiple Uses of Park-and-Ride Facilities.* Though many of the park-and-ride facilities in Southern Maryland are marketed to commuter bus riders, benefits can be shared among other high-occupancy vehicles, such as carpools and vanpools. For example, with more commuters carpooling in Southern Maryland (13 percent) than taking transit (1 percent), park-and-ride facilities offer a fixed pick-up and drop-off point for commuters traveling to destinations that may not be served by transit and commuter buses. These facilities might also be used as a way to encourage informal carpooling

arrangements. For example, San Francisco Bay area's "casual commute" program offers fixed pick-up points where commuters queue to carpool to downtown San Francisco on a first-come-first-served basis. A dedicated web site also provides carpoolers current information (e.g., locations and maps) as well as a forum for exchanging information.

- *Encourage sidewalk and bikeway connectivity from park-and-ride lots to surrounding areas.*
- *Add Capacity.* Given the number of commuters traveling to employment centers beyond Southern Maryland, many existing park-and-ride lots fill to capacity or nearly to capacity on a regular basis. Some of the busier ones include the St. Charles Towne Mall lot, the U.S. 301 lot, and the Mattowoman-Beantown lot in Charles County, the Dunkirk lot in Calvert County, and the Charlotte Hall Shopping Center lot in St. Mary's County. The provision of real-time parking availability information, including the location of nearby lots with spare capacity, and/or parking charges at busier lots can help shift demand to facilities with available capacity. Another option is to add capacity by building more park-and-ride lots or by utilizing shared-use lots, such as those at malls and churches. Shared-use facilities are typically underutilized during the work day and can be a cost-effective opportunity to partner with existing establishments in the area. While not necessarily cost-effective in the long term, shared-use lots can be an effective way to satisfy demand while a new lot is planned and built.

Enhance Transit Information and Dissemination Techniques

Providing accurate and easy to understand information about available transit options is critical to attracting and maintaining transit ridership. Often the primary objective of providing transit information is to obtain new riders; however, an agency may also have more refined objectives, such as:

- Retaining existing riders;
- Increasing frequency of use of current riders;
- Encouraging rider shifts to more cost-effective services;
- Enhancing off-peak ridership;
- Increasing rider and general public awareness of available service options;
- Improving the image of public transportation;
- Building support for specific initiatives, projects or changes in fares, services or procedures;

- Raising public awareness of transit service's social and economic benefits; and
- Encouraging participation in related programs.³²

Transit Cooperative Research Program Report 95 outlines six categories of external transit marketing approaches, including mass market information and promotion, targeted information and promotion, ongoing customer information services, and real-time transit information. An appropriate approach for Southern Maryland is to provide ongoing customer information services. This includes transit rider information such as system and route maps, signage, timetables, directional signs to transit facilities, recorded or live telephone information systems, and Internet web sites.

Strategies to Improve Information Dissemination

Even though many of the MTA commuter bus routes from Southern Maryland to Washington, D.C. and Prince George's County have high ridership levels, promoting transit in region for nonwork trips as well as reducing peak-period congestion, remain a priority. To that end, the following recommendations for improving customer information in Southern Maryland are provided.

- *Enhance Wayfinding Signage to Park-and-Ride Facilities.* Signs directing customers to park-and-ride locations exist in the region; however, these signs offer limited information. For example, the sign presented in Figure 4.5 indicates where MTA buses are located, but doesn't provide detailed information about where they go. Without having conducted prior reconnaissance, customers would be unaware of the services available at this facility. The State has initiated a project to address the shortcomings of wayfinding signage. High-priority changes include the posting of signage in more locations and the display of information about the services available at a given lot. For example, the text provided on the MTA sign could read "MTA Express Service to D.C."

³²TCRP Report 95: Chapter 11 – Transit Information and Promotion – Traveler Response to Transportation System Changes, 2003.

Figure 4.5 Typical Park-and-Ride Wayfinding Sign



Source: A.G. Samuel Group.

- *Make Park-and-Ride Information More Readily Available on the Internet.* Currently park-and-ride information in Southern Maryland is available on MTA's web site, however it is not readily apparent where to find the list of park-and-ride lots. Also, the MTA web site should provide a regional map to locate the lots. Limited park-and-ride lot information is available at the MWCOG Commuter Connections web site, yet this is not an obvious source of information for Southern Maryland residents given that most of the region, except the urbanized area of Charles County, is not part of MWCOG. One way to address this issue is to develop a web site displaying maps of park-and-ride lot locations with number of spaces available and transit routes served. The web site could evolve over time to include an Internet mapping application, an interactive message board, and real-time travel information and alerts.
- *Make Park-and-Ride Information Available on Conventional Telephone Systems.* Information can also be disseminated via telephone and text messaging. There is flexibility in terms of the sophistication level of such systems. For example, conventional telephone systems could offer customers limited information, such as schedules and fares, or they could offer more advanced itinerary and trip planning services.
- *Offer Transit Information at the Park-and-Ride Facilities.* Though current park-and-ride lot signage is sufficient, most do not post information about transit routes serving the area or do so inconsistently. Figure 4.6 illustrates a sign at the Mattowoman-Beantown park-and-ride lot (the largest in Southern Maryland) that does not include schedule information. Signs such as this one should be supplemented with schedule information that includes bus departure times, locations of bus stops along the route, and fares.

Figure 4.6 Typical Commuter Bus Signage at Southern Maryland Park-and-Ride Lots



Source: A.G. Samuel Group.

- *Improve Local Transit Signage.* Many bus stop flags identifying the location of bus stops in the region do not provide detailed transit information. These stops would be greatly improved if they identified the local bus routes served at that stop as well as schedule information. Figure 4.7 depicts a Charles VanGO bus stop flag that includes little information that would aid riders or alert the general public about transit options available to them.
- *Make Information User-Friendly.* The transit agencies servicing Southern Maryland provide limited information to users. For example, only two of these agencies provide route maps; however, they are difficult to read due to multiple route overlays. One option is to coordinate the presentation of user information so that information is easily recognizable and understood. This would facilitate seamless travel for those wishing to move between transit systems in Southern Maryland. However, given that these agencies currently work separately, they might consider revising their printed materials so that they are accessible and provide information in a simple and clear manner.

Figure 4.7 Typical Local Bus Signage at Southern Maryland Park-and-Ride Lots



Source: A.G. Samuel Group.

Implement Feasible High-Capacity Transit Options

Given its growing population and traffic congestion, Southern Maryland is exploring the potential to add a high-capacity transit option. Light rail or bus rapid transit (BRT) can move more people than the current transit options can. Although current ridership on the commuter bus system does not yet justify high-capacity service, future ridership may justify it.

In October 2004, MTA completed the *MD 5/U.S. 301 Transit Service Staging Plan*, which outlined four alternatives for staged implementation of higher capacity transit in the corridor. The four alternatives are: Enhanced Commuter Bus; BRT (Moderate Level); BRT (High Level); and Light Rail Transit. MTA is currently conducting a right-of-way preservation study to identify land needs for a potential high-capacity transitway alignment, stations, and park-and-ride lots along the 18-mile corridor between the Branch Avenue Metrorail station in Prince George's County and Waldorf. The study is scheduled for completion in 2009 and will provide information for Charles and Prince George's counties to use to protect right-of-way for a high-capacity system. MTA used a similar approach in the past and is currently conducting a planning study for a transitway in Montgomery and Frederick Counties for which land has been set aside by these counties for decades.

In addition to the ongoing right-of-way preservation study, the MTA is about to study the feasibility of establishing commuter rail service between Washington, D.C. and St. Mary's County.

Transit Service Thresholds

To justify any type of transit service, be it a small circulator route, a commuter bus route or heavy rail service, a cost-effective public benefit must be demonstrated. Before funding is provided through the Federal Transit Administration's (FTA) New Starts program each project is evaluated using a justification rating based on the following criteria:³³

- Cost-effectiveness;
- Transit-supportive land use and future land use patterns;
- Mobility improvements (travel time savings and access to key areas and populations);
- Operating efficiencies;
- Environmental benefits; and
- Local financial commitment.

Though the New Starts program is geared towards major investments, the decision to fund even the smallest new transit service is based on similar factors. The New Starts program has been expanded in recent years to include "Small Starts" and "Very Small Starts" for smaller investments. These programs allow the consideration of other criteria, including economic development and congestion mitigation. Key metrics for evaluating which type of transit service is most appropriate for given circumstances are projected ridership and population density. Table 4.11 presents ranges of ridership and density typically associated with various types of transit service.

³³FY 2009 New Starts and Small Starts Evaluation and Rating Process, July 20, 2007, FTA Office of Planning and Environment.

Table 4.11 Typical Ridership Ranges and Land Use by Transit Service Type for Existing U.S. Systems

Transit Service	Service Levels	Typical Ridership/ Threshold	Typical Population Density Requirements (Persons/Square Mile)	Areas Meeting Minimum Residential Density
Local Bus (minimum)	One-half mile between routes; 20 buses/day	No minimum	4 DU/residential acre 6,835 persons/square mile)	Activity Centers throughout Southern Maryland
Local Bus (intermediate)	One-half mile between routes; 40 buses/day	N/A	7 DU/residential acre± (depends on distance to downtown) (11,962 persons/square mile)	Very few Activity Centers, such as Waldorf, Lexington Park, Solomon's
Local Bus (frequent)	One-half mile between routes; 120 buses/day	N/A	15 DU/residential acre (25,632 persons/square mile)	May be more suitable for Southern Maryland in the future, beyond the planning period
Express Bus (walk-on)	5 buses/ 2-hour peak period	23 boardings/trip	15 DU/residential acre average, 20 square mile tributary area (25,632 persons/square mile)	May be more suitable for Southern Maryland in the future, beyond the planning period
Express Bus (Park-and-ride)	5 to 10 buses/ 2-hour peak period	23 boardings/trip	3 DU/residential acre average, 20 square mile tributary area (5,126 persons/square mile)	Existing Corridors: U.S. 301, MD 5/ U.S. 301, MD 4, MD 2/4; Possibly go further south along these corridors
Bus Rapid Transit	5-minute peak headways or better	1,100-2,900 passengers/mile	9 DU/residential acre average, 25-100 square mile corridor	Possibly MD 5/U.S. 301 from Branch Avenue
Light Rail Transit	5-minute peak headways or better	1,200-1,900 passengers/mile	9 DU/residential acre average, 25-100 square mile corridor (15,379 persons/square mile)	Possibly MD 5/U.S. 301 from Branch Avenue
Heavy Rail Transit	5-minute peak headways or better	6,500-7,500 passengers/mile	12 DU/residential acre average, 100-150 square mile corridor (20,506 persons/square mile)	May be more suitable for Southern Maryland in the future, beyond the planning period
Commuter Rail	20 trains/day	50-160 passengers/mile	1-2 DU/residential acre along an existing railroad track (2,563 persons/square mile)	Difficult to implement in Southern Maryland due to lack of existing ROW

Sources: FY 2008 New Starts Report, High-Capacity Transit Report (Arizona), WMATA Regional Bus Study 2003, Pushkarev and Zupan, 1982 and Cambridge Systematics, 2007.

Note: Heavy Rail Transit range is for future (2020-2030) whereas the other numbers are based on current service.

Because express bus service supported with park-and-ride lots can operate successfully with very few trips, its ridership threshold is presented in boardings per trip rather than total passenger miles. Similarly, express bus service requires less residential density than other forms of transit. This feature makes it especially well-suited to Southern Maryland with its relatively low level of residential density.

Table 4.11 outlines some “rules of thumb” that can be considered when determining what level of transit service to provide given population levels and land

use types. These are not hard and fast rules, but rather guidelines to inform overall thinking when considering the types of transit services to offer to residents of Southern Maryland as the region continues to grow.

Transit markets depend on a variety of factors, including population, commute patterns and land use. Mixed use development patterns create the best opportunities for high-capacity transit in part because they create destinations and therefore drive transit demand during the entire day, not just during the a.m. and p.m. peak periods. Currently, commuter markets in Southern Maryland are well-served through commuter buses. Therefore they remain a priority with the State.

Table 4.12 identifies development intensity thresholds helpful to the establishment of fixed route transit service. According to this data many locations within the region have these characteristics, including the campuses of the College of Southern Maryland, and the three primary regional hospitals. Residential development comprises 14 percent of the land area in Charles County, less than three percent of which is considered moderate or high density. In St. Mary's County, 10 percent of the land area is residential with just two percent moderate or high density.³⁴ Data for Calvert County were not available. Figure 4.8 shows the distribution of the residential dwelling units in the three counties, providing further insight into the residential locations of potential transit service users.

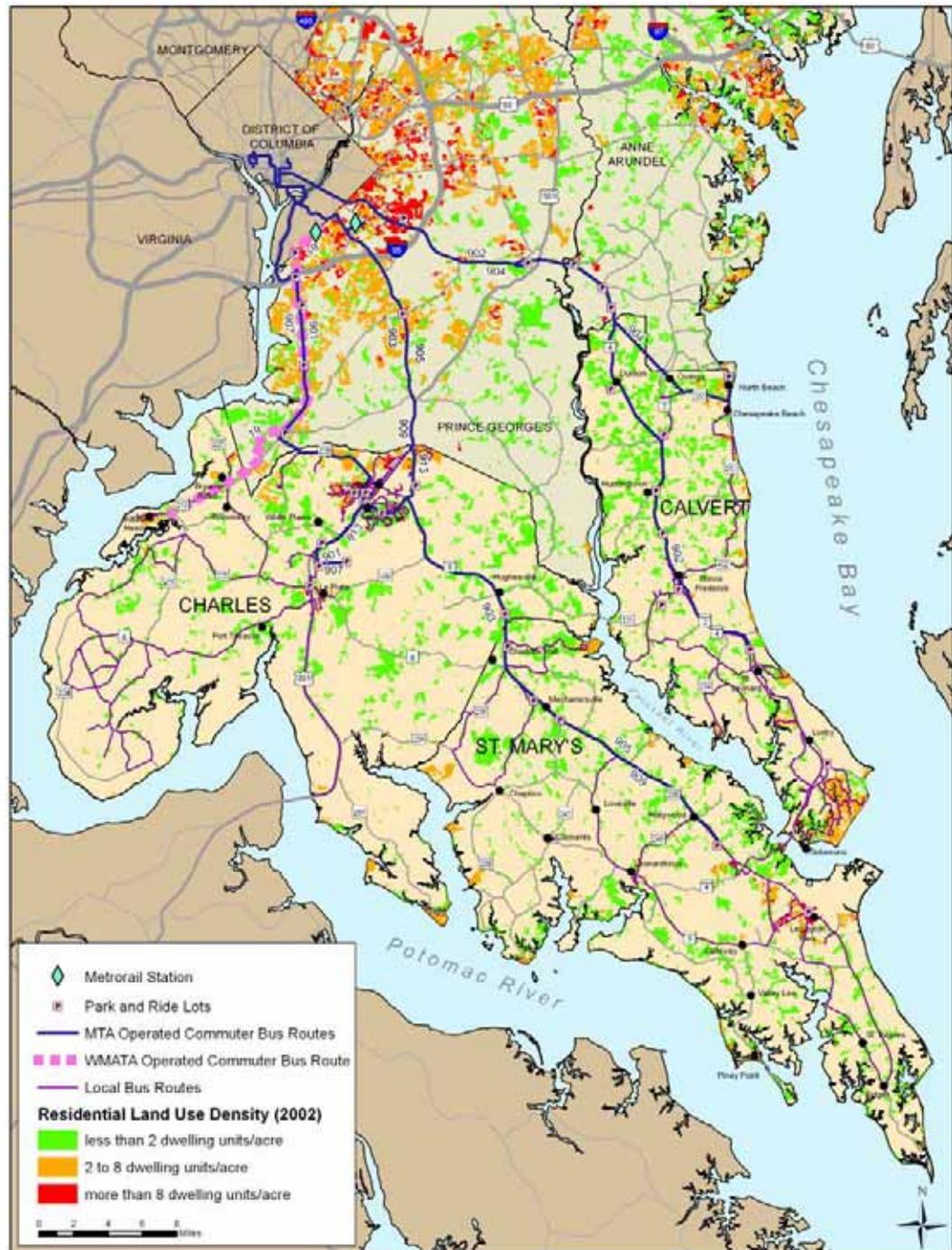
Table 4.12 Minimum Development Levels Supportive of Fixed Route Bus Service

Activity Center	Suburban	Rural
Business Concentrations (number of employees)	300	100
Shopping Centers (size in square feet)	200,000	50,000
Hospitals (number of beds)	100	All
Colleges (number of students)	1,000	All
Housing Developments (number of dwelling units)	200	100

Source: Maryland Transit Guidelines, May 2002.

³⁴Charles County Comprehensive Plan 2006, St. Mary's Comprehensive Plan 2003; The Maryland Department of Planning's land use/land cover classification system.

Figure 4.8 Dwelling Units Per Acre



Source: Maryland Department of Planning.

FTA New Starts Land Use Guidelines

Though cost-effectiveness is the most important criteria in the decision to authorize New Starts and Small Starts funding, it is just one of five criteria: mobility improvements; environmental benefits; operating efficiencies; cost-effectiveness; and *transit-supportive land use*. The New Starts descriptions of transit-supportive land use is a good starting point to use when considering the type of land use that is needed to support a successful transit service. Some of the transit-supportive land use factors evaluated by the FTA in its New Starts program include:³⁵

- How transit-supportive land use policies are or will be implemented and the expected impact of these policies;
- Comparison of existing land use conditions with those that would exist if the project were implemented;
- Demonstration of the containment of sprawl through specific growth management and zoning policies;
- How applicable municipal and regional plans include transit-supportive provisions, both in general and with respect to the project's specific station areas; and
- Parking policies and pricing strategies.

Express Bus System Needs

Current MTA Commuter Bus ridership is 7,072 passenger trips per day, and WMATA carries an additional 657 passenger trips on its W19 route from Indian Head to the Southern Avenue Metrorail station. Together, the two services support 7,729 daily passenger trips from Southern Maryland to Washington, D.C. and Prince George's County.

Transit Level of Service Methodology

Transit level of service (LOS) is not as well defined or understood as is highway LOS. The Transit Capacity and Quality of Service Manual, 2nd Edition, defines transit level of service as "The overall measured or perceived performance of transit service from the passenger's point of view." Transit LOS measures quantify two aspects of transit service: 1) the degree to which transit service is available at given locations and 2) the comfort and convenience of the transit service provided.

³⁵Annual Report on Funding Recommendations, Proposed Allocation of Funds for Fiscal Year 2008, New Starts, Small Starts, Alternative Transportation in Parks and Public Lands, Federal Transit Administration, 2007.

The degree to which transit service is available is estimated by comparing the frequency and availability of transit trips between major origin destination pairs with overall trips between those same origin destination pairs.

Transit comfort and convenience are estimated by determining level of crowding, reviewing trip frequency, and estimating time savings over automobile use. Express bus routes in Southern Maryland currently operate in mixed traffic and therefore confer no time savings over automobile use, but implementation of various operational strategies (such as allowing buses to drive on the shoulder, providing queue jump lanes and giving buses transit signal priority) would provide some additional time savings for transit users.

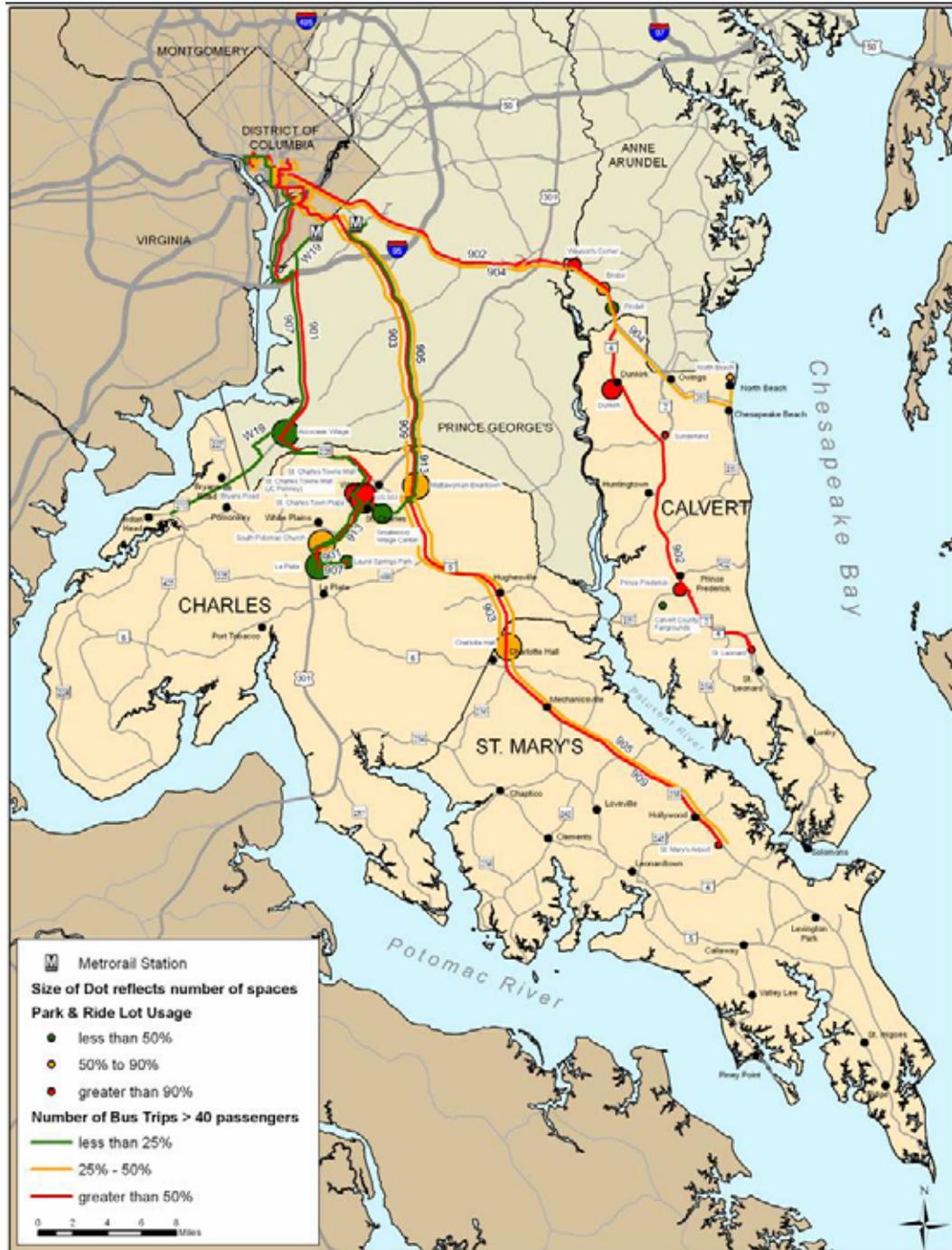
Existing Service

The evaluation focuses on transit LOS from the point of view of crowding. Recent trip ridership data were reviewed to determine how many trips carried more than 40 or 50 passengers (MTA buses have a capacity of 55 persons). There are relatively few trips with more than 50 passengers, and even fewer where the bus is completely full. Identifying the trips where buses carry 40 or more passengers is helpful for planning purposes as those are the trips most likely to fill up over the next five years.

Park-and-ride LOS analysis is based on the number of spaces per lot and the boardings per lot as well as MTA-provided data on park-and-ride lot usage. Figure 4.9 displays route and park-and-ride level of service. Park-and-ride lots are colored green, yellow or red, depending on the level of observed use:

- Green – less than 50 percent of the available spaces are used;
- Yellow – between 50 percent and 90 percent of the total available spaces were used; and
- Red –greater than 90 percent of the spaces were used.

Figure 4.9 Commuter Bus and Park-and-Ride Level of Service



Source: Cambridge Systematics, Inc. based on Maryland Transit Administration data.

Based on MTA ridership data from March 2007, there are instances where riders are forced to wait for the next bus. Of the 210 trips that the MTA operates to and from Southern Maryland each weekday, 19 are approaching capacity with 50 or

more passengers (Table 4.13). Only four trips (two percent of the total) are completely full (55 passengers).

Table 4.13 Existing Capacity Constraints on MTA/WMATA Commuter Buses

Route	Trips/Day	Percent of Trips where Bus is Near or at Capacity ^a (Average Weekday)	Number of Trips Where the Bus Is Completely Full
901	53	51%	–
902	33	55%	2
903	12	42%	2
904	27	41%	–
905	43	42%	–
907	16	19%	–
909	10	50%	–
913	16	–	–
W19	20	10% ^b	–
Total	210	41%	4

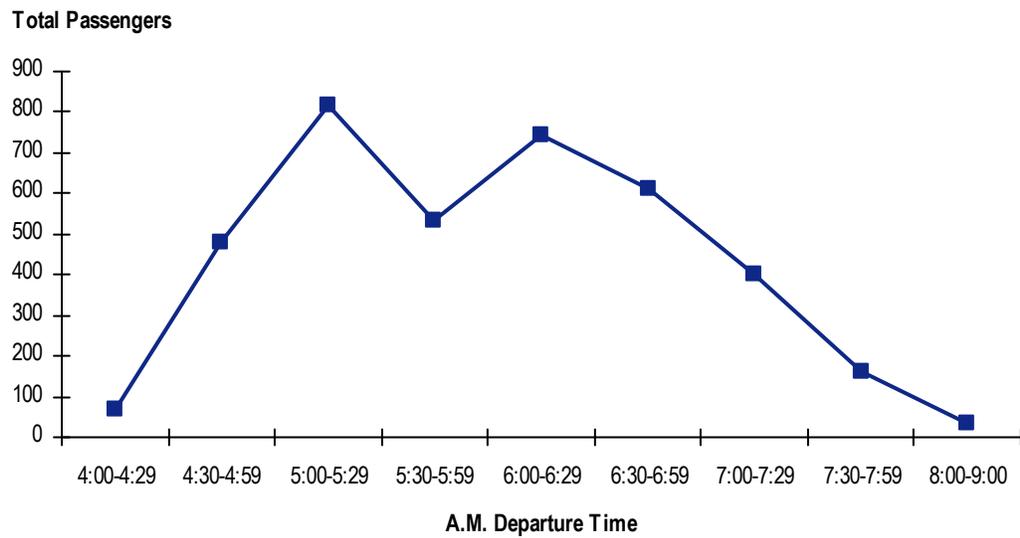
Notes: MTA Data from March 2007. MTA bus capacity is approximately 55 persons.
 WMATA Data from October 2007. WMATA bus capacity is approximately 42 persons.
 Between March 2007 and March 2008 ridership increased 3.3 percent on routes from Calvert County and 11.6 percent on routes from Charles County.

^a This column indicates the percent of bus trips where the number of riders is greater than 40 – this is an indication of the proportion of bus trips on a given route that are at or near capacity.

^b WMATA trip-by-trip data show that 29 percent of total trips have 40 or greater boardings per trip. The two trips shown here refers to the two daily trips that average 40 or more throughout the month.

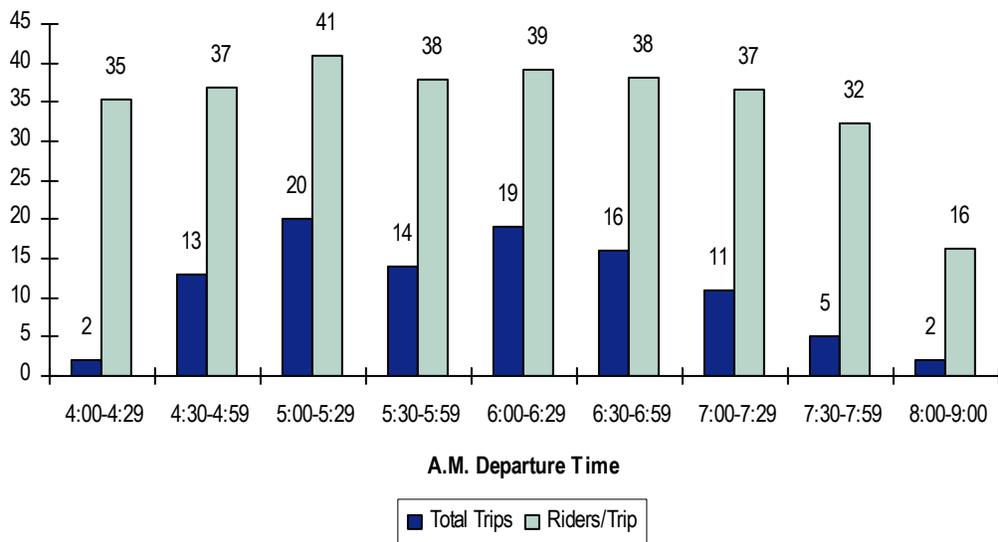
In addition to reviewing overall capacity constraints, the spread of ridership within the peak periods was also analyzed. Figure 4.10 shows the total ridership, by time period, for a.m. commuter bus service. Figure 4.11 shows the number of bus trips and the average number of boardings per trip for the a.m. period. Though the number of boardings vary significantly by time of day, the average ridership per bus is comparatively steady. This indicates that the MTA has provided trips at times demanded by passengers. Passengers may also be selecting their departure times to minimize the likelihood of boarding a “crowded” bus.

Figure 4.10 Morning MTA Commuter Bus Ridership



Source: Maryland Transit Administration.

Figure 4.11 Morning MTA Commuter Bus Trips and Boardings per Trip



Source: Maryland Transit Administration.

Future Service Levels

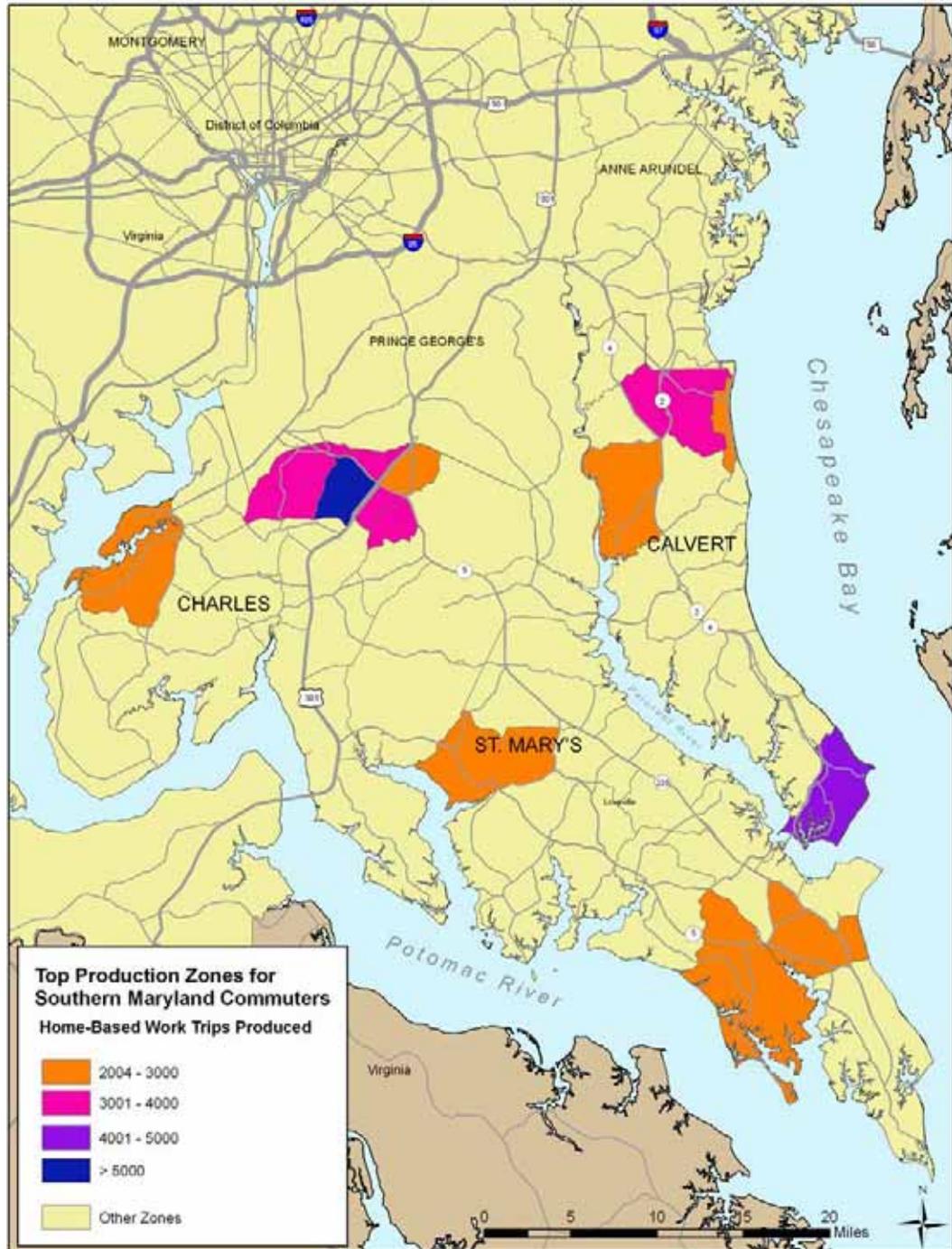
Commuter bus needs are assessed by analyzing current service (ridership, number of trips, riders per trip, and average riders per trip) and developing scenarios for future service based on ridership projections (Table 4.14). The first scenario assumes that current LOS is maintained as ridership grows at the same rate as the population as a whole, i.e., mode share remains constant. The second scenario assumes a doubling of the commuter bus mode share while maintaining current LOS. To achieve the doubled mode share, additional trips and/or routes must be added. These service expansions are determined by analysis of the origin destination trip tables from the MWCOG model. The third scenario utilizes origin destination trip analysis to develop route-specific ridership demand forecasts for existing and future routes.

Table 4.14 Commuter Bus Needs

Scenario	Ridership	Bus Trips	Routes	Park-and-Ride Spaces
Current Service	7,107	210	9	4,476
Future (2030) service – maintain current mode share	10,006	300	9	6,300
Future (2030) service – best case mode share, about 25% increase in mode share based on Regional Model	12,500	375	12	7,875

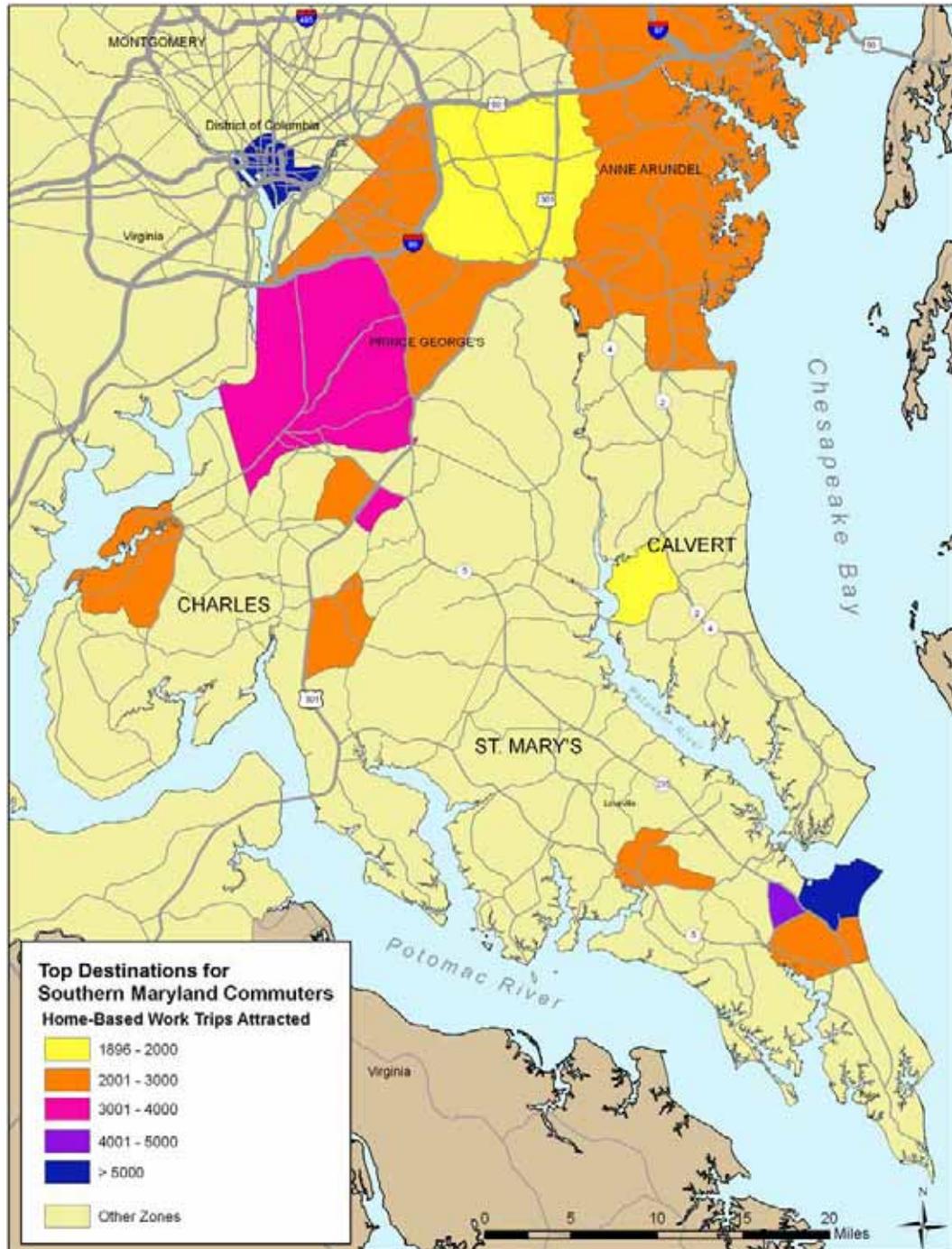
Figures 4.12 and 4.13 show the top origins and destinations, respectively, for commuting trips according to the MWCOG Regional Travel Model.

Figure 4.12 Top Origins for Southern Maryland



Source: Metropolitan Washington Council of Governments.

Figure 4.13 Top Destinations for Southern Maryland



Source: Metropolitan Washington Council of Governments.

The 15 top destinations account for more than half of the total home-based work trips originating in Southern Maryland. Of these, nine are within the three counties of Southern Maryland, including Chesapeake Ranch to Lexington Park, Lexington Park to Lexington Park, Bryan's Road to Waldorf and Waldorf to Waldorf.

According to the model, 85 percent of all home-based work transit trips from Southern Maryland are destined for Washington, D.C. and Arlington County Virginia. Another popular transit trip is from Southern Maryland, particularly Calvert County and Eastern Charles County, to the area of Prince George's County outside the beltway, including areas such as Largo, Landover, and Upper Marlboro. These trips account for about two percent of the overall transit trips from Southern Maryland but around 10 percent of the transit trips out of Southern Calvert County. Another two percent of transit trips from Southern Maryland go to Montgomery County. The model does not account for locally operated transit service, so trips taken to destinations within Southern Maryland are not included in the analysis. For example, ridership data indicate that close to 3,000 people use the St. Mary's transit system every day, and some of these, though most likely a very small number, use it to access jobs within the County.

Table 4.15 shows how the number of home-based work trips are projected to grow over the next 18 years. Total home-based work trips will grow by over 50 percent, over three percent per year, according to the model. Certain areas show a large increase in transit mode share, such as from Southern Maryland to Downtown Washington, D.C., Arlington County, Montgomery County and Western Prince George's County. These commute patterns can help identify areas for future commuter bus service.

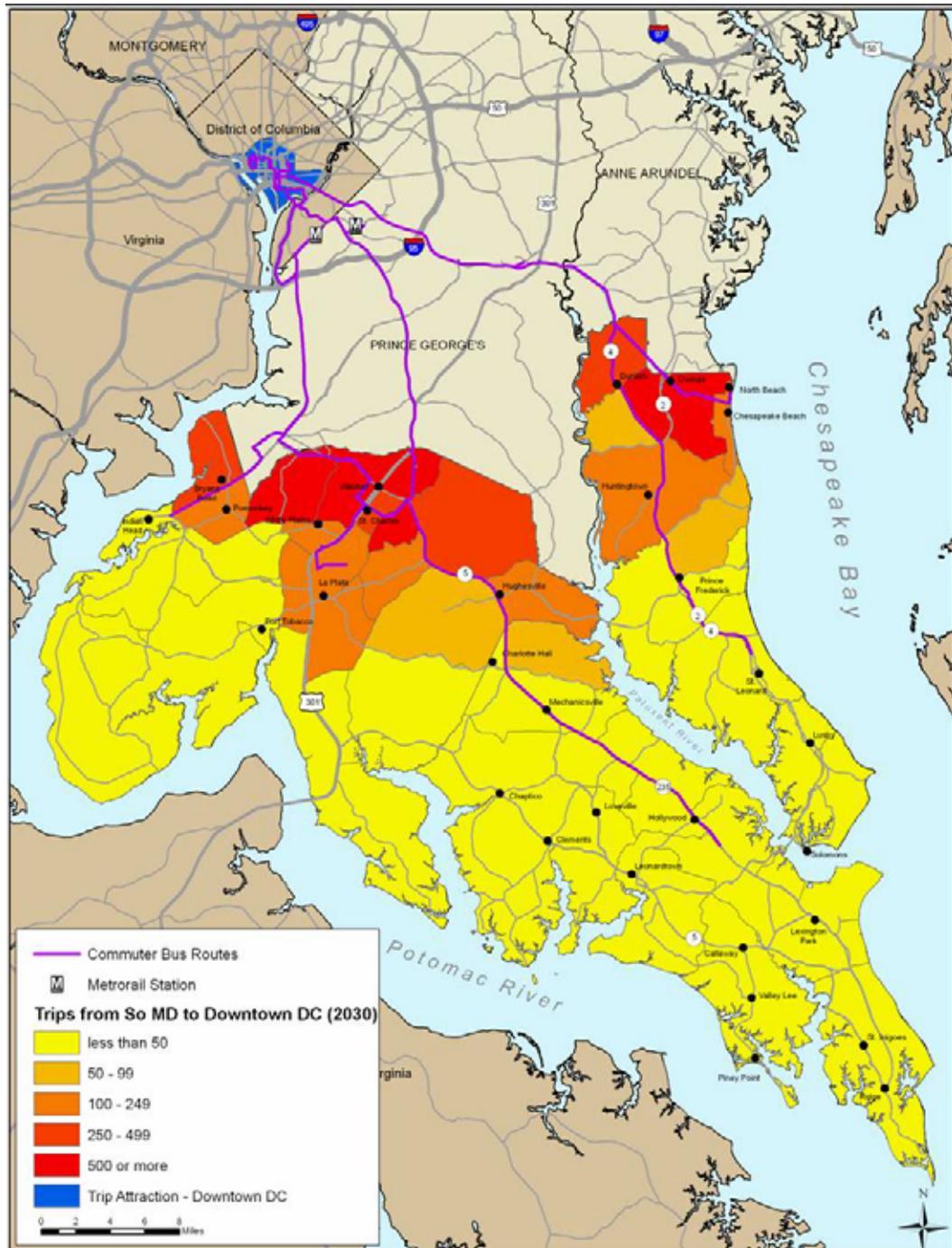
Figures 4.14 and 4.15 show projected trips from Southern Maryland to downtown Washington, D.C. and to Lexington Park respectively. These figures clearly indicate the need for improving commuter bus services to the Washington, D.C. area, and illustrate the great potential for improved transit services to the Patuxent River Naval Air Station and the Lexington Park area.

Table 4.15 Home-Based Work Trips From Southern Maryland
2002 and 2030

Origin	Destination	Total Trips		Percent of Total		Transit Trips		Percent of Transit Trips From Southern Maryland		Transit Mode Share		Bus Service ^a
		2002	2030	2002	2030	2002	2030	2002	2030	2002	2030	
Charles	Downtown D.C./Arlington	8,420	12,232	9%	9%	1,669	3,134	54%	50%	20%	26%	Good
Calvert	Downtown D.C./Arlington	2,837	3,056	3%	2%	823	1,211	27%	19%	29%	40%	Good
St. Mary's	Downtown D.C./Arlington	466	451	1%	0%	135	172	4%	3%	29%	38%	Good
Southern MD	Montgomery County	310	193	0%	0%	48	54	2%	1%	15%	28%	N/A
Southern MD	Eastern Prince George's County	5,547	10,162	6%	7%	90	252	3%	4%	2%	3%	Unserviced
Southern MD	Western Prince George's County	5,758	13,271	6%	9%	124	467	4%	7%	2%	4%	Limited
Southern MD	Southern MD	62,207	90,595	65%	64%	136	786	4%	13%	0%	1%	Limited
Southern MD	Other	7,974	12,650	10%	9%	79	195	2%	3%	0%	2%	N/A
Total		93,519	142,609	100%	100%	3,104	6,271	100%	100%			

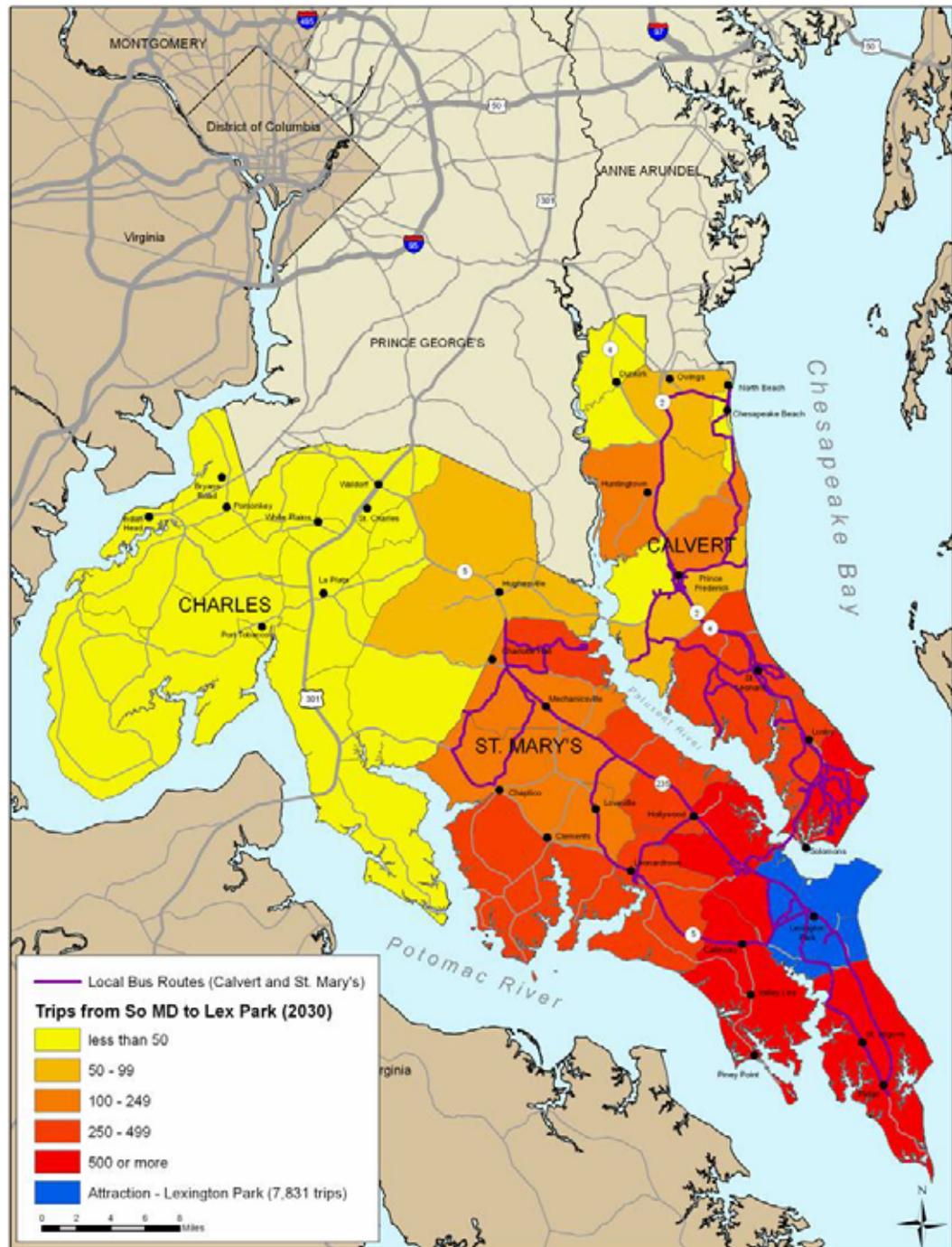
^a Good: Well served by existing bus;
 Limited: Have limited service from existing bus;
 Unserviced: unserved but worthy of future service;
 N/A: Unserviced but not enough demand for future service.

Figure 4.14 Trips From Southern Maryland to Downtown Washington, D.C.
2030



Source: Metropolitan Washington Council of Governments.

Figure 4.15 Trips From Southern Maryland to Lexington Park
2030



Source: Metropolitan Washington Council of Governments.

Analysis of projected increases in home-based work trips in Southern Maryland indicate that the following three transit corridors will benefit from improved services.

- **Charles County to Prince George's County Transit.** Even though current ridership numbers on MTA route 913 between White Plains and the Suitland Federal Center are lower than many of the other Southern Maryland routes, the region's long-term needs will require more transit between Charles and Prince George's counties. The Charles County Comprehensive Plan projects a 450 percent increase in daily trips across these two jurisdictions. The current MTA Commuter Bus service operating between Southern Maryland and the Suitland Federal Center in Prince George's County does not make other stops in Prince George's County. MDOT should consider providing such stops, which may add a few minutes of running time, or adding routes to provide service to other employment centers in Prince George's County.
- **Calvert County to Prince George's County Transit.** Over 21 percent of Calvert County-based workers commute to Prince George's County (2000 Census). The Calvert County Citizens Advisory Committee's Report on Calvert County Transit and Commuter-Related Issues (June 8, 2004) recommends establishing Commuter Service between Calvert County and the Suitland Federal Center. Commuter Service from Calvert County to other employment centers in Prince George's County, particularly the western part of the county, could be useful.
- **Enhance Service Along MD 5/U.S. 301.** MTA's eight bus routes currently carry just over 7,000 passengers per day, with 4,695 of them in the U.S. 301 Corridor. The five MTA routes that operate in that corridor are projected to have, without any major enhancements to the existing service, 6,800 riders.³⁶ Based on recent trend data, boardings for commuter bus service along the 301 corridor towards Washington, D.C. will likely exceed the 6,800 riders per day projection well in advance of 2025. If higher levels of transit are offered in the corridor, ridership could grow more quickly. Bus rapid transit service could mean between 19,500 and 31,000 daily boardings, depending on the level of service provided.

Park-and-Ride Facility Needs

Park-and-ride facilities and associated transit services make the option of mixed-mode travel readily available. Due to the lower densities and suburban nature of the Southern Maryland region, park-and-ride facilities are essential and enable the provision of transit service that otherwise would not be feasible.

Many of the park-and-ride lots in Southern Maryland are well-utilized (Table 4.16). There are 21 lots served by MTA commuter bus routes, 17 of which

³⁶MD 5/U.S. 301 Transit Service Staging Plan, October 2004.

are located in Southern Maryland (the other four are in Prince George's and Anne Arundel Counties). In addition, there are two lots (one in Charles and one in Prince George's County) that are served by the WMATA W19 route. Of the 21 MTA lots, 12 yield greater than 100 boardings per day. The top six lots account for over 60 percent of total daily boarding on these routes. The top lots by boardings are the St. Charles Towne Mall (JC Penney), U.S. 301, and Mattowoman-Beantown Park-and-ride lots in Charles County; the Dunkirk Park-and-ride lot in Calvert County; the Charlotte Hall Shopping Center lot in St. Mary's County; and the Equestrian Center lot in Prince George's County. Four of these six lots are either near, at or over capacity.

There are a number of lots with low utilization rates, based on both car counts and boardings per space data. These lots are: Laurel Springs Park and La Plata (Food Lion) in Charles County, Accokeek Village and Equestrian Center in Prince George's County, and Pindell in Anne Arundel County.

MTA has a several new lots in various stages of design and construction (Table 4.17). When constructed, these lots will provide nearly 3,000 additional spaces to the region by 2011.

Table 4.16 Existing Park-and-Ride Lot Usage

Park-and-Ride Facility	Major Corridor	Spaces	Spaces Used	Percent Used	Commuter Routes	Total Boardings	Boardings/Space
St. Charles Towne Mall (JC Penney)	U.S. 301	254	241	95 %	901	239	94%
St. Charles Towne Mall (Dick's Sporting Goods)	U.S. 301	196	193	98 %	901	186	95%
St. Charles Town Plaza (behind Jo-Ann's)	U.S. 301	190	188	99 %	907	179	94%
U.S. 301	U.S. 301	425	425	100 %	901, 913	477	112%
South Potomac Church	U.S. 301	200	130	65 %	901, 907, 913	140	70%
Laurel Springs Park	U.S. 301	115	N/A	N/A	901, 907	50	43%
La Plata	U.S. 301	277	130	47 %	901, 907	43	16%
Mattowoman-Beantown	MD 5/U.S. 301	849	757	89 %	903, 905, 913	644	76%
Smallwood Village Center	MD 5/U.S. 301	125	77	62 %	901	71	57%
Bryan's Road	MD 210	99	98	99%	W19	N/A	N/A
Accokeek Village ^a	MD 210	489	223	46%	W19	N/A	N/A
Equestrian Center ^a	MD 4	576	240	42%	904	241	42%
Wayson's Corner ^b	MD 4	102	100	98%	904	61	60%
Bristol ^b	MD 4	146	126	86%	904	72	49%
Pindell ^b	MD 4	107	38	36%	904	36	34%
Dunkirk	MD 4	240	253	105 %	902	252	105%
Sunderland	MD 4	103	124	120 %	902	143	139%
Prince Frederick	MD 2/4	200	177	89 %	902	182	91%
Calvert County Fairgrounds	MD 231	20	11	55 %	902	14	70%
St. Leonard (Crossroad Church)	MD 2/4	128	97	76 %	902	89	70%
North Beach	MD 261	60	47	78 %	904	60	100%
Charlotte Hall Shopping Center	MD 5	600	570	95 %	903, 905, 909	483	81%
St. Mary's Airport	MD 235	40	110	275 %	905, 909	139	348%
Total		4,476				3,801	

Sources: Spaces Used Data Collected by MTA in 2007 except for Wayson's Corner, Bristol and Pindell collected by Cambridge Systematics on 1/7/08 and Accokeek Village Collected by SHA in 2005.

^a Prince George's County.

^b Anne Arundel County.

Table 4.17 Planned Park-and-Ride Facilities

Park-and-Ride Facility	Major Corridor/ County	Spaces	Commuter Routes	Current Phase	Anticipated Opening
Minor League Stadium	MD 5/Charles	500	TBD	Construction	May 2008
Waldorf P&R	U.S. 301/Charles	500	901, 907, 913	Design	Winter 2009
Prince Frederick P&R	MD 231/Calvert	380	902	Design	Summer 2008
Dunkirk P&R	MD 4/Calvert	500	902	Planning	Spring 2011
New Market P&R	MD 5/St. Mary's	500	903, 905, 909	Planning	Early 2010 (pending approval)
Charlotte Hall P&R	MD 5/St. Mary's	500	903, 905, 909	Planning	Late 2010 (if no changes)

4.4 BICYCLE/PEDESTRIAN

Policies and Strategies

The implementation of appropriate policies and strategies can increase bicycle and pedestrian activity in Southern Maryland. Increased bicycling and walking results in significant transportation and public health benefits and, in the case of bicycle tourism, provides direct economic benefits as well.

The recommendations in this report are consistent with MDOT's *20-Year Bicycle and Pedestrian Access Master Plan*, Tri-County Council for Southern Maryland's *Southern Maryland Regional Trail and Bikeway System Study*, and the various County comprehensive plans.

Policies and strategies to promote bicycle and pedestrian activity relate to improved facilities, improved connectivity, improved safety, and land use.

Improve Connectivity

To allow for increased bicycling and walking, both as a mode of transportation and as a recreational activity, connections among transit facilities, residential areas, activity centers, parks, and tourist attractions need to be maintained where already existing and established where missing. The following strategies support increased connectivity.

- Focus on improving Bicycle Level of Comfort (BLOC) along key roadway segments identified in the Maryland Bicycle and Pedestrian Access Master Plan and on appropriate County and local roadways.
- Expand the off-road trail system and create linkages among existing trails by implementing the recommendations of the *Southern Maryland Regional Trail and Bikeway System Study*. Construct bike paths, sidewalks and trails to fill in any gaps.

- Enhance and expand bicycle and pedestrian access to transit:
 - Provide safe bicycle and pedestrian access to park-and-ride lots (bike lanes, sidewalks, etc.);
 - Provide bicycle parking facilities at park-and-ride lots;
 - Provide adequate sidewalk access and shelters at county bus stops; and
 - Provide bike racks on buses.
- Retrofit existing roadways with sidewalks as appropriate. Connect neighborhoods near town centers or other activity centers with an internal system of sidewalks, roads, and/or paths.

Improve Facilities

To ensure that bicycle and pedestrian facilities are improved and appropriately maintained, the following strategies are recommended:

- Integrate bicycle and pedestrian facilities into roadway development projects at both the State and local level. These facilities can include wider lanes, bike lanes, paved shoulders and safe storm drains; and
- Integrate bikeway and sidewalk maintenance and cleaning into established roadway maintenance routines.

Improve Safety

To improve safety for bicyclists and pedestrians, the following strategies are recommended:

- Plan, design, and construct bicycle and pedestrian facilities using appropriate design standards;
- Provide pedestrian and bicycle traffic control devices where appropriate;
- Reduction of automobile impacts through traffic calming and other speed reduction techniques; and
- Provide bicycle and pedestrian route signage as appropriate.

Land Use

Bicycle and pedestrian trips for transportation purposes are characterized by shorter trip distances and direct routes or linkages between origins and destinations. Land use patterns have a critical impact on bicycle and pedestrian circulation. Existing development patterns in Southern Maryland are fairly decentralized which result in inconvenient linkages between residential areas and activity centers and are a disincentive for bicycling and walking.

Opportunities to provide accessible, safe, convenient, and inviting environments for walking and bicycling should include the following actions;

- Adopt policies and ordinances that promote mixed-use development at densities that allow and encourage bicycling and walking to activity centers or to transit facilities;
- Improve bicycle and pedestrian access in existing communities by retrofitting sidewalks and adding bike paths as appropriate. Connect neighborhoods to nearby activity centers by a network of sidewalks, bike paths, and roads;
- Require that bicycle and pedestrian access be provided in all new development proposed within specified geographic areas (such as PFA); and
- Require infill redevelopment to provide pedestrian and bicycle connections to adjacent properties.

4.5 LAND USE

Preparing for the expected growth in Southern Maryland through rational, ordered land use planning will minimize required transportation system expenditures and support multimodal transportation systems. Many of the most densely populated areas of Southern Maryland have developed according to auto-oriented land use principles. This style of development has contributed to the high levels of traffic congestion currently experienced by many residents in the region. Future development and redevelopment should be accommodated through Smart Growth principles to promote activity centers and more dense development in designated growth areas, or Priority Funding Areas and to mitigate potential negative environmental impacts. This should be accomplished using transit-friendly land use strategies to allow for transit services to be expanded and improved in step with this new development and allow for transportation corridors, including highways, to be maintained in a safe and efficient manner. A balance in transportation and land use is essential to maintain a healthy quality of life in Southern Maryland. This includes key elements such as multimodal transportation planning, integrated planning, promoting transit and nonmotorized transportation uses (hiker/biker trails), ride-sharing, and access management.

There are four fundamental land use criteria that must be in place to enable a successful transit program.³⁷ These are:

- **Population Size** – Are the number of people who live and work along the transit route sufficient for transit service?
- **Density** – Is the population sufficiently concentrated to provide a market for transit services?

³⁷Guidelines For Transit-Sensitive Suburban Land Use Design, by Edward Beimborn, Harvey Rabinowitz, and Peter Gugliotta, The Center for Urban Transportation Studies, The University of Wisconsin Milwaukee.

- **Concentrated Locations** – Are the locations of land uses concentrated near potential transit stops?
- **Mixed Use** – Are there a mix of land uses to minimize travel to frequently used places?

The following **land use policies and strategies, if implemented, will enable the region to meet the thresholds of population and land use densities required to create highly functioning and progressive transit systems.**

- **Regional Growth Management** – Develop land use plans that are integrated with transportation plans.
- **Focus on Development Nodes** – Continue to focus development in Priority Funding Areas (PFA)/Activity Centers/Mixed Use Developments to concentrate trip origins and destinations.
- **Develop Design Guidelines** – Develop transit-supportive design guidelines that promote beneficial suburban design.
- **Transit-Oriented Development(TOD)/Smart Growth** – Focus land use policies to support TOD and Smart Growth, including intensification of development along transit routes.

Regional Growth Management

Regional growth management efforts seek to influence urban form at a regional level by using a regional agency to support local planning efforts. In some areas, Metropolitan Planning Organizations or other regional agencies have funded and/or assisted in developing local land use plans that are integrated with state and regional transportation plans. Regional visioning and scenario planning are two ways to increase the regional focus of local land use planning. One local example is the Metropolitan Washington Council of Governments (MWCOC) *Regional Mobility and Accessibility Study*, which developed a transportation and land use vision for the MWCOC region.

Key recommendations for regional growth management include:

- *Develop a Regional Growth Strategy Led by the Tri-County Council for Southern Maryland.* Currently, each county has their own comprehensive plan. Though these are critical to ensuring that development occurs in accordance with each county's specifications, Southern Maryland could develop a land use and growth vision to be used as a guide. This vision would help ensure the use of a common set of principle for all land use planning within the region and an understanding of the region's development capacity.
- *Coordinate MDOT Plans with Regional and Local Land Use Plans.* Calvert County's Comprehensive Plan specifically recommends the continuation of a countywide transportation planning program that is integrated with State and regional planning programs.

Focus on Development Nodes

Development nodes are areas of focused development, such as population concentrations, major employment centers, and commercial districts. Transportation facilities are easier to plan for and more cost-effective when development is concentrated in nodes rather than sparsely distributed. Long-distance travel can also be reduced by providing a mix of land uses within a development node thereby enabling trips within the same activity center. The effectiveness of this approach is enhanced when a mixed-use activity center includes not only residential and retail services but also office space.

Specific plans for the three counties include:

- **Calvert.** The Calvert County Comprehensive Plan includes a vision that 35 percent of new households be located in or near established town centers. The plan also focuses on reducing the overall growth in households to meet the county's adequate public facilities ordinance.
- **Charles.** Waldorf, La Plata, Pomomkey, and Bryantown are projected to be among the fastest growing areas in Charles County according to the 2006 comprehensive plan. Hughesville also is expected to have strong growth. The County plans to use growth management strategies to direct 70 to 75 percent of new growth to the Development District (northern part of the county near Waldorf and the Bryan's Road area) and to existing towns. The plan states that improving the current jobs/housing imbalance would do more to reduce congestion than any single transportation construction project.
- **St. Mary's.** The comprehensive plan emphasizes that development should occur in suitable areas. Between 1990 and 1996, 56 percent of new residential development occurred outside of designated growth centers. The plan calls for a 50 percent reduction in new growth in rural planning areas. It also proposes several initiatives to preserve natural, cultural and economic characteristics, while attempting to equitably assess the cost and benefits of growth.

Recommendations for focusing development around nodes include:

- *Focus Majority of Development in Activity Centers/Town Centers.* Land use patterns are one of the largest influences on trip making. Suburban environments suffer congestion in part due to the widely separated land uses to which residents must travel to meet many daily needs. Though the majority of residents of Southern Maryland will continue to work outside of the region, concentrating new development can positively impact intraregion travel and enhance the viability of alternative modes of transportation.
- *Ensure a True Mix of Uses within each Node.* Transit, walking, and biking to and within an activity center is easier when people have access to multiple types of development. An activity center consisting only of office and retail development may allow workers to get lunch without using their car, but will still require workers to use an automobile to travel between their home

and office. An activity center consisting only of residential and retail development requires residents to use their car to get to and from work. A true mixed-use activity center includes residential, retail and office development. Though not everyone will remain in the activity center for all of their activities, the option will be appealing to some. The concentration of various types of activities also improves transit viability.

Develop Design Guidelines

Design guidelines focus at the site level, facilitate pedestrian access to transit, and allow for efficient transit operations. Each of the counties comprehensive plans promotes the move toward a pedestrian-oriented street system within town centers and activity centers. Implementation requires appropriate new development as well as redevelopment of existing sites.

Key design guideline recommendations include:

- *Focus on transit when conducting development and site plan reviews.* As the counties conduct development reviews, they should include criteria to consider transit accommodation, from both the customer and operator perspectives.
- *Focus on Transit Customer Needs.* Accessibility of transit service should be considered when reviewing plans for new developments or changes to existing developments. For example, locating bus stops near buildings, instead of across large parking lots helps make public transportation easy for customers to use.
- *Focus on Transit Operator Needs.* Efficient transit operations require maneuverability and quick access and egress. Efficient operations can be enabled by ensuring that the streets within the development or the activity center follow a grid pattern and are not too curved or narrow for transit vehicles to utilize easily. Quick access and egress requires that transit vehicles are given accommodations ensuring they do not get tied up in traffic. For example, if a bus stop is placed at the entrance to a shopping center, the bus should have its own lane to avoid having to share with the automobile traffic getting to and from parking areas.

Transit-Oriented Development/Smart Growth

Transit-Oriented Development (TOD) initiatives generally operate at the *community* level, and aim to create neighborhoods that are compact, mixed-use, pedestrian-friendly, and near transit stops.

Each county has goals that support TOD and Smart Growth, including:

- **Charles.** The plan focuses on “balancing population growth with the ability of the County to provide public facilities and services while maintaining the rural nature and quality of life.”

- **St. Mary's.** One of the goals of the plan is to encourage infill development and to develop standards assuring efficient transportation networks, compatible design criteria, and efficient use of land in growth areas. Another goal fosters traditional village development patterns and design, including preparation of master plans for village centers.
- **Calvert.** One of the objectives of the plan is to preserve town centers as attractive and convenient places to live, work and shop – a feature of transit-oriented development and mixed-use centers.

TOD and smart growth recommendations include:

- *Form Partnerships between Jurisdictional Land Use Planners and Transit Operators.*³⁸ Land use planners and those involved in the development review process should work closely with local bus operators, MTA and WMATA. Partnerships should be developed to ensure that land use plans are consistent with transit plans.
- *Continue to Develop Advanced Planning Studies in Priority Areas.*³⁹ Conceptual plans should be prepared for priority areas that focus on transit-oriented development and smart growth principles. These plans should include zoning and land use recommendations and identify future roadway corridors, existing roadways to be improved, access management, and transit improvements.

³⁸ *A Guidebook to Land Use and Public Transportation for Snohomish County, Washington.*

³⁹ Charles County Comprehensive Plan, 2006.

5.0 Project Evaluation

Many of the transportation needs identified in Section 4.0 can be addressed by implementing policies and strategies or by strategically building improved physical infrastructure or implementing operational improvements. Because the cost of addressing these identified needs are greater than available resources, some means to determine where the limited resources should best be applied is needed. This section outlines the methodology used to identify and evaluate these projects.

5.1 EVALUATION METHODOLOGY

Project Selection

Projects evaluated for the Southern Maryland Transportation Needs Assessment come from these sources:

- MDOT's 2008 CTP;
- 2007 Tri-County Council's priority letter – all projects are included, with the exception of:
 - Intersection signalization projects;
 - Streetscape projects;
 - Sidewalk projects;
 - Projects to add turn lanes to specific intersections; and
 - Other projects that are very local in nature, related to improving vehicle fleets, or similar items;
- SHA Highway Needs Inventory (HNI) – all “Primary” projects and “Secondary” projects that are also listed in each of the county's priority letter are included;
- County projects of regional significance;
- Public input; and
- Any roadway section projected in this Needs Assessment to experience a level of service (LOS) of E or F by the year 2030.

Project Evaluation

Projects within each county are evaluated on how well they address the study’s goals and objectives (Table 5.1). The evaluation process was performed collaboratively by staff from MDOT, SHA, MTA, MdTA, and the Tri-County Council for Southern Maryland.

Each project was evaluated as meeting, partially meeting, or minimally addressing each of the study goals. The degree to which a project meets a goal depends upon whether or not the project affects the objectives within the goal, as well as the magnitude of that effect. The magnitude of the effect is a function both of the project design and severity of the need it is addressing.

Environmental and Cultural Stewardship: The environmental and cultural goal must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area; rather each project must be planned and constructed in a manner that minimizes its social, environmental and cultural impact.

Table 5.1 presents a set of decision rules used to evaluate the projects.

Table 5.1 Decision Rules for Project Evaluation Analysis

Goal	Decision Rules
Mobility and Accessibility	<ul style="list-style-type: none"> Projects that meet this goal provide significant circulation or mobility benefits to at least one mode – highway, transit, bike/ped; increase transportation choices or improve modal connections; and improve access to major activity centers. Projects on the primary system generally meet this goal. Projects that partially meet this goal provide circulation benefits to one mode or improve access and linkages to activity centers. Projects that minimally address this goal provide limited circulation benefits or only limited access to activity centers or connections between modes.
Safety and Security	<ul style="list-style-type: none"> Projects that meet this goal are significantly likely to reduce crashes or provide for emergency response.
Efficiency	<ul style="list-style-type: none"> Projects meet this goal if they significantly increase the person movement capacity of highways or transit service (persons per mile, etc.) or provide access controls or limits or achieve high scores on each criteria or goal, relative to their cost.
Environmental and Cultural Stewardship	<ul style="list-style-type: none"> The environmental and cultural goal must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area; rather each project must be planned and constructed in a manner that minimizes its environmental and cultural impact.
Integrated Planning	<ul style="list-style-type: none"> Projects that meet this goal serve established communities (Priority Funding Areas); link existing land use with environmental and economic development planning efforts; and are consistent with comprehensive plans.

5.2 EVALUATION OF PROJECTS

Tables 5.2, 5.3, and 5.4 provide a summary of how projects within each county are evaluated on the project goals. The text following each table provides additional rationale for the evaluations.

Table 5.2 Calvert County Projects

				Calvert County			
Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
<i>MD 2/4 Corridor (from South to North with Transit Projects Listed First)</i>							
Construct P&R lots at Dunkirk and Prince Frederick (also at Waldorf, La Plata, Charlotte Hall, and New Market)	T1	Planning and construction underway depending on particular lot (also listed for Charles and St. Mary’s Counties)	42	Meets	Meets	Meets	Meets
Enhance Commuter Bus Service from Calvert County to employment centers in the Washington, D.C. area, including Prince George’s County	T2	From 2030 Origin Destination analysis (funding not identified)	T.B.D.	Meets	Meets	Meets	Meets
Build a second span of Governor Thomas Johnson Memorial Bridge. Widen MD 4 from the Governor Thomas Johnson Memorial Bridge to MD 235. Upgrade intersection of MD 4 and MD 235	1	Project planning is underway (also listed for St. Mary’s County)	500-550	Meets	Meets	Meets	Meets
Construct Interchange at MD 2/4 and Lusby Connector	2	Project listed in HNI ¹ – funding not identified	35-40	Meets	Meets	Partially Meets	Meets
Construct Interchange at MD 2/4 and MD 497	3	Project listed in HNI ¹ – funding not identified	35-40	Meets	Meets	Partially Meets	Meets
Construct Interchange at MD 2/4 and Ball/ Calvert Beach Roads	4	Project listed in HNI ¹ – funding not identified	35-40	Meets	Meets	Partially Meets	Meets
Widen MD 2/4 from MD 264 to MD 765A South of Prince Frederick	5	Divided highway reconstruct with access control improvements. Project listed in HNI ¹ – funding not identified	35-45	Meets	Meets	Meets	Meets

Calvert County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
Widen MD 2/4 from South of MD 765A to North of Stoakley Road (Prince Frederick)	6	Planning is complete and engineering is underway for the segment between Steeple Chase Drive and Commerce Lane. Additional engineering, ROW, and construction funds are required to complete the overall project. Construction of MD 231 and County interchanges not included in cost	105	Meets	Meets	Meets	Meets
Reconstruct Intersection at MD 2/4 and MD 231 (Prince Frederick)	7	Construction underway, estimated completion summer 2009	31	Meets	Meets	Meets	Meets
Construct Prince Frederick Loop Road	8	In Calvert County Capital Improvement Program FY 2008-2013, project is under construction	30	Meets	Meets	Meets	Meets
Widen MD 2/4 from North of Stoakley Road in Prince Frederick to MD 4	10	Divided highway reconstruct with access control improvements. Project listed in HNI ¹ – funding not identified	125-150	Meets	Meets	Partially Meets	Partially Meets
Widen MD 4 from MD 2 to MD 258	11	Divided highway reconstruct with access control improvements. Part of this project is in Anne Arundel County. Project listed in HNI ¹ – funding not identified	190-220	Meets	Meets	Meets	Meets
<i>Other Projects</i>							
Widen MD 231 between MD 5 Relocated in Hughesville and MD 2/4 in Prince Frederick	9	Also listed for Charles County. Project listed in HNI ¹ – funding not identified	200-230	Meets	Meets	Meets	Meets

Calvert County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
Widen MD 260 from MD 4 to begin divided highway	12	Divided highway reconstruct. Part of this project is in Anne Arundel County. Project listed in HNI ¹ – funding not identified	70-100	Meets	Meets	Partially Meets	Meets
Acquire land and construct new park-and-ride lots as required		Continually monitor commuter bus and ridesharing demand and develop park-and-ride lots as needed (also listed for Charles and St. Mary’s Counties; funding not identified)	T.B.D.	Meets	Meets	Meets	Meets
Enhance signal interconnection and coordination along major corridors in Calvert County		Commission recommends continual review and improvement of signal coordination throughout the region (also listed for Charles and St. Mary’s Counties; funding not identified)	T.B.D.	Meets	Meets	Meets	Meets

Note: The environmental and cultural goal is not shown here because it must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area, rather each project must be planned and constructed in a manner that minimizes its environmental and cultural impact.

MD 2/4 Corridor (from South to North with Transit Projects Listed First) – Calvert County

Construct park-and-ride lots at Dunkirk and Prince Frederick

Jurisdiction: Calvert County

Notes: Planning and construction underway

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Enhance Commuter Bus Service from Calvert County to employment centers in the Washington, D.C. area, including Prince George's County

Jurisdiction: Calvert County – Prince George's County (map reference T2 in Figure 5.1)

Notes: From 2030 Origin Destination analysis (funding not identified)

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective

- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Build a second span of Governor Thomas Johnson Memorial Bridge. Widen MD 4 from the Governor Thomas Johnson Memorial Bridge to MD 235. Upgrade intersection of MD 4 and MD 235

Jurisdiction: Calvert County – St. Mary’s County (map reference 1 in Figure 5.1)

Notes: Project planning is underway

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts on reduced congestion; increases driving choices
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Construct Interchange at MD 2/4 and Lusby Connector

Jurisdiction: Calvert County (map reference 2 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Decreases intersection conflicts; impact to emergency response/evacuation
- Efficiency: **Partially Meets**
 - » Introduces access control at the intersection; Relieving a single bottleneck relatively cost-effective

- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Construct Interchange at MD 2/4 and MD 497

Jurisdiction: Calvert County (map reference 3 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Decreases intersection conflicts; impact to emergency response/evacuation
- Efficiency: **Partially Meets**
 - » Introduces access control at the intersection; Relieving a single bottleneck relatively cost-effective, but impacts are localized and major congestion is not predicted at that location
- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Construct Interchange at MD 2/4 and Ball/Calvert Beach Roads

Jurisdiction: Calvert County (map reference 4 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Decreases intersection conflicts; small impact to emergency response/evacuation
- Efficiency: **Partially Meets**
 - » Introduces access control at the intersection; Relieving a single bottleneck relatively cost-effective, but impacts are localized and major congestion is not predicted at that location

- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Widen MD 2/4 from MD 264 to MD 765A South of Prince Frederick

Jurisdiction: Calvert County (map reference 5 in Figure 5.1)

Notes: Divided highway reconstruct with access control improvements. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Access controls reduce conflicts, increase safety; improved mobility and improved emergency access/evacuation
- Efficiency: **Meets**
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Widen MD 2/4 from south of MD 765A to north of Stoakley Road

Jurisdiction: Calvert County (map reference 6 in Figure 5.1)

Notes: Planning is complete and engineering is underway for the segment between Steeple Chase Drive and Commerce Lane. Additional engineering, right-of-way, and construction funds are required to complete the overall project. Construction of MD 231 and County interchanges not included in cost

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Significant impacts on short-term, localized congestion and long-term regional congestion
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility

- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Reconstruct Intersection at MD 2/4 and MD 231 (Prince Frederick)

Jurisdiction: Calvert County (map reference 7 in Figure 5.1)

Notes: Construction underway, estimated completion summer 2009

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation at a congested intersection
- Safety and Security: **Meets**
 - » Decreases intersection conflicts; small impact to emergency response/evacuation
- Efficiency: **Meets**
 - » Relieving a single bottleneck is relatively cost-effective
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Construct Prince Frederick Loop Road

Jurisdiction: Calvert County (map reference 8 in Figure 5.1)

Notes: In Calvert County Capital Improvement Program FY 2008-2013, project is under construction

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Impacts in reducing short-term, localized congestion; increases driving choices; increases access to activity centers
- Safety and Security: **Meets**
 - » Reduces turning conflicts as a form of access management in the MD 2/4 corridor, thereby increasing safety; slightly improves emergency access/evacuation
- Efficiency: **Meets**
 - » Improves local road network – helps preserve arterial capacity for through traffic

- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Widen MD 2/4 from north of Stoakley Road in Prince Frederick to MD 4

Jurisdiction: Calvert County (map reference 10 in Figure 5.1)

Notes: Divided highway reconstruct with access control improvements. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Significant impacts on long-term regional congestion
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Partially Meets**
 - » With car as dominant mode, some impact to person movement
- Integrated Planning: **Partially Meets**
 - » Serves Priority Funding Areas; with county growth restrictions in place it is unclear when this section will require expansion

Widen MD 4 from MD 2 to MD 258

Jurisdiction: Calvert County (map reference 11 in Figure 5.1)

Notes: Divided highway reconstruct with access control improvements. Part of this project is in Anne Arundel County. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Impacts on congestion; significant impacts on increased circulation
- Safety and Security: **Meets**
 - » Helps emergency access/evacuation
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Other Projects – Calvert County

Widen MD 231 between MD 5 Relocated in Hughesville and MD 2/4 in Prince Frederick to ease increasing congestion

Jurisdiction: Calvert County – Charles County (map reference 9 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Significant impacts in reducing short-term, localized congestion
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation; improves connections between Calvert and Charles counties
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Widen MD 260 from MD 4 to begin divided highway

Jurisdiction: Calvert County – Anne Arundel County (map reference 12 in Figure 5.1)

Notes: Divided highway reconstruct. Part of this project is in Anne Arundel County. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Impacts on congestion; significant impacts on increased circulation
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Partially Meets**
 - » With car as dominant mode, some impact to person movement
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Acquire land and construct new park-and-ride lots as required

Jurisdiction: Calvert County

Notes: Continually monitor commuter bus and ridesharing demand and develop park-and-ride lots as needed

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Enhance signal interconnection and coordination along major corridors in Calvert County

Jurisdiction: Calvert County

Notes: Commission recommends continual review and improvement of signal coordination throughout the region

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves congestion.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation
- Efficiency: ***Meets***
 - » Improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Table 5.3 Charles County Projects

Charles County				Goals			
Project Description	Map Reference	Notes	Cost (\$millions)	Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
<i>U.S. 301 Corridor (from South to North with Transit Projects Listed First)</i>							
Accelerate Mass Transit improvements in the U.S. 301/MD 5 corridor, progressing from identification of a transit right-of-way for preservation, enhanced commuter bus service, bus rapid transit, and fixed-rail transit from Waldorf-White Plains to the Branch Avenue Metro station	T3	Planning study underway. Planning to be complete in 2009	T.B.D.	Meets	Meets	Meets	Meets
Construct park-and-ride lots at Waldorf and La Plata (also at Dunkirk, Prince Frederick, Charlotte Hall, and New Market)	T1	Planning and construction underway depending on particular lot (also listed for Calvert and St. Mary's Counties)	42	Meets	Meets	Meets	Meets
Enhance Commuter Bus Service generally from Charles County to employment centers in the Washington, D.C. area, including Prince George's County	T4	From 2030 Origin Destination analysis (funding not identified)	T.B.D.	Meets	Meets	Meets	Meets
Enhance Commuter Bus Service specifically along MD 5/U.S. 301 Corridor	T5	From 2030 Origin Destination analysis (funding not identified)	T.B.D.	Meets	Meets	Meets	Meets
Build transfer station for Charles County's VanGO service at the U.S. 301 park-and-ride Lot	T6	In TCC Priority Letter (funding not identified)	0.4	Meets	Meets	Meets	Meets
Expand the U.S. 301 Governor Harry W. Nice Memorial Bridge to facilitate the flow of traffic at the toll facilities and improve access from Maryland to Virginia	13	Planning study in progress	800-1,200	Meets	Meets	Meets	Meets

Charles County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
Access control improvements on U.S. 301 from the Potomac River to South of La Plata	14	Project listed in HNI ¹ – funding not identified	200-220	Meets	Meets	Meets	Meets
Widen U.S. 301 from South of to North of La Plata.	15	Divided highway reconstruct with access control improvements. Project listed in HNI ¹ – funding not identified	475-525	Meets	Meets	Meets	Meets
Build MD 6 Connector in Town of La Plata from MD 6 at Willow Lane to U.S. 301	16	New road. Project listed in HNI ¹ – funding not identified	55-65	Meets	Meets	Meets	Meets
Construct a Western Bypass of Waldorf, with controlled access, selecting the alignment with the least environmental impact on the Mattawoman Creek watershed. Construct a Limited Upgrade of U.S. 301, to facilitate traffic flow and relieve congestion at failing intersections, and create a “boulevard” design for Charles County’s “main street,” with minimum impact on commercial businesses in the corridor.	17	Project planning in progress	1,500-1,600 (included in U.S. 301 Study)	Meets	Meets	Meets	Meets
Construct interchange at U.S. 301 and MD 5	21	Project listed in HNI ¹ – funding not identified	50-60	Meets	Meets	Meets	Meets
U.S. 301 South Corridor Transportation Study to examine improvements on U.S. 301 and MD 5 in Charles and Prince George’s Counties	22	Project planning partially completed and on hold – funding provided for protective right-of-way preservation	3,300-3,400 (including Waldorf)	Meets	Meets	Meets	Meets

Charles County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
<i>MD 5/235 Corridor (from South to North with Transit Projects Listed First)</i>							
Study Commuter Rail from St. Mary's County to Washington, D.C.	T7	Feasibility study funded for completion in 2008 (also listed for St. Mary's County)	T.B.D.	Evaluation to be completed after feasibility study			
Widen MD 5 from North of Hughesville to MD 5 Business	23	Divided Highway reconstruct with access controls. Project listed in HNI ¹ – funding not identified	160-190	Meets	Meets	Meets	Meets
Improve the intersection at MD 5 Business/MD 5 (Mattawoman-Beantown) and St. Charles Parkway by building an interchange	24	Project listed in HNI ¹ – funding not identified	100-120	Meets	Meets	Meets	Meets
<i>Other Projects</i>							
Widen MD 231 between MD 5 Relocated in Hughesville and MD 2/4 in Prince Frederick to ease increasing congestion	9	Also listed for Calvert County. Project listed in HNI ¹ – funding not identified	200-230	Meets	Meets	Meets	Meets
Construct Cross County Connector	18	This new roadway connects MD 5 and U.S. 301 to MD 210 near Bryans Road. Project is under construction – funded by Charles County	48	Meets	Meets	Meets	Meets
Construct Western Parkway	19	This new roadway parallels U.S. 301 in Waldorf. Project is under construction – funded by Charles County	12	Meets	Meets	Meets	Meets
Widen MD 228 from Middletown Rd to U.S. 301	20	Divided highway reconstruct. Project listed in HNI ¹ – funding not identified	60-100	Meets	Meets	Meets	Meets

Charles County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
MD 6 from Chapel Point Road to U.S. 301	25	Multilane reconstruct. Project listed in HNI ¹ – funding not identified	25-50	Meets	Meets	Meets	Meets
Widen MD 225 from MD 210 to MD 224	26	Multilane reconstruct. Project listed in HNI ¹ – funding not identified	20-30	Meets	Meets	Meets	Meets
Access controls on MD 210 between MD 227 and MD 228	27	Divided highway reconstruct. Part of project is in Prince George’s County. Project listed in HNI ¹ – funding not identified	110-120	Meets	Meets	Meets	Meets
Construct White Plains to Indian Head hiker biker trail	B1	Land acquired. Partial funding allocated	T.B.D.	Partially Meets	Partially Meets	Meets	Meets
Acquire land and construct new park-and-ride lots		Continually monitor commuter bus and ridesharing demand and develop park-and-ride lots as needed (also listed for Calvert and St. Mary’s Counties; funding not identified)	T.B.D.	Meets	Meets	Meets	Meets
Enhance signal interconnection and coordination along major corridors in Southern Maryland		Commission recommends continual review and improvement of signal coordination throughout the region (also listed for Calvert and St. Mary’s Counties; funding not identified)	T.B.D.	Meets	Meets	Meets	Meets

Note: The environmental and cultural goal is not shown here because it must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area, rather each project must be planned and constructed in a manner that minimizes its environmental and cultural impact.

^a Cost estimate provided is for either the Western Bypass of Waldorf or the upgrade to U.S. 301 through Waldorf.

U.S. 301 Corridor (from South to North with Transit Projects Listed First) – Charles County

Accelerate Mass Transit improvements in the U.S. 301/MD 5 corridor, progressing from identification of a transit right-of-way for preservation, enhanced commuter bus service, bus rapid transit, and fixed-rail transit from Waldorf-White Plains to the Branch Avenue Metro station

Jurisdiction: Charles County – Prince George’s County (map reference T3 in Figure 5.1)

Notes: Planning study underway. Planning to be complete in 2009

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Major impacts on transit LOS, activity center access, intermodal connectivity, and increased choices.
- Safety and Security: ***Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » Major impacts on person movement; somewhat expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Construct park-and-ride lots at Waldorf and La Plata

Jurisdiction: Charles County (map reference T1 in Figure 5.1)

Notes: Planning and construction underway

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective

- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Enhance Commuter Bus Service generally from Charles County to employment centers in the Washington, D.C. area, including Prince George's County

Jurisdiction: Charles County – Prince George's County (map reference T4 in Figure 5.1)

Notes: From 2030 Origin Destination analysis (funding not identified)

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: **Meets**
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: **Meets**
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Enhance Commuter Bus Service specifically along MD 5/U.S. 301 Corridor

Jurisdiction: Charles County – Prince George's County – St. Mary's County (map reference T5 in Figure 5.1)

Notes: From 2030 Origin Destination analysis (funding not identified)

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.

- Safety and Security: **Meets**
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: **Meets**
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Build transfer station for Charles County's VanGO service at the U.S. 301 park-and-ride lot

Jurisdiction: Charles County (map reference T6 in Figure 5.1)

Notes: In TCC Priority Letter

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: **Meets**
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: **Meets**
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Expand the U.S. 301 Governor Harry W. Nice Memorial Bridge to facilitate the flow of traffic at the toll facilities and improve access from Maryland to Virginia

Jurisdiction: Charles County (map reference 13 in Figure 5.1)

Notes: Planning study in progress

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Improves activity center access; significant impacts on increased circulation
- Safety and Security: ***Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Access control improvements on U.S. 301 from the Potomac River to South of La Plata

Jurisdiction: Charles County (map reference 14 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Increases roadway circulation
- Safety and Security: ***Meets***
 - » Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation.
- Efficiency: ***Meets***
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: ***Meets***
 - » Consistent with existing land use, environmental and economic development planning efforts

Widen U.S. 301 from South of to North of La Plata

Jurisdiction: Charles County (map reference 15 in Figure 5.1)

Notes: Divided highway reconstruct with access control improvements. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Increases roadway circulation
- Safety and Security: ***Meets***
 - » Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation.
- Efficiency: ***Meets***
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: ***Meets***
 - » Consistent with existing land use, environmental and economic development planning efforts

Build MD 6 Connector in Town of La Plata from MD 6 at Willow Lane to U.S. 301

Jurisdiction: Charles County (map reference 16 in Figure 5.1)

Notes: New road. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Major impacts in reducing short-term, localized congestion
- Safety and Security: ***Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; likely to have some access controls; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Construct a Western Bypass of Waldorf, with controlled access, selecting the alignment with the least environmental impact on the Mattawoman Creek watershed. Construct a Limited Upgrade of U.S. 301, to facilitate traffic flow and relieve congestion at failing intersections, and create a “boulevard” design for Charles County’s “main street,” with minimum impact on commercial businesses in the corridor.

Jurisdiction: Charles County – Prince George’s County (map reference 17 in Figure 5.1)

Notes: Project planning in progress

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts in reducing short-term, regional and localized congestion; increases driving choices only
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation; Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation.
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; likely to have some access controls; expensive;
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Construct Interchange at U.S. 301 and MD 5

Jurisdiction: Charles County (map reference 21 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Decreases intersection conflicts; positive impact to emergency response/evacuation

- Efficiency: **Meets**
 - » Introduces access control at the intersection; Relieving a single bottleneck is relatively cost-effective
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

U.S. 301 South Corridor Transportation Study to examine improvements on U.S. 301 and MD 5 in Charles and Prince George's Counties

Jurisdiction: Charles County – Prince George's County (map reference 22 in Figure 5.1)

Notes: Project planning partially completed and on hold – funding provided for protective right-of-way preservation

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts in reducing short-term, regional and localized congestion; increases driving choices only
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation; Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation.
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; likely to have some access controls; expensive;
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

MD 5/235 Corridor (from South to North with Transit Projects Listed First) – Charles County

Study Commuter Rail from St. Mary's County to Washington, D.C.

Jurisdiction: Charles County – St. Mary's County (map reference T7 in Figure 5.1)

Notes: Feasibility study funded for completion in 2008

Impact on study goals and objectives:

- Mobility and Accessibility:
 - » Evaluation to be completed after feasibility study
- Safety and Security:
 - » Evaluation to be completed after feasibility study
- Efficiency:
 - » Evaluation to be completed after feasibility study
- Integrated Planning:
 - » Evaluation to be completed after feasibility study

Widen MD 5 from North of Hughesville to MD 5 Business

Jurisdiction: Charles County (map reference 23 in Figure 5.1)

Notes: Divided Highway reconstruct with access controls. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Increases roadway circulation
- Safety and Security: ***Meets***
 - » Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation
- Efficiency: ***Meets***
 - » Improves efficiency on existing infrastructure
- Integrated Planning: ***Meets***
 - » Consistent with existing land use, environmental and economic development planning efforts

Improve the intersection at MD 5 Business/MD 5 (Mattawoman-Beantown) and St. Charles Parkway by building an interchange

Jurisdiction: Charles County (map reference 24 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation on major commuter corridor
- Safety and Security: **Meets**
 - » Decreases intersection conflicts; impact to emergency response/evacuation
- Efficiency: **Meets**
 - » Introduces access control at the intersection; Relieving a single bottleneck relatively cost-effective
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Other Projects – Charles County

Widen MD 231 between MD 5 Relocated in Hughesville and MD 2/4 in Prince Frederick to ease increasing congestion

Jurisdiction: Calvert County – Charles County (map reference 9 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Significant impacts in reducing short-term, localized congestion
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation; improves connections between Calvert and Charles counties
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Construct Cross County Connector

Jurisdiction: Charles County (map reference 18 in Figure 5.1)

Notes: This new roadway connects MD 5 and U.S. 301 to MD 210 near Bryans Road. Project is under construction – funded by Charles County.

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Impacts on relieving short-term congestion; increases driving choices only; increases activity center access
- Safety and Security: ***Meets***
 - » Improved emergency access/evacuation; moves traffic to roadway with better design standards, thereby increasing safety
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Meets***
 - » Consistent with existing land use, environmental and economic development planning efforts

Construct Western Parkway

Jurisdiction: Charles County (map reference 19 in Figure 5.1)

Notes: This new roadway parallels U.S. 301 in Waldorf. Project is under construction – funded by Charles County.

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Major Impacts on relieving short-term congestion; increases driving choices only; increases activity center access
- Safety and Security: ***Meets***
 - » Improved emergency access/evacuation.
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Widen MD 228 from Middletown Rd to U.S. 301

Jurisdiction: Charles County (map reference 20 in Figure 5.1)

Notes: Divided highway reconstruct. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Reconstruction likely to increase roadway circulation
- Safety and Security: ***Meets***
 - » Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation. However, limited access could restrict emergency access to some areas
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

MD 6 from Chapel Point Road to U.S. 301

Jurisdiction: Charles County (map reference 25 in Figure 5.1)

Notes: Multilane reconstruct. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Reconstruction likely to increase roadway circulation
- Safety and Security: ***Meets***
 - » Improved mobility and improved emergency access/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, some impact to person movement; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Widen MD 225 from MD 210 to MD 224

Jurisdiction: Charles County (map reference 26 in Figure 5.1)

Notes: Multilane reconstruct. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Impacts on relieving short-term congestion; increases driving choices only; increases activity center access
- Safety and Security: ***Meets***
 - » Improved mobility and improved emergency access/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, some impact to person movement
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Access controls on MD 210 between MD 227 and MD 228

Jurisdiction: Charles County (map reference 27 in Figure 5.1)

Notes: Divided highway reconstruct. Part of project is in Prince George's County. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Increases roadway circulation
- Safety and Security: ***Meets***
 - » Access controls reduce conflicts, increase safety; improved mobility for improved emergency access/evacuation.
- Efficiency: ***Meets***
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Construct White Plains to Indian Head hiker biker trail

Jurisdiction: Charles County (map reference B1 in Figure 5.1)

Notes: Land acquired. Partial funding allocated

Impact on study goals and objectives:

- Mobility and Accessibility: ***Partially Meets***
 - » Accomplishes objectives related to multimodal mobility; however, relative impact will be small.
- Safety and Security: ***Partially Meets***
 - » Bikeway improvements will have small safety impact due to separation of bikes from cars
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; inexpensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Acquire land and construct new park-and-ride lots as required

Jurisdiction: Charles County

Notes: Continually monitor commuter bus and ridesharing demand and develop park-and-ride lots as needed

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Enhance signal interconnection and coordination along major corridors in Charles County

Jurisdiction: Charles County

Notes: Commission recommends continual review and improvement of signal coordination throughout the region

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves congestion.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation
- Efficiency: ***Meets***
 - » Improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Table 5.4 St. Mary’s County Projects

St. Mary’s County				Goals			
Project Description	Map Reference	Notes	Cost (\$millions)	Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
<i>MD 4 Corridor</i>							
Build a second span of Governor Thomas Johnson Memorial Bridge. Widen MD 4 from the Governor Thomas Johnson Memorial Bridge to MD 235. Upgrade intersection of MD 4 and MD 235	1	Project planning is underway (also listed for Calvert County)	500-550	Meets	Meets	Meets	Meets
Widen MD 4 from MD 5 to MD 235	28	Project listed in HNI ¹ – funding not identified	80-100	Meets	Meets	Meets	Meets
<i>MD 5/235 Corridor (from South to North with Transit Projects Listed First)</i>							
Construct park-and-ride lots at Charlotte Hall and New Market (also at Dunkirk, Prince Frederick, Waldorf, and La Plata)	T1	Planning and construction underway depending on particular lot (also listed for Calvert and Charles Counties)	42	Meets	Meets	Meets	Meets
Enhance commuter bus service along the MD 5 corridor	T5	From 2030 Origin Destination analysis (funding not identified; also listed for Charles County)	T.B.D.	Meets	Meets	Meets	Meets
Study Commuter Rail from St. Mary’s County to Washington, D.C.	T7	Feasibility study funded for completion in 2008 (also listed for Charles County)	T.B.D.	Evaluation to be completed after feasibility study			
Widen MD 235 from MD 4 to MD 245	29	Divided highway reconstruct with access control improvements. Project listed in HNI ¹ – funding not identified	65-100	Meets	Meets	Meets	Meets
Implement access control improvements on MD 235 from MD 245 to MD 5	30	Project listed in HNI ¹ – funding not identified	155-165	Meets	Meets	Meets	Meets

St. Mary's County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
Widen MD 5 from MD 235 to Charles County line	31	Divided highway reconstruct with access control improvements. Project listed in HNI ¹ – funding not identified	130-150	Meets	Meets	Meets	Meets
<i>Other Projects</i>							
Reconstruct MD 5 from Ranger Station to Camp Brown Road	32	Engineering on hold to reconstruct the two-lane roadway and add shoulders	15	Partially Meets	Meets	Partially Meets	Partially Meets
Widen MD 5 from MD 246 to MD 245	33	Multilane south of MD 471, divided highway reconstruct north of MD 471. Project listed in HNI ¹ – funding not identified	130-150	Partially Meets	Partially Meets	Meets	Minimally Addresses
Widen MD 245 from MD 5 to McIntosh Road	34	Identified through future level of service analysis. Not currently in Highway Needs Inventory (funding not identified)	T.B.D.	Partially Meets	Partially Meets	Meets	Minimally Addresses
Widen MD 5 from MD 243 to MD 245 (Leonardtwn)	35	Project planning in process	50	Meets	Partially Meets	Meets	Meets
Widen MD 712 from MD 235 to end of SHA maintenance	36	Multilane reconstruct. Project listed in HNI ¹ – funding not identified	20-30	Partially Meets	Meets	Meets	Meets
Extend Pegg Road to MD 5	37	Construction funding allocated for FY 2009. St. Mary's County project	9	Meets	Meets	Partially Meets	Meets
Widen MD 237 (Chancellors Run Road) from Pegg Road to MD 235 in Lexington Park	38	Construction underway to widen to divided highway. Project will include sidewalks and wide curb lanes for bicycles. Estimated completion fall 2010	63	Meets	Meets	Meets	Meets

St. Mary's County

Project Description	Map Reference	Notes	Cost (\$millions)	Goals			
				Mobility/ Accessibility	Safety/ Security	Efficiency	Integrated Planning
Construct FDR Boulevard Extension	39	Two-lane divided residential access way between MD 4 and MD 246 parallel to MD 235. Construction funding allocated for FY 2010. St. Mary's County project	17	Meets	Meets	Meets	Meets
Improve bikeway along MD 5 between MD 243 and MD 244	B2	In TCC Priority Letter (funding not identified)	T.B.D.	Partially Meets	Partially Meets	Meets	Meets
Improve bikeway along MD 245 from MD 5 to Baldrige Street	B3	In TCC Priority Letter (funding not identified)	T.B.D.	Partially Meets	Partially Meets	Meets	Meets
Improve bikeway along MD 6 from MD 5 to All Faith Church Road	B4	In TCC Priority Letter (funding not identified)	T.B.D.	Partially Meets	Partially Meets	Meets	Meets
Acquire land and construct new park-and-ride lots as required		Continually monitor commuter bus and ridesharing demand and develop park-and-ride lots as needed (funding not identified; also listed for Calvert and Charles Counties)	T.B.D.	Meets	Meets	Meets	Meets
Enhance signal interconnection and coordination along major corridors in Southern Maryland		Commission recommends continual review and improvement of signal coordination throughout the region (funding not identified; also listed for Calvert and Charles Counties)	T.B.D.	Meets	Meets	Meets	Meets

Note: The environmental and cultural goal is not shown here because it must be addressed during project planning, engineering, and construction. Projects are not individually evaluated on their potential impact in this area, rather each project must be planned and constructed in a manner that minimizes its environmental and cultural impact.

MD 4 Corridor – St. Mary’s County

Build a second span of Governor Thomas Johnson Memorial Bridge. Widen MD 4 from the Governor Thomas Johnson Memorial Bridge to MD 235. Upgrade intersection of MD 4 and MD 235

Jurisdiction: St. Mary’s County – Calvert County (map reference 1 in Figure 5.1)

Notes: Project planning is underway

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts on reduced congestion; increases driving choices
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Widen MD 4 from MD 5 to MD 235

Jurisdiction: St. Mary’s County (map reference 28 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts on reduced congestion; increases driving choices
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

MD 5/MD 235 Corridor (from South to North with Transit Projects Listed First) – St. Mary’s County

Construct park-and-ride lots at Charlotte Hall and New Market

Jurisdiction: St. Mary’s County (map reference T1 in Figure 5.1)

Notes: Planning and construction underway

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Enhance Commuter Bus Service along the MD 5 Corridor

Jurisdiction: St. Mary’s County – Charles County (map reference T5 in Figure 5.1)

Notes: From 2030 Origin Destination analysis (funding not identified)

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective

- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts; developed in cooperation with other jurisdictions

Study Commuter Rail from St. Mary's County to Washington, D.C.

Jurisdiction: St. Mary's County – Charles County (map reference T7 in Figure 5.1)

Notes: Feasibility study funded for completion in 2008

Impact on study goals and objectives:

- Mobility and Accessibility:
 - » Evaluation to be completed after feasibility study
- Safety and Security:
 - » Evaluation to be completed after feasibility study
- Efficiency:
 - » Evaluation to be completed after feasibility study
- Integrated Planning:
 - » Evaluation to be completed after feasibility study

Widen MD 235 from MD 4 to MD 245

Jurisdiction: St. Mary's County (map reference 29 in Figure 5.1)

Notes: Divided highway reconstruct with access control improvements. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Access controls reduce conflicts, increase safety; improved mobility and emergency access/evacuation.
- Efficiency: **Meets**
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Implement access control improvements on MD 235 from MD 245 to MD 5

Jurisdiction: St. Mary's County (map reference 30 in Figure 5.1)

Notes: Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Access controls reduce conflicts, increase safety; improved mobility and emergency access/evacuation
- Efficiency: **Meets**
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: **Meets**
 - » Consistent with existing land use, environmental and economic development planning efforts

Widen MD 5 from MD 235 to Charles County line

Jurisdiction: St. Mary's County (map reference 31 in Figure 5.1)

Notes: Divided highway reconstruct with access control improvements. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Increases roadway circulation
- Safety and Security: **Meets**
 - » Access controls reduce conflicts, increase safety; improved mobility and emergency access/evacuation.
- Efficiency: **Meets**
 - » Greatly improves efficiency on existing infrastructure
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Other Projects – St. Mary’s County

Reconstruct MD 5 from Ranger Station to Camp Brown Road

Jurisdiction: St. Mary’s County (map reference 32 in Figure 5.1)

Notes: Engineering on hold to reconstruct the two-lane roadway and add shoulders

Impact on study goals and objectives:

- Mobility and Accessibility: ***Partially Meets***
 - » Reconstruction likely to slightly increase roadway circulation; improves access to recreation areas especially in the summer
- Safety and Security: ***Meets***
 - » Shoulder additions increase safety; improved mobility for emergency access/evacuation.
- Efficiency: ***Partially Meets***
 - » Reconstruction likely to contain design improvements; good for maintaining infrastructure, but with limited overall mobility improvements
- Integrated Planning: ***Partially Meets***
 - » Does not serve Priority Funding Areas, but has support within the County

Widen MD 5 from MD 246 to MD 245

Jurisdiction: St. Mary’s County (map reference 33 in Figure 5.1)

Notes: Multilane south of MD 471, divided highway reconstruct north of MD 471. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Partially Meets***
 - » Significant impacts in reducing short-term, localized congestion
- Safety and Security: ***Partially Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Minimally Addresses***
 - » Serves Priority Funding Areas

Widen MD 245 from MD 5 to McIntosh Road

Jurisdiction: St. Mary's County (map reference 34 in Figure 5.1)

Notes: Identified through future level of service analysis. Not currently in Highway Needs Inventory (funding not identified)

Impact on study goals and objectives:

- Mobility and Accessibility: ***Partially Meets***
 - » Significant impacts in reducing short-term, localized congestion
- Safety and Security: ***Partially Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Minimally Addresses***
 - » Serves Priority Funding Areas

Widen MD 5 from MD 243 to MD 245 (Leonardtown)

Jurisdiction: St. Mary's County (map reference 35 in Figure 5.1)

Notes: Project planning in process

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Impacts in reducing short-term, localized congestion; only minor congested predicted at that location
- Safety and Security: ***Partially Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, facilitates personal mobility; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Widen MD 712 from MD 235 to end of SHA maintenance

Jurisdiction: St. Mary's County (map reference 36 in Figure 5.1)

Notes: Multilane reconstruct. Project listed in HNI – funding not identified

Impact on study goals and objectives:

- Mobility and Accessibility: ***Partially Meets***
 - » Impacts in reducing short-term, localized congestion; only minor congested predicted at that location
- Safety and Security: ***Meets***
 - » Helps emergency response/evacuation
- Efficiency: ***Meets***
 - » With car as dominant mode, some impact to person movement; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Extend Pegg Road to MD 5

Jurisdiction: St. Mary's County (map reference 37 in Figure 5.1)

Notes: Construction funding allocated for FY 2009. St. Mary's County project.

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Impacts on short-term, localized congestion; increases driving choices only; increases activity center access
- Safety and Security: ***Meets***
 - » Improved emergency access/evacuation.
- Efficiency: ***Partially Meets***
 - » With car as dominant mode, some impact to person movement; expensive
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Widen MD 237 (Chancellors Run Road) from Pegg Road to MD 235 in Lexington Park

Jurisdiction: St. Mary's County (map reference 38 in Figure 5.1)

Notes: Construction underway to widen to divided highway. Project will include sidewalks and wide curb lanes for bicycles. Estimated completion fall 2010.

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts in reducing short-term, localized congestion
- Safety and Security: **Meets**
 - » Helps emergency response/evacuation
- Efficiency: **Meets**
 - » With car as dominant mode, facilitates personal mobility
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Construct FDR Boulevard Extension

Jurisdiction: St. Mary's County (map reference 39 in Figure 5.1)

Notes: Two-lane divided residential access way between MD 4 and MD 246 parallel to MD 235. Construction funding allocated for FY 2010. St. Mary's County project

Impact on study goals and objectives:

- Mobility and Accessibility: **Meets**
 - » Major impacts on relieving short-term congestion at poorly performing intersections along MD 235; increases driving choices; increases activity center access
- Safety and Security: **Meets**
 - » Reduces turning conflicts as a form of access management thereby increasing safety; slightly improves emergency access/evacuation.
- Efficiency: **Meets**
 - » With car as dominant mode, significant impact to person movement; expensive
- Integrated Planning: **Meets**
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Improve bikeway along MD 5 between MD 243 and MD 244

Jurisdiction: St. Mary's County (map reference B2 in Figure 5.1)

Notes: In TCC Priority Letter

Impact on study goals and objectives:

- Mobility and Accessibility: *Partially Meets*
 - » Accomplishes objectives related to multimodal mobility; however, relative impact will be small.
- Safety and Security: *Partially Meets*
 - » Bikeway improvements could have small safety impact if they help separate bikes from cars or include other bicyclist-related safety features
- Efficiency: *Meets*
 - » Slight improvements to person movement capacity; inexpensive
- Integrated Planning: *Meets*
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Improve bikeway along MD 245 from MD 5 to Baldrige Street

Jurisdiction: St. Mary's County (map reference B3 in Figure 5.1)

Notes: In TCC Priority Letter

Impact on study goals and objectives:

- Mobility and Accessibility: *Partially Meets*
 - » Accomplishes objectives related to multimodal mobility; however, relative impact will be small.
- Safety and Security: *Partially Meets*
 - » Bikeway improvements could have small safety impact if they help separate bikes from cars or include other bicyclist-related safety features
- Efficiency: *Meets*
 - » Slight improvements to person movement capacity; inexpensive
- Integrated Planning: *Meets*
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Improve bikeway along MD 6 from MD 5 to All Faith Church Road

Jurisdiction: St. Mary's County (map reference B4 in Figure 5.1)

Notes: In TCC Priority Letter

Impact on study goals and objectives:

- Mobility and Accessibility: ***Partially Meets***
 - » Accomplishes objectives related to multimodal mobility; however, relative impact will be small.
- Safety and Security: ***Partially Meets***
 - » Bikeway improvements could have small safety impact if they help separate bikes from cars or include other bicyclist-related safety features
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; inexpensive
- Integrated Planning: ***Meets***
 - » Connection to Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Acquire land and construct new park-and-ride lots as required

Jurisdiction: St. Mary's County

Notes: Continually monitor commuter bus and ridesharing demand and develop park-and-ride lots as needed

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves transit LOS, activity center access, multimodal connectivity, and transportation choices.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation; mostly neutral for safety impacts.
- Efficiency: ***Meets***
 - » Slight improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Enhance signal interconnection and coordination along major corridors in St. Mary's County

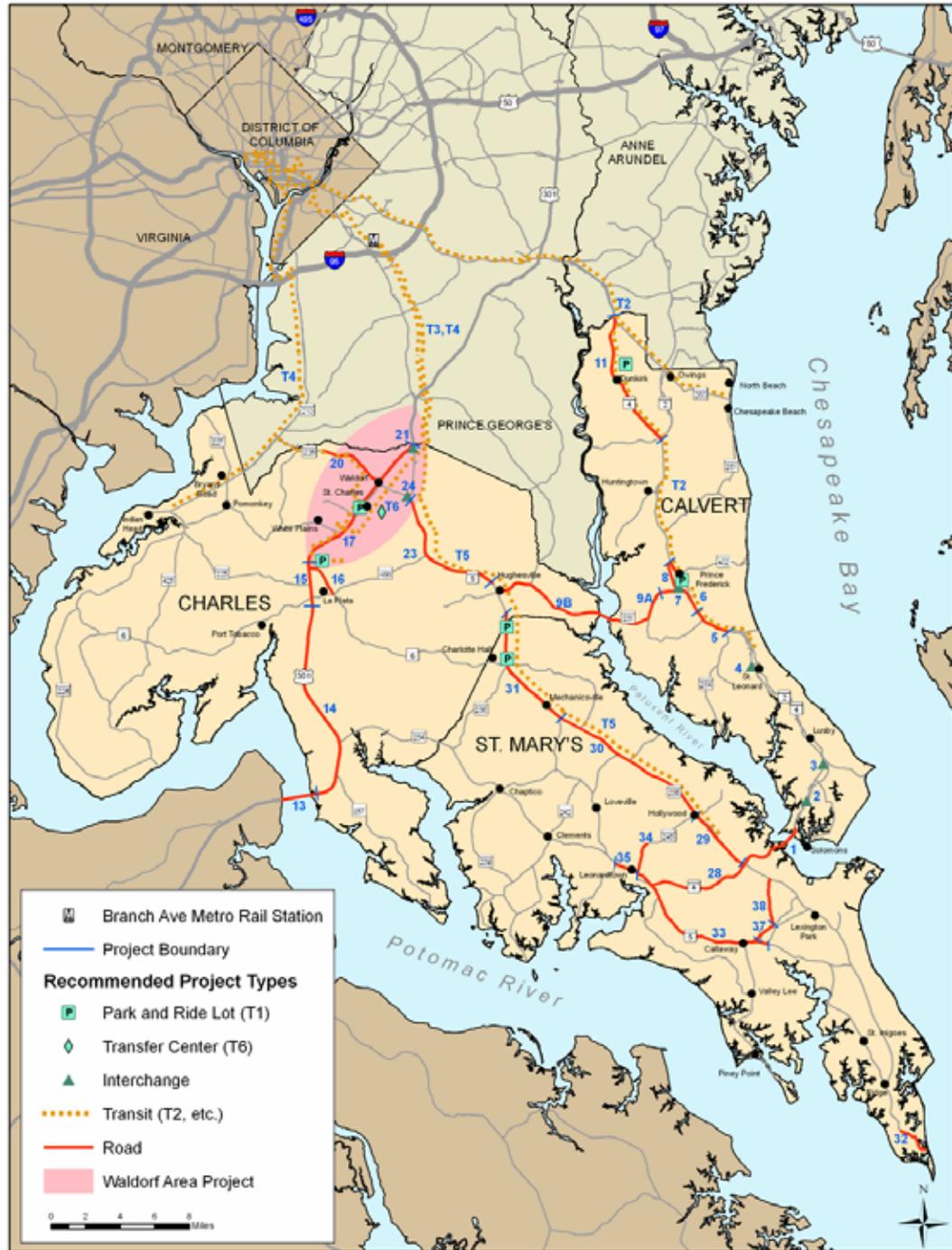
Jurisdiction: St. Mary's County

Notes: Commission recommends continual review and improvement of signal coordination throughout the region

Impact on study goals and objectives:

- Mobility and Accessibility: ***Meets***
 - » Moderately improves congestion.
- Safety and Security: ***Meets***
 - » Moderate improvement for emergency evacuation
- Efficiency: ***Meets***
 - » Improvements to person movement capacity; highly cost-effective
- Integrated Planning: ***Meets***
 - » Serves Priority Funding Areas; consistent with existing land use, environmental and economic development planning efforts

Figure 5.1 Project Locations



Source: Cambridge Systematics, based on data from State Highway Administration, Maryland Transit Administration, and Tri-County Council for Southern Maryland.

6.0 Funding

This section identifies existing transportation funding sources at the Federal, State, and local levels and discusses recent trends in transportation spending in Southern Maryland. Possible new funding sources are identified, including their potential for use in Southern Maryland. Finally, the total funding needs for Southern Maryland transportation improvements are identified and compared with likely funding streams forecasted for the future.

6.1 EXISTING FUNDING SOURCES

Federal Aid

Local governments can receive Federal financial assistance for transportation directly from the Federal government, but funds are generally channeled through the States in the form of “pass through” grants. All of Maryland’s counties receive funding for local capital programs (i.e., highways) through the State In Lieu of Federal Aid program. This Federal Aid for transportation is provided through Surface Transportation Grants, Federal Transit Capital Improvement Grants, Federal Transit Capital and Operating Assistance Grants, Bridge Repair and Restoration Grants, and Public Transportation for Non-urbanized Area Grants. Federal Aid generally accounts for a large percentage of local transportation funding, but a small percentage of total local government revenues. Federal Aid revenues to counties have been growing faster than other revenues in recent years. For example, between 1994 and 2004, Federal Aid to county governments has increased by an average annual rate of 7.7 percent compared to 6.0 percent for total county revenues. Similarly, Federal Aid revenues to municipalities has increased at an average annual rate of 5.8 percent compared to 5.0 percent for total revenues over the same time period. Over this 10-year time period, Federal Aid has grown 110 percent for county governments and 76 percent for municipal governments.

Table 6.1 presents total Federal Aid to counties in Southern Maryland and the share of total revenues that Federal Aid represents. Transportation-related Federal Aid to counties is primarily used for public safety and maintenance of existing infrastructure is not generally available for implementation of capacity enhancement projects.

Table 6.1 Federal Aid to Southern Maryland County Governments
Fiscal Year 2004 (Millions of Dollars)

County	Total Federal Aid	County Share “Other Programs”	Percent of Total
Calvert	\$13.6	\$3.2	24%
Charles	\$31.4	\$5.8	18%
St. Mary’s	\$18.4	\$3.5	19%
Southern Maryland	\$63.4	\$12.6	20%
Maryland	\$1,391.8	\$344.1	25%

Source: Maryland General Assembly; *Maryland Local Government*, Legislative Handbook Series Volume VI, 2006.

Note: “Total” includes the following Federal Aid categories: Public Schools, Community Colleges, Health Boards, Community Development, And Other Programs.

“Other Programs” includes public safety and transportation.

State Aid

In Maryland, transportation planning is centralized and largely performed by the Maryland Department of Transportation (MDOT), its Modal Administrations, and the Maryland Transportation Authority (MdTA). However, local governments are also responsible for funding and implementing local transportation projects and programs. Local governments rely on three types of revenue sources to provide public services: local-own source revenues (i.e., local taxes and service charges), State Aid; and Federal Grants. State Aid is the largest of these revenue sources and constitutes about one-third of the total revenue for the counties of Southern Maryland.

State Aid is a relatively stable revenue source for most county and municipal governments. After public schools, the largest amount of State Aid goes to counties and municipalities, where it is then used to fund transportation programs (Table 6.2). In Southern Maryland, property taxes, service charges, and other sources account for the majority of municipal revenue with State Aid accounting for a smaller share.

Table 6.2 State Aid to Local Governments (Statewide)
Millions of Dollars

	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
State Aid to Counties/ Municipalities	\$704.1	\$636.5	\$796.6	\$829.9	\$953.5	\$942.5	\$820.1
Transportation	\$440.3	\$384.7	\$462.7	\$545.4	\$562.1	\$573.9	\$555.8
Percent of County/ Municipality Aid	62.5%	60.4%	58.1%	65.7%	59.0%	60.9%	67.8%

Source: Department of Legislative Services, Office of Policy Analysis; *Overview of State Aid to Local Governments, FY 2009 Allowance*.

Total State assistance to local governments in the form of Highway User Revenues (HUR) in FY 2007 amounted to \$585 million and was generally used for local road construction and maintenance projects. In that same year, local governments received \$4.3 million in elderly and handicapped transportation program funding and \$2.8 million in paratransit funding, both of which are administered by the Maryland Transit Administration (MTA).

The FY 2007 HUR distributions in Southern Maryland, based on a formula including road mileage and vehicle registrations, are shown in Table 6.3. These revenues are typically used for developing and maintaining local street networks. Also shown are the distributions for the counties through the MTA elderly and handicapped transportation program and paratransit program. The HUR funds are pass-through State Aid to the counties whereas the MTA funds are State funds spent within Southern Maryland.

Table 6.3 Southern Maryland Distribution of Highway User Revenues and MTA Funds
Fiscal Year 2007 (Millions of Dollars)

County	HUR Road Miles Funds	HUR Vehicle Registration Funds	Total HUR Funds (pass through State Aid)	Elderly/Disabled and Paratransit (MTA)	Total
Calvert	\$3.4	\$3.5	\$6.9	\$0.2	\$7.1
Charles	\$5.4	\$5.2	\$10.5	\$0.3	\$10.9
St. Mary's	\$4.4	\$3.7	\$8.2	\$0.3	\$8.4
Southern Maryland	\$13.2	\$12.4	\$25.6	\$0.8	\$26.3
Maryland	\$173.0	\$173.0	\$584.9	\$7.1	\$592.0

Source: Maryland General Assembly; *Maryland Local Government*, Legislative Handbook Series Volume VI, 2006.

According to Maryland Statute, 30 percent of HUR funds collected from taxes and fees are allocated to local governments for funding transportation projects. Nearly half of these are allocated to the City of Baltimore and the remainder are divided among the counties and municipalities based on the following proportions:

- Fifty percent is distributed based on the ratio of the individual county road mileage to total county road mileage statewide;
- Fifty percent is distributed based on the ratio of vehicle registrations in an individual county to total vehicle registrations statewide; and
- Municipalities receive a share of their respective county's distribution based on the above formula.

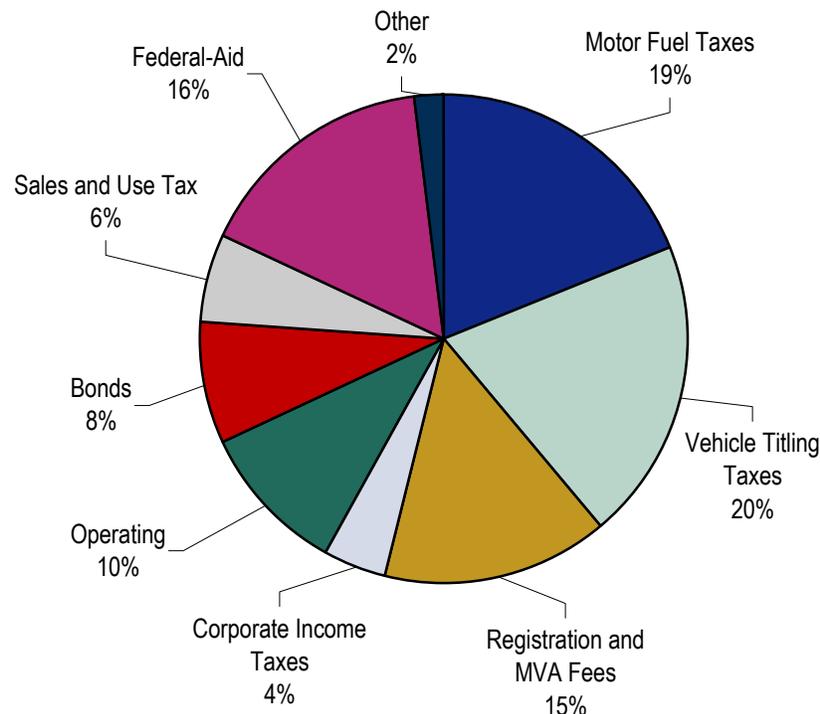
The remaining revenues – excluding administration, debt service, and transfers to the State's General Fund – are allocated to MDOT and its modal agencies for operating and maintenance costs as well as capital investments. Roughly half of

the remaining funds (39 percent overall) are used for operating expenses, leaving the other half (42 percent overall) for capital expenditures.

6.2 TRANSPORTATION TRUST FUND-BASED AID

Funding for new transportation projects in Maryland comes primarily from the Maryland Transportation Trust Fund (TTF), which is comprised from an assortment of sources, such as taxes on motor fuel, vehicle titling and registration fees, Federal aid, operating revenue from transit services, user fees from the Port of Baltimore (POB), and user fees from airlines and concessionaires at the Baltimore/Washington International Thurgood Marshall Airport (BWI) (see Figure 6.1). The TTF is a dedicated funding source for transportation and is separate from the State's General Fund. For FY 2008-2013, the period of the current Consolidated Transportation Program, TTF revenues total \$20.8 billion. The TTF pools revenues from many sources and makes them available for transportation investments managed by Maryland's Modal Administrations. Any unspent TTF funds are carried over to the next fiscal year and do not revert to the State General Fund.

Figure 6.1 Maryland Transportation Trust Fund Sources



Source: Maryland Department of Transportation FY 2008-2013 Consolidated Transportation Program.

Note: Includes the revenue increase passed during the December 2007 Special Session.

The Maryland Transportation Authority (MdTA) is a related agency with a separate funding source. Construction, operations, and maintenance of MdTA

facilities are primarily funded by tolls, concessions, investment income, and revenue bonds.

A 2003 Transportation Task Force Report, known as the Hellmann Commission Report, conducted an analysis of the State's transportation funding needs and recommended potential options to increase transportation revenues. The Report recognized both State and local governments' transportation funding needs and supported a revenue increase that would meet them both. The Report acknowledged that increasing revenue only for the State without also addressing local needs would be unfair. To that end, the Commission recommended that any additional TTF revenues be shared with local governments using the existing formula.

Historic Funding Allocations from the State

MDOT utilizes a "first call" hierarchy to determine how TTF revenues will be allocated. Funds are allocated in the following order: 1) debt service; 2) operating expenses; 3) preservation needs; and 4) capital expansion.

MDOT's Consolidated Transportation Program (CTP) identifies capital investments for transportation projects over a six-year period. MDOT is required to consider each county's transportation priorities when developing the CTP, specifically:

"The local governing body and a majority of the local legislative delegation shall establish a list of priorities from among those secondary system projects listed in the needs inventory and the Administration shall engage in initial project planning upon the request of the local governing body and a majority of the local legislative delegation in the order established in the list of priorities."⁴⁰

MDOT works with county and local elected officials to determine funding priorities. In preparation of the FY 2008-2013 CTP, MDOT visited with each county and Baltimore City in "pre" tour meetings. One of the purposes of these meetings was to emphasize the importance of submitting priority letters. Many counties had not submitted one in over 10 years.

Submitting priority letters is key to moving capital projects forward because MDOT considers these letters when programming capital expenditures. In the event of future revenue increases, priority letters will be used to determine how to program the additional funds. Once a project is programmed into the CTP, MDOT is committed to funding it. The three counties of Southern Maryland have consistently worked together to produce a joint priority letter supporting the funding of projects of regional significance. Submitting a *regional* priority

⁴⁰Maryland Code, Transportation Article, Title 8 Highways Subtitle 6. Construction and Maintenance §8-612 Project Planning Program.

letter is an excellent way to leverage the political will of the region in support of State funding for important transportation projects which, if implemented, can have significant long-term benefits for all three Southern Maryland counties.

Table 6.4 shows historical SHA expenditures in Calvert, Charles, and St. Mary's counties and statewide. Unlike the pass-through Federal and State Aid discussed above, these are funds spent by the State within Southern Maryland.

Table 6.4 SHA-Related Capital Funding
2003 to 2007 (Millions of Dollars)

County	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Calvert	\$14.4	\$5.4	\$11.0	\$10.1	\$9.7
Charles	\$7.6	\$4.9	\$15.3	\$14.4	\$21.4
St. Mary's	\$7.9	\$9.6	\$5.3	\$3.4	\$10.8
Southern Maryland	\$30.0	\$19.8	\$31.6	\$27.9	\$41.9
Maryland	\$846.6	\$922.5	\$1,019.1	\$1,061.7	\$986.4

Source: SHA.

Table 6.5 presents historic funding assistance to Locally Operated Transit Services (LOTS) from the Maryland Transit Administration (MTA). These include funds from Federal Transit Administration Programs for urban, rural, and special needs transit systems (Section 3037, 5303, 5307, 5309, 5310, 5311, 5313), as well as funds from other Federal and State programs (Rural Transportation Assistance, Americans With Disabilities Act, Ridesharing Program, Statewide Special Transportation Assistance, Rural and Community-Based Services, Senior Rides Demonstration programs). These funds are for local transit service, not including the MTA run privately operated commuter bus routes, which are contracted and financed using MDOT operating funds, and are not listed in the CTP.

Table 6.5 MTA Locally Operated Transportation Services Funding
2003 to 2007 (Thousands of Dollars)

County	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Five-Year Average
Calvert – Operating	\$429	\$427	\$413	\$485	\$561	\$429
Calvert – Capital	\$431	\$90	\$144	\$764	\$113	\$431
Charles – Operating	\$1,940	\$1,731	\$1,746	\$1,855	\$2,041	\$1,940
Charles – Capital	\$299	\$237	\$118	\$122	\$86	\$299
St. Mary's – Operating	\$1,031	\$982	\$1,047	\$937	\$875	\$1,031
St. Mary's – Capital	\$200	\$171	\$221	\$549	\$115	\$200
Southern Maryland	\$4,331	\$3,638	\$3,690	\$4,711	\$3,791	\$4,331

Source: Maryland Transit Administration, 2007.

Major challenges to funding transportation improvements in Maryland include:

- Increasing costs required to preserve the State's transportation infrastructure consume funds that could otherwise be used for transportation system expansion;
- Growth (i.e., population, multicar households, licensed drivers) necessitates the need to expand system capacity for every mode of transportation; and
- TTF revenue growth rates are smaller than growth rates for transportation operating expenses and capital needs.

Currently Programmed Projects

Funds have been allocated to several transportation projects in Southern Maryland (Table 6.6). The majority of these funds are for construction projects, however some funds listed under the Development and Evaluation Program are for planning studies, environmental studies, preliminary design work, and right-of-way acquisition.

Table 6.6 Southern Maryland Capital Projects Funded in the Final 2008 to 2013 Consolidated Transportation Program

Program	Total Cost (Millions of Dollars)
<i>Calvert County</i>	
Primary Construction Program	\$22.9
Secondary Construction Program	\$6.2
Primary Development and Evaluation Program	\$8.2
Safety, Congestion Relief, Highway and Bridge Preservation Program	\$109
<i>Charles County</i>	
Primary Construction Program	\$2.6
Secondary Construction Program	–
Primary Development and Evaluation Program	\$46.6
Safety, Congestion Relief, Highway and Bridge Preservation Program	\$9.1
General Aviation Grants-in-Aid	\$35.0 State/\$35.0 Local
<i>St. Mary's County</i>	
Primary Construction Program	–
Secondary Construction Program	\$55.6
Primary Development and Evaluation Program	\$5.3
Secondary Development and Evaluation Program	\$1.32
Safety, Congestion Relief, Highway and Bridge Preservation Program	\$16.68
General Aviation Grants-in-Aid	\$9.0 State/\$9.0 Local

Source: Total excludes Federal-Aid.

Local Transportation Budgets

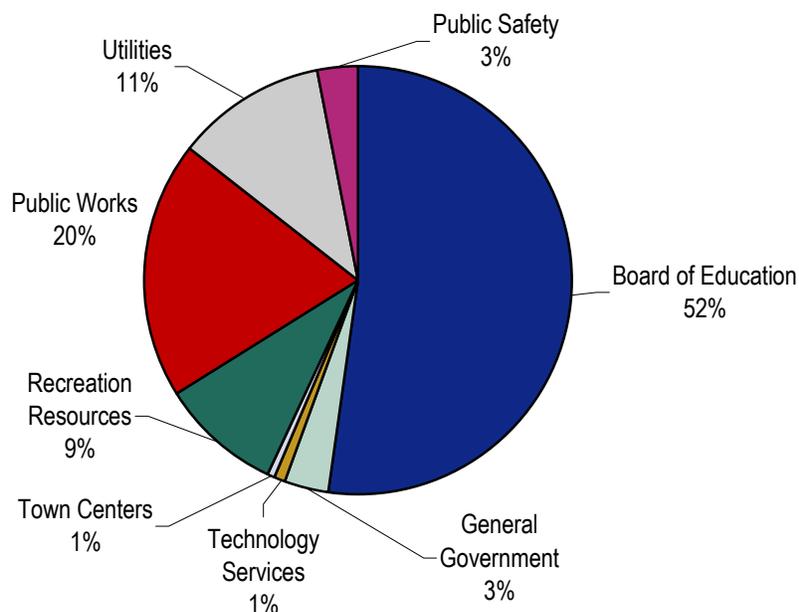
Each local government coordinates transportation efforts differently. Usually, counties and municipalities assign responsibility for these services to their public works, highways, or transportation departments. Each county in Southern Maryland has a portion of their overall capital program dedicated to transportation. Both Calvert and Charles Counties spend approximately 20 percent of their capital budgets on transportation and St. Mary's County spends about 11 percent. Southern Maryland counties principally fund capital transportation projects with bond financing. Most of St. Mary's County's transportation projects are funded using a mix of transfer tax revenues and bond financing. Highway User Revenues can be used to pay for debt service on outstanding bonds, for county road construction and maintenance, and for new transportation facilities.

Calvert County

The Calvert County Department of Public Works maintains public infrastructure (including transportation) and is responsible for managing capital construction projects. The four primary functions performed by the Department are engineering, project management, highway maintenance, and fleet maintenance.

Calvert County's total FY 2008 budget is \$294 million, of which \$50 million (17 percent) is for capital projects. Figure 6.2 details all capital budgeted expenditures for FY 2008, of which almost 20 percent, or \$9,780,500, goes to public works, which is almost entirely for transportation.

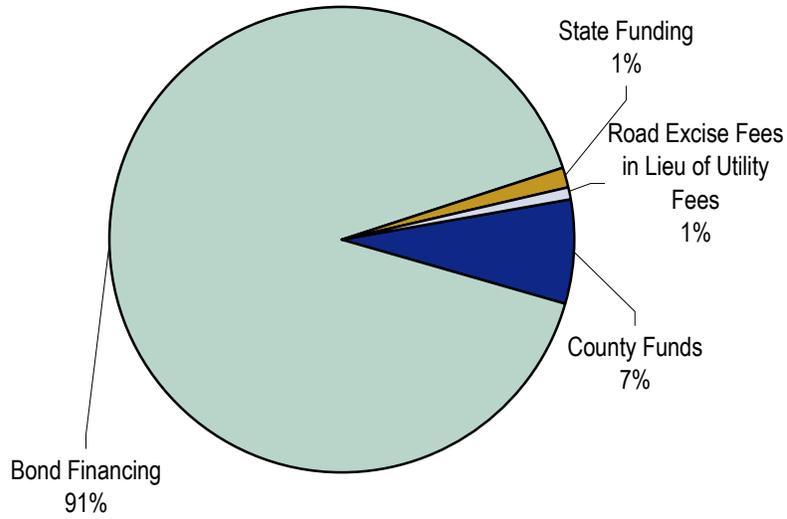
Figure 6.2 Calvert County Capital Budget Expenditures
Fiscal Year 2008



Source: Calvert County FY 2008 Commissioners Budget, Capital Improvements Fund.

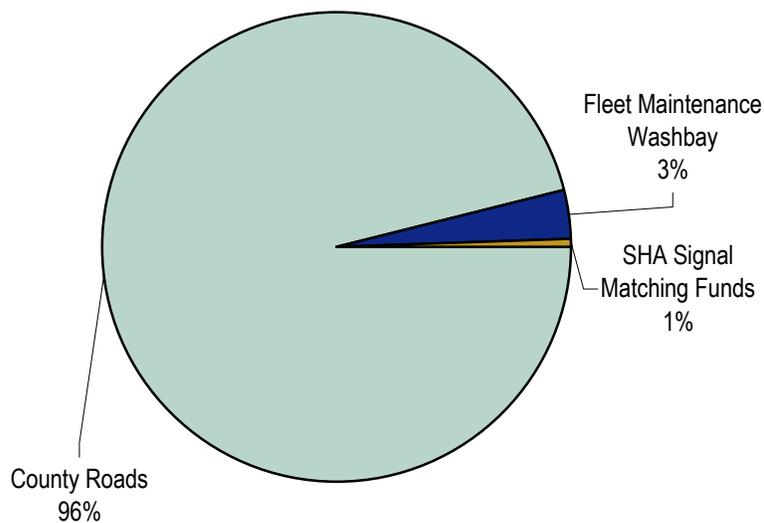
Transportation projects in Calvert County fall into two major categories; County roads and State roads with shared infrastructure. Figures 6.3 and 6.4 show the sources of the county's planned capital revenues and uses of planned expenditures for FY 2008.

Figure 6.3 Calvert County Public Works/Transportation Capital Budget Revenues
Fiscal Year 2008



Source: Calvert County FY 2008 Commissioners Budget, Capital Improvements Fund.

Figure 6.4 Calvert County Public Works/Transportation Capital Budget Expenditures
Fiscal Year 2008



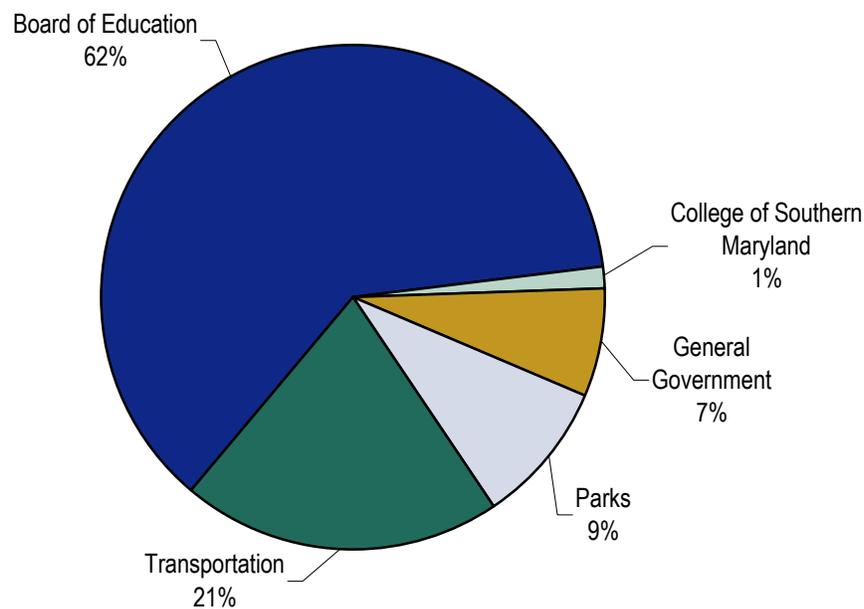
Source: Calvert County FY 2008 Commissioners Budget, Capital Improvements Fund.

Charles County

Charles County's Road Division maintains about 1,800 lane-miles of roadway. The County receives the majority of its revenues from property and income taxes, service charges, bond proceeds and State grants. Charles County's total budget appropriation for fiscal year 2008 is \$519 million. Project categories within the capital program are shown in Figure 6.4. The Charles County Capital Project Budget is split into two categories – Governmental Projects and Enterprise Fund Projects.

Transportation in Charles County is generally funded through Governmental Projects Capital Expenditure Funds. The Governmental Projects capital budget category for fiscal year 2008 is \$89.6 million. Transportation projects fall under the Governmental Projects category, comprising \$18 million or 20.6 percent of the Governmental Projects portion of the capital budget (see Figure 6.5).

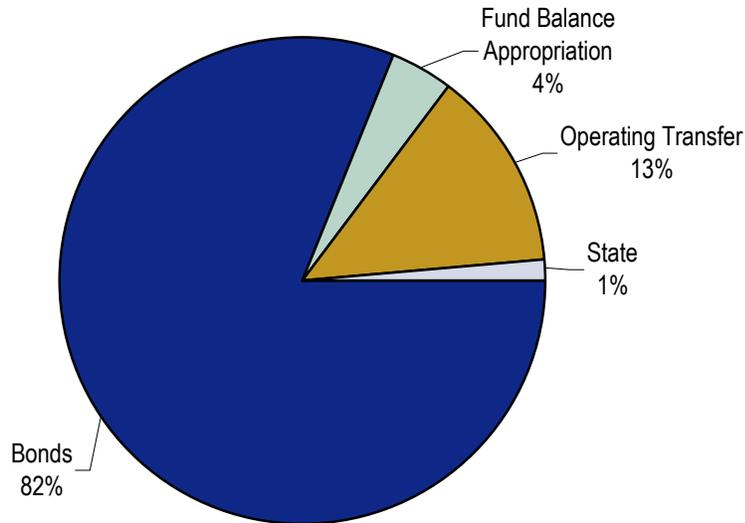
Figure 6.5 Charles County Governmental Project Capital Expenditures
Fiscal Year 2008



Source: Charles County.

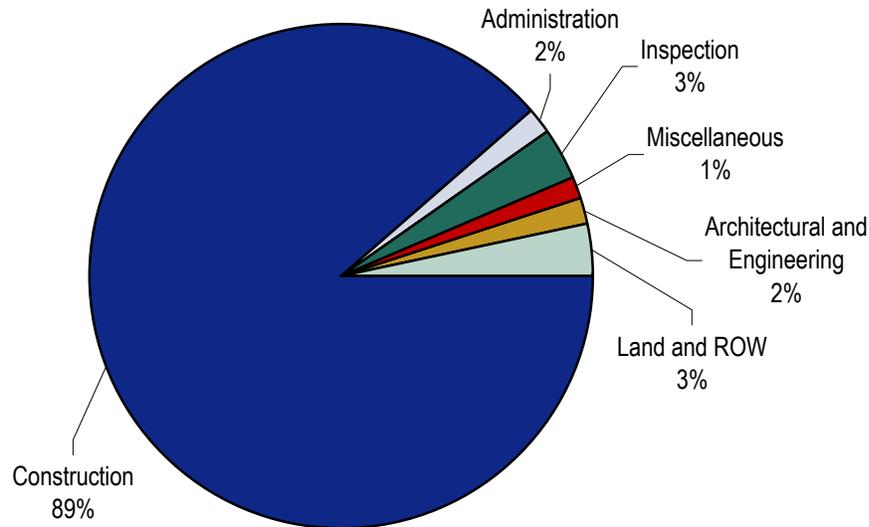
The transportation project categories funded under the Government Projects portion of the capital budget and their related fiscal year 2008 budget expenditures and revenue sources are shown in Figures 6.6 and 6.7.

Figure 6.6 Charles County Transportation Capital Revenue Sources
Fiscal Year 2008



Source: Charles County.

Figure 6.7 Charles County Transportation Capital Expenditures
Fiscal Year 2008



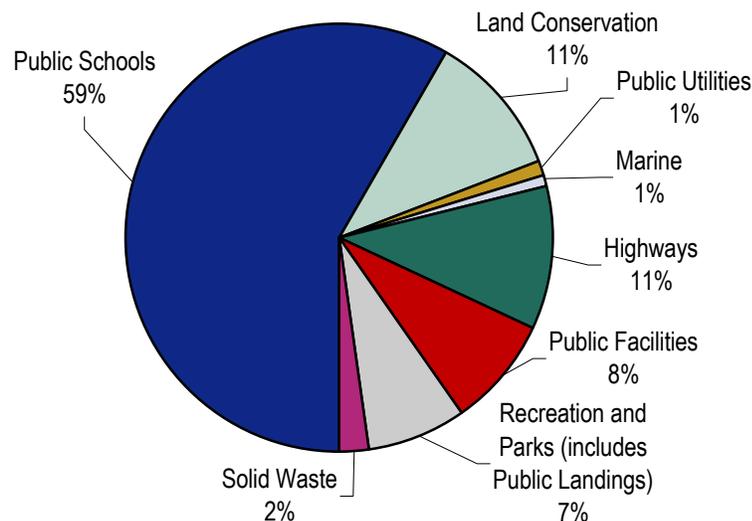
Source: Charles County.

St. Mary's County

St. Mary's County adopts a one-year capital budget and a separate five-year capital program each year. There are eight program categories in the capital budget; public schools, land conservation, highways, public facilities, recreation and parks, solid waste, public utilities, and marine. The budgets for these capital

program categories are shown in Figure 6.8. Approximately 11 percent of the \$51 million capital budget is programmed for highways.

Figure 6.8 St. Mary's County Governmental Project Capital Expenditures
Fiscal Year 2008



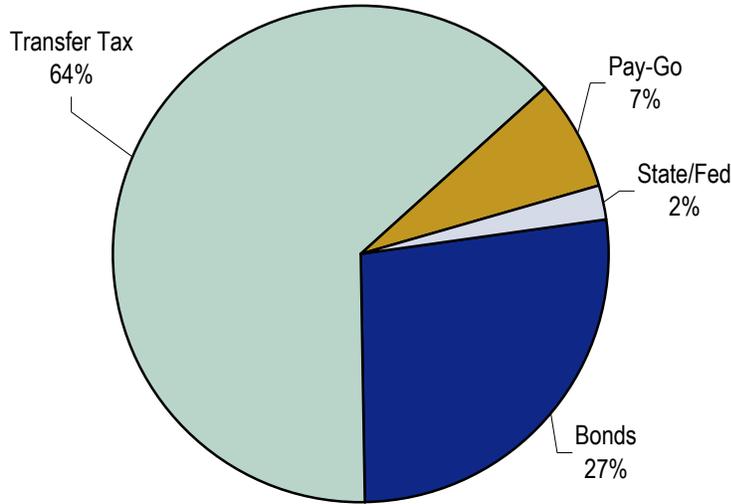
Source: Board of County Commissioners for St. Mary's County approved budget FY 2008.

Transportation programs are managed by the Department of Public Works and Transportation. Transportation functions are organized into the following divisions:

- **County Highways Division** – Maintains County highways, traffic signage, and drainage problems.
- **Construction and Inspections Division** – Provides material testing and inspects County capital projects and new subdivision roads, manages the pavement overlay and line striping programs.
- **Engineering Service and Development Review Divisions** – Conducts transportation planning, design, project management of marine and highway capital projects, county mapping, and the permitting and review of proposed development plans.
- **Transportation Division** – Manages the Nonpublic School Bus Transportation System, the mail/messenger postal services, the St. Mary's Transit System, and Vehicle/fleet management for some County departments (i.e., Office of the Sheriff).

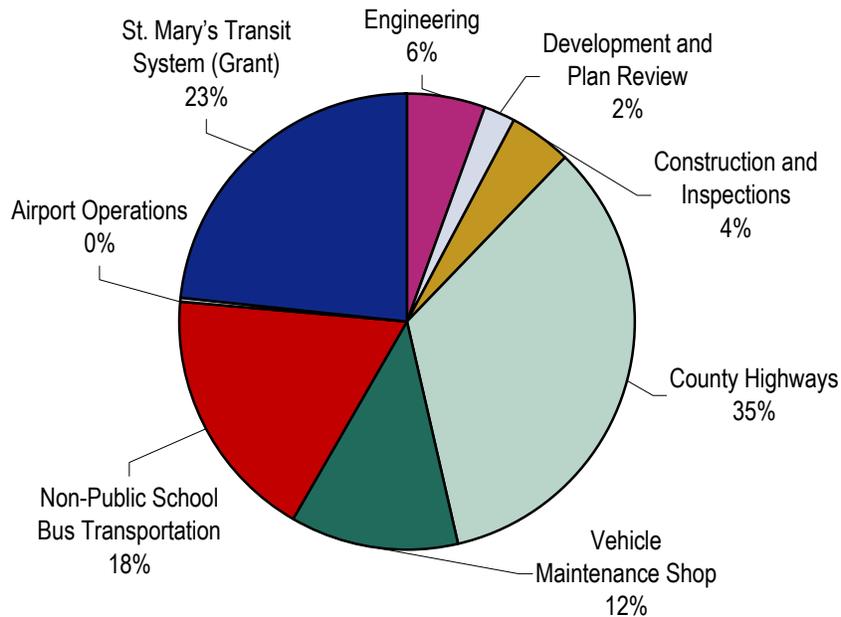
The St. Mary's County Department of Public Works and Transportation FY 2008 revenue sources and expenditures are shown in Figures 6.9 and 6.10.

Figure 6.9 St. Mary's County Department of Public Works and Transportation Capital Revenue Sources
Fiscal Year 2008



Source: Board of County Commissioners for St. Mary's County approved budget FY 2008.

Figure 6.10 St. Mary's County Department of Public Works and Transportation Capital Expenditures
Fiscal Year 2008



Source: Board of County Commissioners for St. Mary's County approved budget FY 2008.

6.3 POTENTIAL FUNDING SOURCES

The Southern Maryland Transportation Needs Assessment is focused primarily on transportation priorities of regional significance. Though most of these priorities would likely require some funding from MDOT, the success of these projects will depend at least in part on funding and political support from Southern Maryland. As last year's CTP notes, given limited funding, "now more than ever, new projects require new partnerships."

There are several potential methods that can be used to help to attain funding for transportation priorities, including:

- Pooling resources across the three counties to provide matching funds;
- Assistance in purchasing or otherwise preserving right-of-way for new transportation infrastructure; and
- Developing new funding sources to help support projects.

There are several potential funding sources that could be considered in Southern Maryland. None of these are feasible in the short term, but as Southern Maryland and the State of Maryland continue to grow and develop, some may be worthy of future consideration. Examples of potential funding sources could include:

- **Local Option Motor Fuel Taxes** – Fuel taxes are the most common source of revenue for State and Federal programs. Fifteen states permit counties or municipalities to leverage a local tax on top of the State and Federal taxes, and 10 states have actually implemented such taxes. The State of Maryland does not currently allow this option and the revenues from local option taxes tend to be relatively modest and used for maintenance and operation of the existing system, rather than new capital investment.
- **Property Taxes** – Property taxes are the most important and universal local revenue source in the United States, but are used for many purposes. At least 17 states have dedicated property taxes for street and road investments and 14 have dedicated property taxes for public transit services. Because property tax revenues already contribute to the operation and maintenance of local roads, increased property tax revenues are likely to be used for similar purposes. Dedicating a revenue stream to transportation increases the predictability of the transportation budget, but not necessarily the total revenue.
- **Realty Transfer Tax** – A realty transfer tax is a State and local tax assessed on real property when ownership of the property is exchanged between parties. The State of Maryland imposes a 0.5 percent tax on the value of the transfer and several Maryland counties also impose a transfer tax, including Prince George's County (1.40 percent) and Anne Arundel County (1.00 percent). In Southern Maryland, Calvert and Charles Counties do not impose a transfer tax; St. Mary's County's tax rate is 1.00 percent. Depending on political

feasibility, a realty transfer tax dedicated to transportation may be a revenue source for transportation investments in Southern Maryland.

- **Local Income, Payroll, and Employer Taxes.** These taxes generally fund programs aimed at facilitating peak-hour commutes into central cities, including public transit services, vanpools, rideshare programs and other projects aimed at congestion relief. All counties in Maryland impose an income tax, but the State has not adopted enabling legislation for local income or payroll taxes dedicated for transportation. Therefore, employment related tax revenues are deposited into a locality's general fund. Given Southern Maryland's largely rural character, payroll and employer taxes may not be a practical option for generating transportation revenue.
- **Local Option Sales Tax** – Although property taxes may raise more revenue overall, the sales tax has become the most commonly used local option tax in many states for funding transportation projects. However, Maryland does not currently allow local option sales tax revenues and it would take State legislation to permit them. To the extent that residents of Southern Maryland make large purchases outside of the region, such a tax may not provide significant yield.
- **Impact Fees, Value Capture, and Similar Sources** – Impact fees and excise taxes are one-time payments from property developers to municipal, county, or school district governments for off-site improvements necessitated by new development. Fees may be based upon square footage, number of bedrooms, number of bathrooms, or other housing characteristics depending upon the use of the funds. The counties of Southern Maryland already impose some residential building fees. Value capture is a revenue stream generated by tapping a portion of property value increases that result from publicly funded transportation improvements. Assessment districts are special property taxing districts where the cost of infrastructure improvements are paid for by properties that benefit from the improvements. These assessments can be applied to the full value of the property or to the incremental property value increase through the use of tax increment financing (TIF). With TIF, bonds are issued to finance infrastructure improvements and are repaid with dedicated revenues from a tax on the increase in property values resulting from the improvements. Several counties in Maryland, including Charles County, have experience with TIF for infrastructure projects.
- **Tolling and Privately Funded Infrastructure Investment** – Maryland already uses tolls as a means to finance infrastructure and manage transportation demand, including the Governor Harry W. Nice Memorial Bridge in Southern Maryland. New or expanded tolling may be considered as a means to finance new infrastructure projects. Similarly, developer funded transportation projects through 'road clubs' or other mechanisms may be considered as a means to finance or accelerate the development of transportation investments.

Additional Funding Sources

There are several other transportation funding strategies that may be pursued in Southern Maryland, such as:

- **Transportation Enhancements Program (TEP)** – The Transportation Enhancements program is a Federal-aid reimbursable funding program for community-level transportation-related projects. SHA administers the program and conducts an annual “Call for Applications” where project sponsors (usually municipal or county governments) submit individual projects to be funded. Project sponsors are required to provide a funding match of 50 percent of the project’s total costs. Furthermore, the project sponsor’s match must include a non-Federal cash match of at least 20 percent, which only applies to the costs of reimbursable activities. Projects eligible for TEP funding must strict criteria related to 12 allowable TEP Categories and must be independent projects unrelated to planned or existing highway projects or routine highway improvements.
- **Safe Routes to School** – SHA’s Highway Safety administers the Safe Routes to School program, which utilizes Federal-aid highway funds. Eligible projects are intended to improve the safety of children who walk or bicycle to school.

Safe Routes to School grants are awarded annually to local government and nonprofit organizations on a competitive basis based on need and problem identification. FHWA apportions funds to states by formula, which is specified in the legislation. Maryland applicants received \$2.09 million in 2007 and \$2.51 million in 2008. The state is projected to receive \$3.14 million in 2009.

6.4 SOUTHERN MARYLAND TRANSPORTATION FUNDING NEEDS

Between \$6.0 and \$7.3 billion in total unfunded transportation system needs have been identified through the Southern Maryland Transportation Needs Assessment. Of this total, between \$2.1 and \$2.4 billion has been identified as the top regional priorities, and another \$3.3 to \$4.1 billion has been identified as county projects of regional importance.

Table 6.7 Total Funding Needs in Southern Maryland

Level of Need Established	Low	High
Top Regional Priorities	\$2,140	\$2,430
County Projects of Regional Importance	\$3,282	\$4,136
Other Important Projects	\$602	\$687
Total	\$6,024	\$7,254

The \$2.1 to \$2.4 billion does not include funding for the MD 5/U.S. 301 Corridor high capacity transit alignment currently under study, which may cost up to \$1.2 billion to develop (Table 6.8). The capital costs for the proposed high capacity transit service are likely to vary substantially, depending on the type of service developed (bus rapid transit or light rail) and the number of significant structures (bridges, overhead structures, tunnels, etc.) that are required for the proposed alternative. Some portion of the total cost may be available through the Federal New Starts program, depending on the level of benefits that are expected.

Table 6.8 presents rough ranges of costs for a typical service that requires few major structures. Bus rapid transit costs depend primarily on the extent to which the service will require an entirely separate right of way or will operate at times in mixed traffic. Costs for either system type will depend on the number of stations developed. These costs are for informational purposes only – detailed cost estimates will be developed as part of the Southern Maryland Transit Corridor Preservation Study.

Table 6.8 Typical Cost Ranges for BRT and Light Rail Transit Projects

Service Type	Cost per Mile (millions)		Capital Cost for 24 mile alignment (millions)		Annual Operating Costs (millions)
	Low	High	Low	High	
Bus Rapid Transit	\$5	\$15	\$120	\$360	\$27-\$29
Light Rail Transit	\$30	\$50	\$720	\$1,200	

Source: Cambridge Systematics analysis of existing new starts funded bus rapid transit and light rail projects completed within the last 5 years. Costs do not include preliminary engineering or right of way costs.

Funding Gap

The Maryland DOT has estimated that Southern Maryland can be expected to receive between \$640 and \$770 million between 2012 and 2030 in 2008 dollars (the year of project cost estimates). This amounts to roughly 30 percent of the top regional priority needs identified in the Needs Assessment and about 10 percent of the total need, again excluding the cost of the proposed high-capacity transit alignment.

Most of the top regional priority projects identified by this Needs Assessment are large projects (a new span of the Thomas Johnson Memorial Bridge and a potential bypass around the Waldorf area) that will be challenging to fund, given the current resources available to the region and the State.

7.0 Recommendations

The State of Maryland has an existing process for establishing local priorities through county and regional priority letters and a public meetings with political leaders in each county and region, known as the Secretary's Annual Capital Program Tour. The three counties of Southern Maryland have been working together for many years to develop joint priorities for the region and submit a Tri-County Council's priority letter each year as part of the capital programming process.

The recommendations presented here are not intended to supersede the existing process within Maryland for establishing recommendations and priorities. The Needs Assessment does lend analytic support to the existing set of priorities outlined in the Tri-County Council for Southern Maryland's priority letter, and the specific support for these recommendations are noted throughout this section.

In addition to the projects identified, these recommendations also list strategies and policies that can and should be implemented to support the development of the transportation system in Southern Maryland. These policies and strategies represent best practices in transportation system development that are appropriate for Southern Maryland and help ensure that future capital investments will provided the expected benefits.

7.1 LAND USE POLICIES AND STRATEGIES

Preparing for the expected growth in Southern Maryland through rational, ordered land use planning will minimize required transportation system expenditures and support multimodal transportation systems. Many of the most densely populated areas of Southern Maryland have developed according to auto-oriented land use principles. This style of development has contributed to the high levels of traffic congestion currently experienced by many residents in the region. **It is strongly recommended that future development and redevelopment be accommodated through Smart Growth principles to promote activity centers and more dense development in designated growth areas, or Priority Funding Areas and to mitigate potential negative environmental impacts. This should be accomplished using transit-friendly land use strategies to allow for transit services to be expanded and improved in step with this new development and allow for transportation corridors, including highways, to be maintained in a safe and efficient manner. A balance in transportation and land use is essential to maintain a healthy quality of life in Southern Maryland. This includes key elements such as multimodal transportation planning, integrated planning, promoting transit and non-motorized transportation uses (hiker/biker trails), ridesharing, and access management.**

There are four fundamental land use criteria that must be in place to enable a successful transit program.⁴¹ These are:

1. **Population Size** – Are the number of people who live and work along the transit route sufficient for transit service?
2. **Density** – Is the population sufficiently concentrated to provide a market for transit services?
3. **Concentrated Locations** – Are the locations of land uses concentrated near potential transit stops?
4. **Mixed Use** – Are there a mix of land uses to minimize travel to frequently used places?

The following **land use policies and strategies, if implemented, will enable the region to meet the thresholds of population and land use densities required to create highly functioning and progressive transit systems.**

Regional Growth Management

Regional growth management efforts seek to influence urban form at a regional level by using a regional agency to support local planning efforts. The key recommendations for implementing regional growth management include:

- **Develop a Regional Growth Strategy Led by the Tri-County Council for Southern Maryland.** Currently, each county has their own comprehensive plan. Though these are critical to ensuring that development occurs in accordance with each county's specifications, Southern Maryland could develop a land use and growth vision to be used as an overall guide. This vision would help ensure the use of a common set of principles for all land use planning within the region and an understanding of the region's development capacity.
- **Continue to develop and implement access management strategies.** Each of the counties of Southern Maryland has access management policies in place. These will need to continue to be developed as part of the comprehensive planning process, corridor planning, and review of new developments. Given the growth expected in Southern Maryland, it is especially important that new developments provide an effective local network so that the state highway system can effectively provide for interregional and through trips.

⁴¹Guidelines For Transit-Sensitive Suburban Land Use Design, by Edward Beimborn, Harvey Rabinowitz, and Peter Gugliotta, The Center for Urban Transportation Studies, The University of Wisconsin Milwaukee.

Focus on Development Nodes

Development nodes are areas of focused development, such as population concentrations, major employment centers, and commercial districts.

- **Focus Majority of Development in Activity Centers/Town Centers.** Land use patterns are one of the largest influences on trip-making. Concentrating new development can positively impact intraregional travel and enhance the viability of alternative modes of transportation.
- **Ensure a Mix of Uses within each Node.** Transit, walking, and biking to and within an activity center is easier when people have access to multiple types of development. The concentration of various types of activities also improves transit viability.

Develop Design Guidelines

Design guidelines focus at the site level, facilitate pedestrian access to transit, and allow for efficient transit operations.

- **Focus on transit when conducting development and site plan reviews.** As the counties conduct development reviews, they should include criteria to consider transit accommodation, from both the customer and operator perspectives.
- **Focus on transit customer needs.** Accessibility of transit service should be considered when reviewing plans for new developments or changes to existing developments.
- **Focus on transit operator needs.** Efficient transit operations require maneuverability. Appropriate design ensures that transit vehicles are accommodated and can quickly enter and leave bus stops and transit stations.

Transit-Oriented Development/Smart Growth

Transit-Oriented Development (TOD) initiatives generally operate at the *community* level, and aim to create neighborhoods that are compact, mixed-use, pedestrian-friendly, and near transit stops. TOD and smart growth recommendations include forming partnerships between land use planners and transit operators and developing planning studies in priority areas.

- **Form partnerships between land use planners and transit operators.** Land use planners should work closely with local bus operators, MTA, and WMATA to ensure that land use plans are consistent with transit plans.

- **Develop planning studies in priority areas.**⁴² Conceptual plans should be prepared for priority areas that focus on transit-oriented development and smart growth principles.

7.2 TRANSIT

Policies and Strategies

Primary transit strategies and policies for Southern Maryland to pursue have been identified in the areas of park-and-ride lots, commuter bus service, local transit coordination, transit information and dissemination, and high-capacity transit service. **To fully realize the potential of transit to improve the quality of life in Southern Maryland, the land use strategies outlined in the previous section must be implemented.**

Expand/Improve Commuter Bus Service

Commuter bus service can be expanded by adding trips to existing routes and by adding new routes. Operational improvements can improve travel time reliability for bus riders and can provide a competitive advantage over use of a personal vehicle. Increasing the ridership on the commuter bus system improves the performance of the regional transportation system. The following strategies should be considered to expand and improve the commuter bus system in Southern Maryland:

- **Perform a comprehensive review of commuter bus service serving Southern Maryland and make recommendations for change.** Origin destination analysis suggests that additional service between Southern Maryland and Prince George's County may be warranted. It also suggests a market for increased bus service to the Lexington Park area including the Patuxent River Naval Air Station. MDOT and MTA should regularly review the services provided to Southern Maryland to maximize their use and efficiency.
- **Study the feasibility of operational improvements.** Queue jump lanes, transit signal priority, and access to expressway shoulders for commuter buses can provide a competitive advantage over use of a personal vehicle. Southern Maryland, SHA, and MTA should jointly identify the potential for these types of improvements.
- **Improve amenities at park-and-ride lots,** including bus shelters and stations to limit exposure to rain, snow, sun, and cold temperatures.
- **Provide easily accessible information on the web and at park-and-ride lots,** including routes and destinations served, schedules, maps, trailblazing signs,

⁴²Charles County Comprehensive Plan, 2006.

lot status signs, and, to the extent possible, real-time bus arrival and departure information.

- **Provide local bus service to park-and-ride lots** on schedules coordinated with MTA commuter buses and develop intermodal transfer stations to help concentrate local bus routes around major park-and-ride facilities and enable sharing of the operating costs of these facilities.
- **Encourage multiple uses of park-and-ride lots** such as carpools and vanpools.
- **Add park-and-ride lot capacity** where needed to support growth of the commuter bus system, including working with local jurisdictions and other partners to identify both long-term lot development opportunities and short-term lots, such as those at malls and churches.
- **Streamline planning, development, and construction of park-and-ride lots.** MTA, SHA, and County planners need to work together to ensure that park-and-ride lots, once approved and funded, are brought on line in a smooth and efficient manner.

Improve Local Transit Service and Coordination

Each county in Southern Maryland operates an independent local transit service. Increasing commuting between counties and general growth require that the region examine potential coordination and expansion of services. Specific recommendations include:

- **Study regional coordination of local bus routes.** To better serve riders, the counties of Southern Maryland should consider a regional approach to route planning, including increased cooperation and information sharing among local transit agencies; formal coordination of decisions and actions among the agencies; or consolidation of operational authority into a single regional agency.
- **Improve convenience for intraregional work trips.** With increasing growth and traffic, local transit agencies should evaluate intraregional commuter services and local circulator services within major activity centers, such as Waldorf and Lexington Park.

Implement Feasible High-Capacity Transit Options

As Southern Maryland continues to grow, options for high-capacity transit will become increasingly feasible. The MD 5/U.S. 301 corridor will likely be the first to be able to support a high-capacity route.

In October 2004, MTA completed the *MD 5/U.S. 301 Transit Service Staging Plan*, which outlined four alternatives for staged implementation of higher capacity transit in the corridor: Enhanced Commuter Bus; Moderate-Level Bus Rapid Transit (BRT); High-Level BRT; and Light Rail Transit. MTA is currently con-

ducting a study to identify right-of-way needs for a transitway alignment, for stations, and for park-and-ride lots along the 18-mile corridor between the Branch Avenue Metrorail station and White Plains. High-capacity transit in Southern Maryland should be supported in the following ways:

- **Preserve right-of-way along the transitway identified in the MTA study.** Preserving right-of-way for the transitway will maintain the feasibility of this option. Without preservation, residential and commercial development along the transitway will make it much more difficult and expensive to build.
- **Support the results of the commuter rail feasibility study.** The MTA is about to study the feasibility of establishing commuter rail service between Washington, D.C. and St. Mary's County.

Transit Projects

The following set of transit projects have been identified for Southern Maryland based on the Tri-County priority letter and the analysis contained within the Needs Assessment. Regionally significant highway projects are listed first, followed by a specific list of additional priority projects for each county.

Regionally Significant Projects

- Accelerate Mass Transit improvements in Southern Maryland including the accelerated implementation of the Transit Service Staging Plan in the U.S. 301/MD 5 corridor. Implementation of regional transit improvements would include:
 - Enhanced commuter bus service from Calvert, Charles, and St. Mary's Counties to the metropolitan Washington area – including Prince George's County;
 - Construction of six additional park-and-ride lots – two in each county;
 - Accelerated Mass Transit improvements in the U.S. 301/MD 5 corridor including identification and preservation of a transit right-of-way, enhanced commuter bus service, bus rapid transit to fixed-rail transit from Waldorf-White Plains to the Branch Avenue Metro station (*map location T3*);

Table 7.1 County Transit Projects of Regional Importance

Description	Map Location ^a
<i>Calvert County</i>	
Construct park and ride lots at Dunkirk and Prince Frederick	T1
Establish commuter bus service from Calvert County to the Suitland Metrorail Station and/or other employment destinations in Prince George's County	T2
Continue to monitor park-and-ride lot needs. Acquire land and develop park-and-ride lots as required	N/A
<i>Charles County</i>	
Construct park-and-ride lots at Waldorf and La Plata	T1
Enhance commuter bus service from Charles County to employment centers in the Washington, D.C. area including Prince George's County	N/A
Build a transfer station for Charles County VanGO service at the U.S. 301 park-and-ride lot	T6
Continue to monitor park-and-ride lot needs. Acquire land and develop park-and-ride lots as required	N/A
<i>St. Mary's County</i>	
Construct park-and-ride lots at Charlotte Hall and New Market	T1
Continue to monitor park-and-ride lot needs. Acquire land and develop park-and-ride lots as required	N/A
Enhance commuter bus service along the MD 235/MD 5 corridor	T5
Explore commuter bus service to the Patuxent River Naval Air Station to include additional transit service on-base and shuttle service between the base and local businesses along MD 235	N/A

^a Map locations are for Figure 7.1.

7.3 HIGHWAY

Southern Maryland is a peninsula bisected by the Patuxent River. As a result, the region relies on elements of highway infrastructure to provide connections within Southern Maryland, to the rest of Maryland, and to the U.S. as a whole. This includes the Governor Thomas Johnson Memorial, Governor Harry W. Nice Memorial, Benedict, and other bridges, several of which are in need of additional capacity. The following set of strategies, policies, and projects are intended to identify the capacity needs of the region and the set of policies and strategies that can help Southern Maryland address expected future growth.

Strategies and Policies

Primary highway strategies and policies for Southern Maryland to pursue have been identified in the areas of access management, operations, and travel demand management. Highway strategies should be implemented in conjunc-

tion with land use strategies to ensure an organized pattern of development in Southern Maryland and increase the efficient use of the transportation system.

Access Management

As the population of Southern Maryland continues to grow, increased long-distance commuting will result in greater demands on the region's arterials. Allowing unrestricted access to these arterials from new and existing developments will exacerbate congestion and safety issues over and above that caused by increasing through traffic. Implementing the following recommendations will help to preserve arterial capacity for through traffic and improve traffic safety.

- **Formally address access management in all county transportation plans and State or local corridor plans.** The legal and policy components of access management should be in place in corridors before extensive development occurs. Counties should require access control plans that meet their policy goals and minimize new accesses to arterials for new developments.
- **Partner with MDOT and SHA to strengthen access management.** County and SHA planners should work together to ensure that county land use plans and arterial access management plans are coordinated. Since private interests frequently use the political process to obtain direct access to arterials, State and County elected leaders and policy makers should be aware of the importance of access management to traffic flow and safety.
- **Require circulation plans for municipalities and new large-scale development that conform to access management guidelines in the region.** As the Counties of Southern Maryland review new development plans, the counties of Southern Maryland should ensure an acceptable level of local circulation that protects the capacity of the State and regional arterial system.
- **Increase spacing of signalized intersections on major arterials where possible.** In locations where closely spaced signalized intersections already exist along arterials, one or more of the following actions should be considered:
 - Restrict cross movement from the side roads and use J-turns;
 - Limit arterial left-turn movements;
 - Remove the signalized intersection and force right-turn movements at the intersection or construct overpasses or underpasses;
 - Build service or frontage roads to consolidate access points; or
 - Replace intersections with grade-separated interchanges.
- **Reduce private access to arterials.** Fewer driveways spaced farther apart allow for more orderly merging of traffic.
- **Create an effective local roadway network.** An effective local roadway network enables traffic to access local developments without using arterial

highways thereby preserving their functional capacity for through trips and provides alternate routes for local and through traffic in the event of a mainline emergency.

Operations

Different types of operational strategies can be used to address recurring and nonrecurring congestion. Maryland's Coordinated Highways Action Response Team (CHART) recently completed a Rural Management and Operations/ Intelligent Transportation Systems (M&O/ITS) Strategic Deployment Plan for the State of Maryland. The Plan identifies several strategies for Southern Maryland that should be implemented as soon as practical, including:

- Creating a new CHART Traffic Operation Center (TOC) in Southern Maryland;
- Deploying dynamic message signs (DMS), closed circuit television cameras, roadway weather information systems, and traffic speed detectors at appropriate locations;
- Installing emergency evacuation guide signs; and
- Expanding CHART's Freeway Incident Traffic Management Plan into Southern Maryland.

An additional operations improvement strategy is to improve and coordinate signal timing in key corridors. Currently, the State Highway Administration (SHA) examines traffic signal timing on a three-year rotation. Southern Maryland and the SHA should continue to refine the timing of individual traffic signals and consider coordinating signal timing along key corridors, such as U.S. 301 from White Plains to the Prince George's County line and the MD 2/4 Corridor through Prince Frederick.

Safety

Maryland's Strategic Highway Safety Plan (SHSP) is a working document that provides a framework for reducing highway fatalities and serious injuries on all public streets and highways. The SHSP applies the 4E's of highway safety: Enforcement, Education, Engineering, and Emergency Medical Services, across the following emphasis areas:

- Reduce Impaired Driving;
- Improve Information and Decision Support Systems;
- Eliminate Hazardous Locations;
- Increase Occupant Protection;
- Improve Driver Competency;

- Curb Aggressive Driving; and
- Improve Emergency Response System.

Current SHSP efforts are focused on creating regional implementation plans based on crash data analysis. The Tri-County Council for Southern Maryland is playing a key role in this effort by facilitating cooperation and coordination of the SHSP implementation efforts among Calvert, Charles, and St. Mary's counties and by organizing the political support required to implement the identified behavioral and infrastructure safety priorities for the region.⁴³

In addition to the SHSP, many of the highway strategies related to access management and operations, if implemented, will have a positive impact on highway safety. Access management strategies improve safety by removing conflict points and managing access to the regions arterials, while operations strategies improve safety by improving response time to incidents, providing real-time incident information to the public, and monitoring roadway weather conditions.

Security

Each county in Southern Maryland has emergency evacuation information available on their web sites. This information is primarily focused on evacuation routes and locations of shelters hospitals, police stations, etc.

The Maryland CHART (Coordinated Highways Action Response Team) Program, a joint effort of MDOT, MTA, and Maryland State Police, published the *Rural Management and Operation Systems (M&O)/Intelligent Transportation Systems (ITS) Strategic Deployment Plan* in March 2007. The document outlines a strategy for deploying ITS in the rural areas of the State, including Southern Maryland.

The primary focus of this Plan is to define the M&O and ITS planning and deployment needs of rural Maryland that would lead toward reduced seasonal highway congestion, better information to motorists of evacuation and emergency procedures, and improved communications with neighboring areas.

Specific recommendations related to evacuation planning for Southern Maryland include:

- Installation and testing of 700 to 800 MHz radios for emergency operation control;
- Digital Message Signs for vital decision points for diversion routes;
- Installation of guide signs directing motorists to specific routes in the event of an emergency situation;
- Improved regional coordination in advance of emergency evacuations to develop workable strategies for detours and sheltering;

⁴³Maryland Safety Summit, November 2007.

- Update of each County's Evacuation Plan to reflect the destinations and routing of evacuees; and
- Establishment of a working group in Southern Maryland to support the use and maintenance of the Strategic Plan.

Travel Demand Management

Travel Demand Management (TDM) strategies are relatively low-cost solutions to reduce vehicular traffic at a regional level. These strategies include or are related to carpools, vanpools, biking, walking, alternative work-hours or work-place programs, and parking management. Strategies to preserve important places, landscapes, and critical features can support TDM strategies by promoting more compact development which in turn encourages carpools, vanpools, etc. The following low-cost strategies should be pursued to reduce regional travel:

- **Promote telecommuting, alternative work hours, and compressed work week programs.** State and county agencies can promote these programs through marketing or incentives. These methods have the greatest effectiveness when combined.
- **Continue to encourage ridesharing and vanpooling.** The Tri-County Council for Southern Maryland has a full-time staff person dedicated to outreach on this topic. Ridesharing helps to reduce congestion and VMT while providing more modal options and accessibility. Strategies to increase ridesharing and vanpooling include:
 - Targeted incentives to employers or participants;
 - Education and outreach programs that increase the awareness of ridesharing opportunities;
 - A one-stop Internet portal that provides ridematching services and information on connecting modes; and
 - A guaranteed ride home program that accommodates unforeseen work schedule changes.

Highway Projects

The following set of highway projects have been identified for Southern Maryland based on the Tri-County Council for Southern Maryland's priority letter, the CTP, the HNI, public input, and the analysis contained within the Needs Assessment. Regionally significant highway projects are listed first, followed by a list of additional priority projects for each county. Note that while the identified projects are located within Calvert, Charles, and St. Mary's counties, projects in Prince George's and Anne Arundel counties are also important to the residents of Southern Maryland. In particular, implementation of identified CTP and HNI projects along the MD 210, MD 5, and MD 4 corridors in Prince

George's County and along the MD 2, MD 4, and MD 260 corridors in Anne Arundel County will reduce travel time and improve safety for Southern Maryland residents who commute to destinations north of Calvert and Charles counties.

Top Regional Priorities

- Construct a Western Bypass of Waldorf with controlled access, selecting the alignment with the least environmental impact on the Mattawoman Creek watershed.⁴⁴ Construct a limited upgrade of U.S. 301 through Waldorf to facilitate traffic flow and relieve congestion at failing intersections and create a “boulevard” design for Charles County’s “main street” with minimum impact on commercial businesses in the Corridor (*map location 17 in Figure 7.1*); and
 - The northernmost portion of U.S. 301 through Waldorf currently is operating at level of service (LOS) E or F. Many intersections along the route are currently or will soon be operating at LOS E or F. Many others are predicted to be at LOS D. Completion of a Western Bypass should improve the LOS on existing U.S. 301.
- Build a second span of the Governor Thomas Johnson Memorial Bridge. Widen MD 4 from the Governor Thomas Johnson Memorial Bridge to MD 235. Upgrade the intersection of MD 4 and MD 235 (*map location 1 in Figure 7.1*).
 - MD 4 currently operates at a poor LOS from the Thomas Johnson Memorial Bridge to the MD 235 intersection. Analysis of 2030 conditions show continued poor LOS along this roadway segment and beyond the MD 235 intersection to MD 5 near Leonardtown.

Regionally Significant Projects

- Reconstruct the intersection of MD 2/4 and MD 231 in Prince Frederick (*map location 7 in Figure 7.1*);
- Widen MD 2/4 from south of MD 765A to north of Stoakley Road through Prince Frederick (*map location 6 in Figure 7.1*); and
- Widen MD 2/4 from MD 264 to MD 765A south of Prince Frederick (*map location 5 in Figure 7.1*).

⁴⁴ Prince George's County prefers an upgrade of U.S. 301 rather than a bypass of Waldorf.

County Projects of Regional Importance

Table 7.2 County Highway Projects of Regional Importance

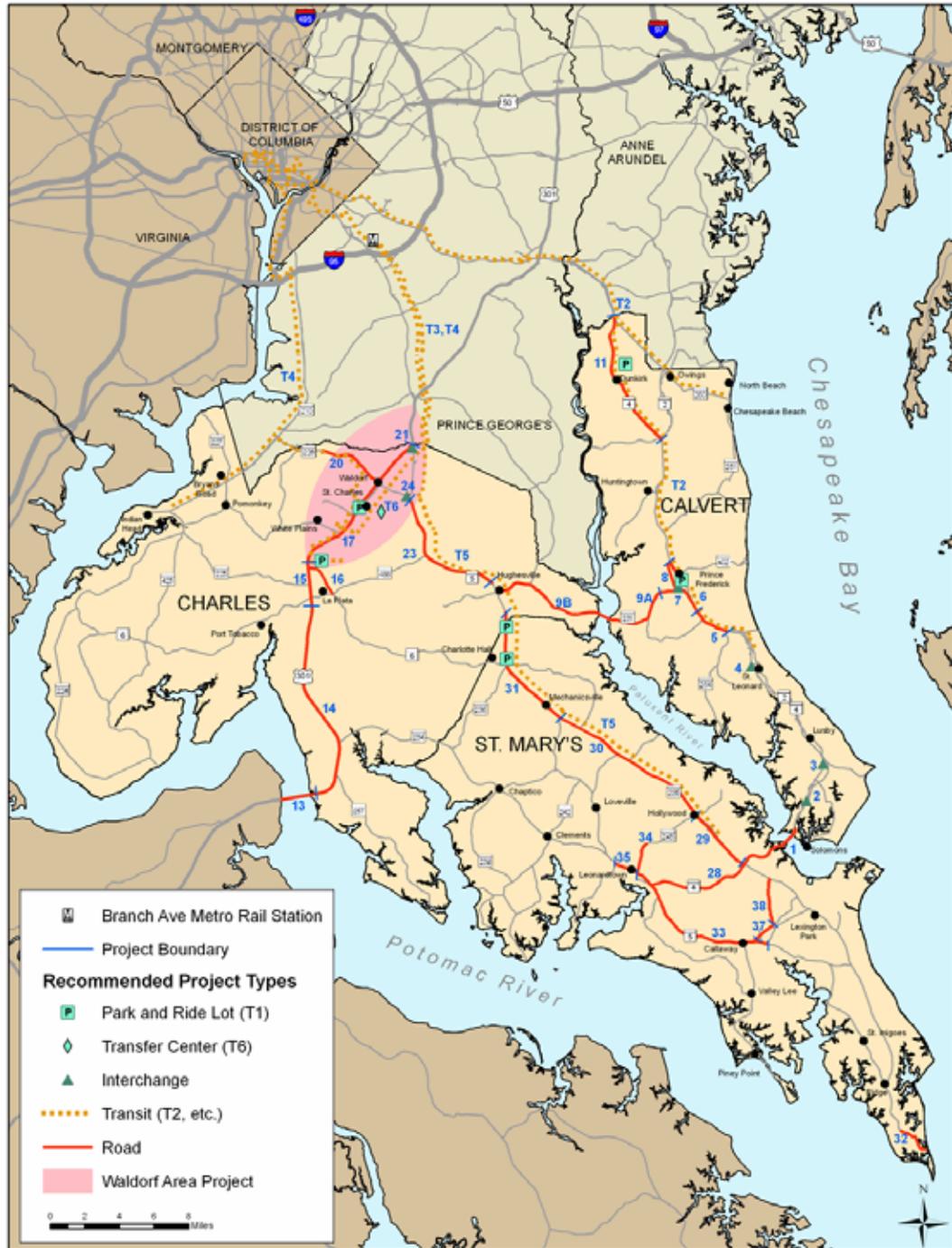
Road	Description	Map Location ^a
<i>Calvert County</i>		
MD 231	Widen from Barstow Road to MD 2/4 in Prince Frederick	9A
Prince Frederick Loop Road	Complete construction of the Prince Frederick Loop Road	8
MD 4	Widen from MD 2/4 to MD 258 with a focus on the section though Dunkirk	11
MD 2/4	Construct an interchange at Lusby Southern Connector Road	2
MD 2/4	Construct an interchange at MD 497	3
MD 2/4	Construct an interchange at Ball/Calvert Beach Roads	4
<i>Charles County</i>		
U.S. 301	Accelerate completion of the SHA Project Planning Study and Environmental Impact Statement for the U.S. 301 Study – Waldorf Upgrade/Bypass	17
MD 6	Build the MD 6 connector in the town of La Plata from MD 6 at Willow Lane to U.S. 301. This segment is projected to be heavily congested by 2020	16
MD 5	Improve the intersection at St. Charles Parkway by building an interchange	24
U.S. 301/MD 5	Construct an interchange at U.S. 301 and MD 5. The intersection will soon be operating at LOS E or F	21
MD 231	Widen between MD 5 and the Benedict Bridge with a focus on the section between MD 5 and MD 381. This section will function at LOS E/F by 2030.	9B
U.S. 301 Governor Harry W. Nice Memorial Bridge	Expand the Governor Harry W. Nice Memorial Bridge to facilitate the flow of traffic at the toll facilities and improve access from Maryland to Virginia. While currently operating at LOS D, the Bridge is projected to operate at LOS E by 2030	13
U.S. 301	Implement access controls from South of La Plata to the Potomac River	14
U.S. 301	Widen from South of La Plata to White Plains	15, 17 (part)
MD 5	Widen from North of Hughesville to MD 5 Bus/St. Charles Parkway	23
MD 228	Widen from Middletown Road to U.S. 301	20
<i>St. Mary's County</i>		
MD 237	Widen Chancellors Run Road (MD 237) from Pegg Road to MD 235 in Lexington Park	38
Pegg Road	Extend Pegg Road to MD 5	37
MD 5	Widen from MD 243 to MD 245	35

^a Map locations are for Figure 7.1.

Road	Description	Map Location ^a
<i>St. Mary's County (continued)</i>		
MD 5	Widen from MD 246 to MD 245 with a focus on the section between MD 4 and MD 245. Some segments currently operate at LOS E or F with more expected to deteriorate to this level by 2020.	33
MD 4	Widen from MD 5 to MD 235. The section between MD 235 and Indian Head Road is projected to be at LOS E or F by 2030.	28
MD 235	Widen from MD 4 to MD 245. Five intersections in this segment are currently operating at LOS E or F. Widening this section with access controls will benefit a highway segment that currently has no access control and reduce delay at the poorly functioning intersections.	29
MD 245	Widen from MD 5 to McIntosh Road. This section is projected to operate at LOS E or F by 2030	34
MD 5	Widen from MD 235 to the Charles County Line	31
MD 235	Implement access controls from MD 245 to MD 5	30
MD 5	Reconstruct from Ranger Station to Camp Brown Road. This section has narrow lanes and no shoulders. Summer traffic is heavy on this section and enforcement efforts will be improved with the addition of shoulders	32

^a Map locations are for Figure 7.1.

Figure 7.1 Locations of Transit and Highway Project Recommendations



Source: Cambridge Systematics, based on data from State Highway Administration, Maryland Transit Administration, and Tri-County Council for Southern Maryland.

7.4 BICYCLE AND PEDESTRIAN POLICIES AND STRATEGIES

Policies and strategies to promote bicycle and pedestrian activity relate to improved modal and neighborhood connectivity, improved facilities, and improved safety.

Improve Connectivity

To allow for increased bicycling and walking connections among transit facilities, residential areas, activity centers, parks, and tourist attractions should be maintained where existing and established where missing. The following strategies support increased connectivity.

- **Focus on improving Bicycle Level of Comfort (BLOC)** along key roadway segments identified in the Maryland Bicycle and Pedestrian Access Master Plan and on appropriate County and local roadways.
- **Expand the off-road trail system and create linkages among existing trails** by implementing the recommendations of the *Southern Maryland Regional Trail and Bikeway System Study*. Connect bike paths, sidewalks, and trails to fill in any gaps.
- **Enhance and expand bicycle and pedestrian access to transit.**

Improve Facilities

To ensure that bicycle and pedestrian facilities are improved and appropriately maintained, the following strategies are recommended.

- **Integrate bicycle and pedestrian facilities into roadway development projects at both the State and local level.** These facilities can include wider lanes, bike lanes, paved shoulders, and bike safe storm drains.
- **Integrate bikeway and sidewalk maintenance and cleaning into established roadway maintenance routines.**

Improve Safety

To improve safety for bicyclists and pedestrians the following strategies are recommended.

- **Develop bicycle and pedestrian safety plans for each County in cooperation with the State's Strategic Highway Safety Plan.**
- **Plan, design, and construct bicycle and pedestrian facilities using appropriate design standards.**
- **Provide pedestrian and bicycle traffic control devices where appropriate.**
- **Provide bicycle and pedestrian route signage as appropriate.**

7.5 BARRIERS AND CHALLENGES

Southern Maryland will face barriers and challenges to implementing the identified projects and strategies. These barriers and challenges generally fall into the following categories:

- Funding challenges;
- Growth, planning and zoning challenges;
- BRAC issues; and
- Geographical limitations.

Funding Challenges

Several of the top priority projects for the Southern Maryland region are for significant investments in new capacity or improved infrastructure that easily exceed the funding that has typically been available to transportation projects in the region. Notable examples include additional capacity for the Governor Thomas Johnson Memorial and the Governor Harry W. Nice Memorial Bridges. Major infrastructure projects, such as these, will require careful examination of potential revenue sources. There will be no easy solutions, and Southern Maryland and the State of Maryland may need to explore potential Federal funding options, pricing strategies, innovative financing arrangements, and other strategies.

Federal Funding

One key funding challenge facing Southern Maryland, as well as the State of Maryland and the nation as a whole, is the growing surface transportation investment gap. In testimony before the U.S. House of Representatives Committee on Transportation and Infrastructure on January 15, 2008, the National Surface Transportation Policy and Revenue Study Commission stated that addressing this investment gap would require annual investments of between \$225 billion and \$340 billion (compared the current \$68 billion) over the next 50 years to upgrade all modes to a state of good repair.

This gap has resulted from a funding mechanism (the gas tax) that has not grown at the Federal level in over 20 years; the Federal transportation trust fund continues to lose purchasing power each year. In combination with rising construction costs due to increases in oil and material costs, it has become difficult for states to generate enough revenue to address major projects.

Similar investment gaps are evidenced throughout all states, regions, and localities, including Southern Maryland. The high demand for transportation infrastructure projects combined with limited funding results in an environment where even worthy projects may not be funded due to greater needs demonstrated somewhere else.

State and Local Funding

Between \$6.0 and \$7.3 billion in total unfunded transportation system needs have been identified through the Southern Maryland Transportation Needs Assessment, but only between \$640 and \$770 million are expected to be available to Southern Maryland over this period. Considering only the top priority projects leaves a gap of at least \$1.5 billion, not including the proposed high capacity transit service in the MD 5/U.S. 301 Corridor, which could cost up to \$1.2 billion. The top priority projects identified for Southern Maryland include several ‘mega projects’ such as a new span of the Thomas Johnson Memorial Bridge and a bypass around Waldorf. Projects of this magnitude will always pose funding challenges.

Finding funding for mega projects and addressing the overall gap in resources will require a combination of federal, state, and local efforts, as well as potential toll revenues. The State, through a Fall, 2007 special legislative session generated new funding for key projects in Southern Maryland, including planning for upgrades to MD 4 and the Thomas Johnson Memorial Bridge, the Waldorf bypass, and the Southern Maryland Commuter Bus program. However, the current fiscal challenges facing the State and nation will present additional hurdles challenges in the years ahead.

Local government participation in projects will be essential to further their development, including assisting in purchasing or otherwise preserving right-of-way for new transportation infrastructure. Other methods existing to generate funding for transportation, including local option sales taxes, tax increment financing and other value capture methods, property taxes, payroll taxes and others. Some of these methods would require State enabling legislation (such as a local option sales tax) and all would have to be carefully evaluated for their ability to generate revenue and their appropriateness for Southern Maryland.

Base Realignment and Closure (BRAC) Challenges

Maryland has been fortunate to benefit from the most recent round of BRAC. Although the military bases in Southern Maryland were not significantly impacted, the BRAC process highlights the value of military installations to all of Maryland. For example, Andrews Air Force Base in nearby Prince George’s County will experience significant job growth as a result of this most recent BRAC round. This will impact traffic volumes along MD 4 and U.S. 301, key commuter corridors for Southern Maryland residents working in the Washington, D.C. area. Within Southern Maryland proper, it will be important to maintain access to the Patuxent River Naval Air Station and the Indian Head Naval Surface Warfare Center as they are key components of the regional economy. At the same time, State resources are needed to provide improved access to Maryland military bases that received additional personnel in the most recent round of BRAC.

Growth, Planning, and Zoning Challenges

Southern Maryland is expecting to continue its rapid growth over the next 20 years. This rapid growth is increasing the need for new transportation investments and presenting new planning and zoning challenges. This assessment has presented a set of potential strategies for Southern Maryland to consider, several of which are oriented towards improving the efficiency of the transportation system through improved land use policies and investments in the transit system.

One challenge that the region will face is the difficulty that long-time residents of rural areas may have in embracing the transition from low-density land use patterns to higher-density suburban and urban land use patterns. Yet to prevent widespread sprawl, and the congestion associated with it, it will be vital to develop high-density, mixed-use centers to encourage transit use and walkable and bikeable pedestrian-oriented lifestyles.

Similarly, there will be significant potential challenges getting multiple jurisdictions to work together to implement the land use policies and strategies that will help make Southern Maryland more transit accessible. Individual counties and jurisdictions have authority over land use within their jurisdictions and it will take significant work to get each of the individual actors to agree with the policies identified in this needs assessment.

Geographical Limitations

Some challenges are related to the fact the Southern Maryland comprises a peninsula bounded by water on three sides and split by the Patuxent River. This is a benefit in that it reduces through travel and helps the region maintain its charm and rural character. However, the bridges integrating and connecting the region can become chokepoints that are expensive to alleviate.

A specific challenge will occur during construction of any additional reactors at the Calvert Cliffs Nuclear Power Plant in Lusby. It is likely that many of the potentially thousands of workers would travel north over the Thomas Johnson Memorial Bridge from St. Mary's County and many others would travel south along the MD 2/4 Corridor in Calvert County. Prior to this event a traffic management plan should be developed and implemented to mitigate the increased traffic generated by this potential multi-year construction project.

7.6 CONCLUSION

The Southern Maryland Transportation Needs Assessment was developed collaboratively by the Commission to Study Southern Maryland Transportation Needs, the Tri-County Council for Southern Maryland, and the Maryland Department of Transportation. Through an extensive outreach process and a detailed analysis of transportation system conditions, needs, and projects, a set of

recommended projects and strategies have been identified. The top priority projects identified include:

- A western bypass of Waldorf and limited upgrade to U.S. 301;
- A second span of the Thomas Johnson Memorial Bridge; and
- Expanded transit service to Southern Maryland with a focus on developing a high capacity bus rapid transit and fixed-rail service in the MD 5/U.S. 301 Corridor, from Waldorf and White Plains to the Branch Avenue Metro Station.

The Commission also recommends that the State and counties continue to promote strategies to reduce traffic congestion and promote strategic funding for transportation improvements in Southern Maryland, including:

- Providing improved transit options through analysis of and investments in high capacity transit options, park-and-ride facilities, commuter bus routes, and local transit;
- Enhancing the extent of information available for transit and highway users on the web, at transit stops and park-and-ride lots, and on the roadside;
- Promoting access management, operational improvements, and travel demand management strategies, including ridesharing, to improve the efficiency of the transportation system;
- Promoting strategic capacity expansions that address the mobility, safety, and accessibility of the transportation strategically; and
- Providing multimodal trail, bike, and pedestrian infrastructure and connectivity where needed.

Funding some of the large infrastructure projects identified in this report may require consideration of new funding mechanisms that are not currently available. Additionally, the State and region may wish to pursue potential revenue generating strategies for the transportation system, such as tolls on bridges (e.g., as is currently done on the Governor Harry W. Nice Memorial Bridge) or on new limited access highway facilities. Given the significant transportation financing challenges facing both the State of Maryland and the nation as a whole, it will become ever more important to identify alternative funding and financing mechanisms for new transportation infrastructure investments and for local governments to participate actively in the development of projects. The Southern Maryland Transportation Needs Assessment represents a good example of how State, regional, and local staff and elected officials can work together to address important transportation investment challenges.