

Maryland

State Highway Administration

Highway Indicators Statistical Report 2000



Maryland Quick Statistics:

Population 1960 – 3.1 million
Population 1990 – 4.8 million
Population 2000 – 5.3 million
Population 2020 – 6.1 million (est.)
Growth 1960-2000 – 71%

Source: US Census Bureau

Annual Vehicle Miles of Travel (Billions)

All Roads:
2000 – 50.3
1995 – 44.9
1990 – 40.5
1980 – 28.5

77% of the Maryland Population lives in an urban area, while the urban area comprises 17.5% of the total land area.

70% of the total statewide vehicle miles of travel occurs in Maryland's urban areas, and 50% of all highway lane miles are in an urban area.

One of six states honored by the American Planning Association as “exemplary models” for smart growth planning in a report called “Planning for the 21st Century” that profiles the six states and praises them for taking “exceptional action toward modernizing planning laws to address urban sprawl, open space protection, public transit and other community planning needs.”

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SHA Mission Statement

To provide our customers with a safe, well-maintained and attractive highway system that offers mobility and supports Maryland's communities, economy and environment.



Introduction

Transportation significantly influences the lives of every citizen in the state of Maryland. Studies at the international, national and state-level have shown that efficient transportation is directly linked to economic growth and quality of life. Not surprisingly, delivering transportation services and facilities to the public has become one of the most important functions of government. In fulfilling this role, the Maryland State Highway Administration has been given significant responsibility to deliver highway transportation services and infrastructure to Maryland residents and others who travel within our state.

While at its most simplistic level the SHA is responsible for building and maintaining highways, its true impact on the citizens of Maryland is far broader. Highways influence many aspects of the day-to-day life of Maryland residents – highways affect the environment, influence economic development, promote the mobility of the public, and collectively influence the quality of our lives and communities.

Given the extensive influence highways have on Maryland communities, and SHA's role in building and maintaining them, measuring this influence is becoming an increasingly important way for us to better understand the impacts highways have. This annual highway system report seeks to provide a comprehensive and concise description of the current highway transportation system in Maryland. It reveals the baseline conditions of the existing extent, use, performance, condition, and other elements of the highway infrastructure and how these conditions have changed over time.

The measures contained in this report summarize significant activities of State Highway offices involved in development, operations, and planning functions. The information in this document will assist SHA in preserving the existing system and managing available facilities and services and efficient and cost-effective manner.

The information in the report was developed from both external sources and many sources within SHA.

System Extent

The System Extent chapter of this report attempts to develop an inventory of Maryland's existing highway system. This chapter does not report on the analytical aspect of the system; rather, it attempts to answer the questions what, where, and how many.

SHA is responsible for highways throughout the State of Maryland and provides the primary network for the state transportation system. These highways provide links to transportation modes including aviation, port and rail networks. This integrated state highway system also joins the county roadways for access to local communities and neighborhoods throughout Maryland.

SHA maintains the majority of Interstate, U.S., and numbered state routes. Baltimore City maintains all roads within city limits, including Interstates. The Maryland Transportation Authority manages Maryland's seven toll facilities, including I-895 (Baltimore Harbor Tunnel), and I-95 from the tunnels north to the Delaware state line. Each Maryland county maintains local roads that are not under SHA's jurisdiction.

SHA maintained routes are signed with the following types of symbols:



Interstate Route



U.S. Route



Maryland State Route

Maryland highways provide vital connections to surrounding states and are heavily used by through traffic, including trucks. The state highway system has evolved over time, and there are some roads in the State system that serve only local needs. The State and local jurisdictions are working toward the goal of having roadways that serve regional needs maintained and operated by the local jurisdiction in which they are located.

This chapter covers a broad overview of Maryland's highways by looking at "quality of life" measures as well as simple highway statistics. These "quality of life" measurements include the construction of noise barriers, as well as the costs associated with their construction, and the construction of sidewalks along state highways. Another "quality of life" example is the planning, reporting, and mapping of SHA roundabouts, which are increasingly becoming a popular traffic calming and safety tool.

The System Extent measurements in this chapter are reported in an easy to read, visual format. They are depicted using charts, graphs, and maps as well as accompanying tables to bolster their effectiveness. This chapter will become the foundation and template upon which the following chapters are based.

Center Line Miles



A Center Line Mile is the length of a highway regardless of the pavement width or the number of lanes.

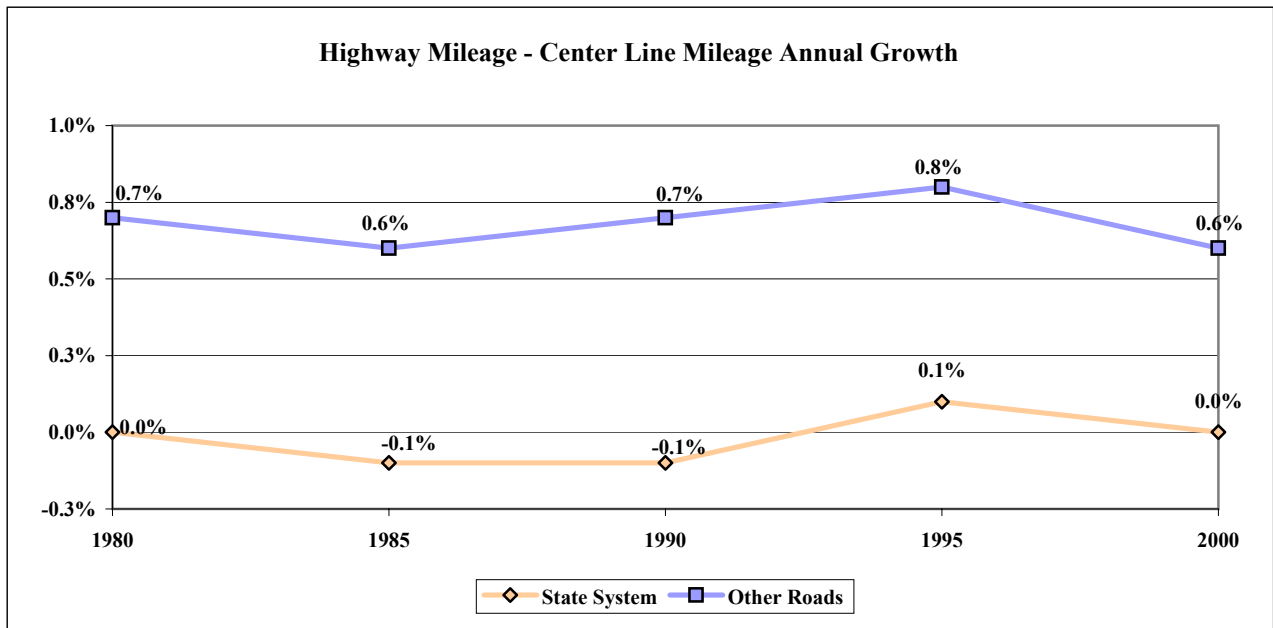
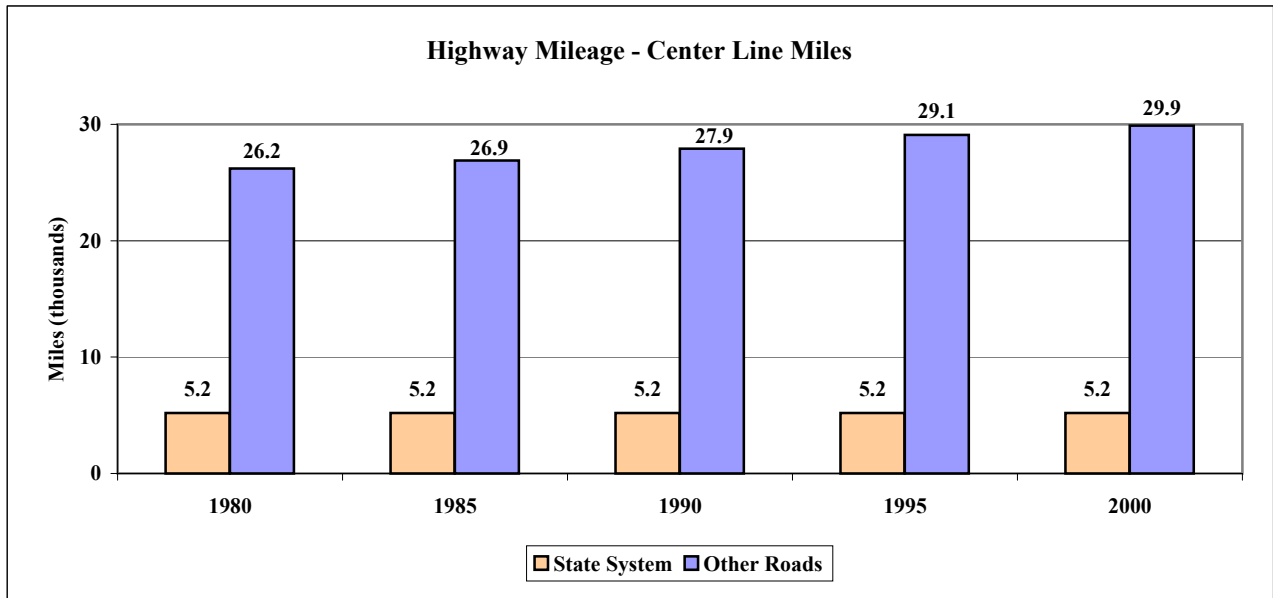


In 2000, there were over 29,800 public highway center line miles in Maryland. SHA maintained over 5,200 miles (18%), the 23 counties maintained over 20,000 miles (67%), while the local municipalities, including Baltimore City, maintained over 4,400 miles (15%).



Net loss of center line miles is mostly due to road transfers from the State Highway Administration to either the counties or municipalities.

Center Line Miles



Year	State System	Annual Growth	All Systems	Annual Growth
1980	5,243	0.0%	26,211	0.7%
1985	5,226	-0.1%	26,947	0.6%
1990	5,205	-0.1%	27,885	0.7%
1995	5,238	0.1%	29,072	0.8%
2000	5,231	0.0%	29,893	0.6%

Highway Lane Miles



Highway Lane Miles are the number of lanes multiplied by the length (in miles), and is a more useful measure when comparing jurisdictional responsibility for the highway system.

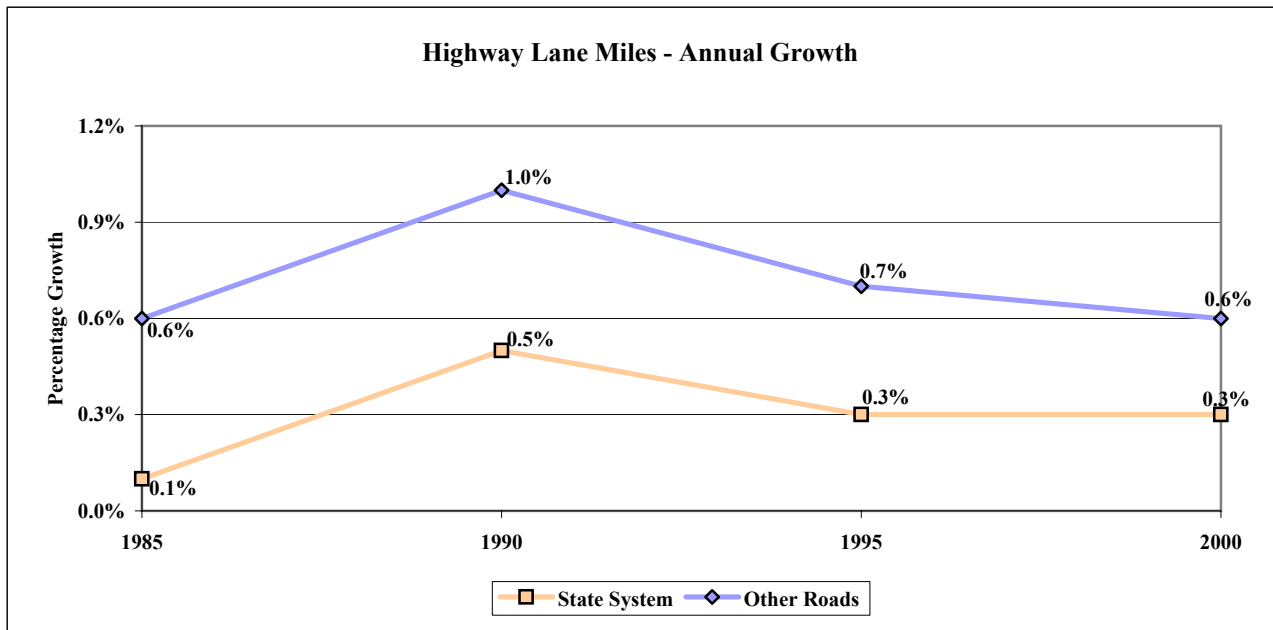
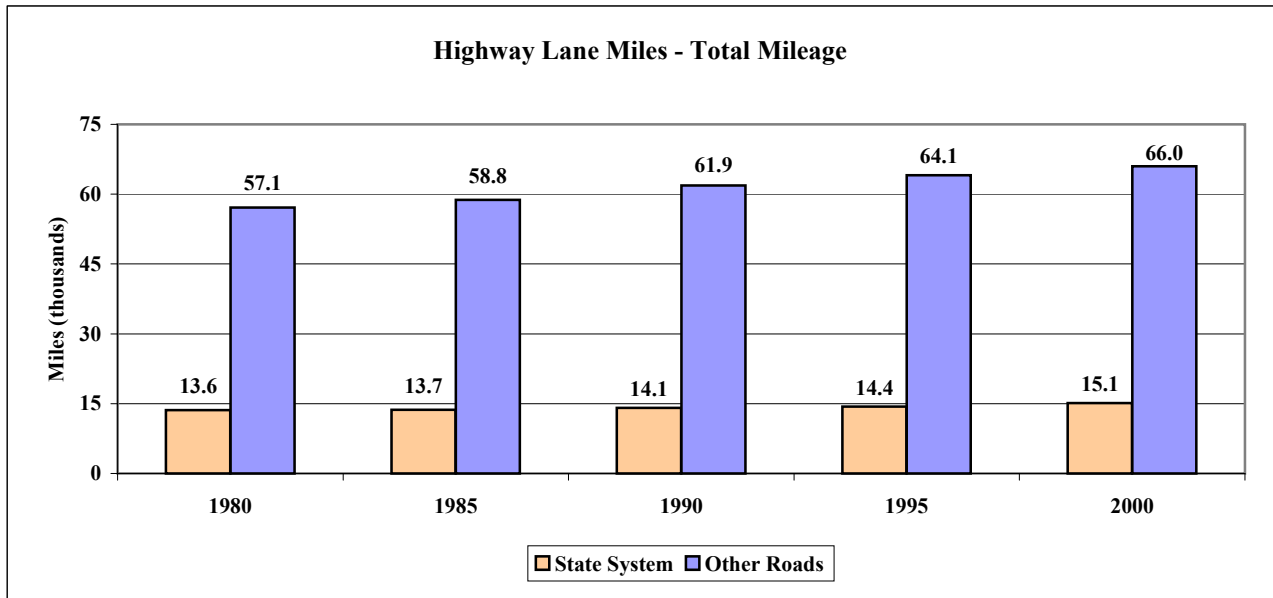


In 2000, there were over 66,000 highway lane miles in Maryland. The State maintained 14,500+ lane miles (22%), including most interstate routes and most of the National Highway System. The National Highway System includes all highways deemed to be of significant importance to the economic and security interests of the United States.



The State System total mileage does not include mileage on Maryland toll facilities operated by the Maryland Transportation Authority.

Highway Lane Miles



Year	State System	Annual Growth	All Systems	Annual Growth
1980	13,643	*	57,053	*
1985	13,738	0.1%	58,817	0.6%
1990	14,116	0.5%	61,890	1.0%
1995	14,362	0.3%	64,109	0.7%
2000	14,567	0.3%	66,005	0.6%

Highway Lane Miles by Functional Classification



According to the U.S. Department of Transportation Highway Functional Classification Manual, functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

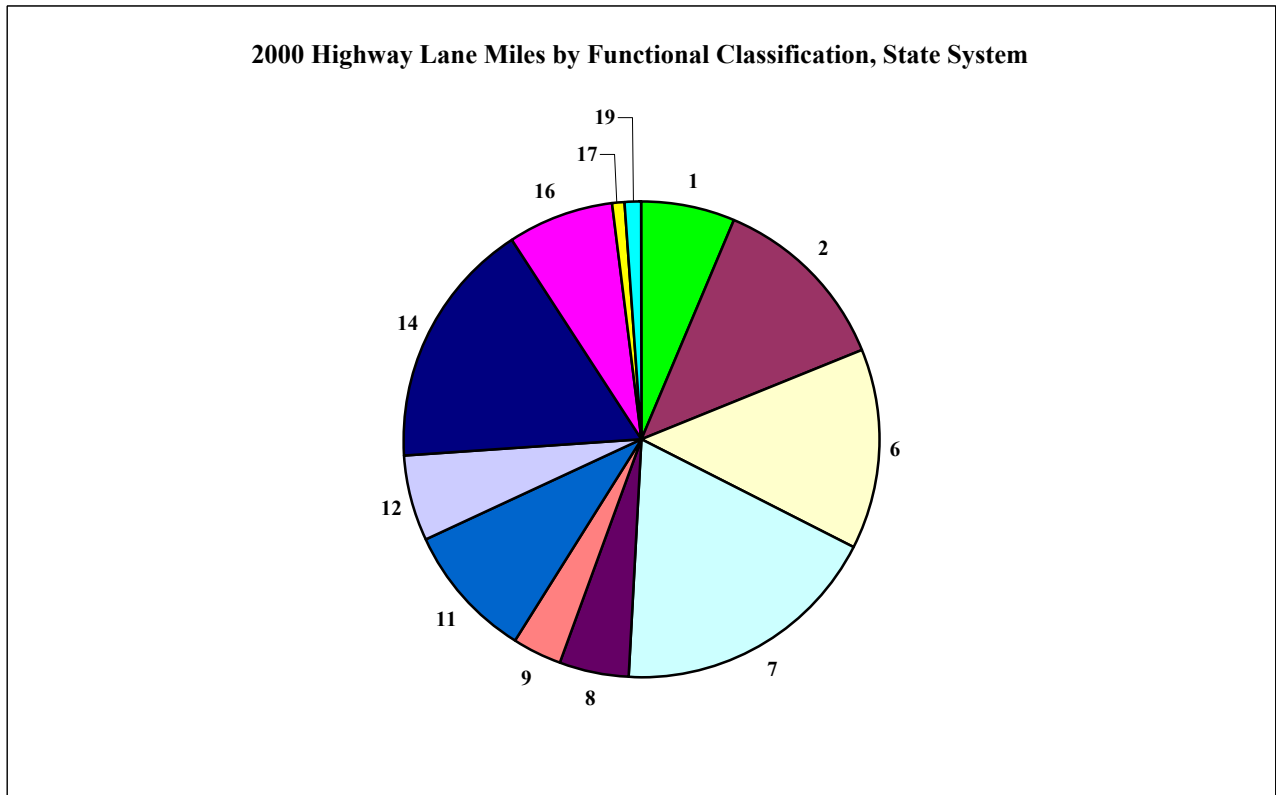


Functional classification defines a process that channels traffic through a hierarchical system of roads from Local Roads (smallest), to Arterials, to Interstates/Freeways (largest).



The State of Maryland actively pursues the transfer of state maintained rural and urban local roads generally serving local community traffic.

Highway Lane Miles by Functional Classification, State System



Functional Classification Codes	Miles	%
Rural		
1 = Interstate	916	6.3%
2 = Other Principal Arterial	1,835	12.6%
6 = Minor Arterial	1,976	13.6%
7 = Major Collector	2,668	18.3%
8 = Minor Collector	710	4.9%
9 = Local	481	3.3%
Urban		
11 = Interstate	1,346	9.2%
12 = Other Freeways & Expressways	839	5.8%
14 = Other Principal Arterial	2,473	17.0%
16 = Minor Arterial	1,036	7.1%
17 = Collector	145	1.0%
19 = Local	142	1.0%

State Highway Bridges



A bridge is a structure with a length of 20 feet or greater, carrying traffic or other moving loads over a depression or an obstruction such as water, highway, or railway.



There are over 4,900 bridges in Maryland. SHA maintains 2,489 (51%), the counties and municipalities maintain 2,099 (43%), and MdTA maintains 255 (5%). The remaining bridges belong to various state and federal agencies.

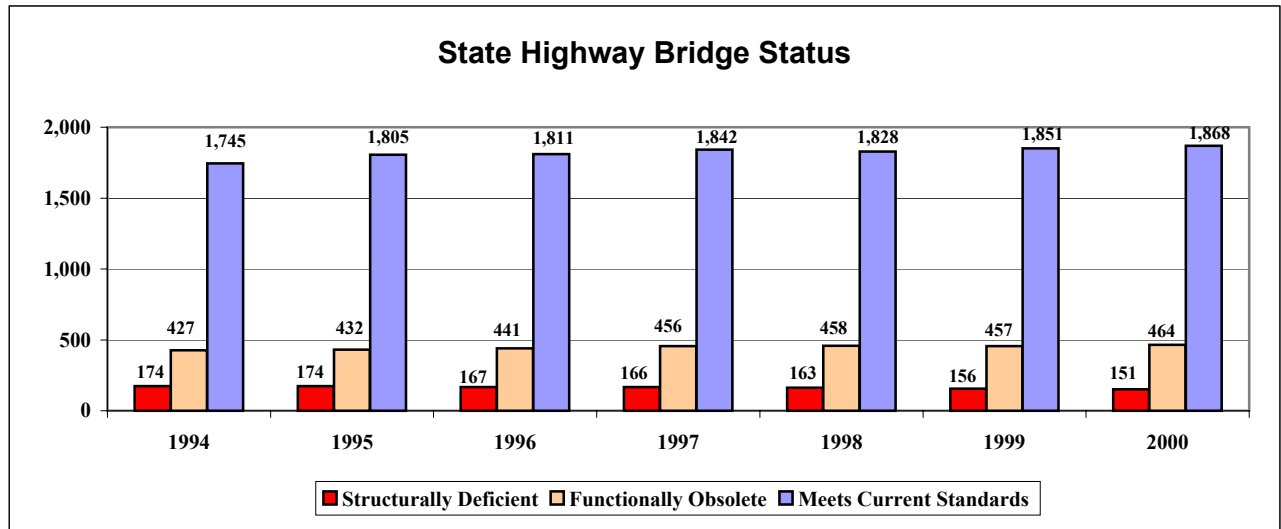


Structurally Deficient: meaning the strength and condition did not meet desirable standards and the structure will need to be replaced. Structurally deficient does not mean “closed;” a bridge can be deficient and still be safe, yet require future replacement.



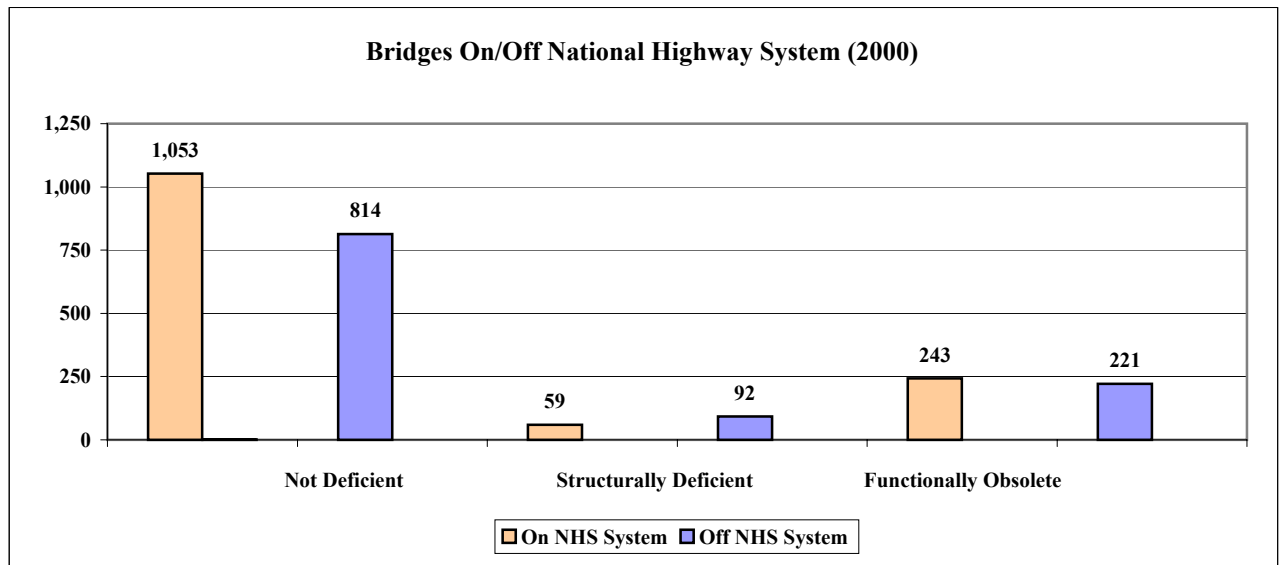
Functionally Obsolete: meaning the bridge has one of the following characteristics: lane width and/or shoulders are too narrow, inadequate clearance, frequent flooding, or any other factor which would not meet current guidelines of the roadway.

Bridges



Year	Structurally Deficient		Functionally Obsolete		Meets Current Standards		Total #	TotalArea
	Total #	Area	Total #	Area	Total #	Area		
1994	174	1.9	427	3.7	1,745	18.5	2,369	24.2
1995	174	1.5	432	3.8	1,805	19.6	2,449	24.9
1996	167	1.8	441	3.7	1,811	19.9	2,432	25.3
1997	166	1.8	456	3.9	1,842	20.2	2,464	26.0
1998	163	2.6	458	4.0	1,828	19.4	2,449	26.0
1999	156	2.6	457	4.1	1,851	19.6	2,467	26.3
2000	151	2.4	464	4.3	1,868	19.8	2,489	27.8

Area = Square Footage in Millions.



Maryland State Maintained Roundabouts



Modern roundabouts have two important fundamental design elements: yield at entry and deflection of vehicle path.

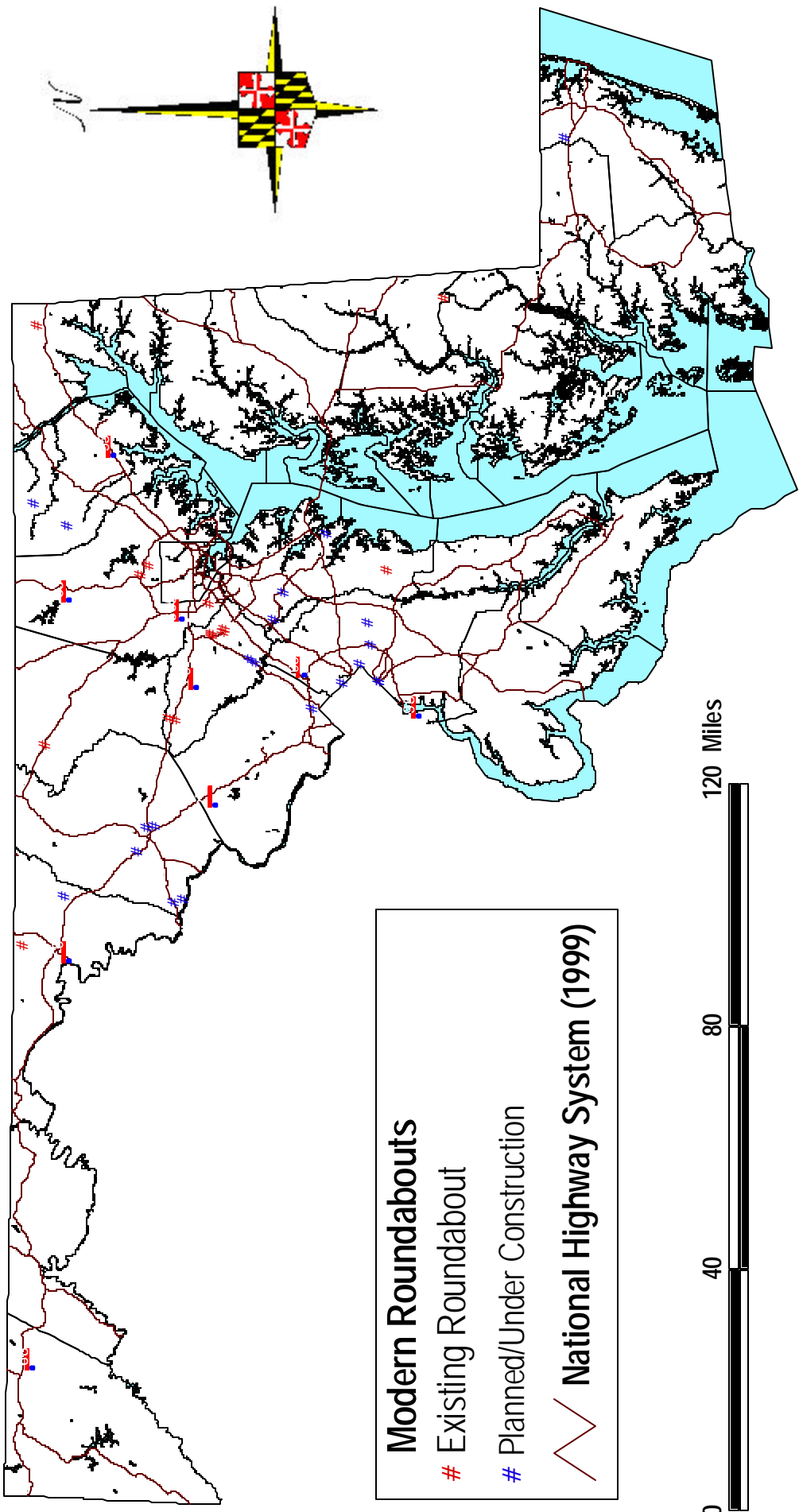


The physical configuration of a modern roundabout forces a driver to reduce speed during the approach, entry, and movement within the roundabout.



The benefits of a modern roundabout include: less delay, less congestion, less accidents, less severity in accidents that do occur, and a reduction in air/noise pollution.

Maryland State Maintained Roundabouts



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State Highway Administration

SHA Park and Ride Facilities



SHA's ridesharing program is concerned with providing 'ridesharing facilities' or 'ridesharing lots' - parking facilities where individuals meet to use carpools, vanpools, buses or other public transit for group travel to their destinations.

General Criteria for Selecting Ridesharing Sites:



Sites along arterial roadways in close proximity to high volume intersections are strategic locations for rideshare lots.



Sites should be visible from major roadways. This visibility 1) provides a degree of safety to those parked at the lot and 2) attract additional users.



Sites that are located adjacent to roadways served by buses and/or rail transit have greater merit due to potential multiple purpose usage.



Locations that offer the greatest potential reduction in vehicle miles of travel (VMT) on the SHA system have higher implementation priority. Lots outside the urban area generally result in a greater reduction in VMT due to longer trip distances.

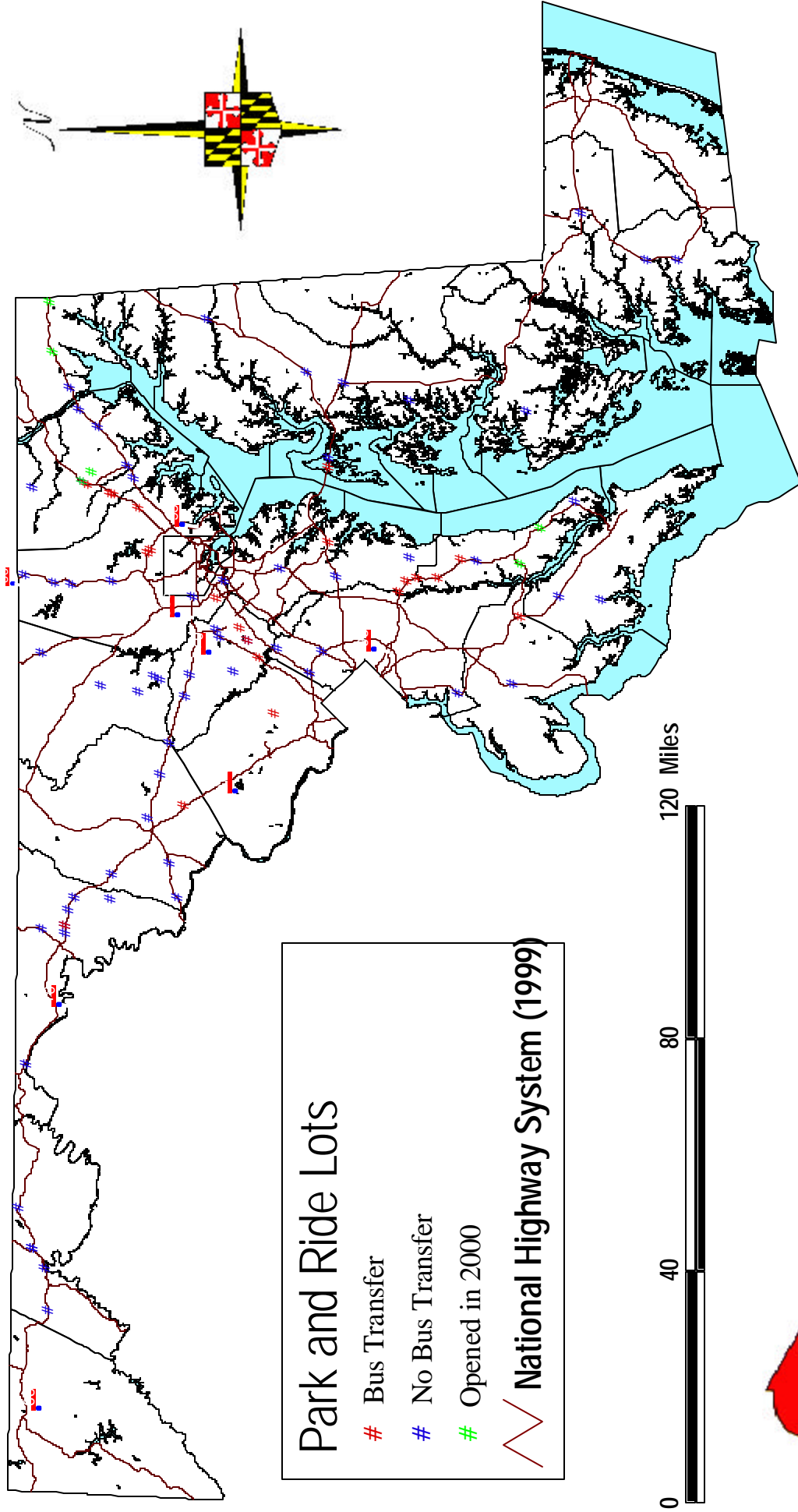


Lots should be contiguous to the State Highway right-of-way for ease of maintenance and security operations by SHA personnel.



Sites should be situated to avoid extensive earthwork. Using suitable terrain minimizes construction costs and undesirable environmental aesthetic impact.

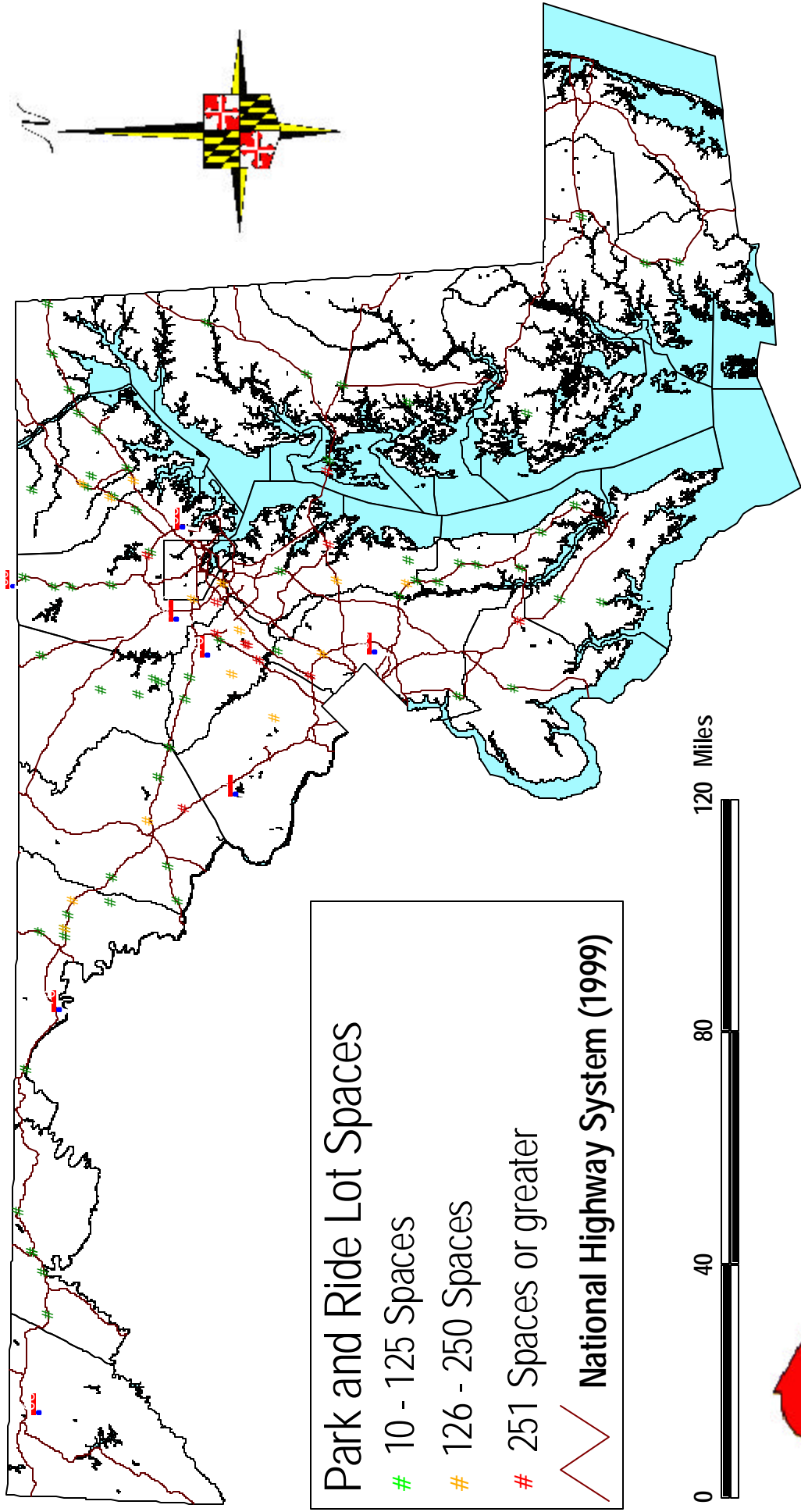
SHA Park and Ride Facilities Served by Transit



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SHA Park and Ride Facilities, Number of Spaces



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Park and Ride Facilities added in 2000

County	Location	Spaces	BusRoutes
Calvert	MD 2/4 @ Ball Road	31	
Calvert	MD 231 @ County Fairgrounds (SHA Lot)	20	
Calvert	MD 231 @ County Fairgrounds (MTA Lot)	50	
Cecil	I-95 @ MD 272	17	
Cecil	I-95 @ MD 279	25	
Harford	MD 22 @ Bynum Run Park	75	
Harford	MD 23 @ US 1	152	

SHA Park and Ride Facilities Listing

COUNTY	LOCATION	SPACES	BUS_ROUTES	COUNTY TOTALS
Allegany	I68 @ MD 36	43		Allegany: 120
Allegany	I68 @ US 220S	39		Anne Arundel: 1,316
Allegany	I68 @ US 220N	25		Baltimore: 1,305
Allegany	I68 @ Christie Rd.	13		Calvert: 410
Anne Arundel	MD 2 @ MD 258	64		Carroll: 406
Anne Arundel	MD 4 @ MD 258	138	MTA 904	Cecil: 136
Anne Arundel	MD 4 @ MD 408	50	MTA 904	Charles: 20
Anne Arundel	US 50/301 @ MD 424	199		Dorchester: 12
Anne Arundel	MD 4 @ Lower Pindell Rd.	100	MTA 904	Frederick: 580
Anne Arundel	I97 @ Benfield Blvd.	82		Harford: 1136
Anne Arundel	MD 665 ext @ Riva rd	480	MTA 921 & 922	Howard: 1,819
Anne Arundel	I695 @ Hammonds Ferry Rd.	203		Montgomery: 248
Baltimore	I83 @ MD 137	123		Prince George's: 545
Baltimore	I83 @ MD 439	78		Queen Anne's: 387
Baltimore	I195 @ MD 166	450	MTA 320	Saint Mary's: 40
Baltimore	I95 @ Gunpowder Falls	45	MTA 15	Somerset: 30
Baltimore	I70 @ Security Blvd.	238		Washington: 582
Baltimore	I83 @ Middletown Rd.	53		Wicomico: 17
Baltimore	I695 @ Cromwell Bridge Rd.	64	MTA 3	TOTAL: 9,109
Baltimore	I695 @ Providence Rd.	254	MTA 13x	
Calvert	MD 2/4 @ MD 262	104	MTA 904	
Calvert	MD 2/4 @ MD 524	32		
Calvert	MD 765 @ MD 497	30		
Calvert	MD 4 @ Ferry Landing Rd.	42	MTA 904	
Carroll	MD 30 @ MD 27	28		
Carroll	MD 32 @ MD 851	33		
Carroll	I70 @ MD 27	120		
Carroll	MD 97 @ MD 26	52		
Carroll	MD 97 @ MD 32	101		
Carroll	MD 32 @ Circle Dr.	72		
Cecil	I95 @ MD 222	52		
Charles	US 301 @ MD 225 Armory	20		
Dorchester	MD 16 @ MD 335	12		
Frederick	I70 @ MD 17	65		
Frederick	MD 180 @ MD 17	45		
Frederick	I270 @ MD 80	194	Ride on bus to Metro	
Frederick	MD 144 East of Frederick (armory lot)	33		
Frederick	MD 144 East of Frederick (new/temp lot)	203		
Frederick	US 340 @ Lander Rd.	40		
Harford	I95 @ MD 22	63		
Harford	MD 24 @ US 1	76	MTA 411	
Harford	I95 @ MD 24	80		
Harford	I95 @ MD 152 (2 lots)	168		
Harford	I95 @ MD 155	74		
Harford	MD 152 @ US 1	34	MTA 411	
Harford	MD 152 @ MD 147	169	MTA 411	
Harford	MD 543 @ MD 165	18		
Howard	US 29 @ MD 108	99		
Howard	US 29 @ MD 216 (old/east lot)	70		
Howard	US 29 @ MD 216 (new/west lot)	412	MTA 929	
Howard	I70 @ MD 32	63		
Howard	MD 97 @ MD 144	20		
Howard	MD 32 @ Broken Land pkwy (new/east lot)	325		
Howard	MD 32 @ Broken Land pkwy (old/west lot)	318	MTA 311, 929, & 995	
Howard	MD 175 @ Snowden River Pkwy.	210	MTA 310, 929, & 995	
Howard	MD 100 @ Long Gate Pkwy.	302		
Montgomery	MD 97 @ MD 28	248	Ride on bus to Metro	
Prince George's	I95 @ I495	262		
Prince George's	MD 210 @ MD 373	40		
Prince George's	MD 193 @ B/W Pkwy.	183		
Prince George's	MD 198 @ Van Dusen Rd.	60		
Queen Anne's	US 50 @ MD 8	266	MTA 210 and 922	
Queen Anne's	US 50 @ MD 404	40		
Queen Anne's	US 50 @ Castle Marina Dr.	81		
Saint Mary's	MD 5 @ MD 235	25		
Saint Mary's	MD 234 @ MD 242	15		
Somerset	US 13 @ MD 362	18		
Somerset	US 13 @ MD 413	12		
Washington	US 40 Alt. @ MD 67	68		
Washington	I70 @ US 40	68		
Washington	I70 @ MD 65 (SHA Lot)	78		
Washington	I70 @ MD 65 (MVA Lot)	186	MTA 991	
Washington	I70 @ MD 66	165		
Washington	I81 @ MD 58	17		
Wicomico	US 50 @ Phillip Morris Dr.	17		

The National Highway System



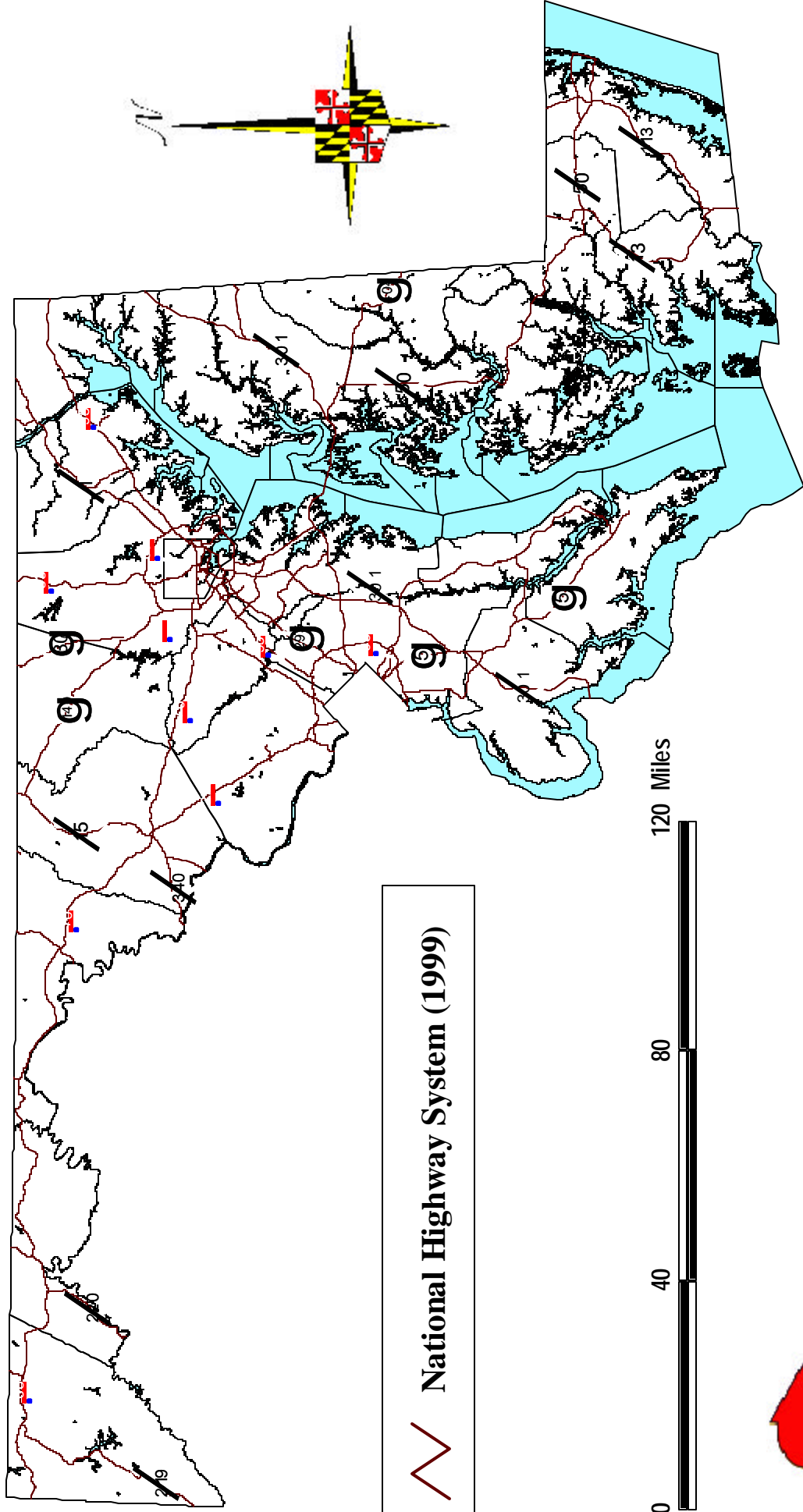
“The purpose of the National Highway System (NHS) is to provide an interconnected system of principal arterial routes that serve major population centers, international border crossings, ports, airports, public transportation facilities and other intermodal transportation facilities and other major travel destinations; meet national defense requirements; and serve interstate and interregional travel.”

(Title 23, United States Code, Section 103)



All highways deemed to be of significant importance to the economic and security interests of our Nation are included in the NHS. In Maryland, 1,360 highway miles make up the NHS. There are 486 miles of Interstate and 874 miles of non-Interstate highways on the Maryland NHS.

Maryland National Highway System - NHS



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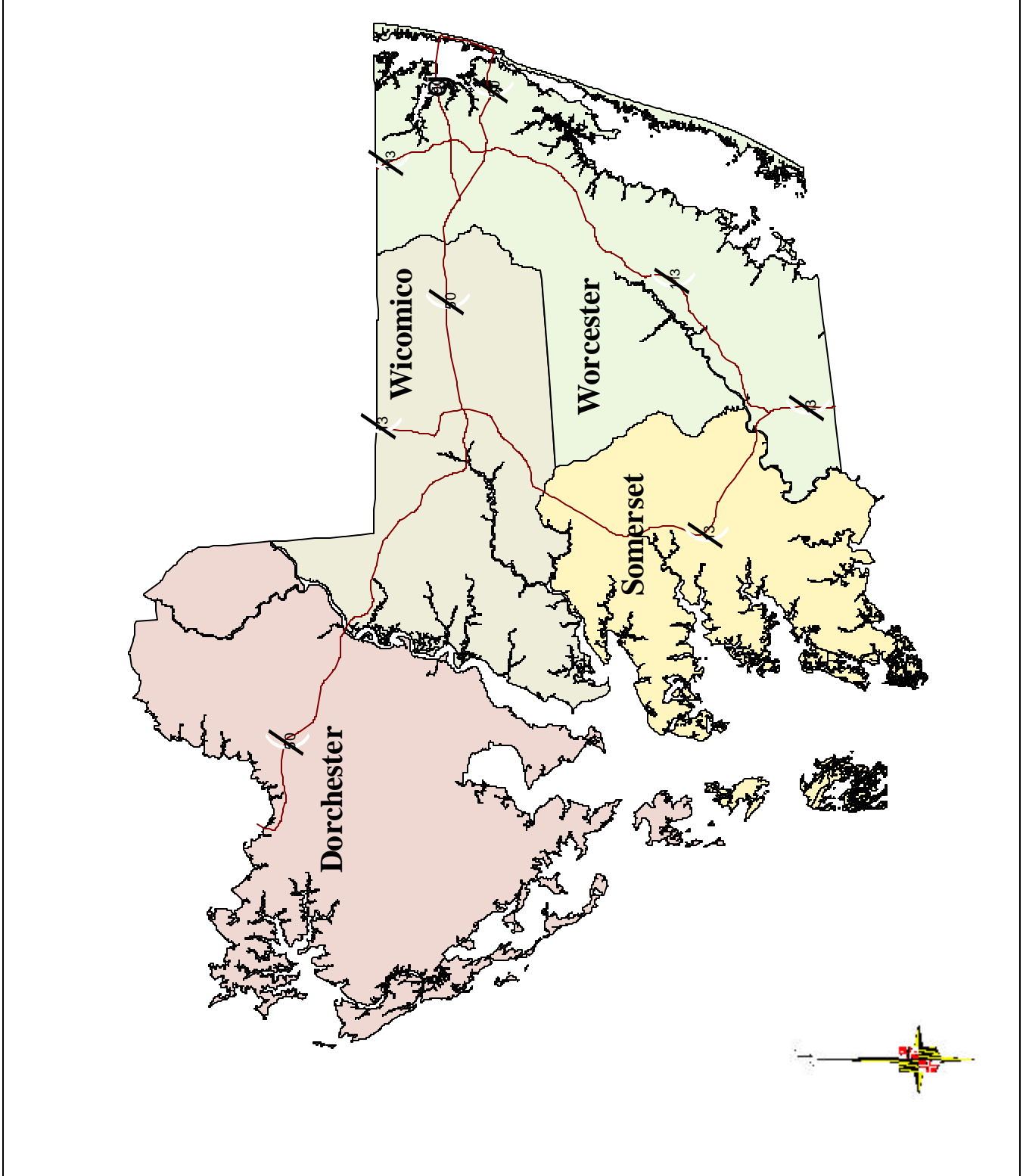
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National Highway System

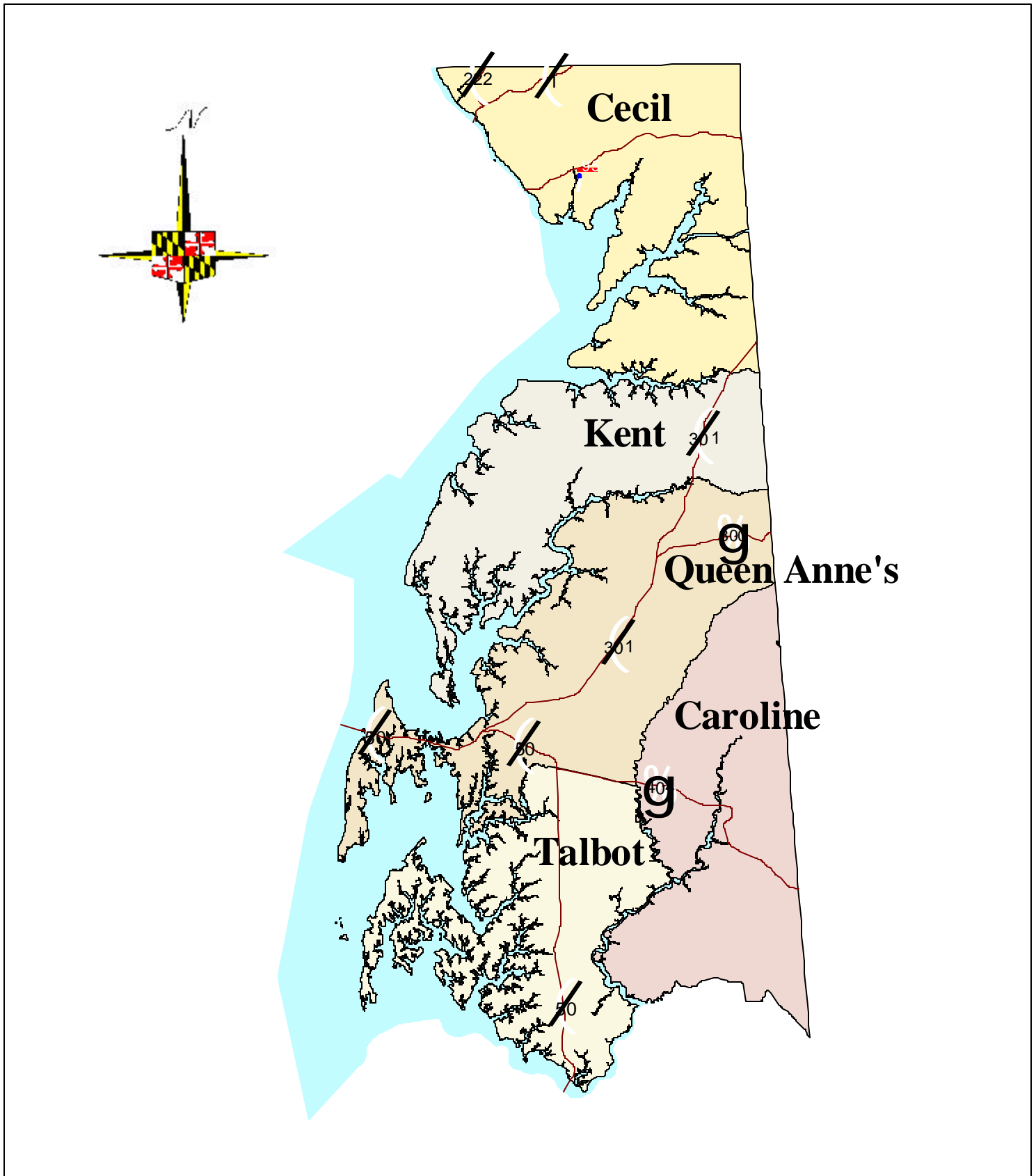
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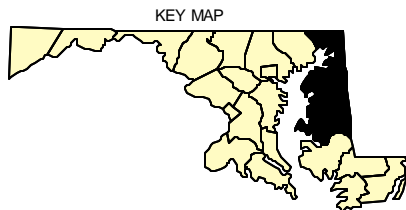
National Highway System



DISTRICT 2 MARYLAND

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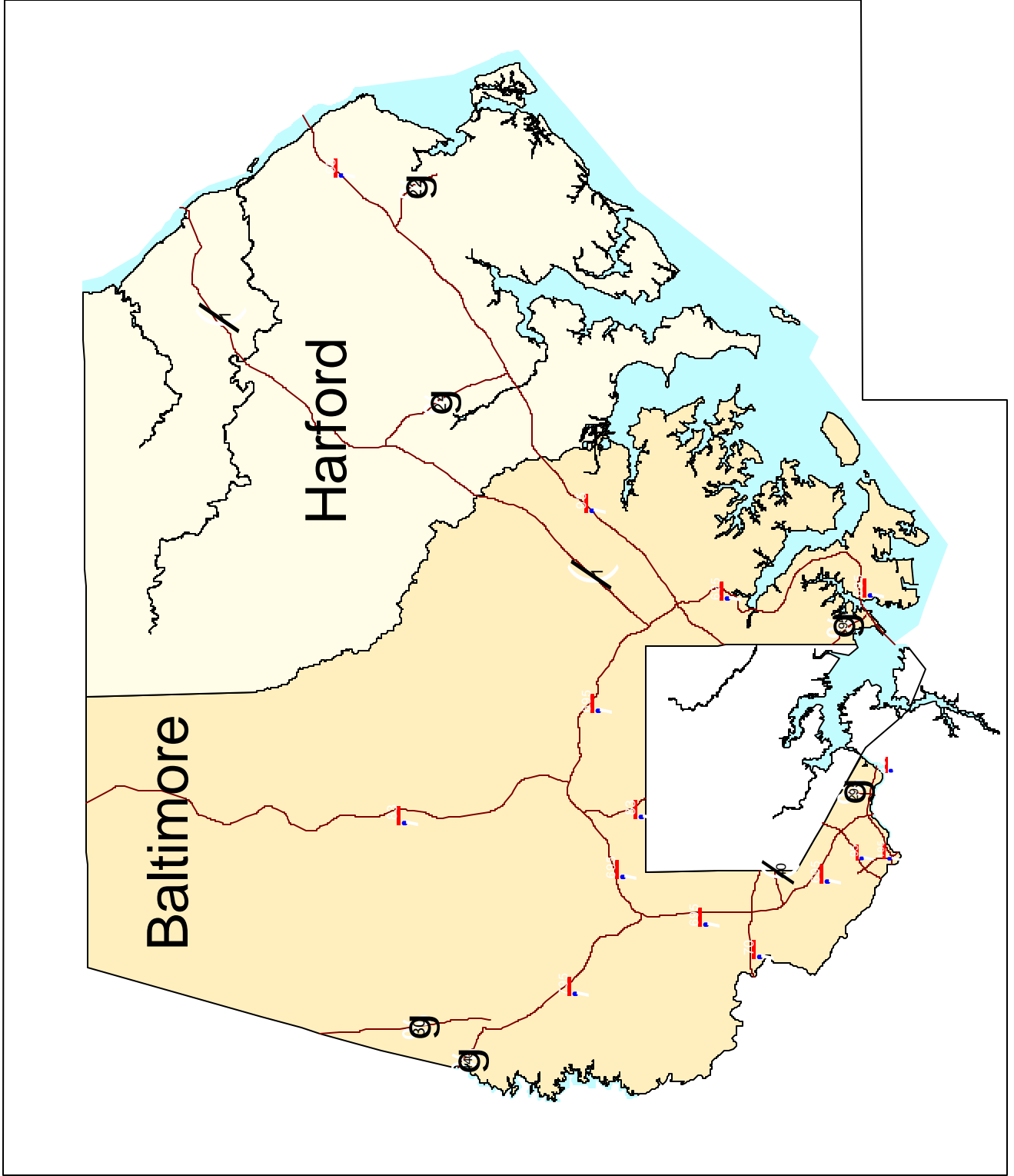
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STATE HIGHWAY ADMINISTRATION



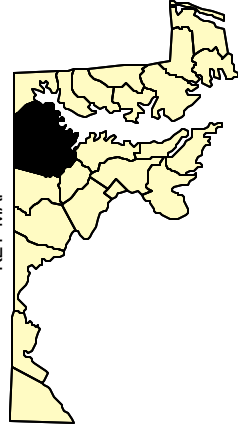
National Highway System

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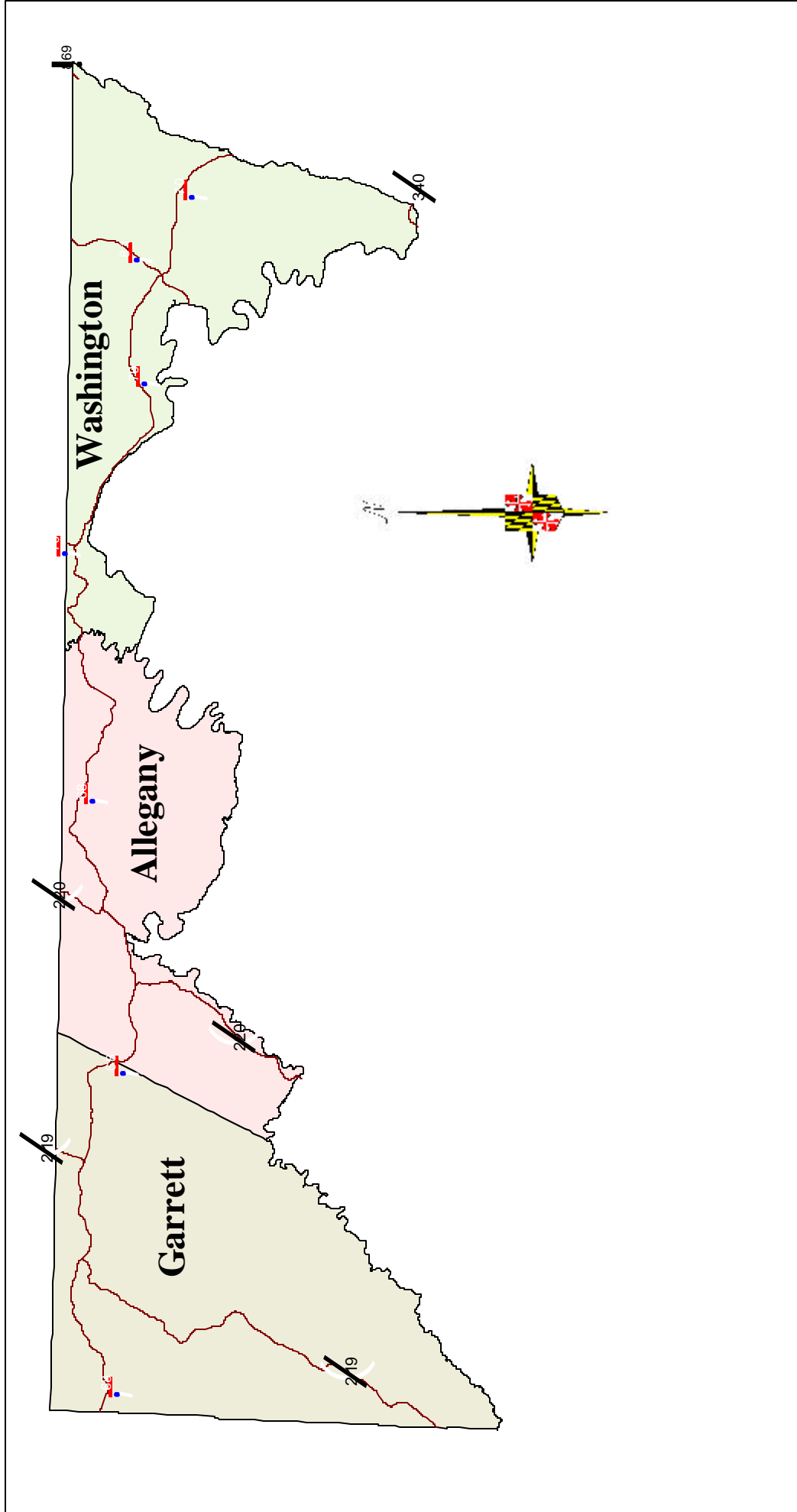
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KEY MAP



National Highway System

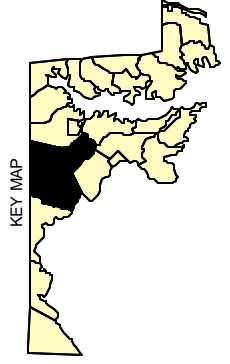
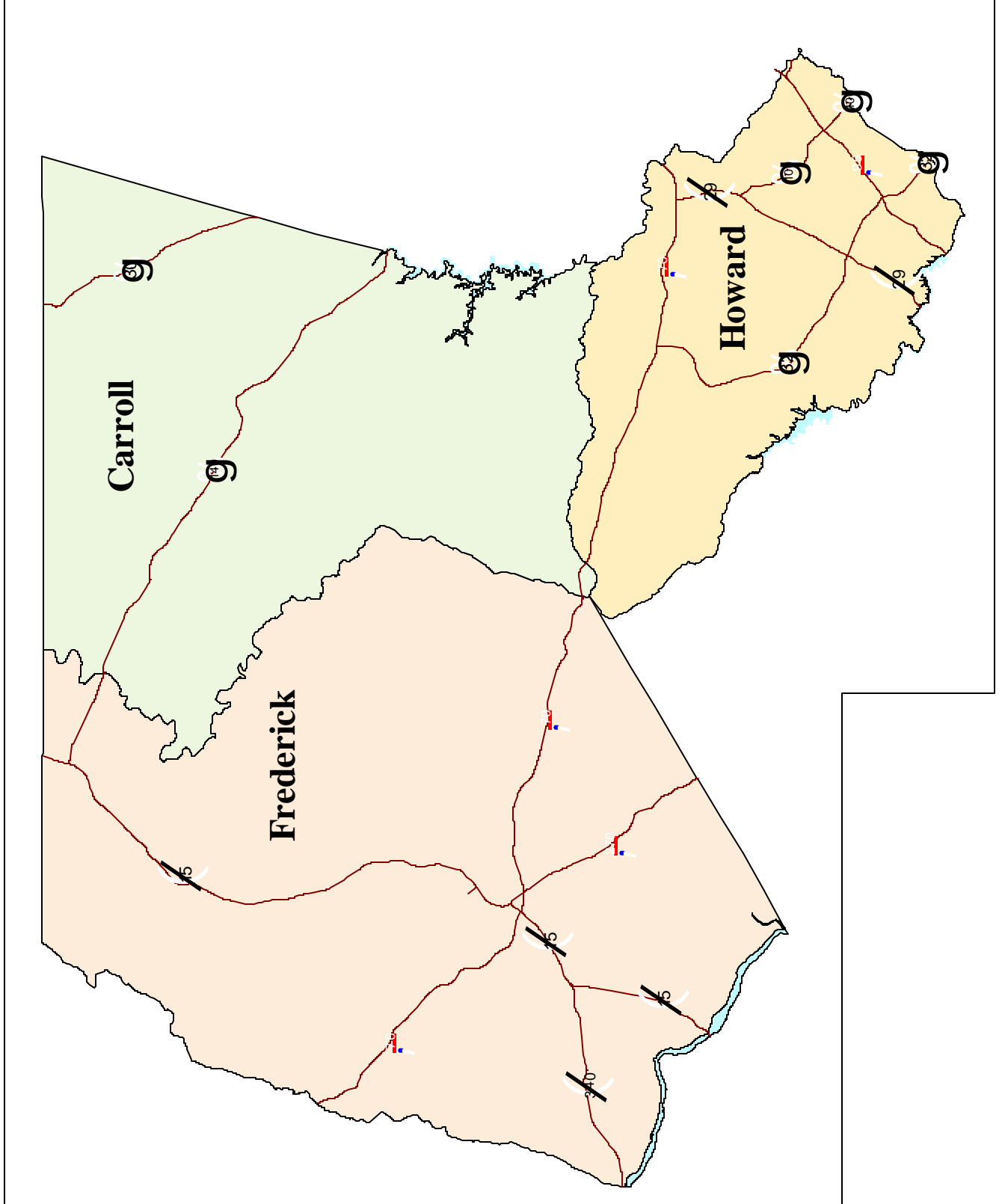


DISTRICT 6
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STATE HIGHWAY ADMINISTRATION

National Highway System

DISTRICT 7 MARYLAND

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Maryland Welcome Centers and Rest Areas

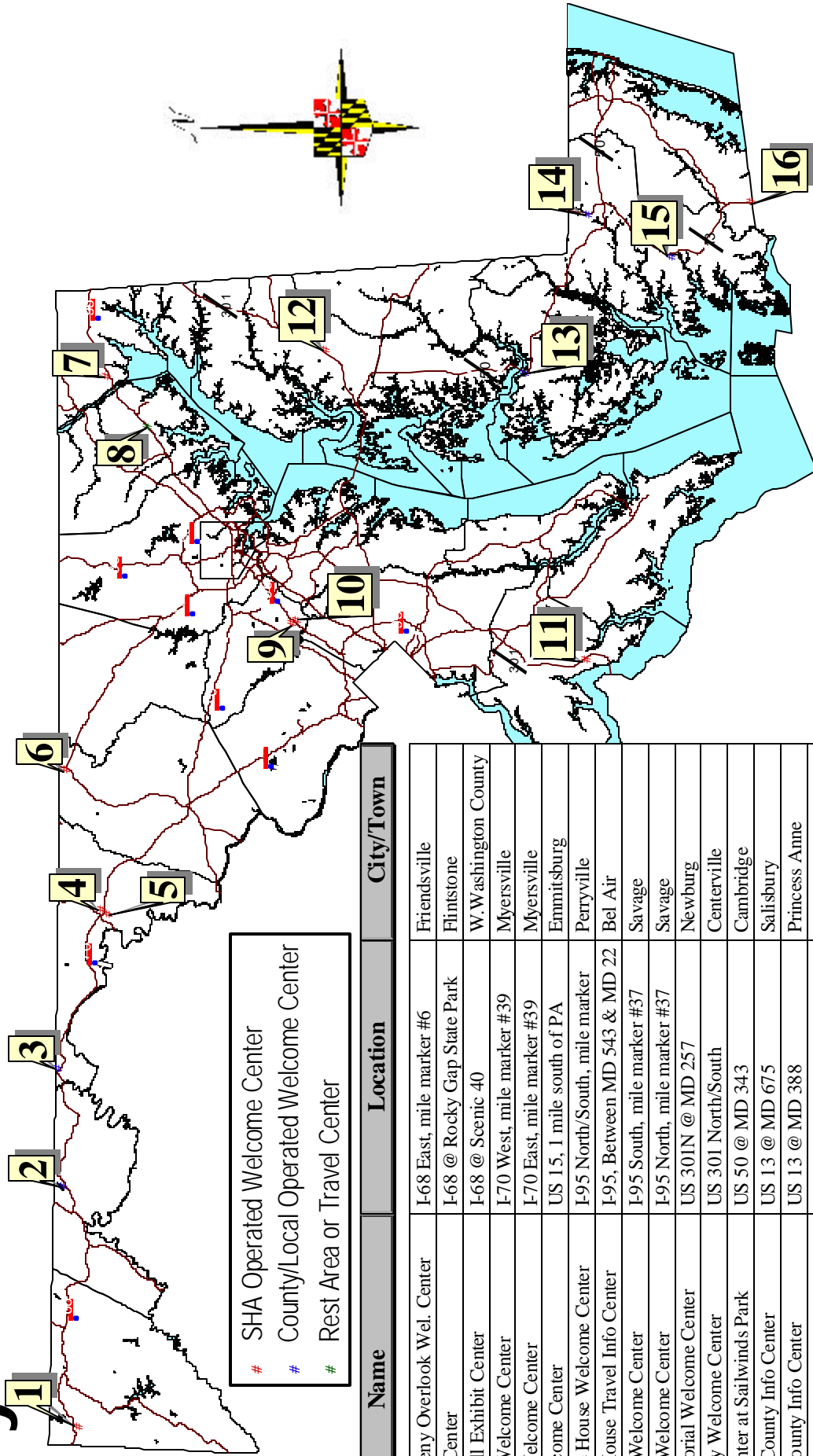


Rest Areas are developed to provide travelers with a means of relieving fatigue through a brief stay at a safe, relaxing area.



Maryland welcome centers are staffed by trained travel counselors and feature maps, brochures and other information to assist travelers. The centers are equipped with restroom facilities, 24 hour vending machines, and pay telephones.

Maryland Welcome Centers and Rest Areas



Id	Name	Location	City/Town
1	Youghiogheny Overlook Wel. Center	I-68 East, mile marker #6	Friendsville
2	Local Info Center	I-68 @ Rocky Gap State Park	Flinstone
3	Sideling Hill Exhibit Center	I-68 @ Scenic 40	W. Washington County
4	I-70 West Welcome Center	I-70 West, mile marker #39	Myersville
5	I-70 East Welcome Center	I-70 East, mile marker #39	Myersville
6	US 15 Welcome Center	US 15, 1 mile south of PA	Emmitsburg
7	Chesapeake House Welcome Center	I-95 North/South, mile marker	Perryville
8	Maryland House Travel Info Center	I-95, Between MD 543 & MD 22	Bel Air
9	I-95 South Welcome Center	I-95 South, mile marker #37	Savage
10	I-95 North Welcome Center	I-95 North, mile marker #37	Savage
11	Crain Memorial Welcome Center	US 301N @ MD 257	Newburg
12	Bay Country Welcome Center	US 301 North/South	Centerville
13	Visitors Center at Sailwinds Park	US 50 @ MD 343	Cambridge
14	Wicomico County Info Center	US 13 @ MD 675	Salisbury
15	Somerset County Info Center	US 13 @ MD 388	Princess Anne
16	US 13 Welcome Center	US 13 North, 144 Ocean Hwy.	Pocomoke City



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System Use

The System Use chapter analyzes and builds on the System Extent chapter. The main focus of this chapter examines vehicular travel and its characteristics in different areas of the state.

This chapter also uses statistical analysis to determine where we have been, and where we are, over a time span of approximately twenty years. Examples found in this chapter include: Vehicle Miles of Travel, Vehicle Miles of Travel Growth, and Park and Ride Usage.

Annual Vehicle Miles of Travel



Annual Vehicle Miles of Travel (AVMT) represents the total miles driven by all vehicles on all public roads in the state of Maryland over the time span of one year.



In Maryland, the State Highway System carries the majority of the AVMT. In 1999, greater than two-thirds of the total AVMT was carried on the State System.



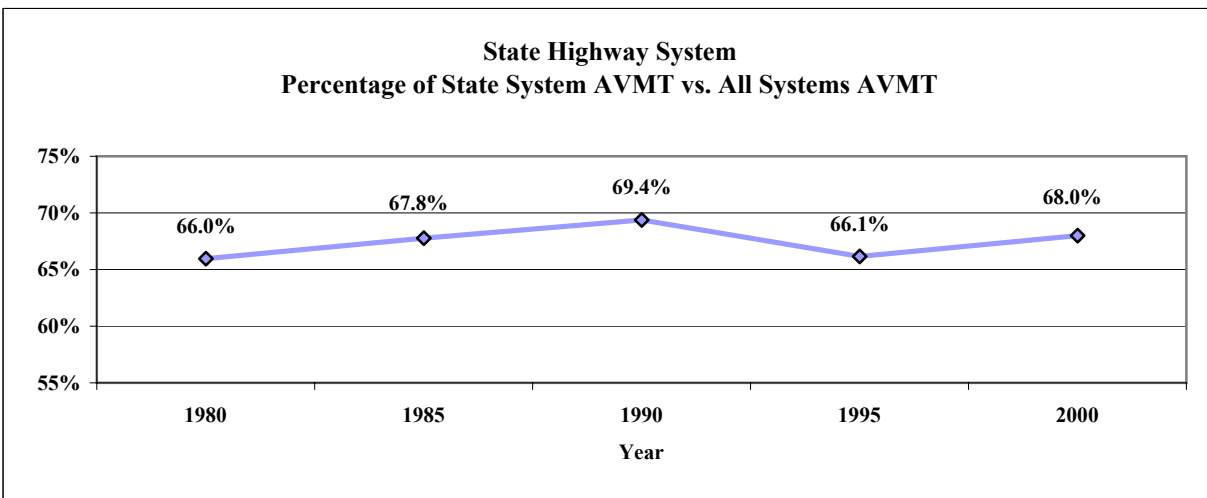
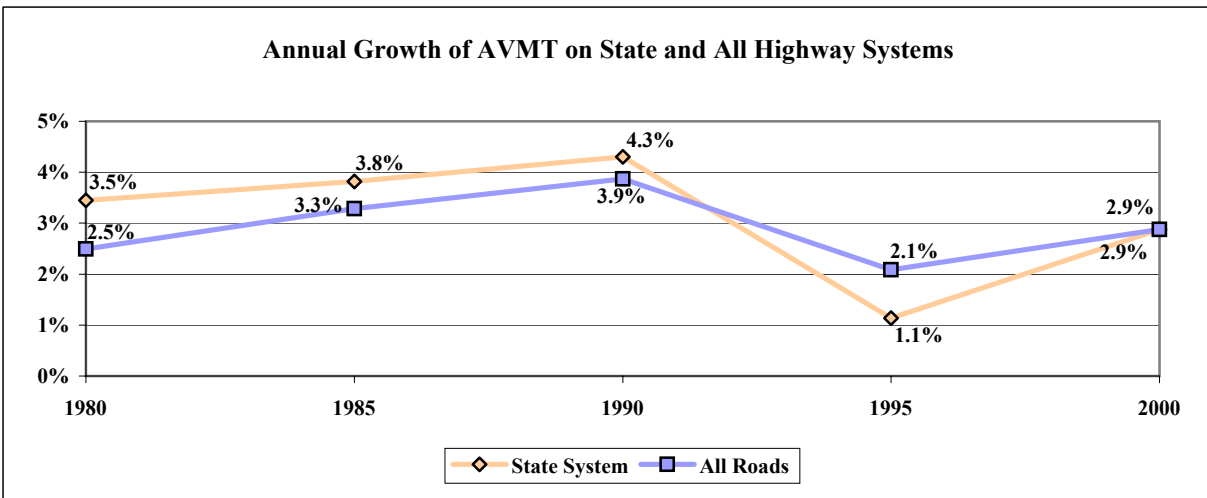
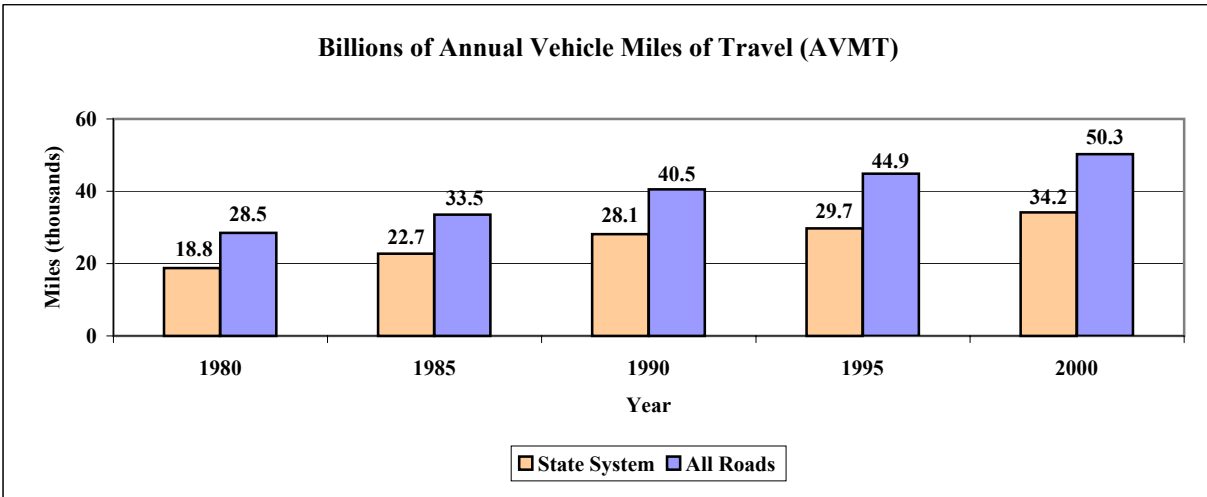
Since 1995, the rate of AVMT growth on the State System has been greater than the rate of AVMT growth on all public roads.



Growth in **Total** Annual Vehicle Miles of Travel Since 1980:

- State: 76%
- Baltimore Region: 109%
- Washington Region: 109%
- Western Maryland: 89%
- Southern Maryland: 78%
- Eastern Shore: 70%

Annual Vehicle Miles of Travel



Annual Vehicle Miles of Travel per Lane Mile on the State System



Annual Vehicle Miles of Travel per Lane Mile represents the total AVMT divided by the total lane miles on the State System.



Since 1980, AVMT per Lane Mile on the State System has grown by 64%.

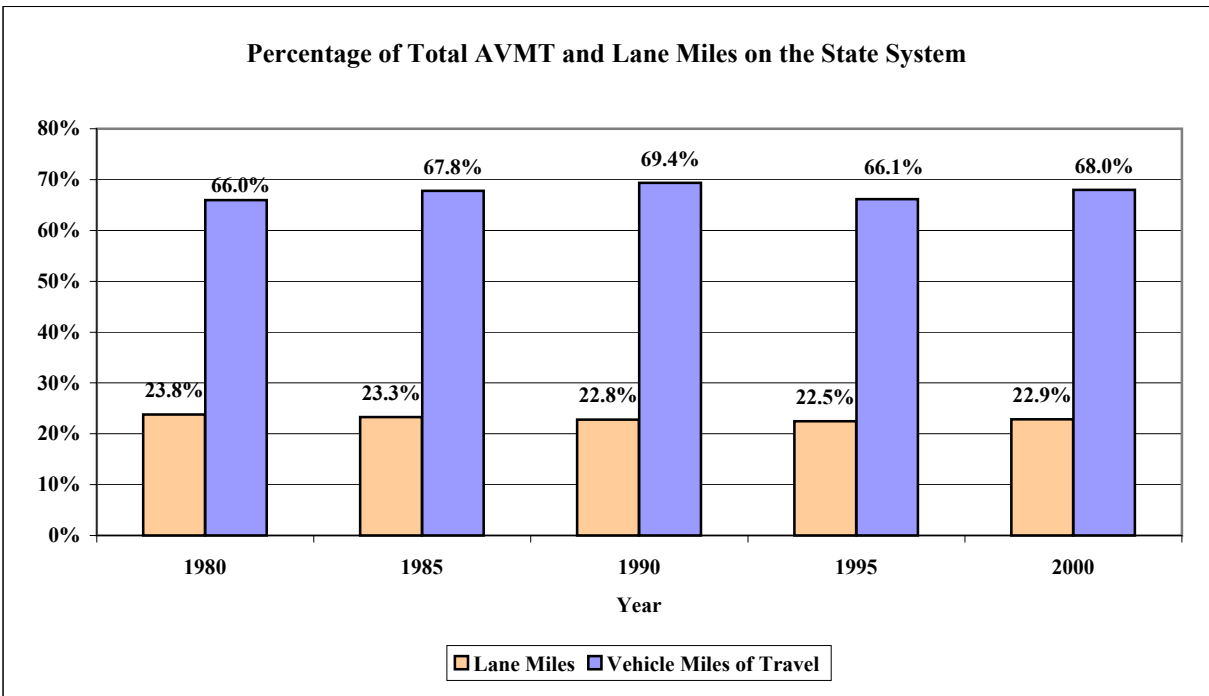
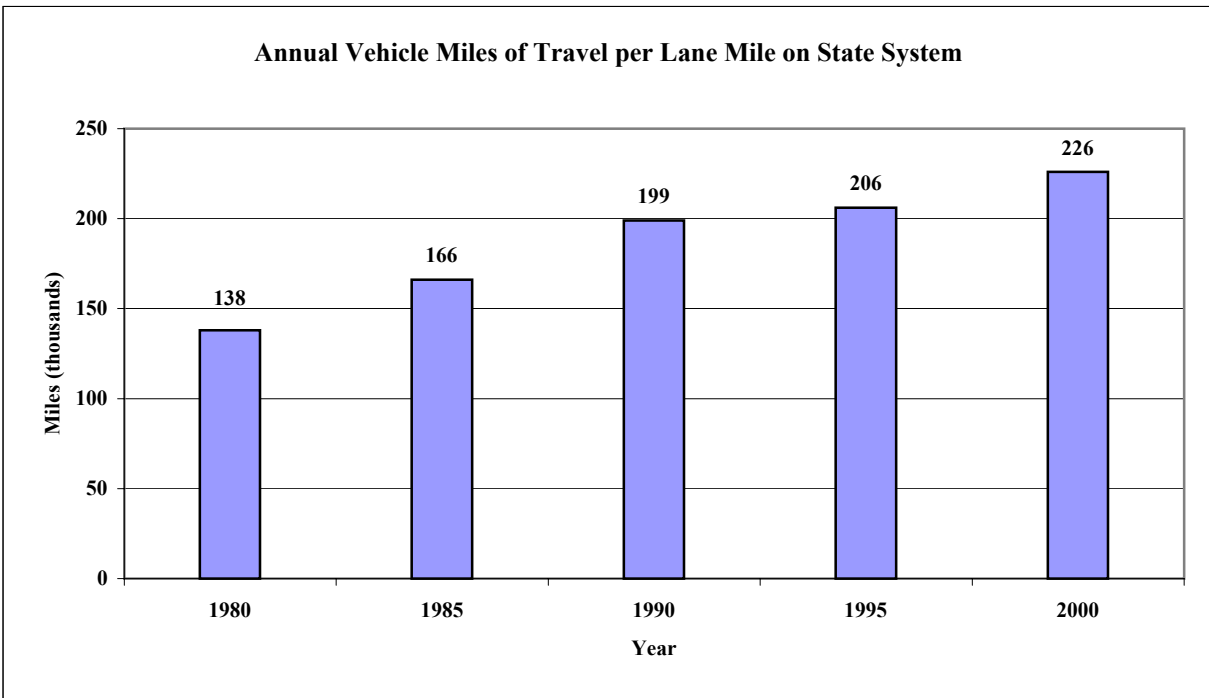


Since 1980, the state's percentage of total public highway lane miles has decreased, while AVMT has increased. This represents the State system's increasing burden of carrying traffic throughout Maryland.



AVMT per Lane Mile helps to give a more accurate representation of traffic growth and congestion on the State System than AVMT alone. AVMT per Lane Mile is a measurement of the "flow rate" of traffic.

Annual Vehicle Miles of Travel per Lane Mile on State System



Annual Vehicle Miles of Travel on Selected Routes, Western Maryland



Western Maryland AVMT only represents the AVMT on selected major routes and does not represent the total VMT of the entire region.

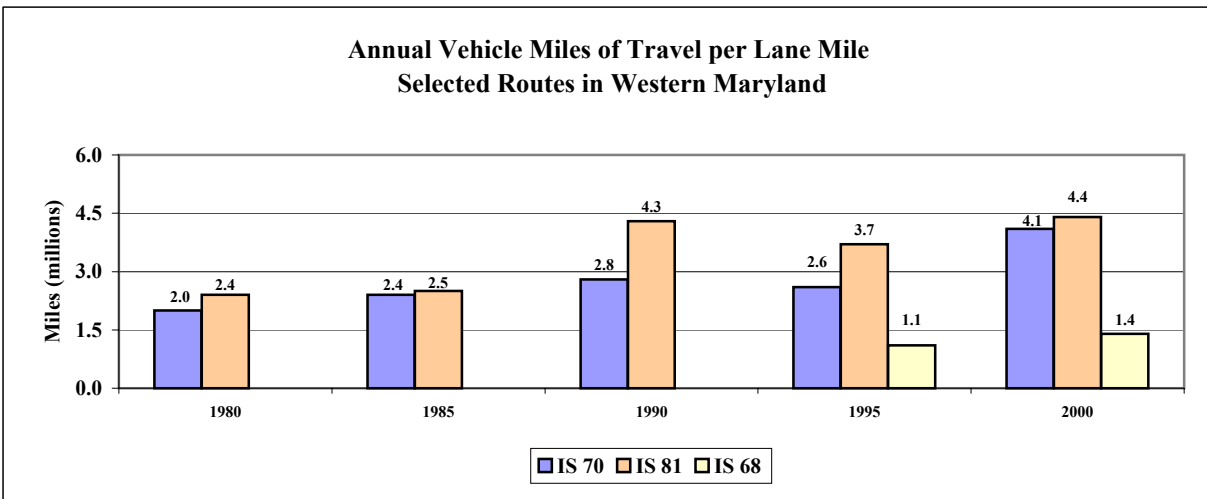
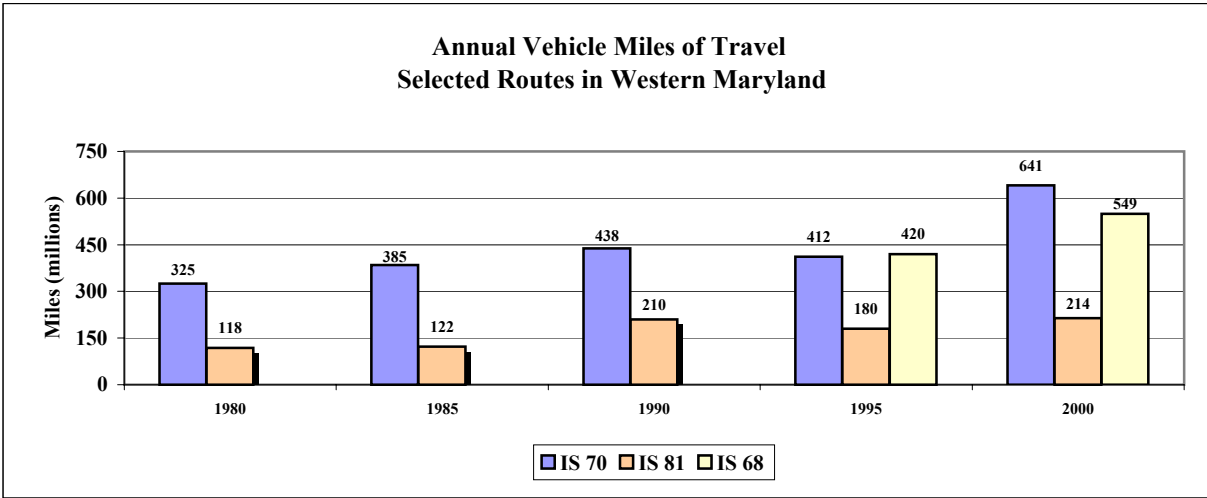


Western Maryland AVMT is calculated from the Frederick/Washington County line west on I-70.



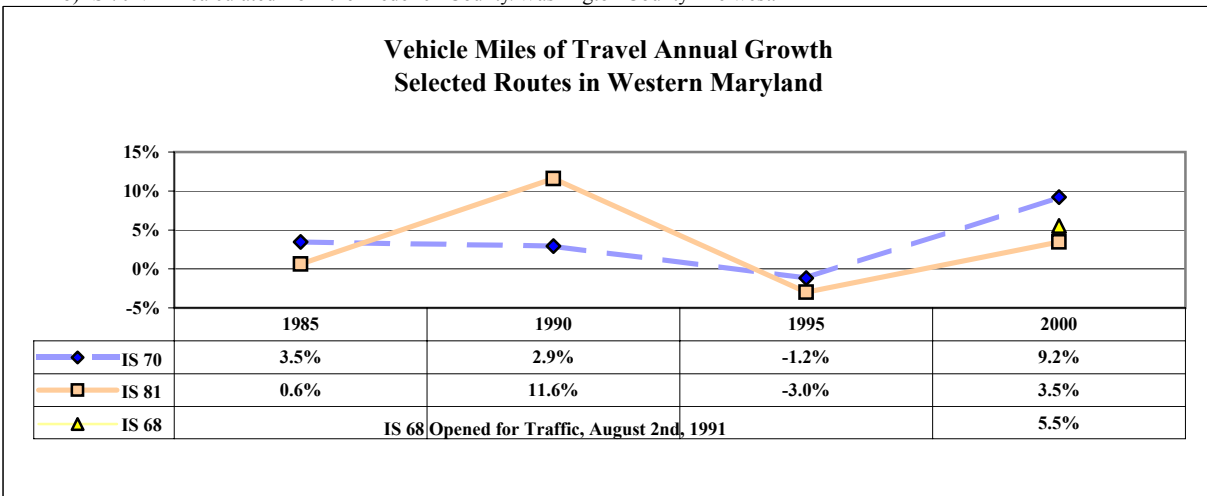
Figures for I-68 were not available before 1991, I-68 officially opened for traffic on August 2nd, 1991.

Annual Vehicle Miles of Travel, Western Maryland



Note: a) IS 68 opened for traffic August 2, 1991

b) IS 70 VMT calculated from the Frederick County/Washington County line west.



Annual Vehicle Miles of Travel on Selected Routes, Eastern Shore

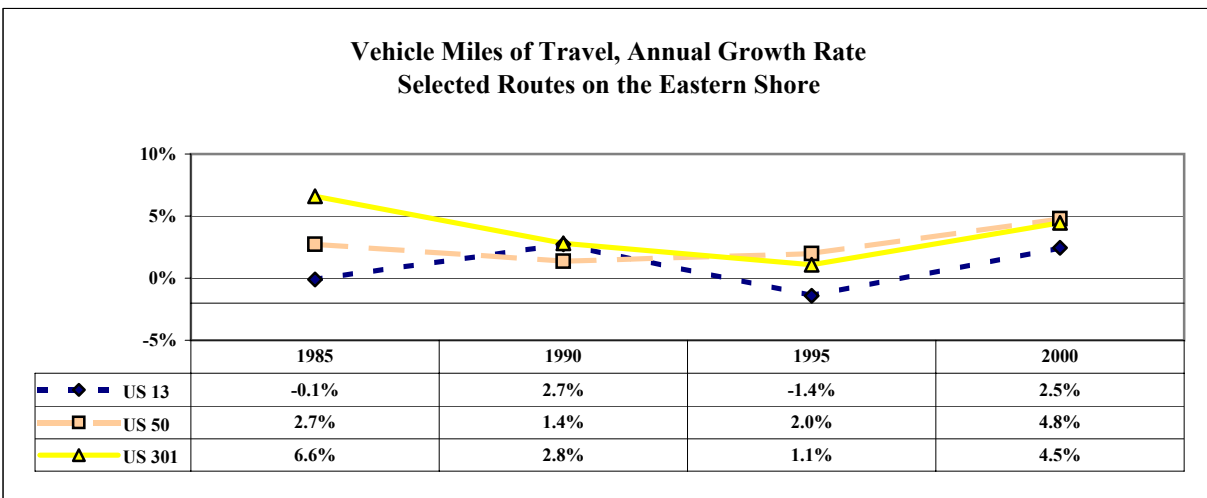
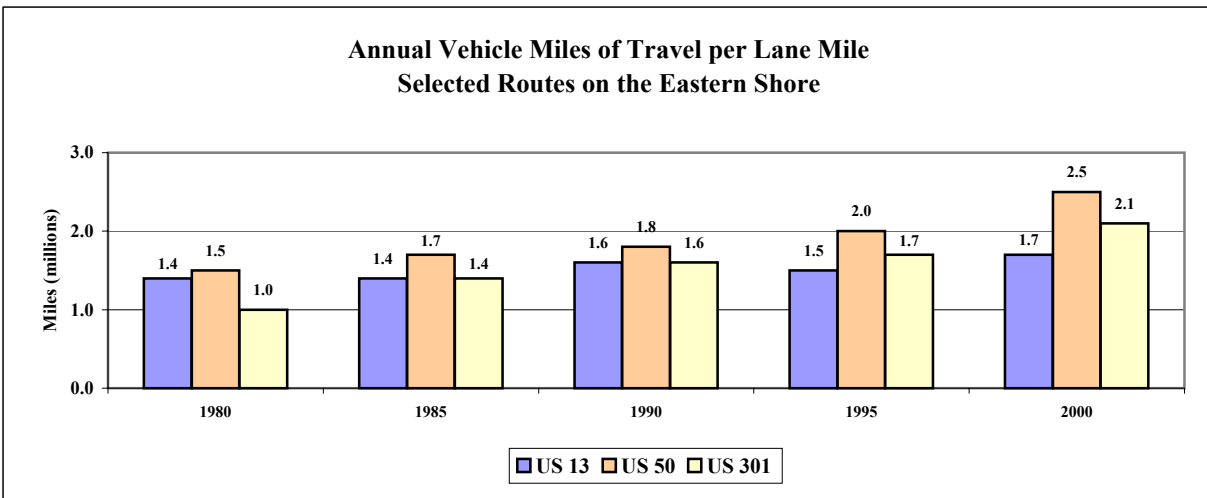
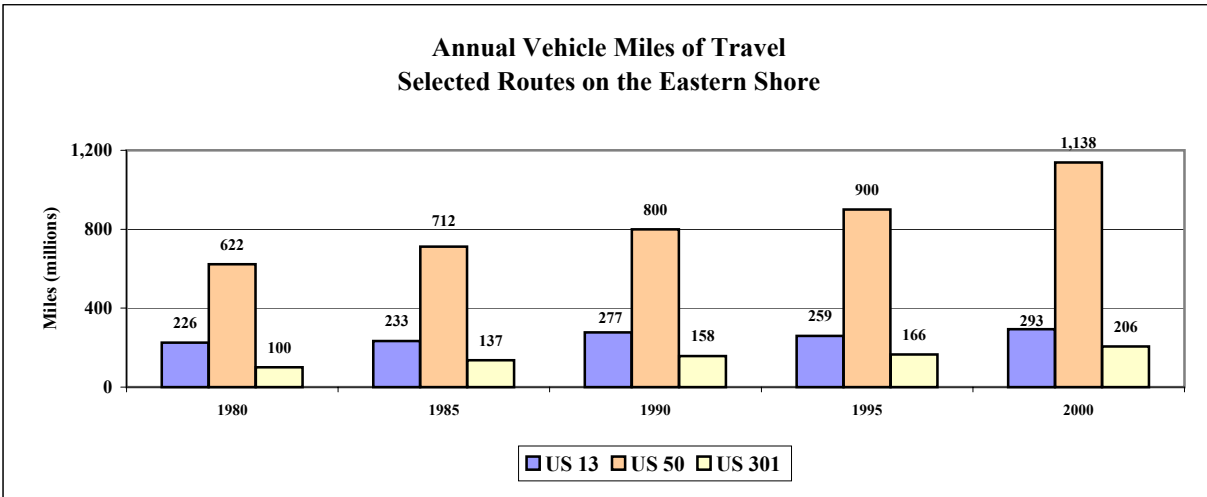


Eastern Shore AVMT only represents the AVMT on selected major routes and does not represent the total AVMT of the entire region.



Eastern Shore mileage is calculated from the Bay Bridge East on routes: US 13, US 50, and US 301.

Annual Vehicle Miles of Travel, Eastern Shore



Annual Vehicle Miles of Travel on Selected Routes, Southern Maryland

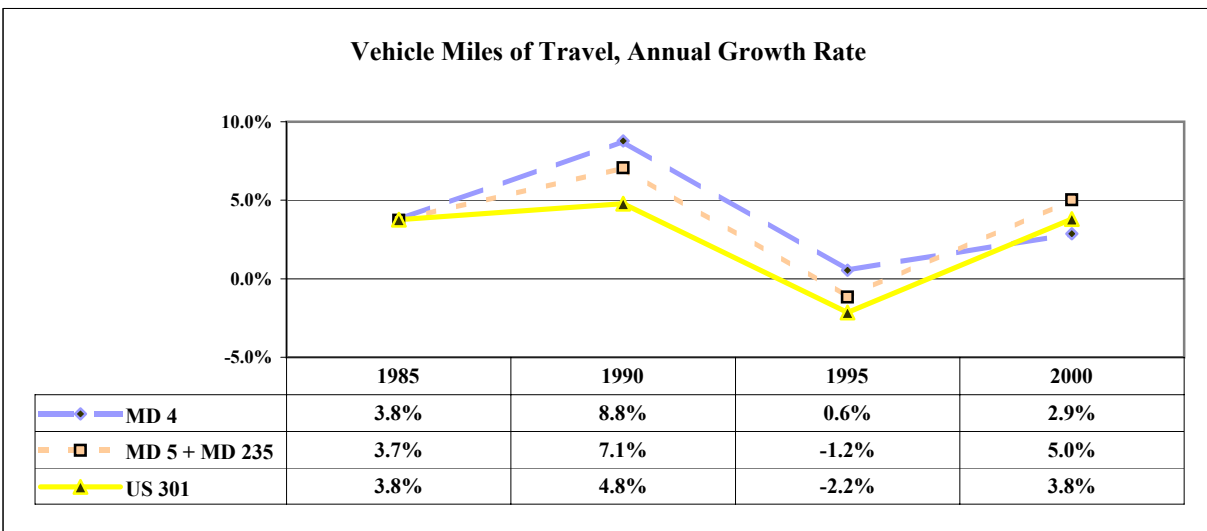
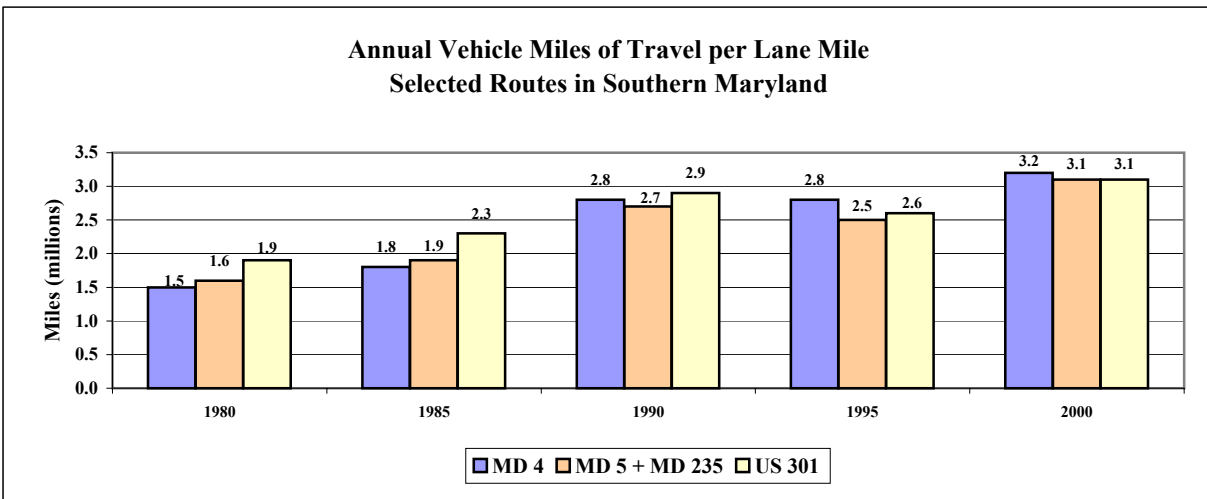
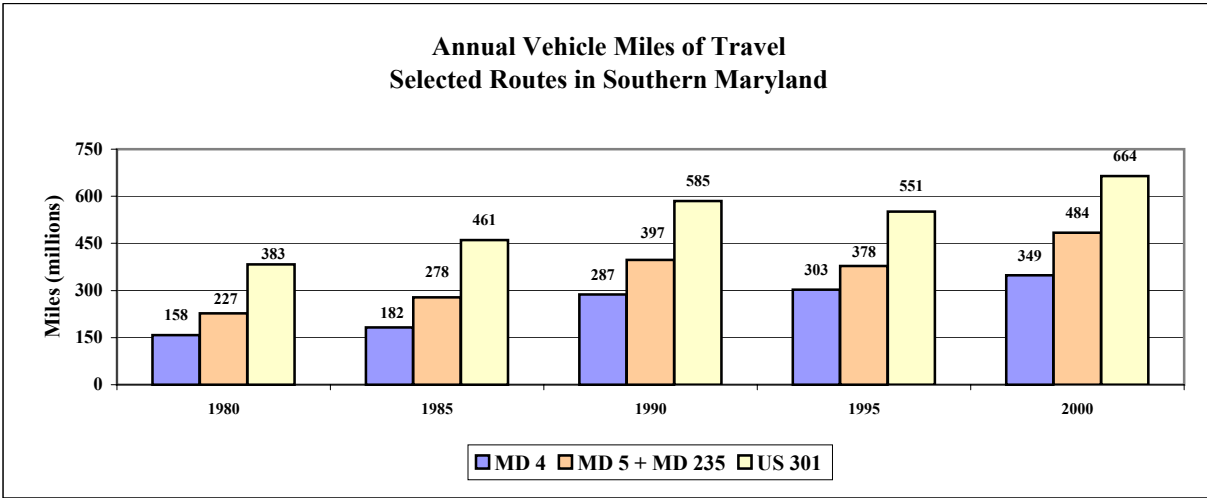


Southern Maryland AVMT only represents the AVMT on selected major routes and does not represent the total AVMT of the entire region.



Southern Maryland mileage is calculated from US 50 south on US 301 to the Virginia border, from the Capital Beltway south on MD 4 to Prince Frederick and on MD 5 + MD 235 to Lexington Park.

Annual Vehicle Miles of Travel, Southern Maryland



Annual Vehicle Miles of Travel on Selected Routes, Baltimore Region



Baltimore Region AVMT only represents the AVMT on selected major routes and does not represent the total AVMT of the entire region.



The AVMT for the Baltimore Region was calculated along I-70 from the Frederick/Carroll County line east and along I-95 from the Prince George's/Howard County line north to the Harford/Cecil County line.

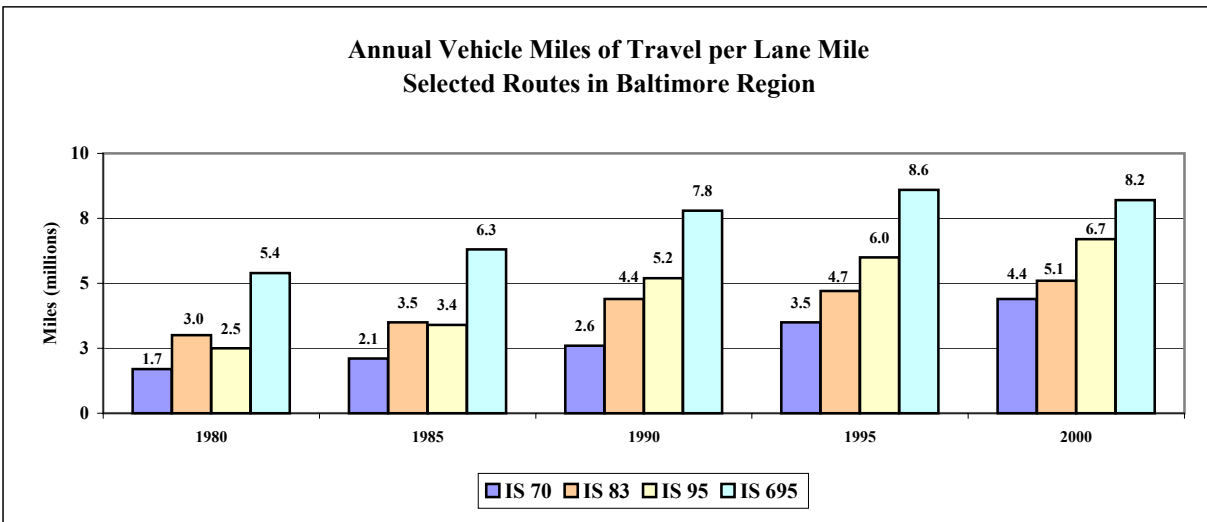
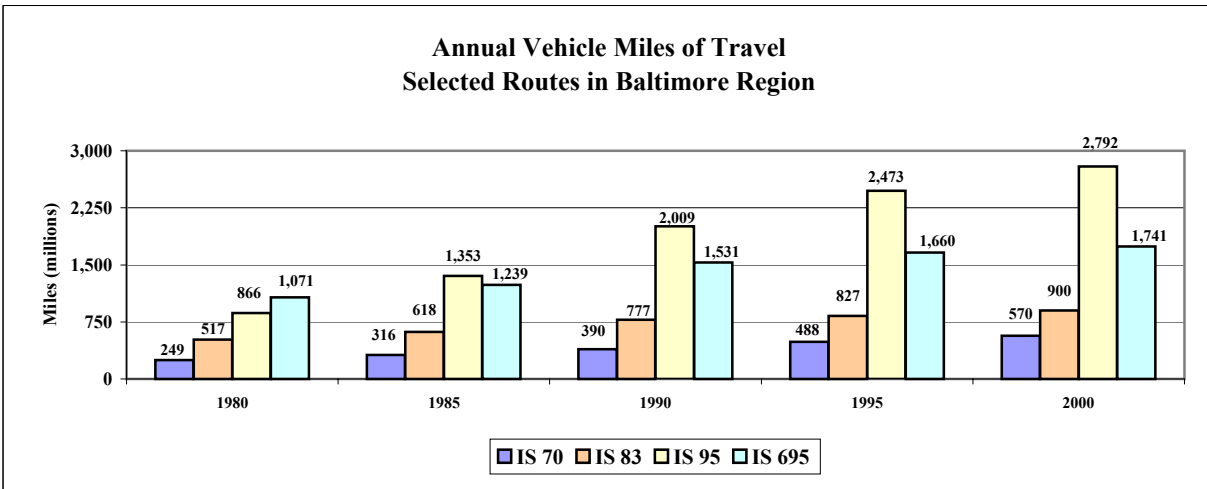


I-95 carries the greatest amount of AVMT in the region, however, I-695 carries the greatest amount of AVMT per lane mile resulting in slower speeds and increased congestion.

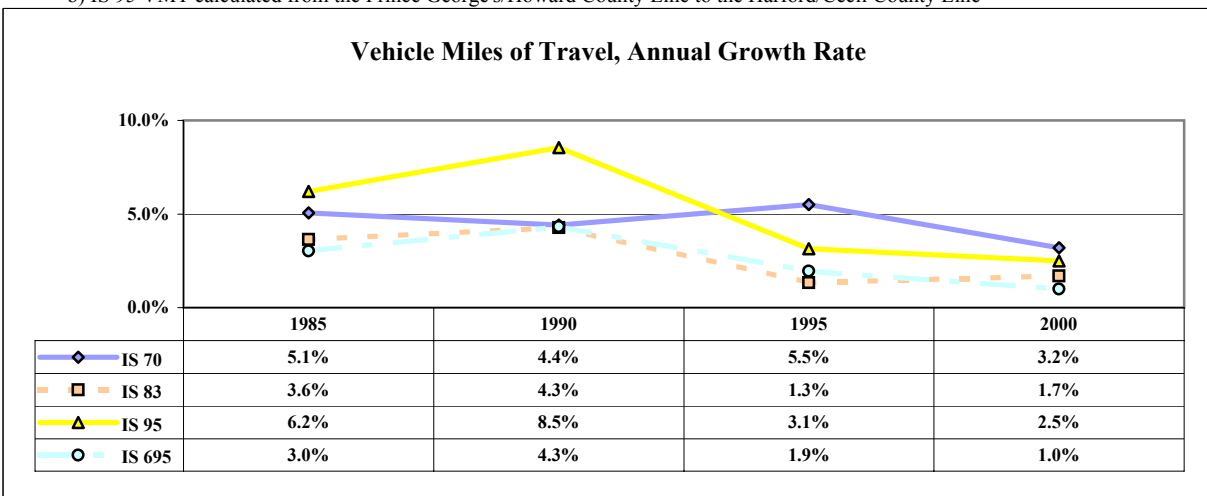


Since 1995, the annual rate of growth for AVMT has grown at a slower rate than in previous years.

Annual Vehicle Miles of Travel, Baltimore Region



Notes: a) IS 70 VMT calculated from the Frederick/Carroll County Line East.
 b) IS 95 VMT calculated from the Prince George's/Howard County Line to the Harford/Cecil County Line



Annual Vehicle Miles of Travel on Selected Routes, Washington, D.C. Region



Washington, D.C. Region AVMT only represents the AVMT on selected major routes and does not represent the total VMT of the entire region.



The AVMT for the Washington Region was calculated along I-95 from the Prince George's/Howard County line south to the Woodrow Wilson Bridge and along I-495 from the Cabin John Bridge north to the I-495/I-95 merge.



I-95 carries the greatest amount of AVMT in the region, however, I-495 carries the greatest amount of AVMT per lane mile.

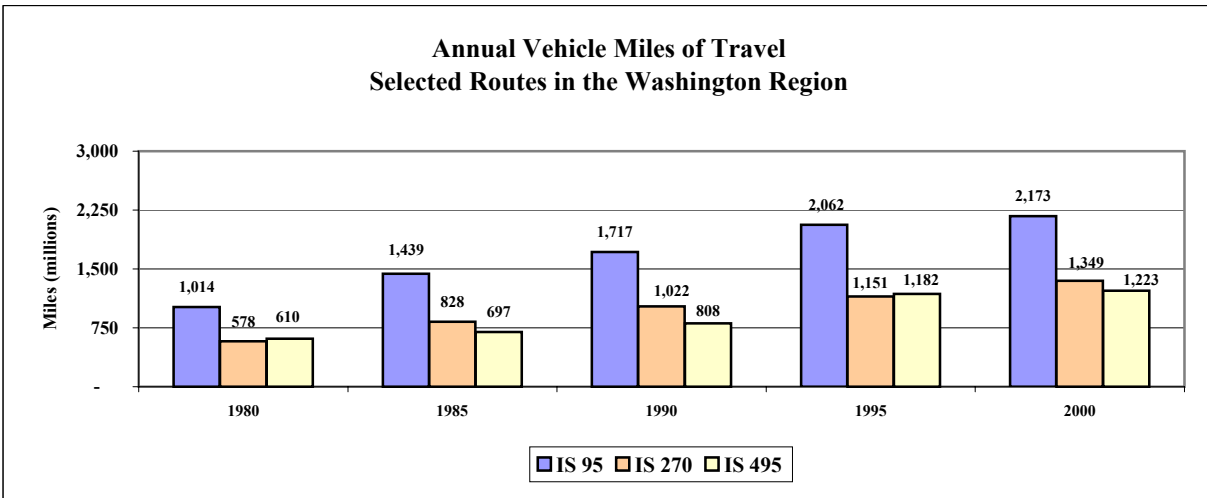


Since 1995, the annual rate of growth for AVMT in the Washington Region has grown at a slower rate than in previous years, except for I-270.

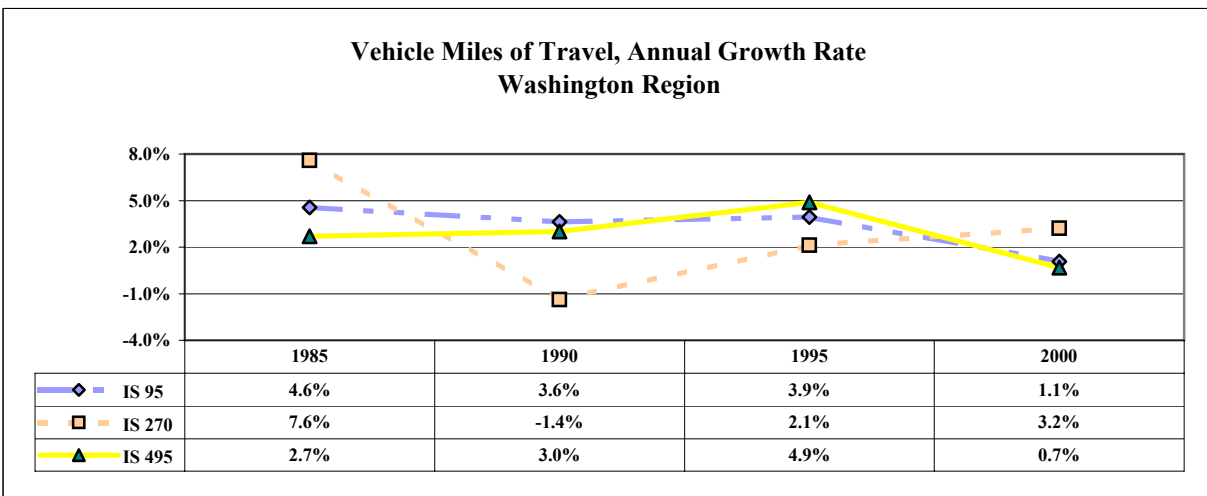
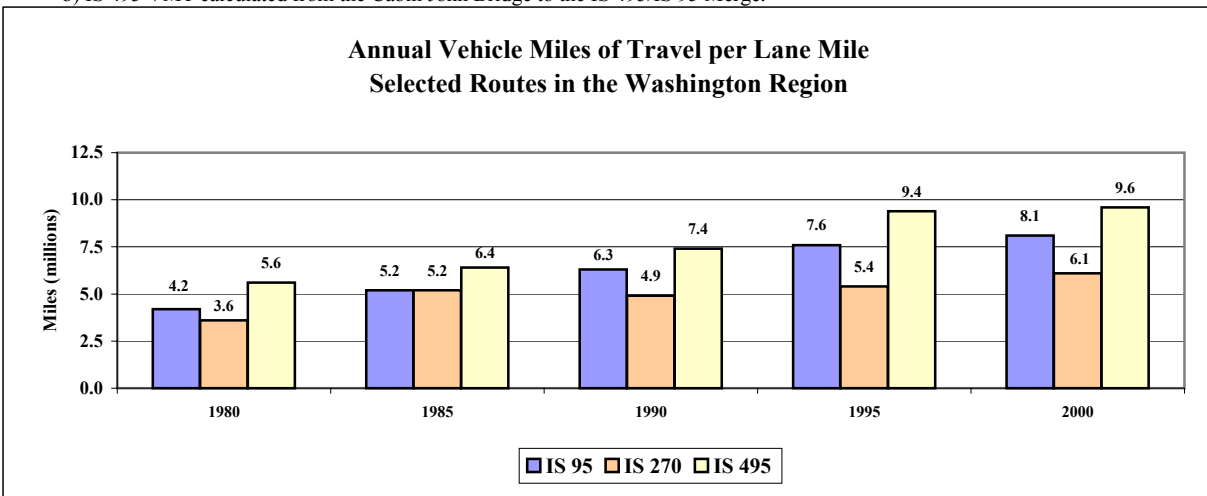


Since 1990, the annual rate of growth for AVMT has risen along the I-270 corridor. This increase can be attributed to the growth and development occurring in the Rockville/Gaithersburg area.

Annual Vehicle Miles of Travel, Washington, D.C. Region



Note: a) IS 95 VMT calculated from the Prince George's/Howard County Line South to the Woodrow Wilson Bridge.
 b) IS 495 VMT calculated from the Cabin John Bridge to the IS 495/IS 95 Merge.



Annual Vehicle Miles of Travel per Licensed Driver



AVMT per Licensed Driver is an alternative way of looking at travel in the State of Maryland. By using licensed drivers, we are excluding all segments of the population that are not eligible to operate a motor vehicle.

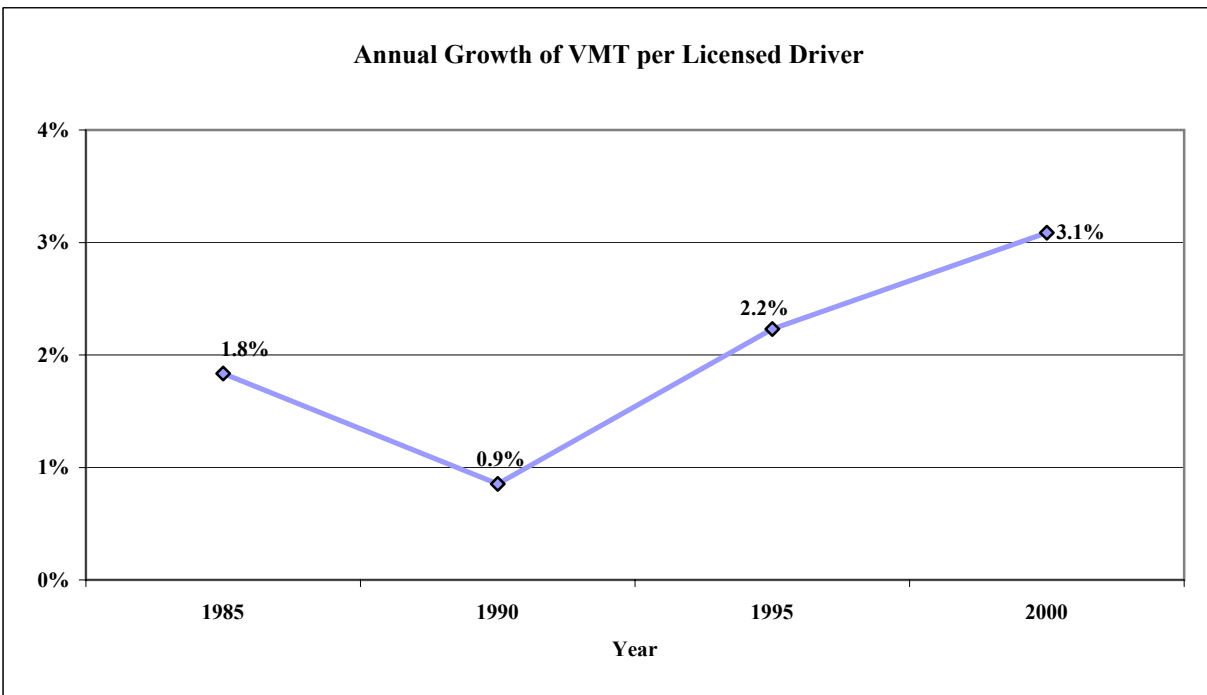
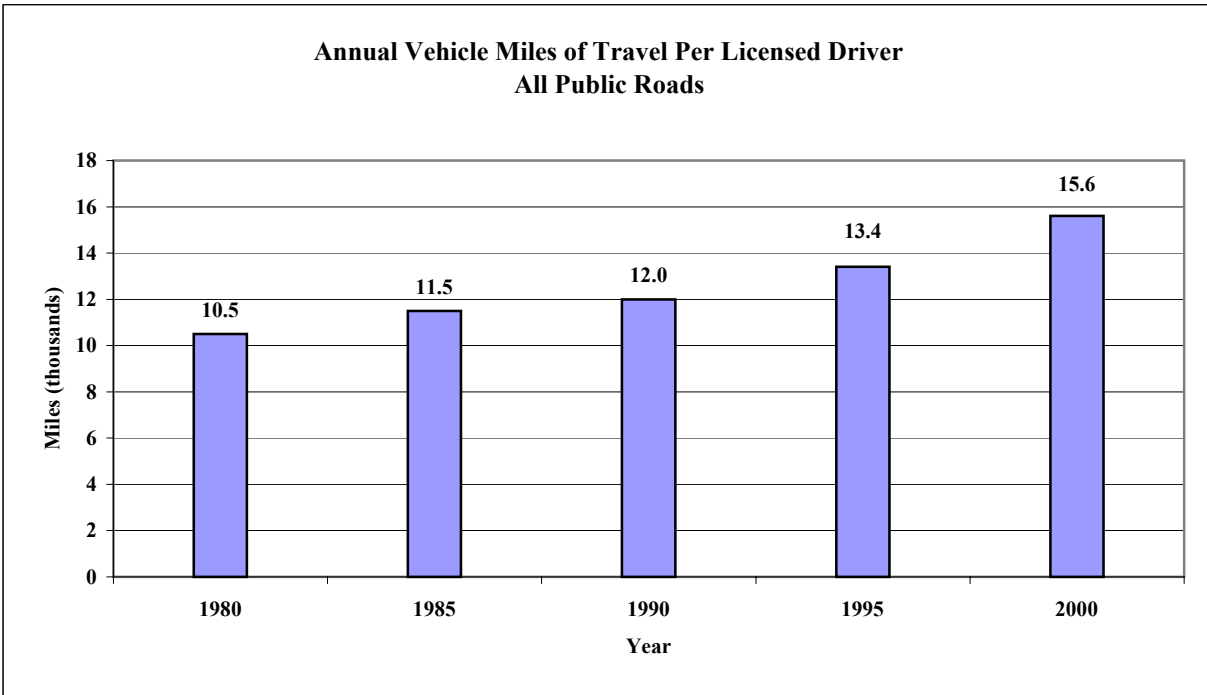


Since 1990, the AVMT per Licensed Driver has grown by almost 27%



Since 1980, the AVMT per Licensed Driver has grown by 45%

Annual Vehicle Miles of Travel, per Licensed Driver



State Operated Park and Ride Facilities



The figures for average daily users only represent the State-operated Park-and-Ride facilities. Park-and-Ride facilities that are operated by MTA are not being reported in this group.



In 1997, the operation of the MD 355/Montrose Road Park and Ride lot was transferred to Montgomery County, resulting in a loss of approximately 600 daily users from the state operated system.

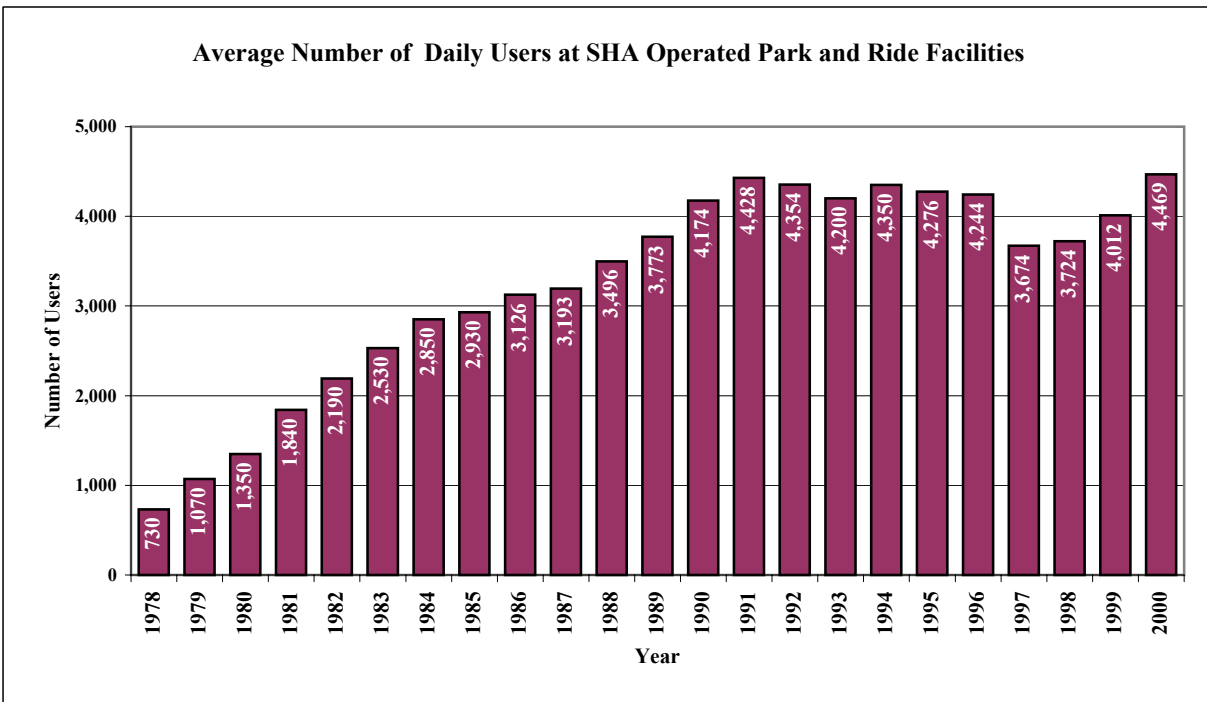


Since 1978, the average number of daily users has grown by 450%.



The top 10 state owned park and ride lots account for 53% of the total usage.

Historic Use of State Owned/Operated Rideshare Facilities



Note: In 1997 the operation of the MD 355/Montrose Rd. Park and Ride lot was transferred to Montgomery County - approximately 600 users.

Top 10 State Owned/Operated Park and Ride Lots by Average Number of Daily Users (2000)					
Rank	County	Location	# of Users	# of Spaces	% Used
1	Charles	MD 5 @ Carrico Mill Rd.	375	546	69%
2	Anne Arundel	MD 655ext @ Riva Rd.	315	480	66%
3	Howard	MD 32 @ Broken Land Pkwy. (old)	285	318	90%
4	Frederick	I-270 @ MD 80 (2 lots)	192	394	49%
5	Harford (MdTA Owned)	I-95 @ MD 152 (2 lots)	184	209	88%
6	Baltimore	I-195 @ MD 166	173	450	38%
7	Howard	MD 32 @ Broken Land Pkwy. (new)	152	325	47%
8	Anne Arundel	US 50/301 @ MD 424	147	199	74%
9	Queen Anne's	US 50 @ MD 8	132	266	50%
10	Anne Arundel	MD 4 @ MD 408	111	100	111%
Total			2066	3287	63%

Note: The top 10 State Owned/Operated Park and Ride lots account for 46% of the total usage.

Maryland Traffic Fatalities



The Maryland Traffic Fatality Rate is a safety measurement of all roads in Maryland, not just state highway routes.



Since 1980, traffic fatalities in Maryland have dropped by 21%.

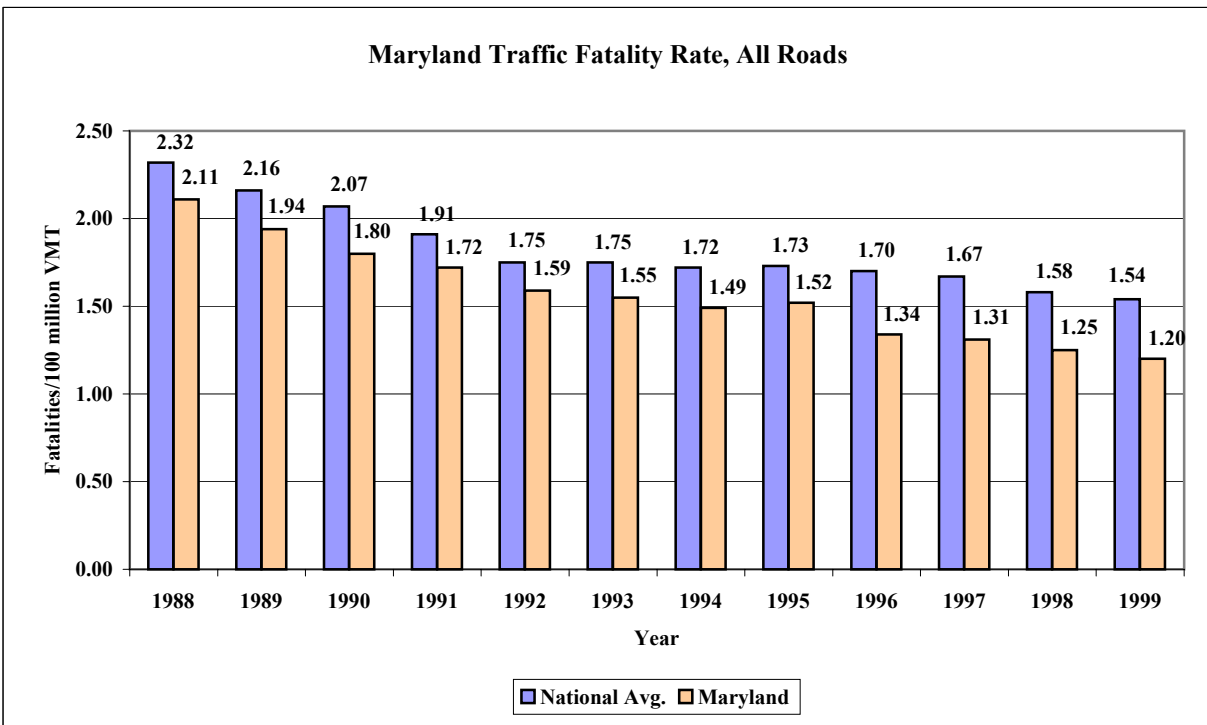
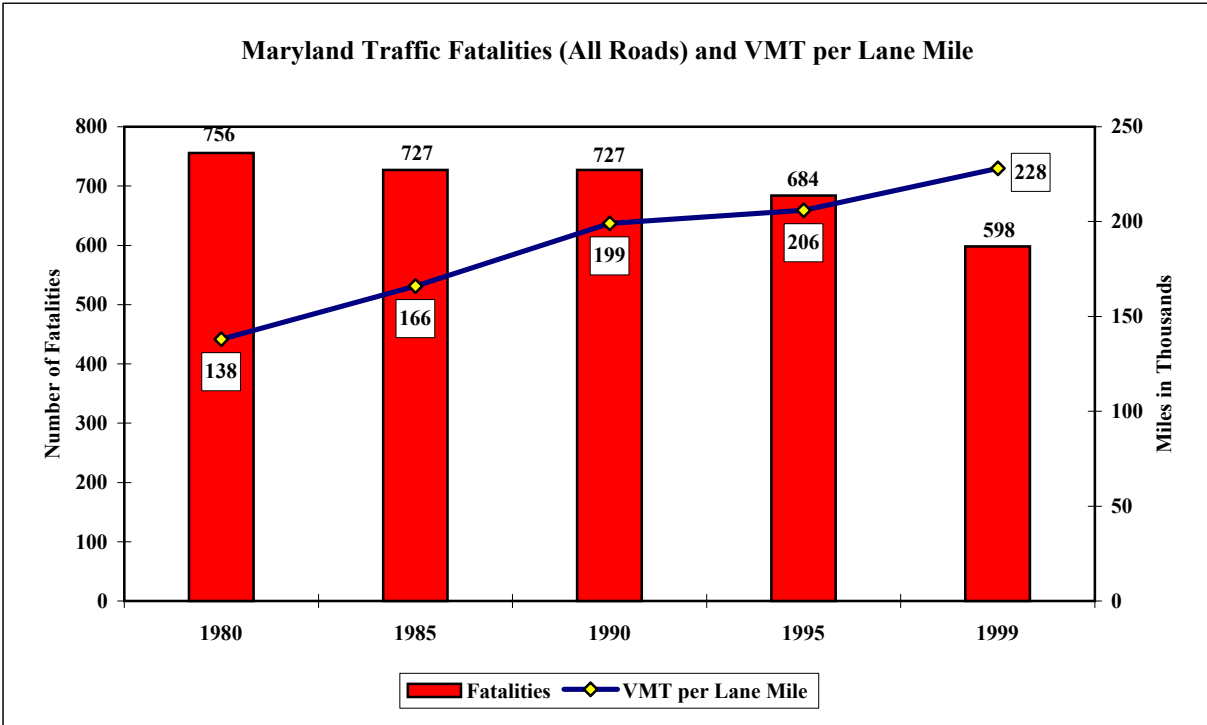


Over the past ten years, the Maryland Traffic Fatality Rate has consistently remained well below the national average.



Maryland's population and VMT has seen a dramatic increase over the last ten years, while traffic fatality rates have decreased by 38% over that same time span.

Maryland Traffic Fatalities



Source: Maryland SHA - Highway Information Services Division (HISD)
 Maryland SHA - Office of Traffic and Safety (OOTS)
 National Highway Safety Administration (NHTSA) [Traffic Safety Facts](#)

Fall 1999 Traffic Count Summary for HOV Lanes



High Occupancy Vehicle (HOV), in Maryland, is defined as a motor vehicle carrying two or more passengers.



Throughput: the number of people carried per lane per hour



The State of Maryland has one highway which carries an HOV lane, located on I-270 travelling in both northbound and southbound directions.



Peak Period Hours, in the morning commute, are from 6:00 a.m. to 9:00 a.m.; and from 3:30 p.m. to 6:30 p.m. in the evening commute.



The average HOV person throughput was greater than the average person throughput of the non-HOV lanes.



In addition to greater person throughput, the HOV lanes accomplished this feat by using over 12,000 less vehicles.

I 270 HOV Lanes Fall 1999, Traffic Count Summary

Location	Total Vehicles		Person Throughput		People Per Vehicle		
	HOV Lane # of vehicles	SOV Lanes # of vehicles	HOV Lane Only	SOV Lane Average	HOV Lane	SOV Lanes	Overall
I-270 @ Old Georgetown AM Peak	1,941 18.8%	8,406 81.2%	4,752	4,684	2.45	1.11	1.36
I-270 @ Old Georgetown PM Peak	1,977 15.9%	10,469 84.1%	4,831	5,670	2.44	1.08	1.30
I-270 @ Democracy AM Peak	1,692 16.5%	8,580 83.5%	3,766	4,698	2.23	1.10	1.28
I-270 @ Democracy PM Peak	1,598 14.0%	9,806 86.0%	3,885	5,384	2.43	1.10	1.28
I-270 @ Gude AM Peak	4,350 14.3%	26,051 85.7%	10,943	5,812	2.52	1.12	1.32
I-270 @ Gude PM Peak	2,642 8.3%	29,168 91.7%	7,036	6,949	2.66	1.19	1.31
I-270 @ MD 118 AM Peak	N/A ***	15,087 100%	N/A	7,049	N/A	1.40	1.40
I-270 @ MD 118 PM Peak	1,890 12.7%	12,943 87.3%	4,518	5,020	2.39	1.16	1.32
Average Value	2,299	15,064	5,676	5,658	2.45	1.16	1.32

Notes: a) Peak Period Hours are from 6:00am - 9:00am and 3:30pm - 6:30pm.

b) HOV(high occupancy vehicle) = 2 or more persons in a vehicle, SOV(single occupancy vehicle) = 1 person in vehicle.

Truck Average Annual Daily Traffic at Selected Geographical Locations (1999)



A truck is defined as a two-axle, six-tire, single unit truck or greater.

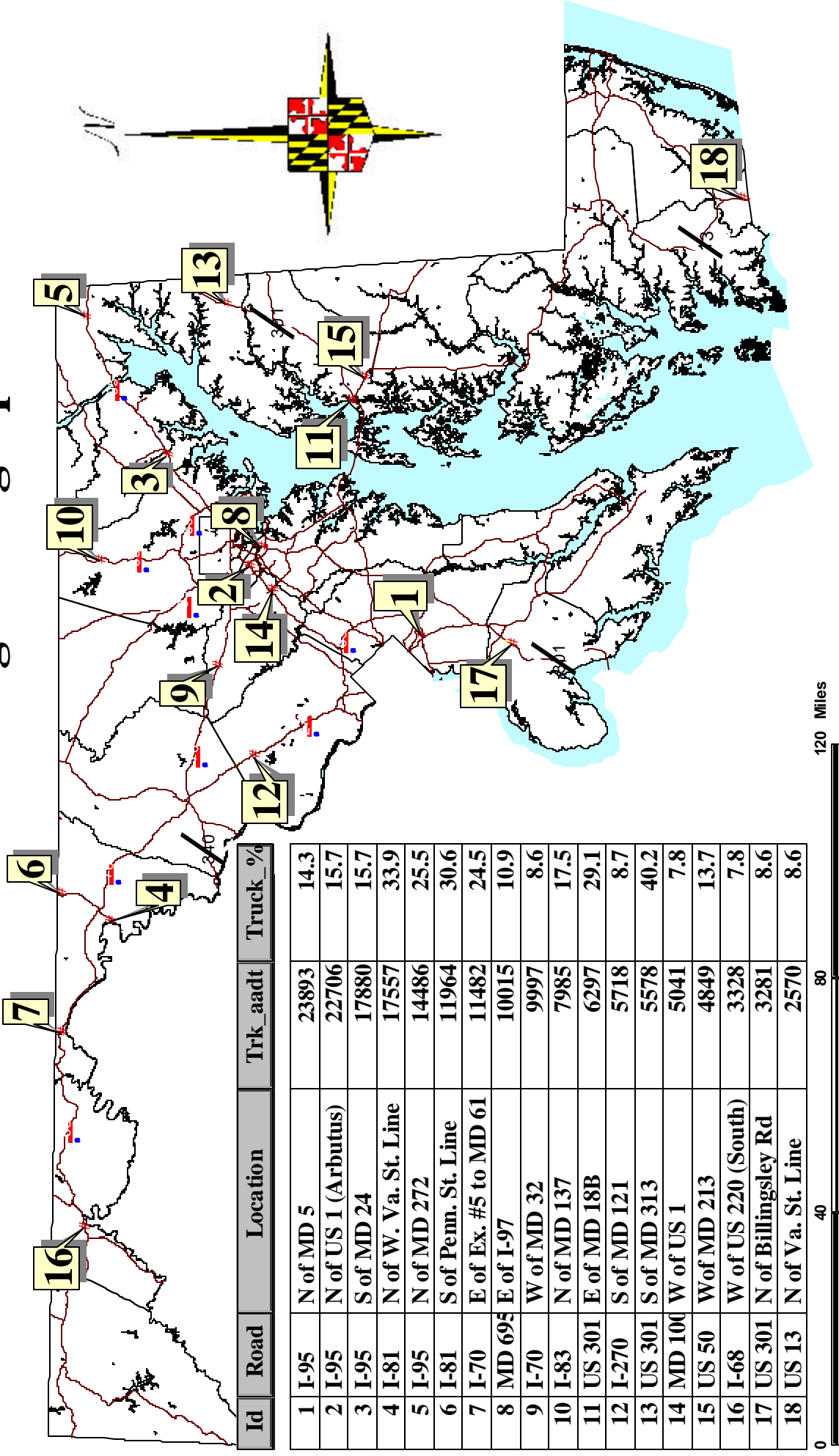


Classified counts were taken at 18 different locations throughout the state in order to obtain a representative area that would record trucks entering/exiting the state in all directions.



The greatest truck volumes in the state were recorded along the I-95 corridor with the exception of the I-81 locations at the Pennsylvania and West Virginia state lines.

Truck AADT at Selected Strategic Geographic Locations



Maryland Department of Transportation State Highway Administration

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Capital Invested

This chapter examines the funding of the Maryland State Highway System. The graphs and charts will break down the funding into the categories of: Consolidated Transportation Program (CTP), Major Projects, System Preservation, Operations and Maintenance, and Community Enhancements. The chapter will also compare funding levels between categories.

The Consolidated Transportation Program (CTP) presents the detailed listings and descriptions of the capital projects that are proposed for construction, development or evaluation during the current and five year program period.

Major Projects are system expansion projects that include highway expansions as well as capital facilities and equipment.

System Preservation includes significant activities to maintain bridges and pavements. These activities included the urban reconstruction program, emergency response system funding to repair things such as sink holes, and development of an asset management system.

Operations and Maintenance entails major activities such as roadway and shoulder maintenance, roadside and drainage maintenance, signing and pavement marking maintenance, minor structure repairs and district office support activities.

Community Enhancements include sound barriers, sidewalks, bikeways, wetland mitigation, welcome centers/rest areas, landscaping and other aesthetic treatments, and the Transportation Enhancements Program. The largest component of this funding category is retrofit sound barriers.

Annual SHA Expenditures 1985-2005



The development of Maryland's transportation network is guided by the Maryland Transportation Plan, which was adopted in January 1999 by Governor Parris N. Glendening. Each year the Department uses the plan to develop the CTP, a specific list of projects to be funded over a six-year period. These projects are selected based on technical and policy criteria and presented in draft, during the Department's Annual Tour, to the State's citizens and elected officials before they are submitted to the General Assembly as part of the Governor's budget.



Overall, the Department's capital program continues to emphasize safety and system preservation of Maryland's existing transportation infrastructure.



The following abbreviations are in reference to the funding chart found on page 70.

Op.&Maint. = Operations and Maintenance.

Syst.Pres. = System Preservation.

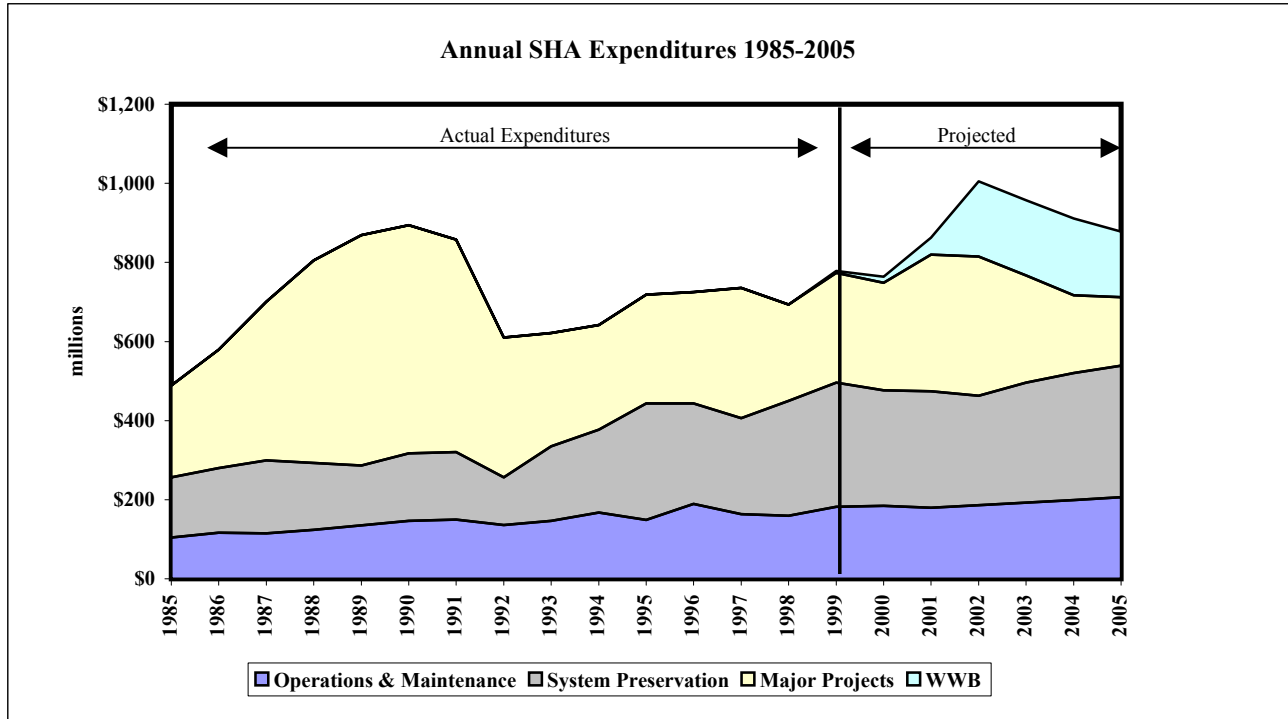
Major Proj. = Major Projects.

WWB = Woodrow Wilson Bridge.



Dollar amounts are represented in *millions*.

Annual SHA Expenditures 1985 - 2005



Year	Op.&Maint.	Syst.Pres.	Major Proj.	WWB	Total
1985	\$ 104.3	\$ 152.1	\$ 232.6		\$ 489.1
1986	\$ 116.7	\$ 163.1	\$ 299.9		\$ 579.8
1987	\$ 115.0	\$ 184.7	\$ 401.1		\$ 700.8
1988	\$ 123.8	\$ 168.9	\$ 512.6		\$ 805.3
1989	\$ 134.9	\$ 151.2	\$ 583.2		\$ 869.3
1990	\$ 146.1	\$ 170.8	\$ 576.9		\$ 893.8
1991	\$ 149.5	\$ 171.0	\$ 536.9		\$ 857.4
1992	\$ 136.2	\$ 120.0	\$ 353.7		\$ 609.9
1993	\$ 146.4	\$ 186.6	\$ 286.3		\$ 621.3
1994	\$ 167.4	\$ 210.0	\$ 264.1		\$ 641.5
1995	\$ 149.1	\$ 294.6	\$ 275.0		\$ 718.7
1996	\$ 189.7	\$ 253.9	\$ 281.7		\$ 725.2
1997	\$ 163.2	\$ 242.9	\$ 329.4		\$ 735.5
1998	\$ 159.4	\$ 290.6	\$ 243.5		\$ 693.5
1999	\$ 182.3	\$ 314.0	\$ 277.0	\$ 5.2	\$ 778.5
2000	\$ 184.5	\$ 292.2	\$ 271.4	\$ 16.0	\$ 764.1
2001	\$ 179.7	\$ 294.1	\$ 346.1	\$ 42.3	\$ 862.2
2002	\$ 186.0	\$ 276.7	\$ 352.1	\$ 189.9	\$ 1,004.7
2003	\$ 192.5	\$ 303.6	\$ 270.9	\$ 190.2	\$ 957.2
2004	\$ 199.2	\$ 321.1	\$ 196.3	\$ 194.2	\$ 910.8
2005	\$ 206.2	\$ 333.0	\$ 173.1	\$ 165.3	\$ 877.6

Notes:

1985-1999 are actual expenditures.

2000-2005 are projected expenditures based on funding levels in the final CTP.

O&M expenditures include the Safety Operating Program.

Post 2001 expenditures for O&M are adjusted for inflation.

Funding Distribution



Percentage of program dedicated towards Major Projects, excluding the Woodrow Wilson Bridge Project, is projected to decrease by 36% from FY 1985 to FY 2005.



Percentage of program dedicated towards System Preservation is projected to increase by 46% from FY 1985 to FY 2005.

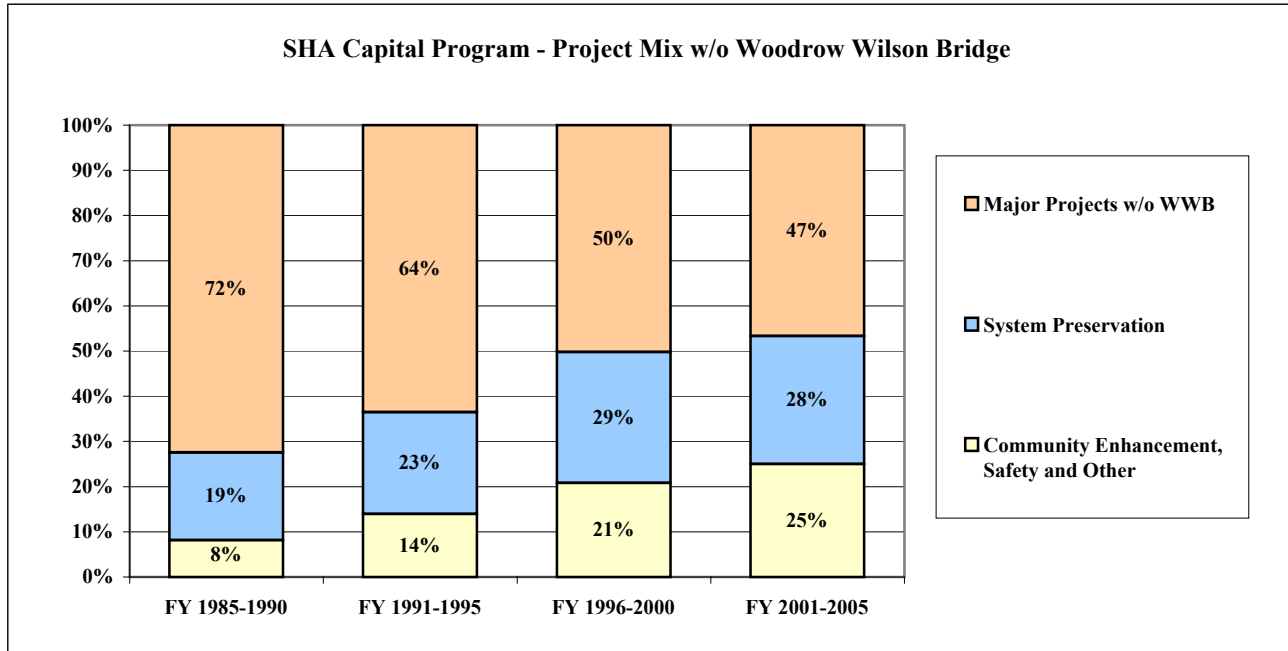


Percentage of program dedicated towards Community Enhancement, Safety and Other is projected to increase by 209% from FY 1985 to FY 2005.



Since FY 1985, a number of legislative initiatives, including ISTEA, amendments to the Clean Air Act, the Maryland Economic Growth, Resource Protection and Planning Act, and the Maryland Smart Growth Areas Act, have influenced the dramatic shift in funding distribution in transportation planning and programming in Maryland.

Funding Distribution



FiscalYear	1985-1990	1991-1995	1996-2000	2001-2005
Comm. Enhac., Safety & Other	\$ 292	\$ 376	\$ 582	\$ 716
System Preservation	\$ 699	\$ 608	\$ 811	\$ 812
Major Projects	\$ 2,606	\$ 1,716	\$ 1,404	\$ 1,338
Totals w/o WWB	\$ 3,597	\$ 2,700	\$ 2,797	\$ 2,867

Note: Dollar figures are in Millions.

FiscalYear	1985-1990	1991-1995	1996-2000	2001-2005
Comm. Enhac., Safety & Other	8%	14%	21%	25%
System Preservation	19%	23%	29%	28%
Major Projects w/o WWB	72%	64%	50%	47%
Total %	100%	100%	100%	100%

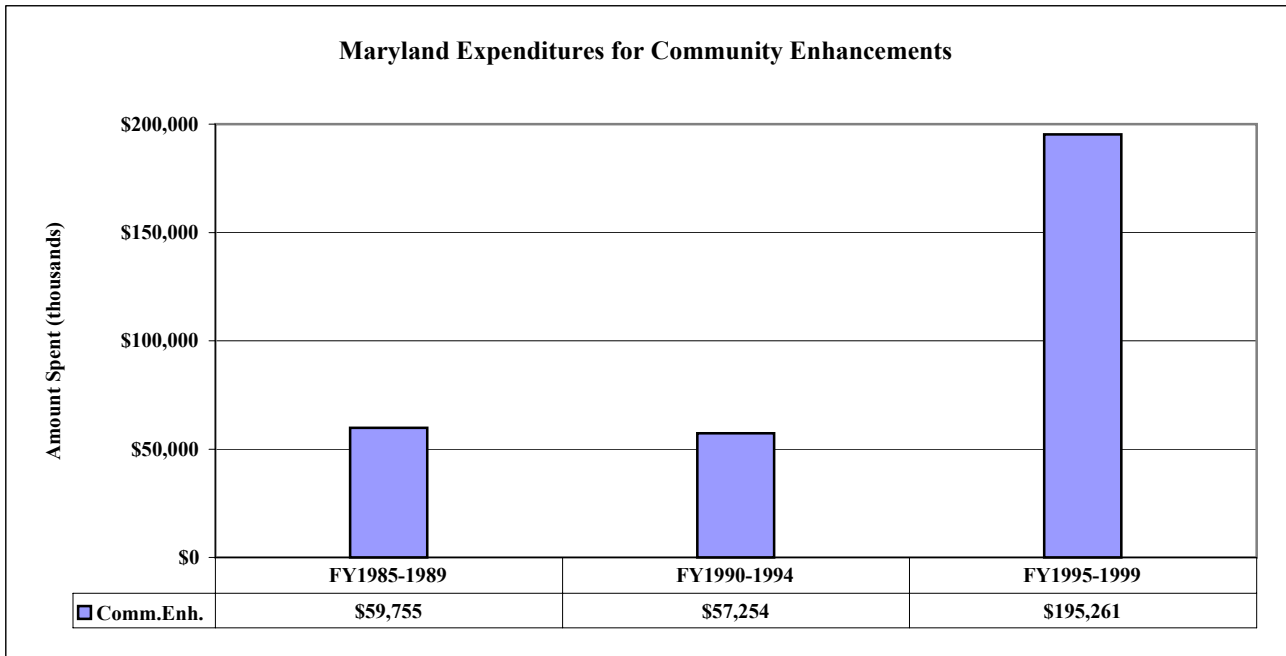
Note: System Preservation includes Resurfacing, Bridges, Urban Reconstruction and Emergency Capital Expenditures.

Maryland Expenditures for Community Enhancements



Community Enhancements fall under Maryland's Smart Growth Initiatives. These initiatives are targeted to preserving our existing neighborhoods, preserving our natural environment, and reducing the high cost of sprawl. In addition, MDOT is supporting the viability of existing communities with special attention to congestion management, commercial area revitalization, pedestrian and bicycle facilities, noise mitigation and landscaping and aesthetic designs.

Maryland Expenditures for Community Enhancements



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Factors Influencing System Demand

The next chapter looks at some factors influencing system demand such as driver licenses, vehicle registrations, and labor force. The chapter also attempts to show a correlation or relationship between these factors and Annual Average Vehicle Miles of Travel.

There are also many unique factors that influence Maryland's highway system demands other than those reported in this chapter. One such factor is geographical location. Maryland is a major exit/entry for three major regions of the country, the South, Midwest, and Northeast. In addition, Maryland sits along the southern end of the Boston-Washington, D.C. corridor that has a population of over 40 million people. And finally, Maryland contains not one, but two major metropolitan areas; Baltimore and Washington, D.C.

Maryland Population, Labor Force, and Households



Maryland's Population, Labor Force, and Households are all "increasing at a decreasing rate." While growth will continue through the year 2020, it is expected to do so at a progressively slower rate.

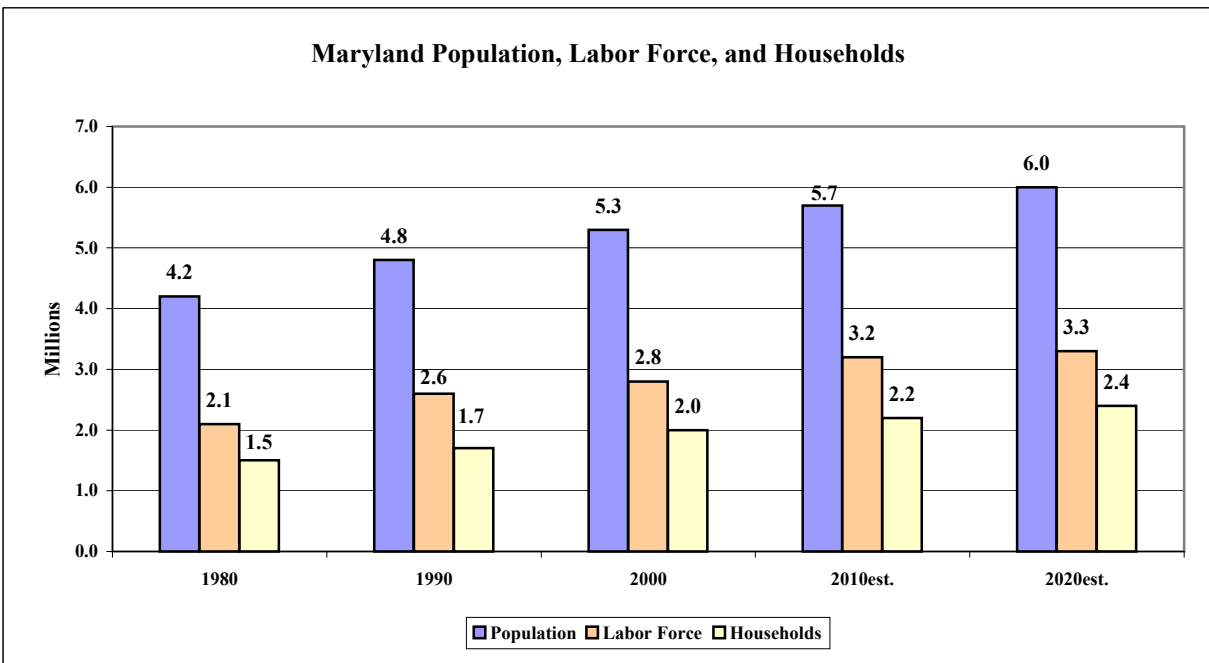
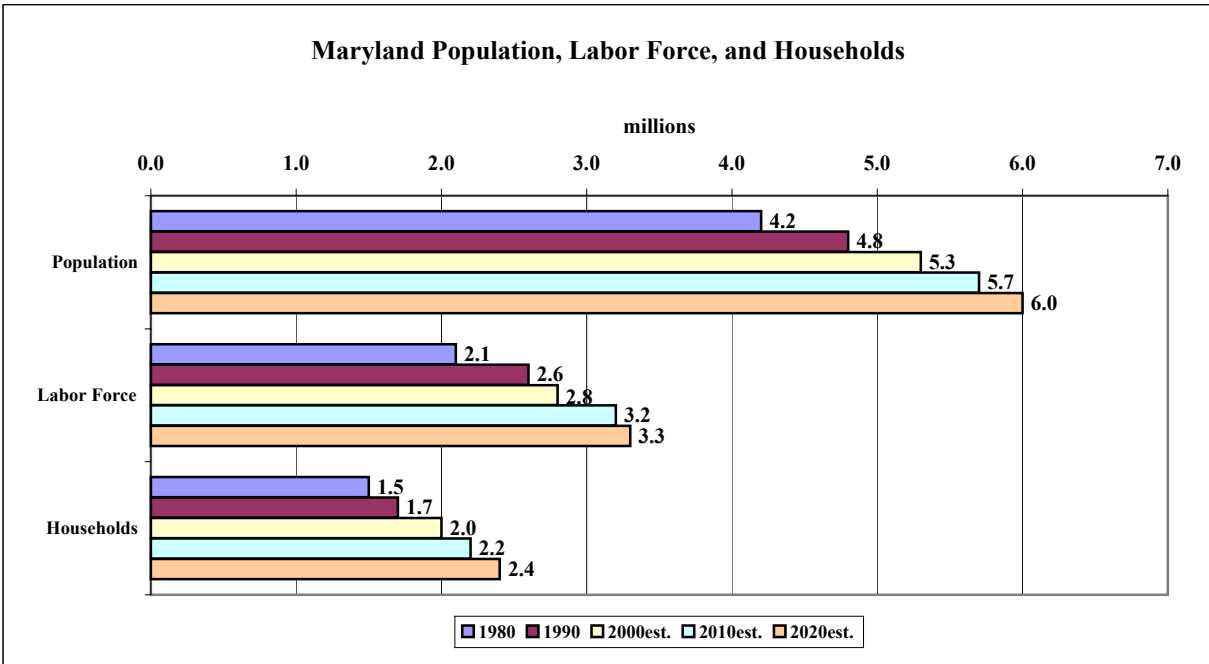
Annual Growth Rate for Selected Categories

Category	1980-1990	1990-2000	2000-2010	2010-2020
Population	1.3%	0.9%	0.8%	0.6%
Labor Force	2.3%	0.9%	1.0%	0.3%
Households	1.8%	1.2%	1.1%	0.9%



Using Population and Labor Force projections, by the year 2020 there will be a 42% increase in population from the year 1980 and a 57% increase in Labor Force from the year 1980.

Maryland Population, Labor Force, and Households



Maryland Highway Indicators



The following charts illustrate some of the factors that have the greatest impact on highway usage.

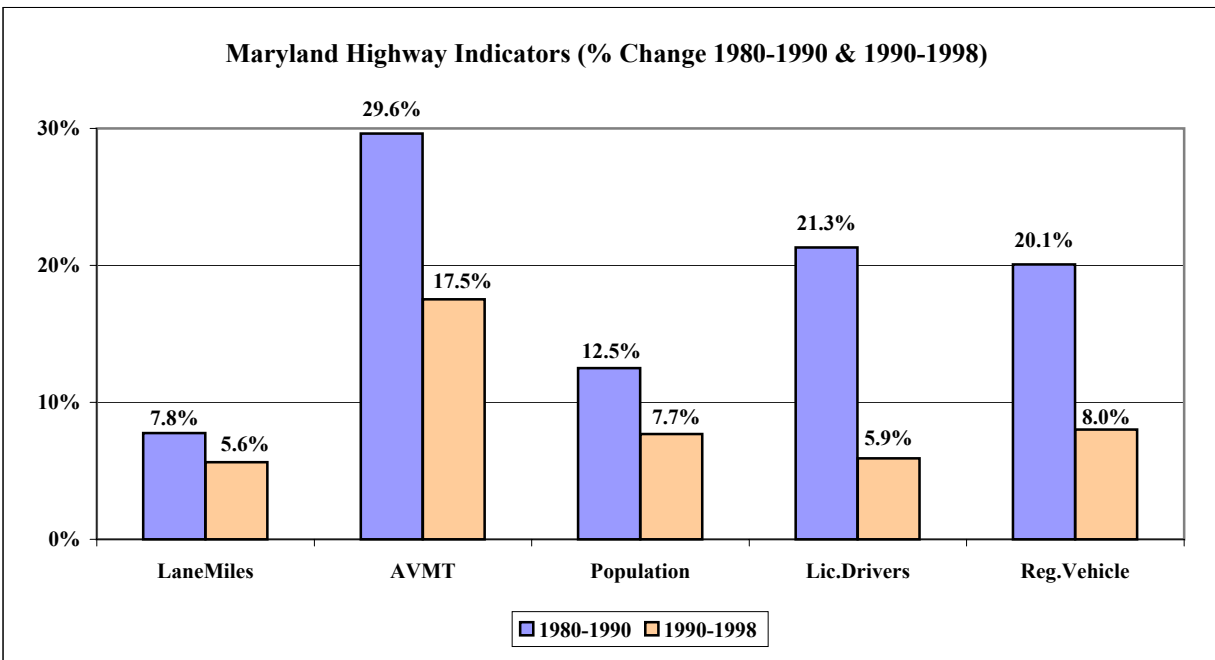
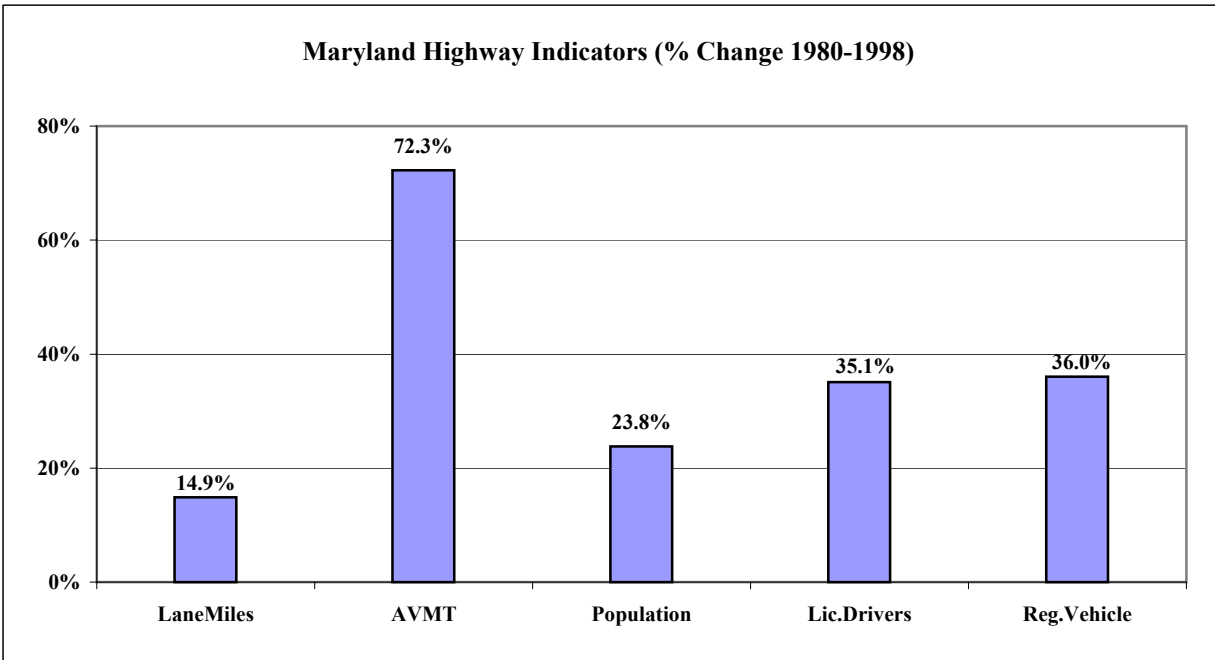


The time period of 1980-1990 saw significantly greater growth in all factors than in the time period from 1990-1998.



Annual Vehicle Miles of Travel have increased 3 to 4 times the rate of lane miles being constructed.

Maryland Highway Indicators



Labor Force and AVMT Relationship

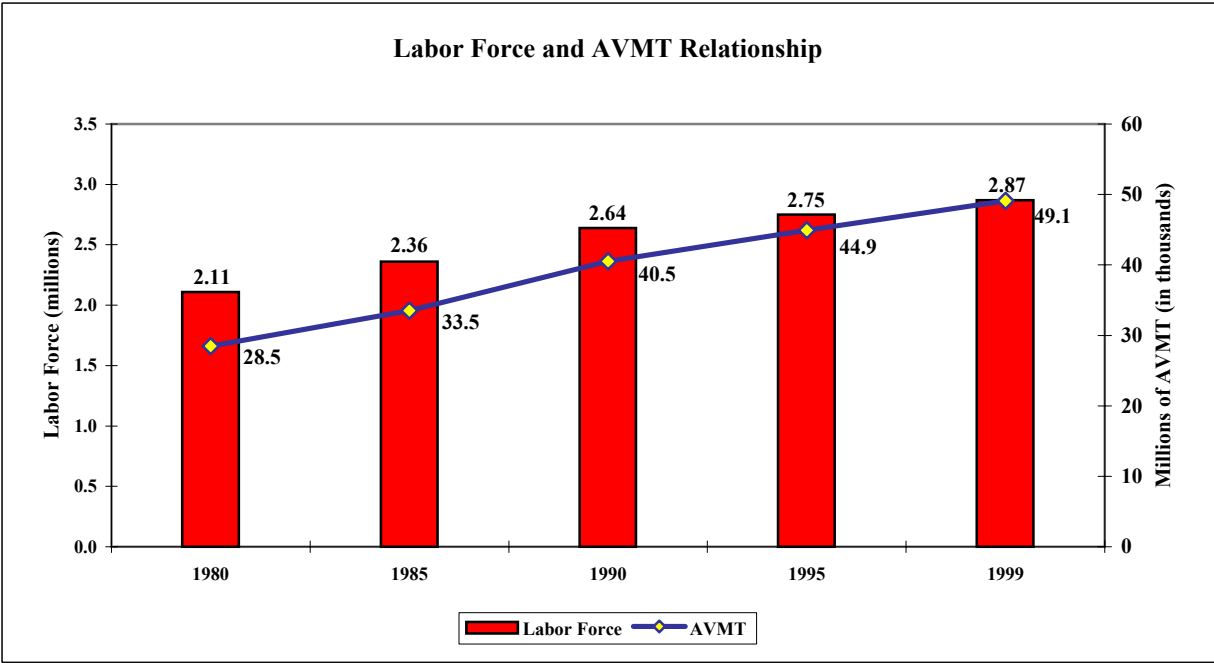


When there is an increase in Labor Force growth, there is an increase in AVMT growth. When there is a decrease in Labor Force growth, there is a decrease in AVMT growth.

Annual Growth Rate of Labor Force and AVMT

Category	1980-1985	1985-1990	1990-1995	1995-1999
Labor Force	3.3%	3.9%	2.1%	2.3%
AVMT	2.3%	2.3%	0.8%	1.1%

Maryland Labor Force and AVMT Relationship



Motor Vehicle Registrations



Since 1980, the number of total registered vehicles in Maryland has increased by 35%.



1990 was the peak year in Maryland for the total number of **registered automobiles**.

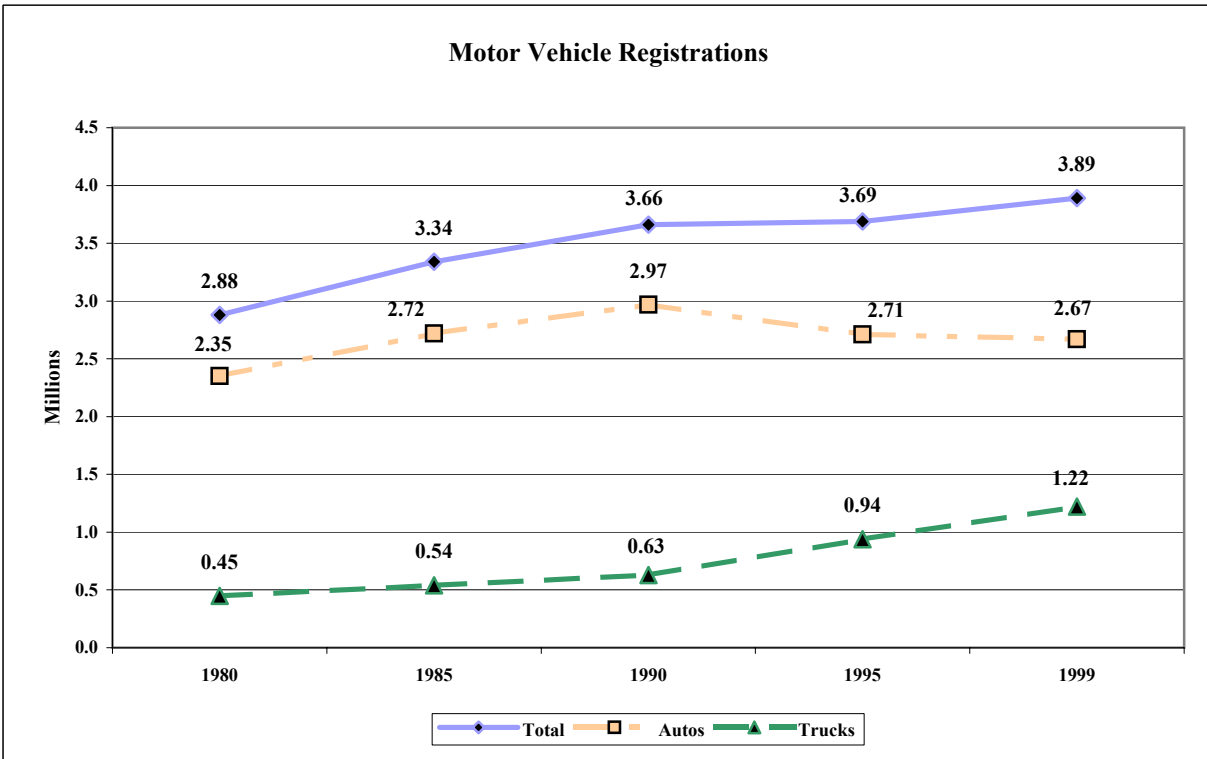


Since 1990, the total number of **registered automobiles** in Maryland has decreased by 10%.



Since 1990, the total number of **registered trucks** in Maryland has increased by 94%. The significant increase in registered trucks may be attributed to the growing popularity of light-trucks and SUV's.

Maryland Vehicle Registrations



Licensed Drivers, Driving Age Population, and Motor Vehicles



Nationwide, the total number of registered motor vehicles exceeded the total number of licensed drivers by the year 1975, and exceeded the driving age population by 1995. This trend equates to more than one registered vehicle for every licensed driver, and more than one registered vehicle for every person within the driving age population.

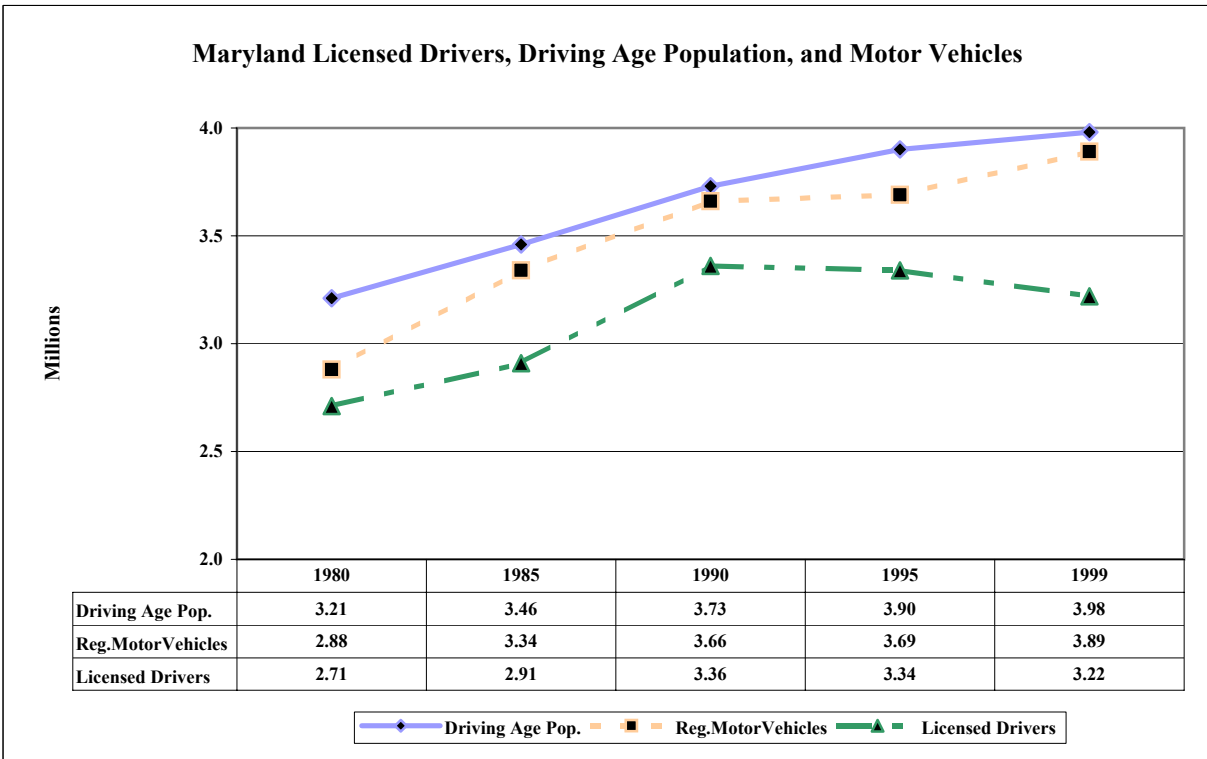


The state of Maryland follows the nationwide trend of more than one registered vehicle for every licensed driver.



The state of Maryland does not follow the nationwide trend of more than one registered vehicle per person within the driving age population. However, since 1980, the rate has increased from 0.90 registered vehicles per person within the driving age population to 0.98 registered vehicles per person within the driving age population by 1999.

Maryland Licensed Drivers, Driving Age Population, and Motor Vehicles



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System Condition

This chapter examines and evaluates the functionality of the State Highway System. The chapter looks at factors such as Level Of Service (LOS), Congestion, and Signalized Intersections, all of which play a major role in Maryland drivers' daily commute.

Percentage of Lane Miles Level of Service(LOS) E or F



The LOS rating system uses the letters A through F to describe traffic quality: LOS A represents superior traffic quality (very light traffic), while LOS F represents poor traffic quality (congested flow involving various degrees of delay).



As presented in this report, congestion along the freeway routes is measured in one of the following ways:

- 1: Traffic density is determined utilizing aerial photography.
- 2: Average speed derived from traffic time surveys.



As presented in this report, congestion along the arterial routes is determined in one of the following ways:

- 1: The LOS rating is based on platoon size and queue lengths from aerial photography.
- 2: The difference in travel time/speeds during a congested period compared to that of free-flow conditions.



A **platoon** refers to a group of vehicles or pedestrians traveling together as a group, either voluntarily or involuntarily due to signal control, geometrics, or other factors.

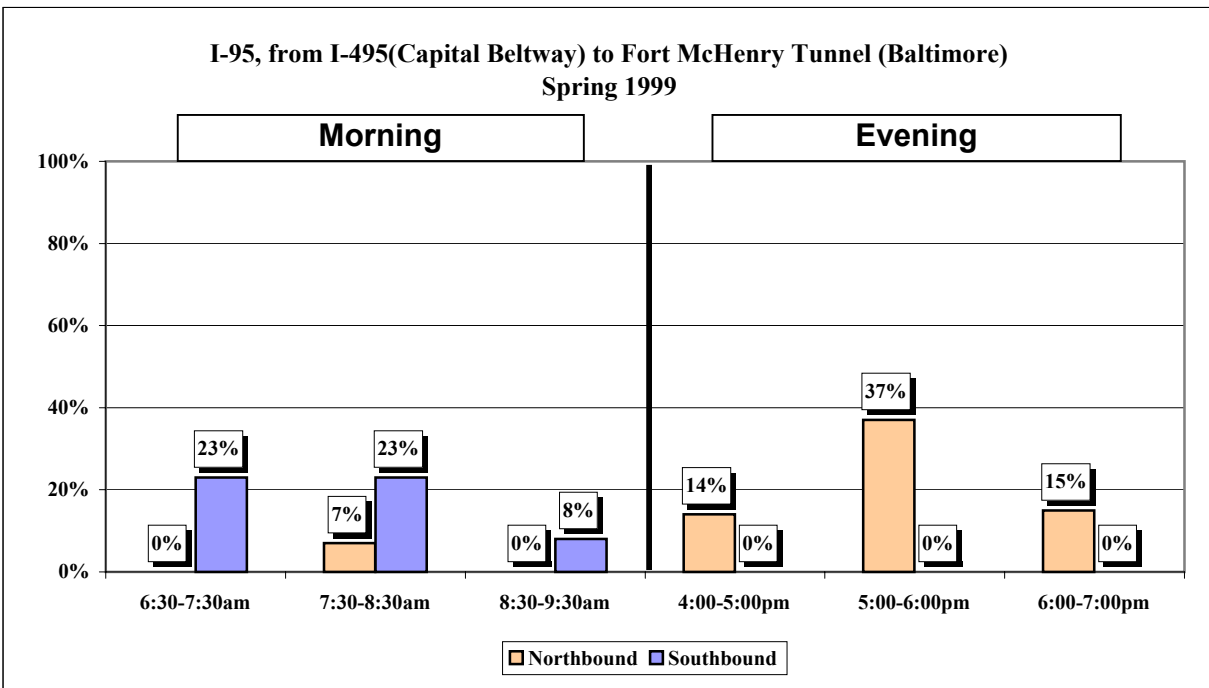
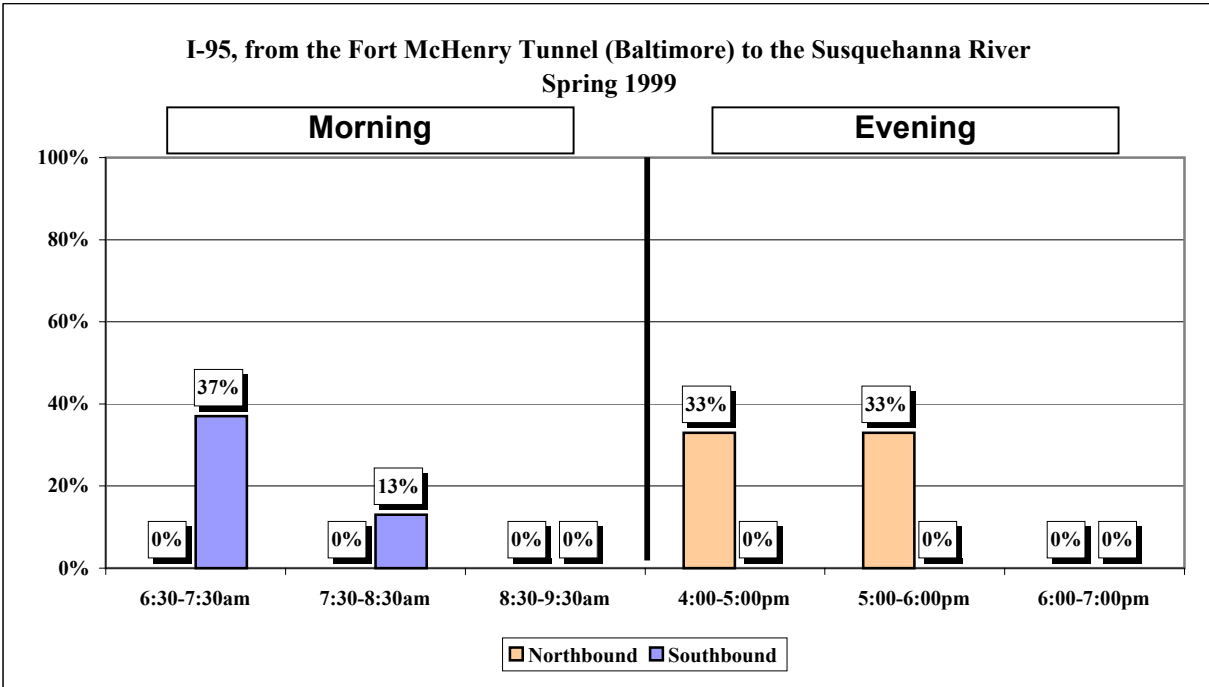


Level of Service “E”: Typified by significant delays and low average travel speeds. The movement may resemble a funeral procession with little opportunity for side-traffic to enter the roadway.

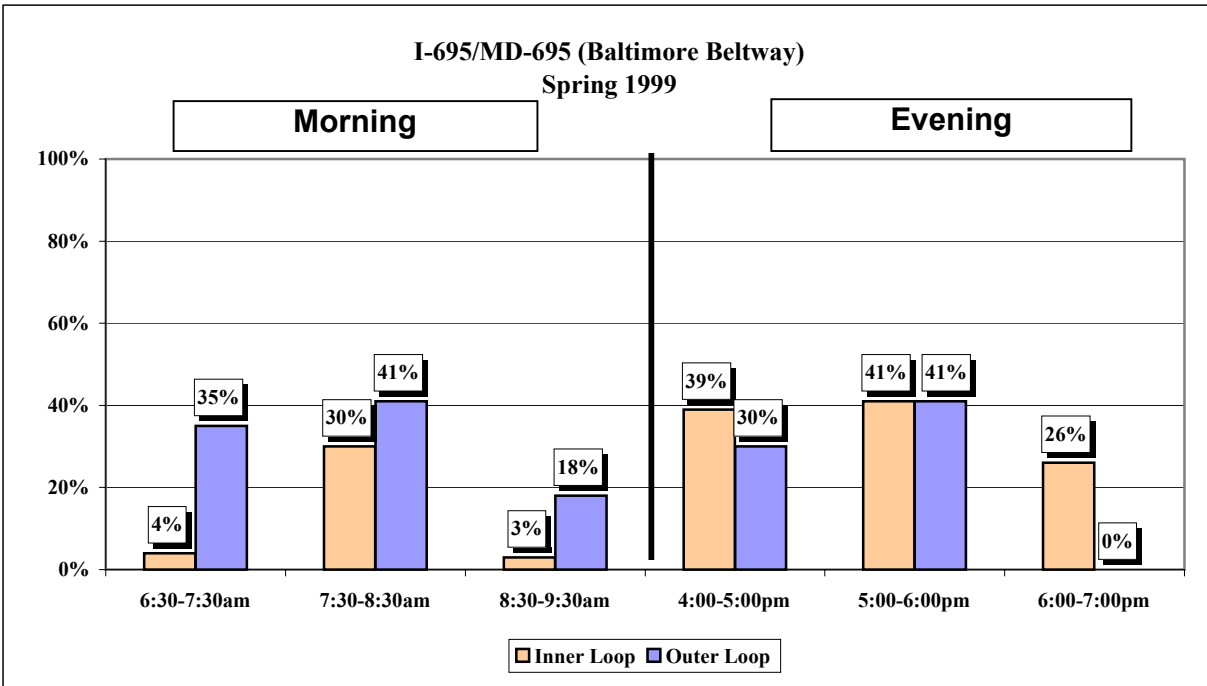
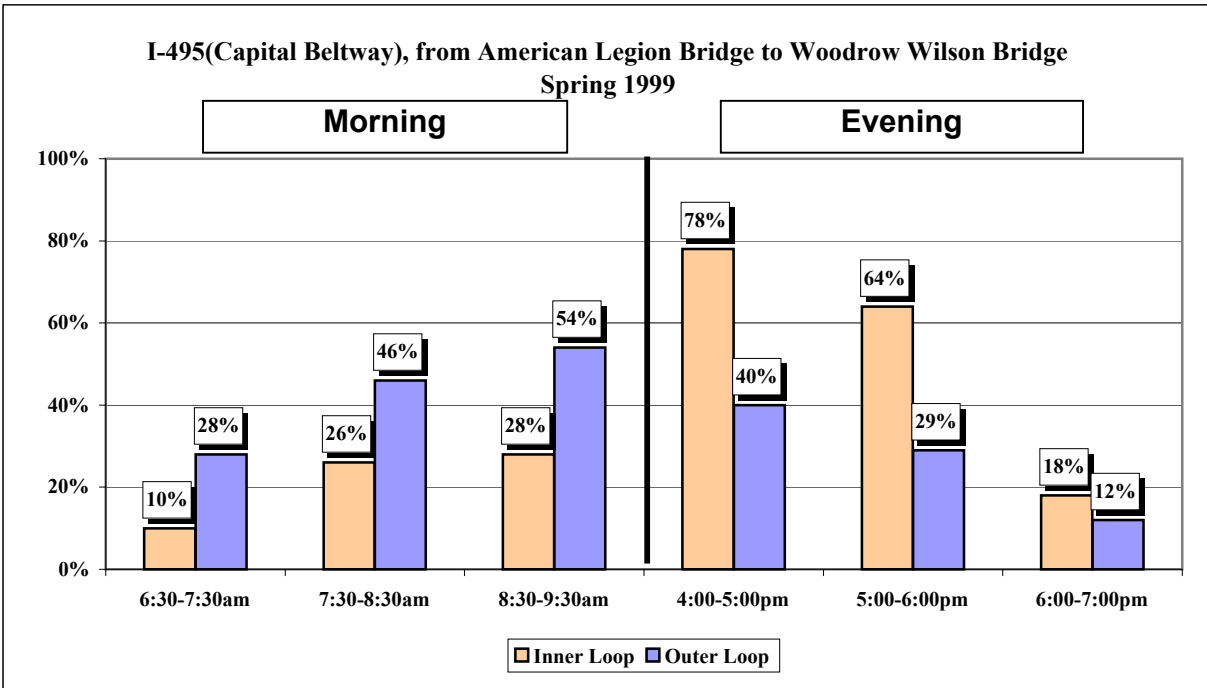


Level of Service “F”: Traffic flows at extremely low speeds, high delays and extensive queuing likely at critical intersections. This is the most severe level of congested traffic, vehicles may back up through an upstream signal at this level.

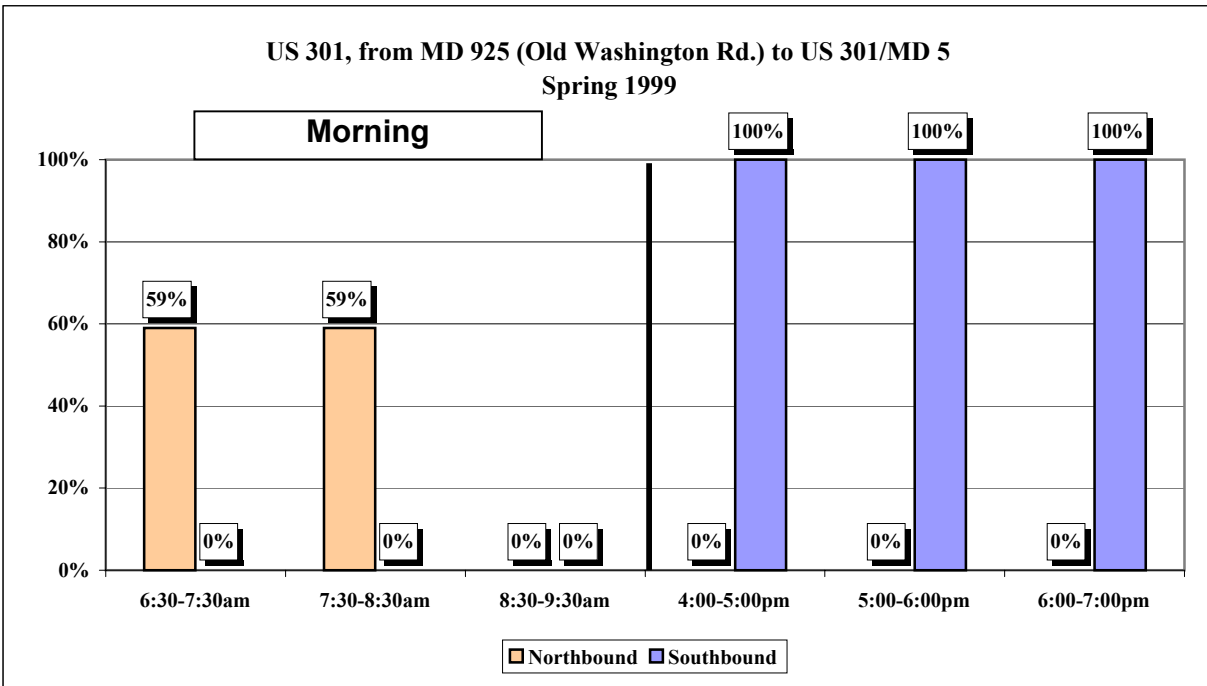
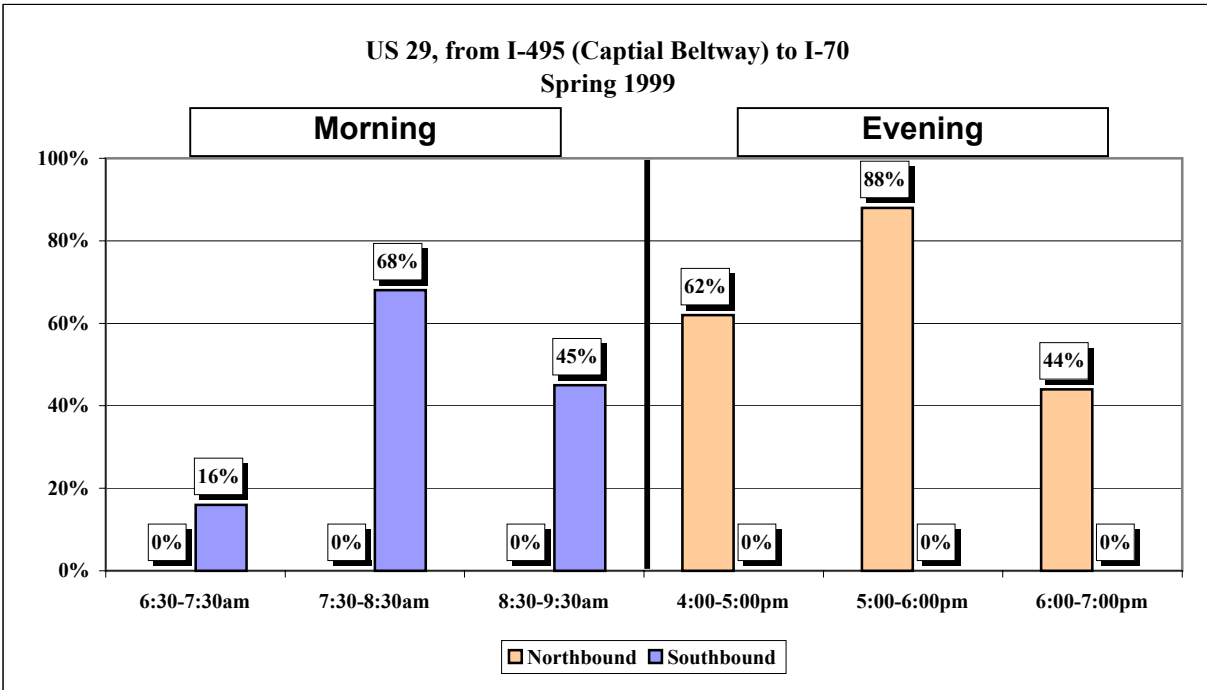
Percentage of Lane Miles LOS E/F



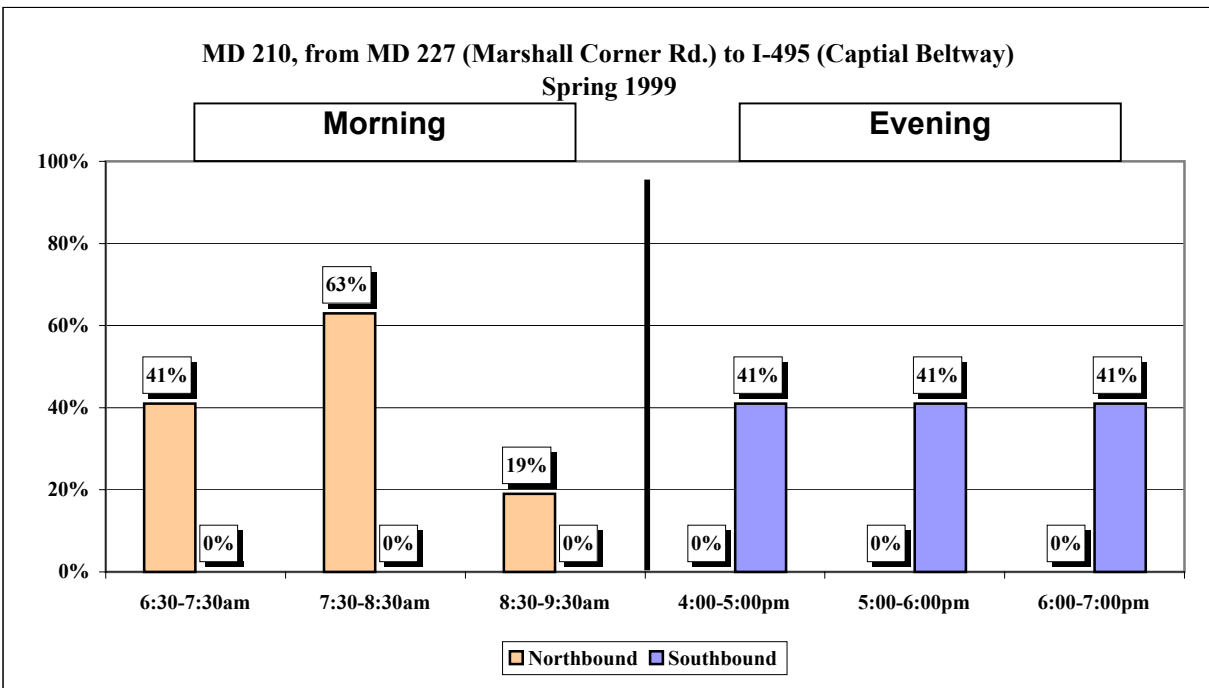
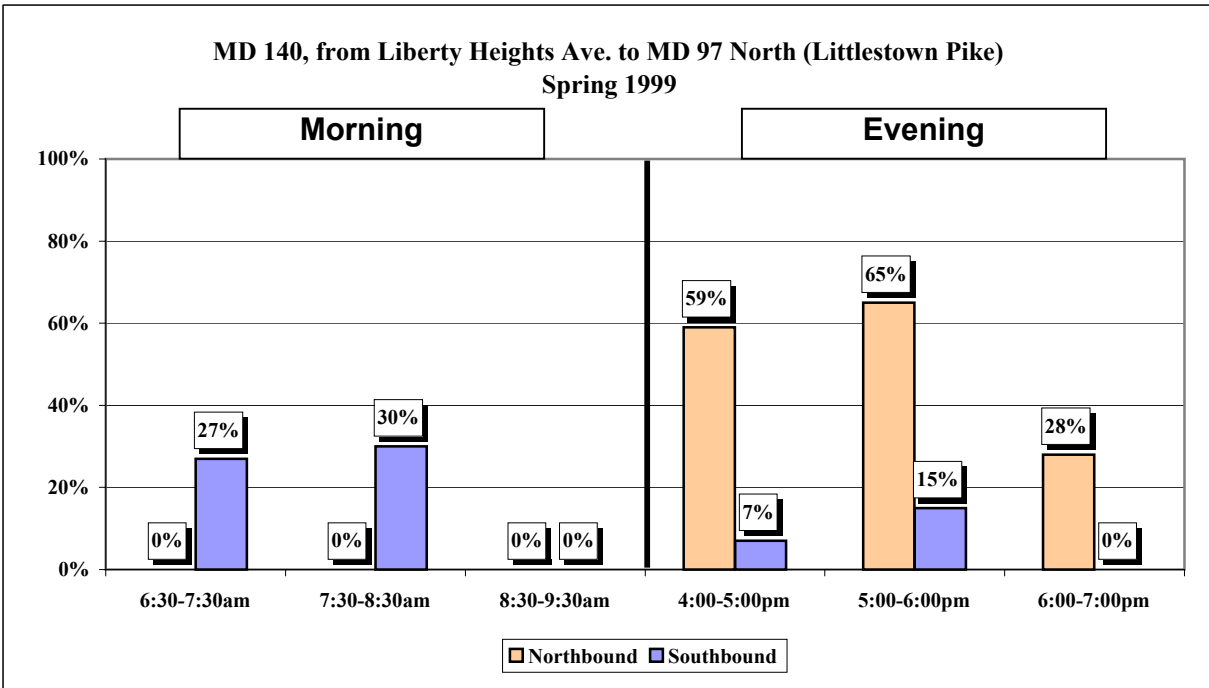
Percentage of Lane Miles LOS E/F



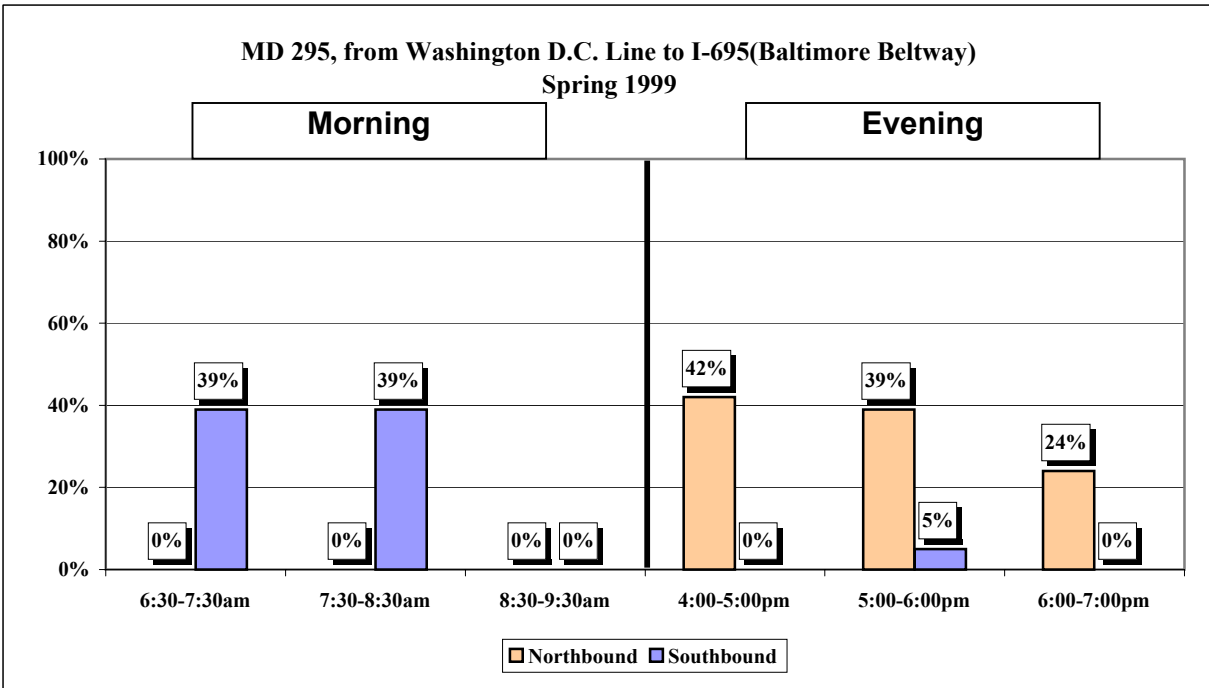
Percentage of Lane Miles LOS E/F



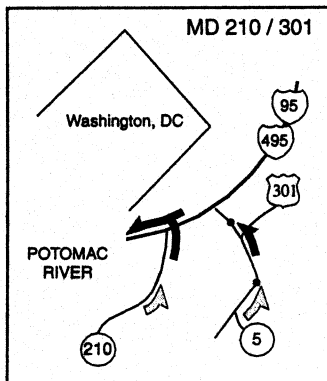
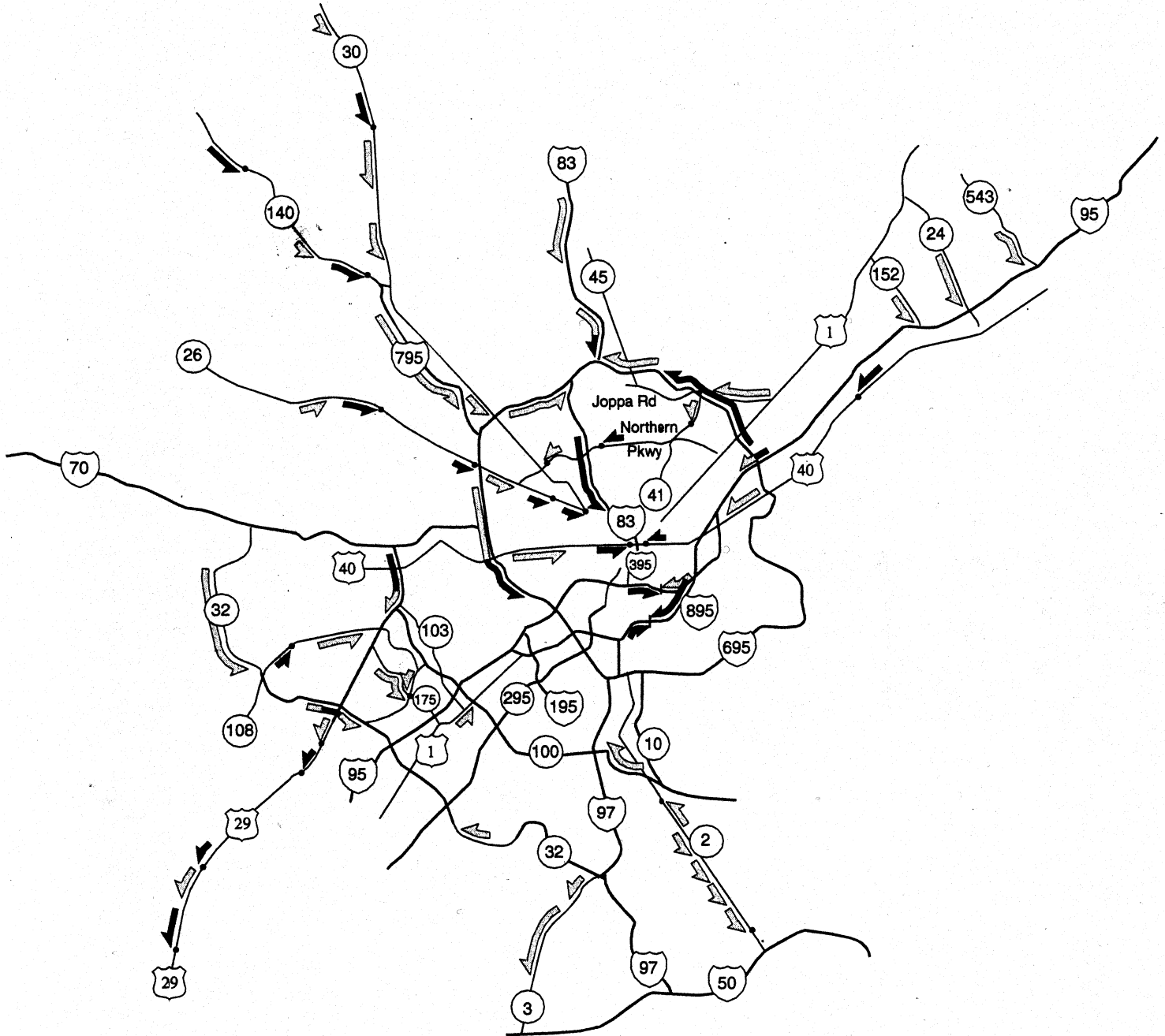
Percentage of Lane Miles LOS E/F



Percentage of Lane Miles LOS E/F

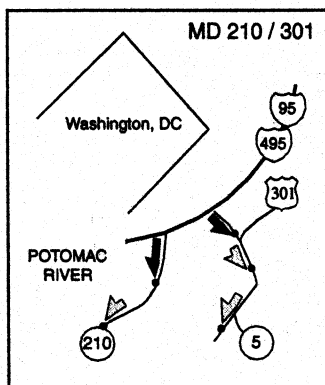
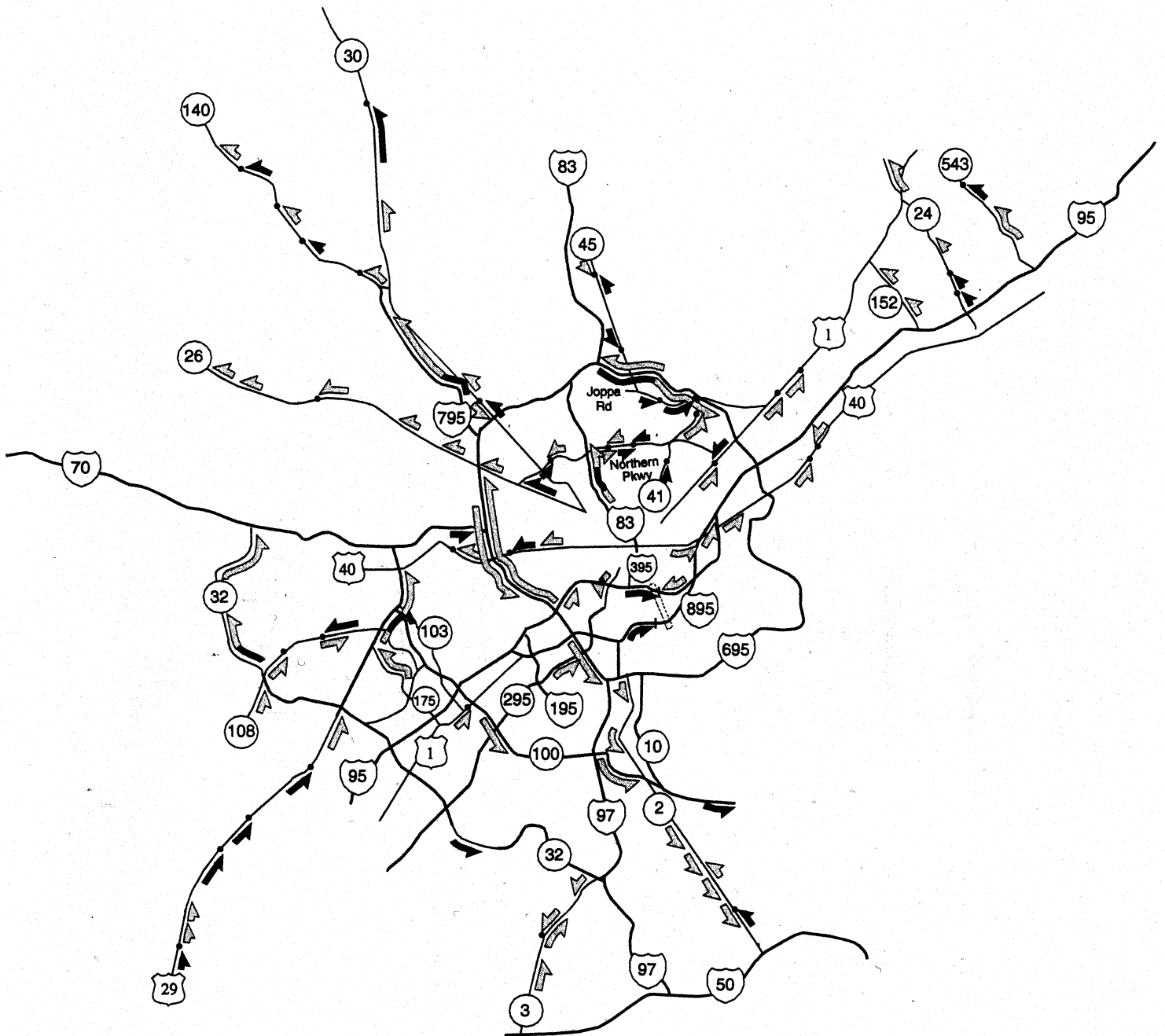


LOCATIONS WHERE CONGESTION WAS FOUND MORNING (SPRING 1999)



TRAFFIC QUALITY	
Freeway	Arterial
Heavy traffic flow or intermittent congestion (30-50 mph)	Intermittent congestion or slow moving platoons along a highway segment
Congested traffic flow (<30 mph)	Congested Signalized Intersection (continuous)

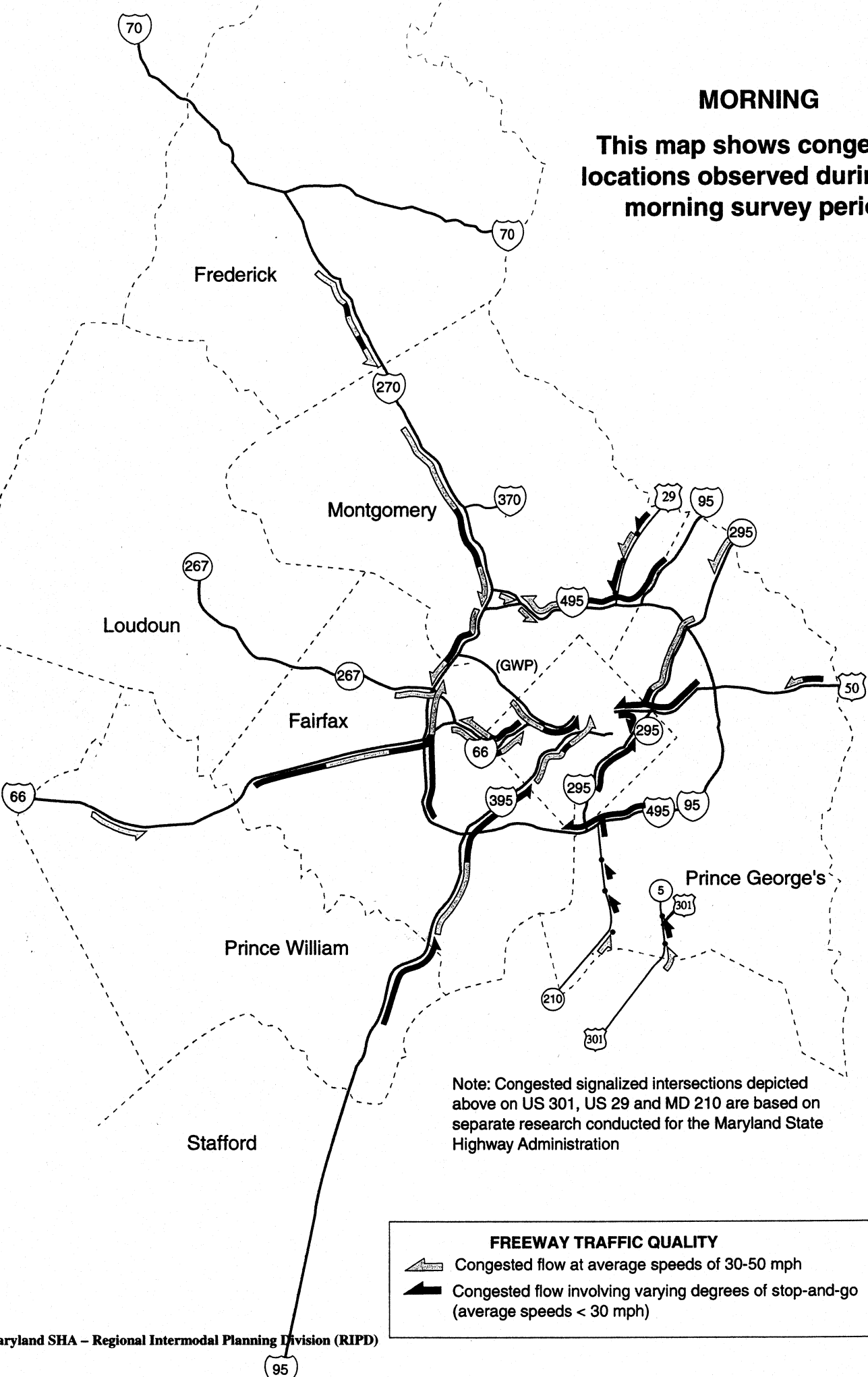
LOCATIONS WHERE CONGESTION WAS FOUND EVENING (SPRING 1999)



TRAFFIC QUALITY	
Freeway	Arterial
Heavy traffic flow or intermittent congestion (30-50 mph)	Intermittent congestion or slow moving platoons along a highway segment
Congested traffic flow (<math>< 30\text{ mph}</math>)	Congested Signalized Intersection (continuous)

MORNING

This map shows congested locations observed during the morning survey period



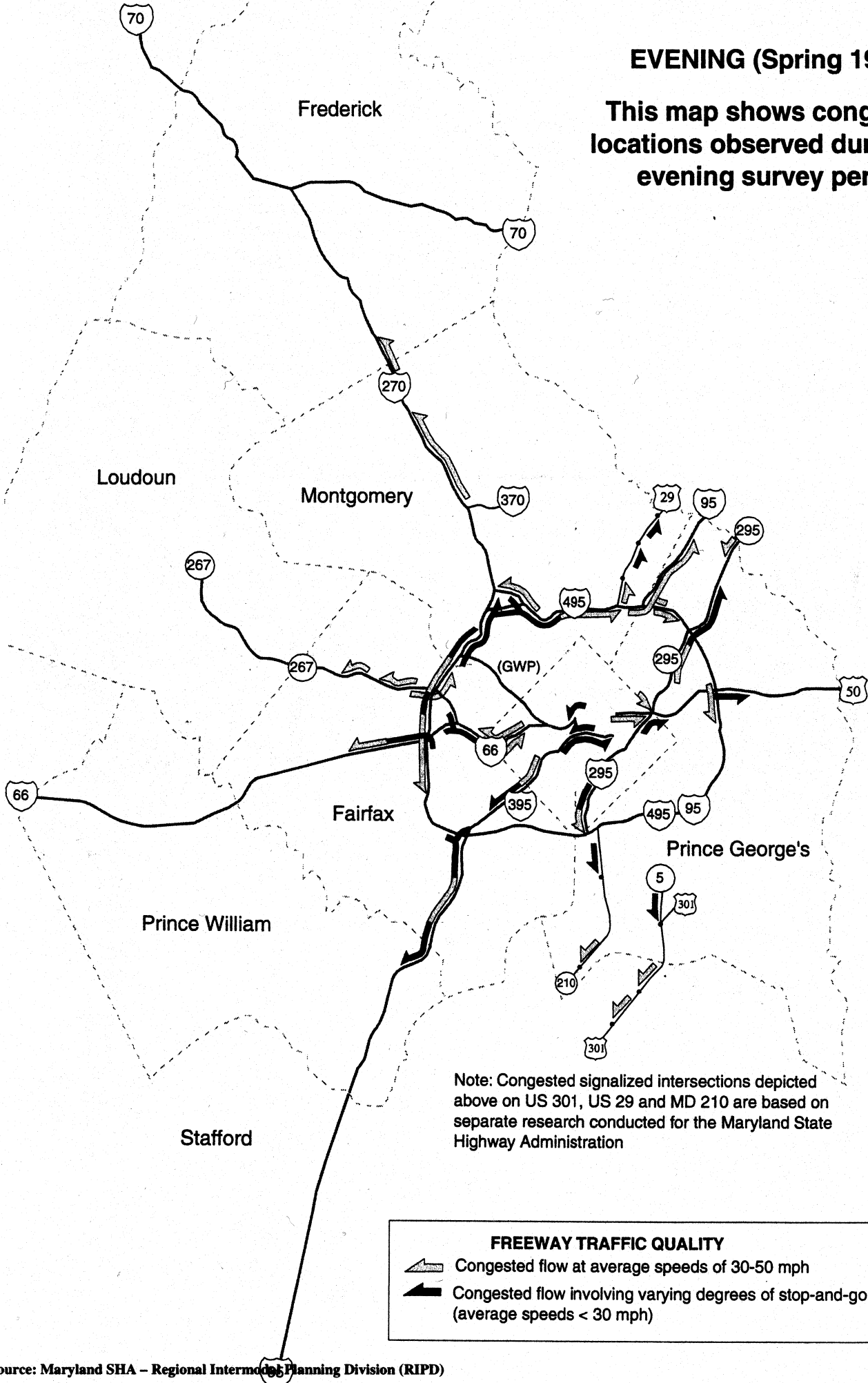
Note: Congested signalized intersections depicted above on US 301, US 29 and MD 210 are based on separate research conducted for the Maryland State Highway Administration

FREWAY TRAFFIC QUALITY

- Congested flow at average speeds of 30-50 mph
- Congested flow involving varying degrees of stop-and-go (average speeds < 30 mph)

EVENING (Spring 1999)

This map shows congested locations observed during the evening survey period



Travel Rate Index



The Texas Transportation Institute (TTI) several years ago began measuring congestion levels at a regional level in very large urban areas using a Travel Rate Index (TRI).



The TRI is the ratio of time to travel in congested conditions than in uncongested conditions; a TRI of 1.20 means it takes 20% longer to travel during peak period congestion than in uncongested conditions.



Washington, D.C. ranked 4th worst in very large urban areas with a TRI of 1.42 in 1999. The average TRI for very large urban areas is 1.38.



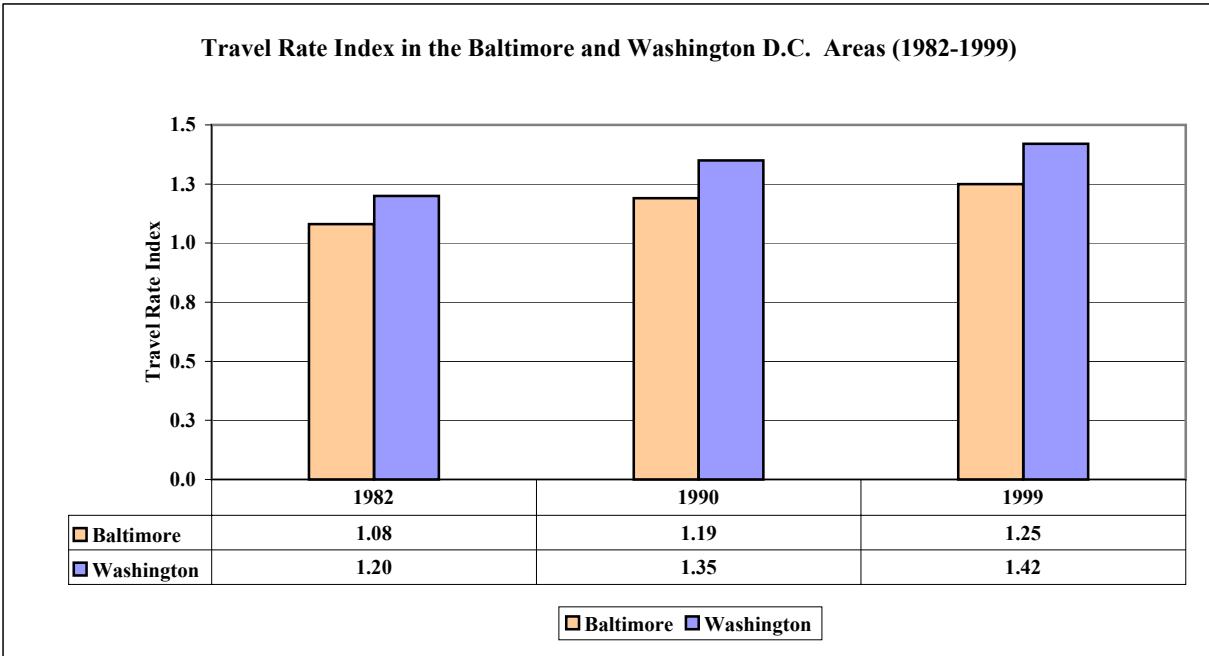
Baltimore ranked 25th worst in large urban areas with a TRI of 1.25 in 1999. The average TRI for large urban areas is 1.25.



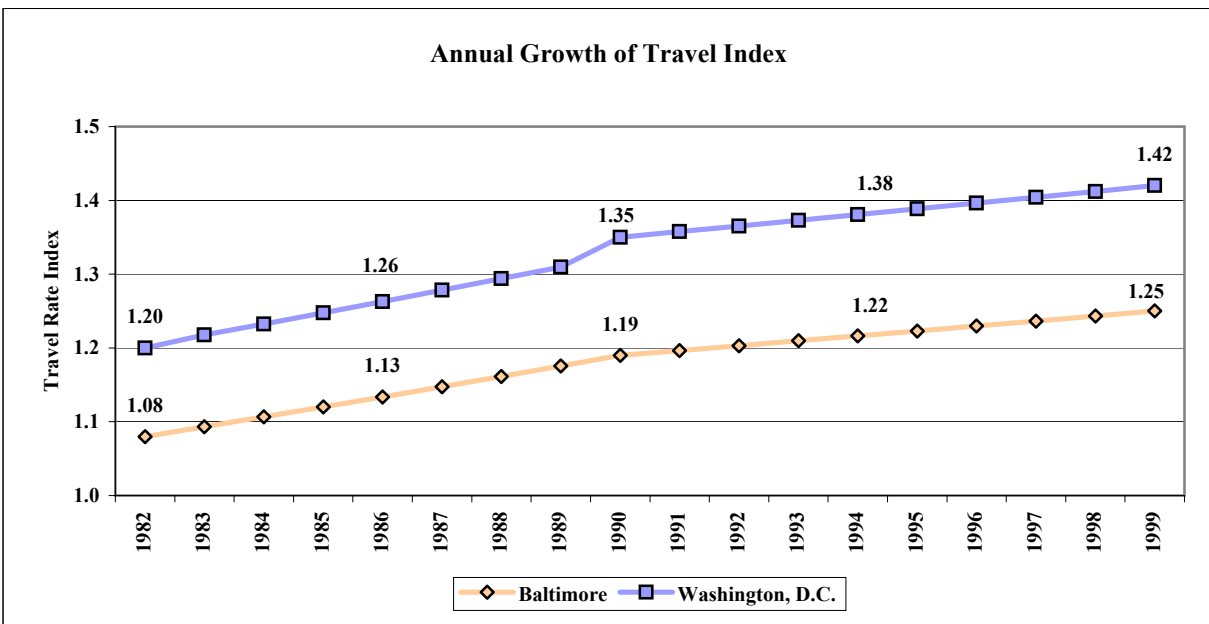
TRAVEL RATE INDEX: TOP 5.

- 1.Los Angeles, Ca. 1.52
- 2.San Francisco-Oakland, Ca. 1.45
- 3.Seattle-Everett, Wa. 1.44
- 4.Washington, DC-Md.-Va. 1.42**
- 5.Chicago, Il.-N.western, In. 1.40
- 5.San Diego, Ca. 1.40

Travel Rate Index



Area	Travel Rate Index	It will take you this much longer than during free flow conditions.	A 30-minute trip becomes:
DC-MD-VA	1.42	42%	43 minutes
Baltimore	1.25	25%	38 minutes



Incident Distribution and Duration



Highway incidents and duration are tracked and compiled by the Coordinated Highways Action Response Team (CHART). CHART is the highway incident management program of the Maryland State Highway Administration. The program was initiated in the mid 1980's as "Reach the Beach," but has extended into a statewide program headquartered in Hanover, Md., at the Statewide Operation Center (SOC). The SOC is also supported by three satellite traffic operation centers (TOC), one being seasonal (Bay Bridge). TOC-3 is located at the College Park State Police Barracks and TOC-4 is located at the Golden Ring State Police Barracks.



An incident, as defined by the FHWA Freeway Incident Management Handbook, is any non-recurrent event which causes reduction of roadway capacity or abnormal increase in demand.



I-495 experienced a total of 1,051 incidents in 1997, approximately 3 incidents per day, within Maryland boundaries.



I-495 and I-95 experienced one severe incident, which blocked the road at least one hour, every 5 days, within Maryland boundaries.

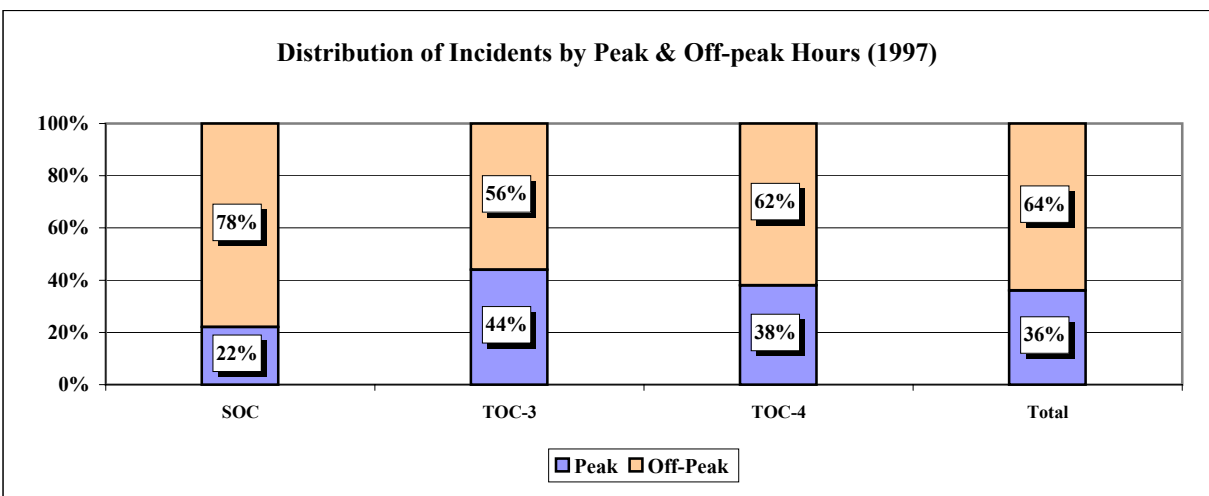
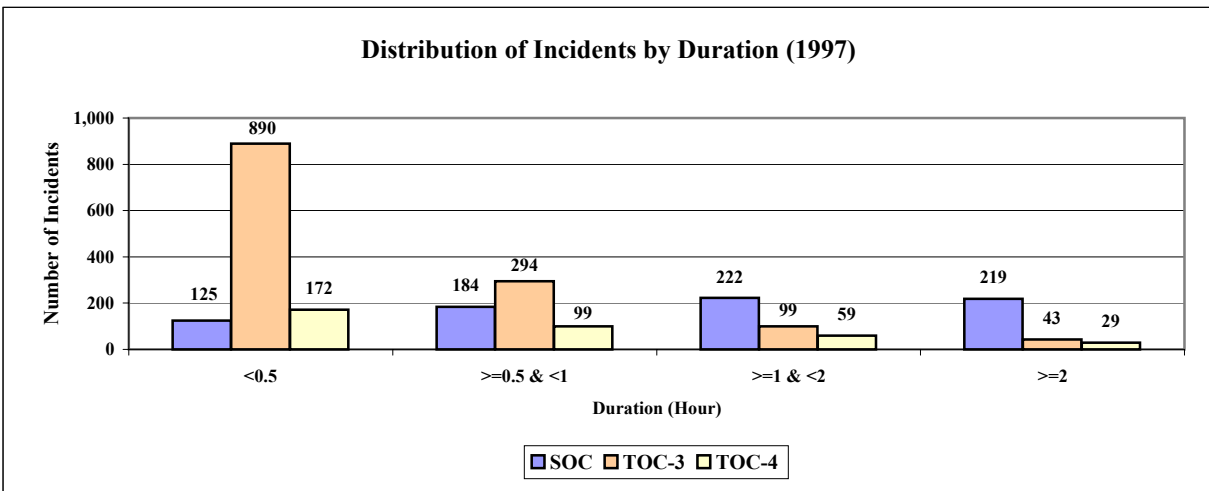
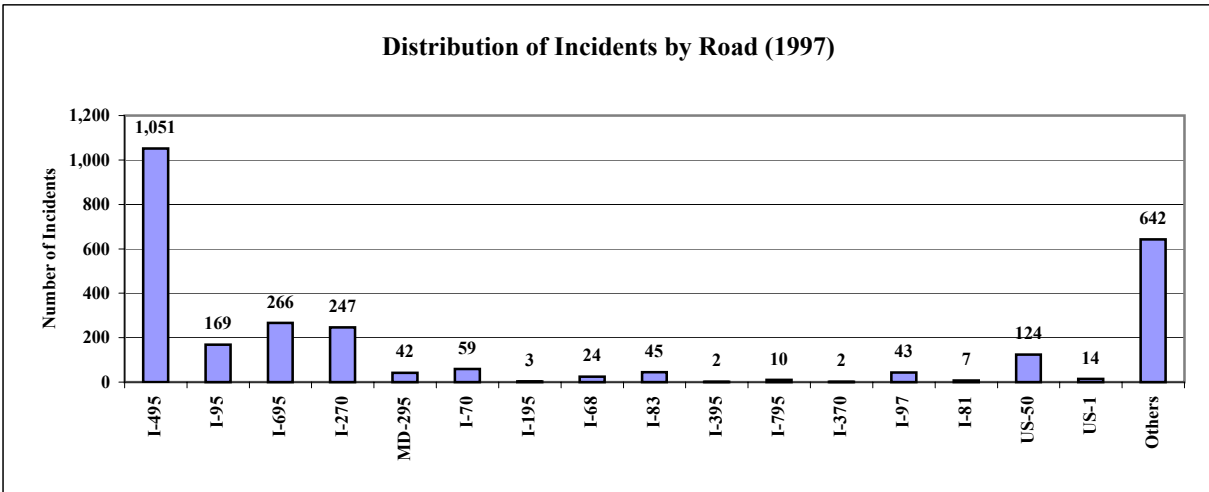


One-third of all incidents occurred during peak hours. Peak hours are defined as 7:00 a.m.-9:30 a.m. and 4:00 p.m.-6:30 p.m. for this study.



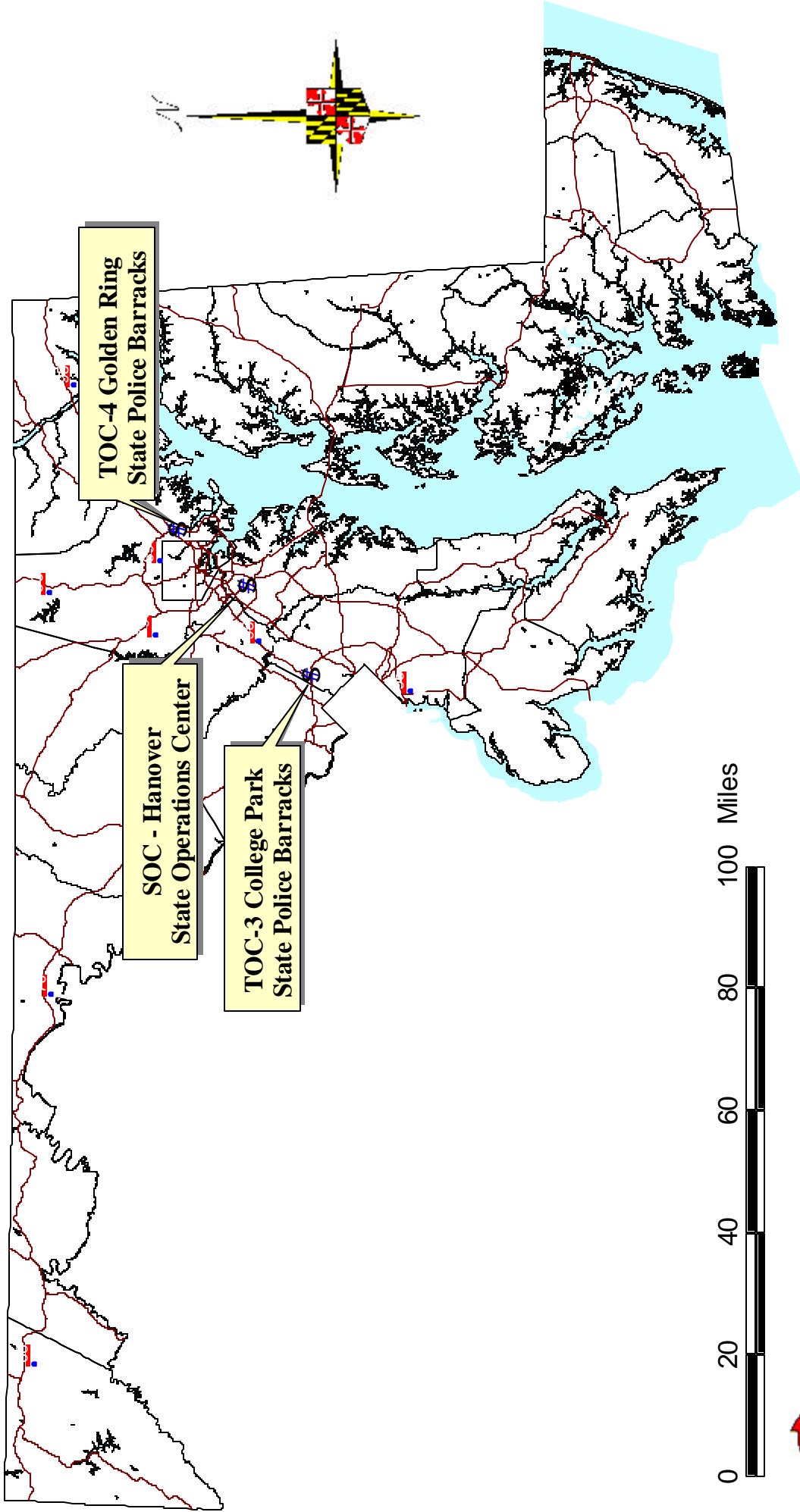
Incidents included are only those reported and responded to by CHART, there may be other incidents that occur on these roadways that are not reported.

Incident Distribution and Duration



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Maryland Traffic Operation Centers



Maryland Department of Transportation
State Highway Administration

Signalized Intersections

Signalized Intersection Level of Service (LOS) Criteria:



Congestion at a given signalized intersection is determined by: 1) The Critical Lane Volume (CLV) analysis to determine a Level of Service, and 2) Professional knowledge of intersection operation characteristics.



CLV analysis entails summing the highest through movement volumes plus the opposing left hand turns for each signal phase (the critical volume for that phase) and compares this to a theoretical capacity value of 1,600 vehicles per hour. A volume/capacity (v/c) rate is then calculated, i.e. total critical volume / 1,600.

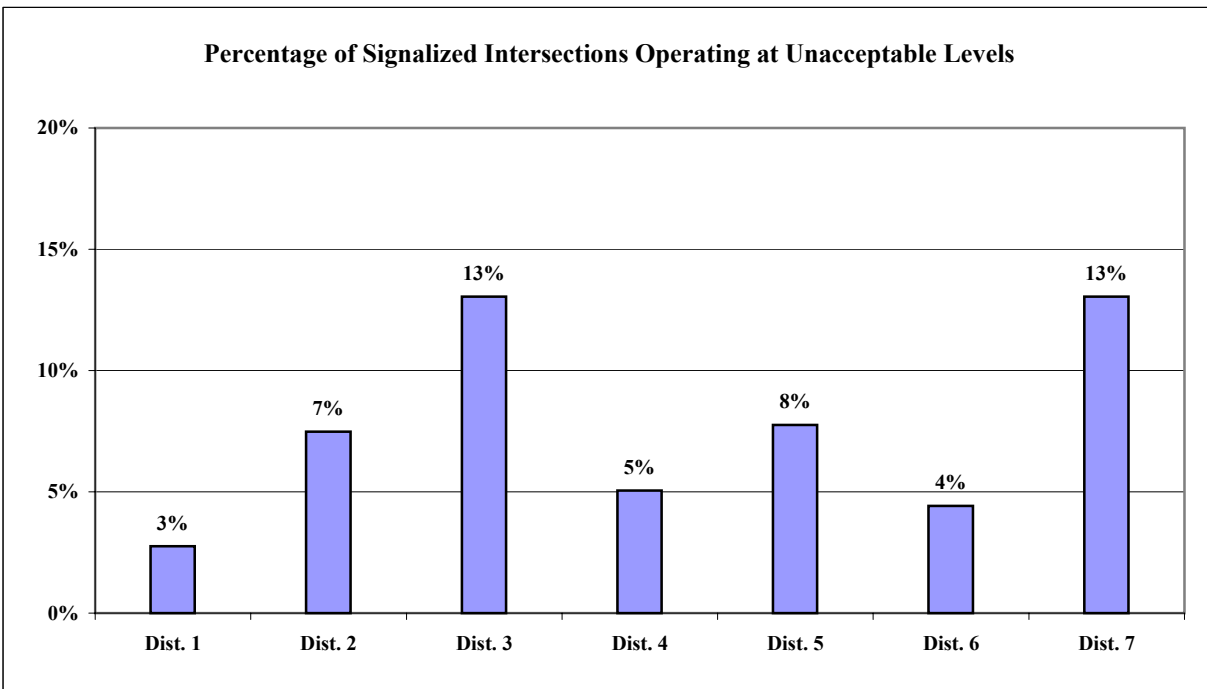


Congested intersections include Level of Service ratings of “E” or “F.”

Level of Service “E” = Critical Lane Volume from 1,450 to 1,600 (v/c range from 0.91 to 1.00 or 91% to 100% of capacity).

Level of Service “F” = Critical Lane Volume greater than 1,600 (v/c range greater than 1.00 or 100% of capacity or greater).

Signalized Intersections Operating at Unacceptable Levels



Congested Signalized Intersections on State Routes, by County (1999)

County	District #	# Cong.	% Cong.	Total #
Dorchester	1	0	0%	11
Somerset	1	0	0%	6
Wicomico	1	3	6%	50
Worcester	1	1	1%	78
Caroline	2	0	0%	12
Cecil	2	0	0%	51
Kent	2	1	10%	10
Queen Anne's	2	3	25%	12
Talbot	2	4	18%	22
Montgomery	3	75	16%	467
Prince George's	3	43	10%	437
Baltimore	4	18	5%	331
Harford	4	5	4%	124
Anne Arundel	5	16	6%	282
Calvert	5	3	13%	24
Charles	5	7	14%	50
St. Mary's	5	4	13%	31
Allegany	6	0	0%	32
Garrett	6	0	0%	9
Washington	6	5	7%	72
Carroll	7	11	16%	68
Frederick	7	7	10%	70
Howard	7	12	13%	92
Total		218	9%	2341

Pavement Condition



Road roughness quality is measured using the International Roughness Index (IRI).



The IRI is defined as a numerical value that is an accumulation of the inches of vertical movement of a vehicle. It is a measurement of the “bumpiness” of the road. SHA measures IRI at a 2/10ths of a mile interval.

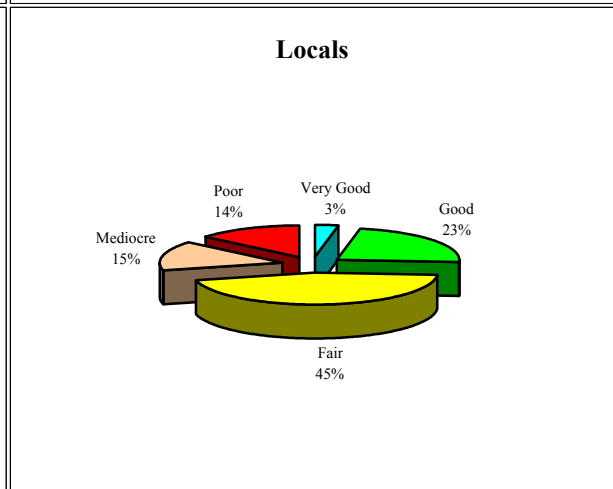
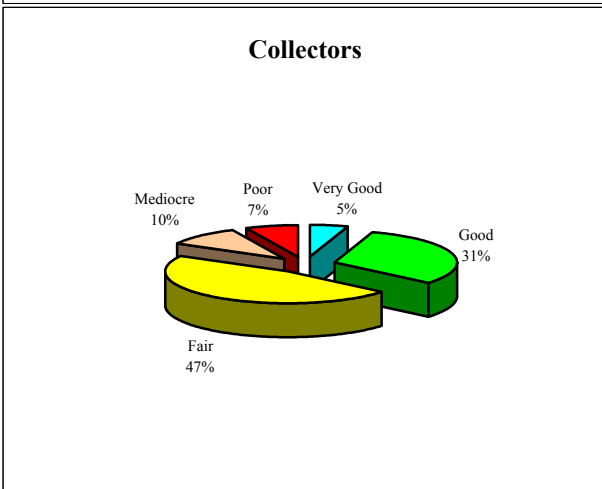
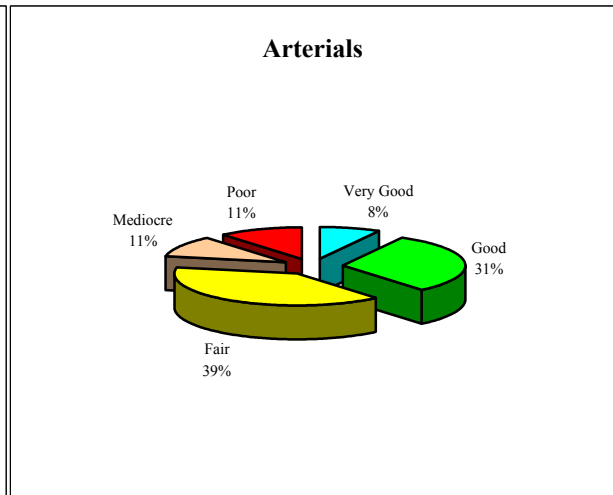
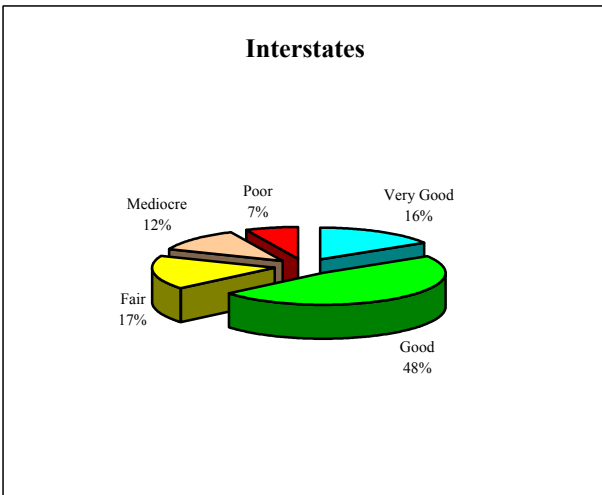
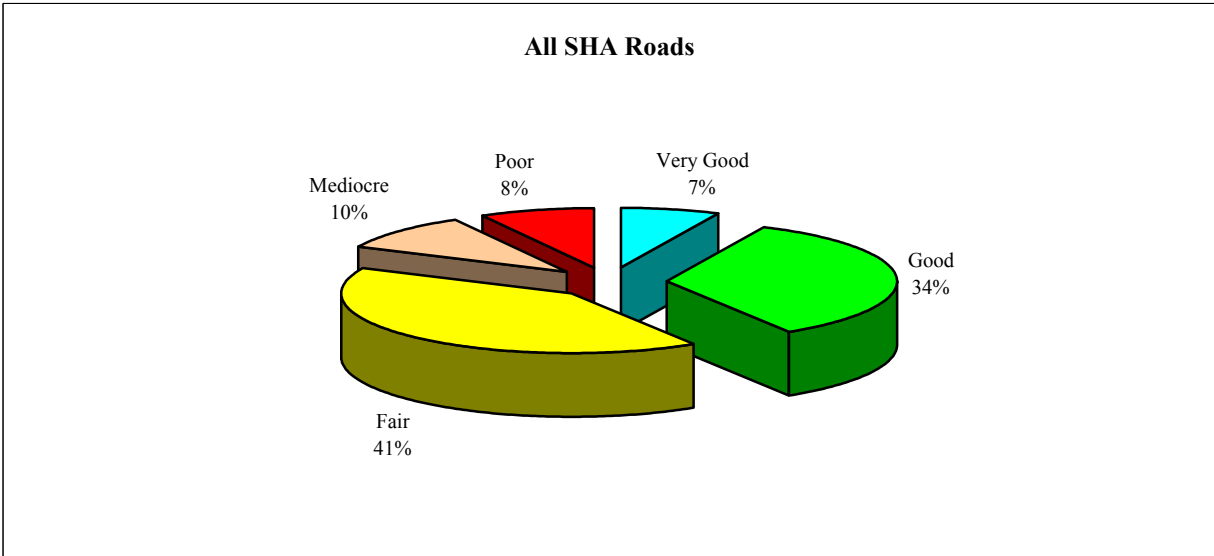


Low values (0-94) indicate a very smooth riding quality, while higher values, (above 220), indicate a rougher riding road.



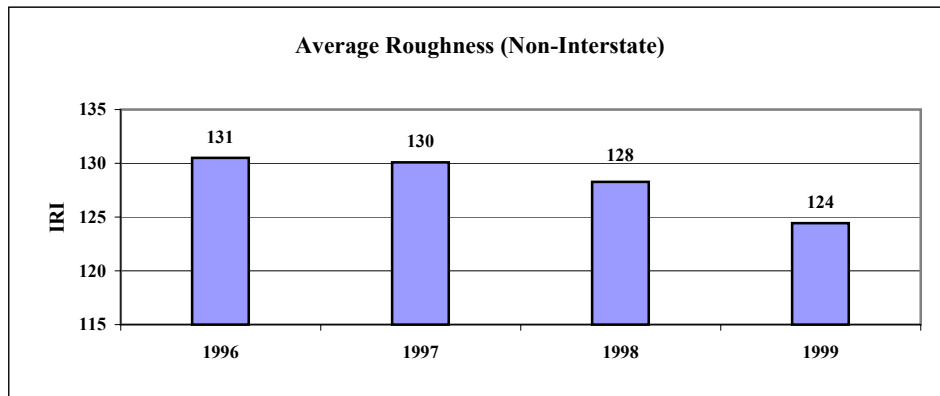
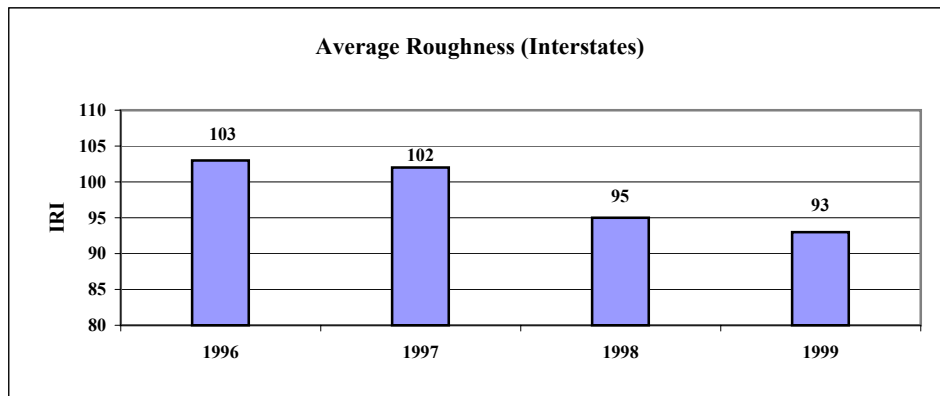
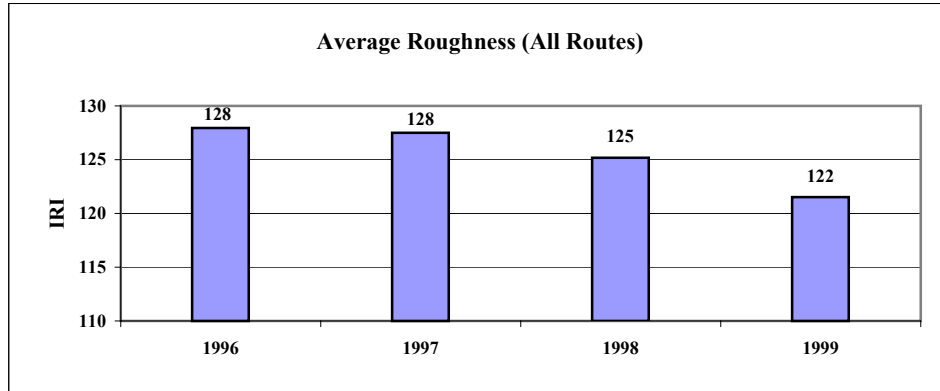
The range of IRI for each category is based on limits set by the Federal Highway Administration (FHWA) for its Highway Performance Monitoring System.

1999 Pavement Conditions Distribution Based on IRI



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Pavement Condition



Condition	IRI-Interstates	IRI-Other Routes
Very Good	0 - 60	0 - 60
Good	61 - 94	61 - 94
Fair	95 - 119	95 - 170
Mediocre	120 - 170	171 - 220
Poor	> 170	> 220

Bridges



A bridge is a structure with a length of 20 feet or greater, carrying traffic or other moving loads over a depression or an obstruction such as water, highway, or railway.



At the end of 2000, 151 bridges (6%) maintained by SHA were structurally deficient, meaning the strength and condition did not meet desirable standards and the structure will need to be replaced. Structurally deficient does not mean “closed,” a bridge can be deficient and still be safe, yet require future replacement.

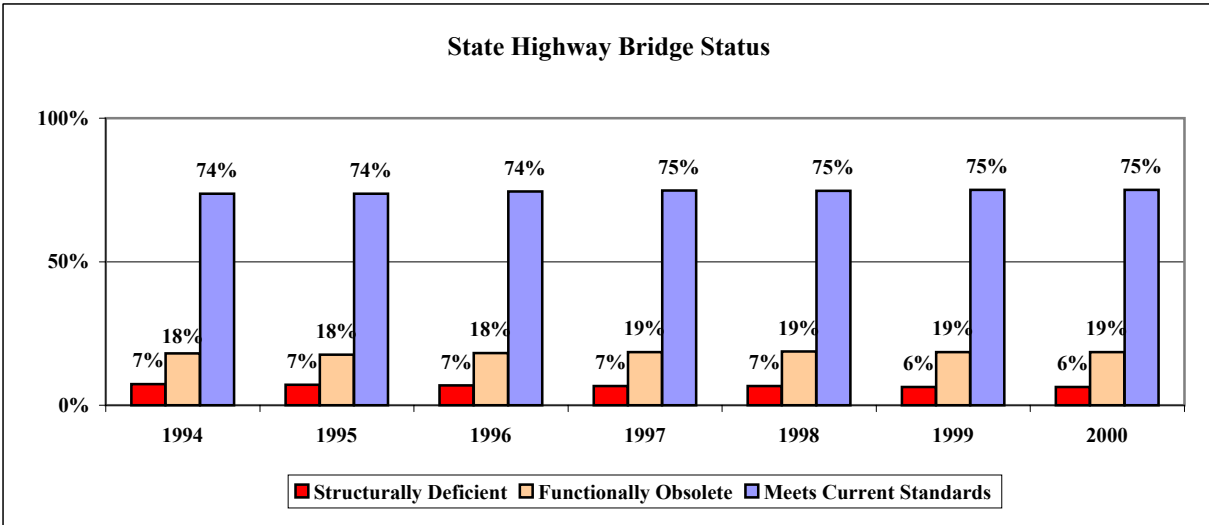


At the end of 2000, 464 SHA maintained bridges (19%) were functionally obsolete, meaning the bridge has one of the following characteristics: lane width and/or shoulders are too narrow, inadequate clearance, frequent flooding, or any other factor which would not meet current guidelines of the roadway.



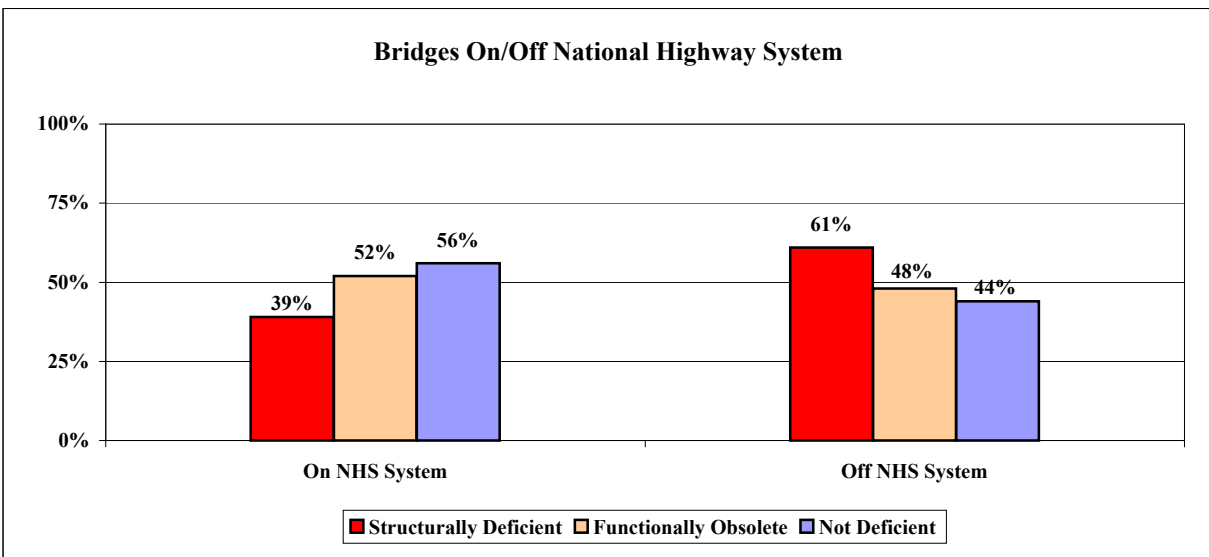
For the year ending 2000, there were 105 SHA maintained bridges (4%) on the National Highway System that were structurally deficient, though none require posting for weight restriction, and 214 bridges (9%) were classified as functionally obsolete.

Bridge Status



Year	Structurally Deficient		Functionally Obsolete		Meets Current Standards			TotalArea
	Total	Area	Total	Area	Total	Area	Total	
1994	174	1.9	427	3.7	1,745	18.5	2,369	24.2
1995	174	1.5	432	3.8	1,805	19.6	2,449	24.9
1996	167	1.8	441	3.7	1,811	19.9	2,432	25.3
1997	166	1.8	456	3.9	1,842	20.2	2,464	26.0
1998	163	2.6	458	4.0	1,828	19.4	2,449	26.0
1999	156	2.6	457	4.1	1,851	19.6	2,467	26.3
2000	151	2.4	464	4.3	1,868	19.8	2,489	27.8

Area = Square Footage in Millions.



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Community Enhancements

This chapter examines the programs that do not necessarily translate into the physical state highway system, but rather, complement the system. The chapter uses programs such as Neighborhood Conservation, Sidewalks, Wetland Mitigation, and displays the location of the projects, status, and when possible, the funding figures.

Sound Barriers



The Maryland State Highway Administration Noise Policy provides for the evaluation of sound barriers for communities adversely impacted by noise from state highways.



Sound barriers are evaluated in two separate categories. The first category is for the construction of new highways or capacity additions to existing highways. The second category is for existing highways not being expanded.



Guidelines for Sound Barriers associated with new construction or expansion of a state highway.

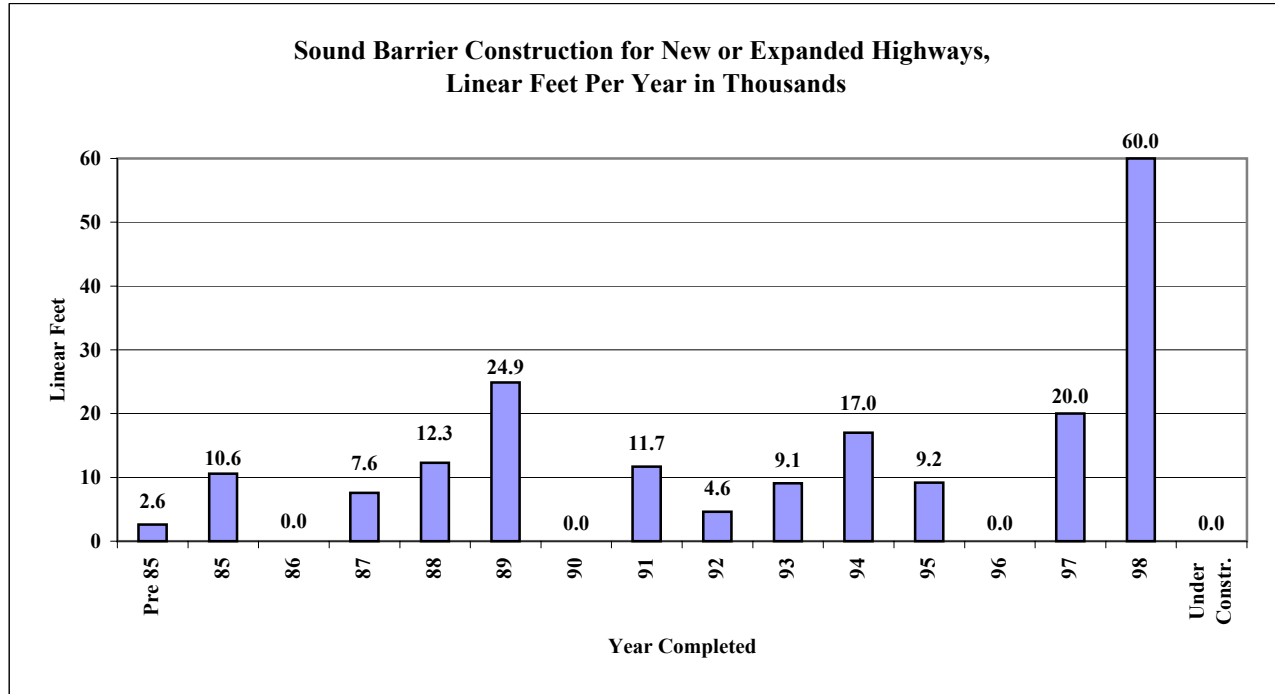
- 1) Predicted future noise levels equal or exceed 66 decibels or exceed existing noise levels by 10 decibels or more.
- 2) A sound barrier can be constructed that would reduce noise levels by 7-10 decibels at the most severely affected residences.
- 3) The cost of the sound barrier does not exceed \$50,000/per residence benefited.
- 4) The majority of the impacted residences in the defined community must have existed prior to the date of approval of the proposed highway improvements.
- 5) Seventy-five percent of the residents that are impacted are in favor of a barrier.



Guidelines for Sound Barriers on existing highways.

- 1) The majority of the impacted residences must have existed prior to the construction of the original highway.
- 2) Measured noise levels equal or exceed 66 decibels.
- 3) A sound barrier can be constructed that would reduce noise levels by 7-10 decibels at the most severely affected residences.
- 4) The cost of the sound barrier does not exceed \$50,000/per residence benefited.
- 5) Seventy-five percent of the residents that are impacted are in favor of a barrier.
- 6) Sound barriers will be approved only in counties that have enacted local controls, consistent with state requirements, to address noise impacts for future noise sensitive development adjacent to state highways.
- 7) The local jurisdiction agrees to fund 20% of the project cost.
- 8) Right of Way that may be required for the construction or permanent location of a sound barrier is donated to the state.
- 9) Highway is a limited access facility, where access is limited to interchanges.

Sound Barriers



Linear Sidewalks on State Highways



For this program, a “retrofit sidewalk” means a sidewalk that is constructed along a State route (Maryland & U.S. routes other than expressways). The reconstruction or replacement of sidewalks, for the purpose of repair or maintenance, is covered under this program only if it is an essential part of a revitalization effort in an officially designated revitalization area.



Only retrofit sidewalk projects along State highways are eligible for funding. Amenities beyond the scope of a basic sidewalk may be eligible for consideration for transportation enhancement funding if the location is in an historic district or a revitalization area. In accordance with State law, the cost for retrofit sidewalks shall be shared equally between the State Highway Administration and the local government. Within designated revitalization areas, a local jurisdiction may request reimbursement for up to 100% of the cost to construct sidewalks.



Guidelines used in selecting retrofit sidewalk projects (locally driven program):

- 1) Location – Sidewalks must be along state highway routes.
- 2) Safety – The project should demonstrate safety benefits to pedestrians. It should reduce the existing or potential pedestrian/vehicle conflicts by providing a separation from vehicular traffic. It should also provide or improve mobility for the general and disabled population.
- 3) Designated Revitalization Areas – Priority should be given to projects that demonstrate that the addition of sidewalks will benefit revitalization by providing access to business, commercial and/or recreational areas that does not currently exist. Highest priority should be given to projects in designated revitalization areas.
- 4) Local Pedestrian Policy and Commitment – The local jurisdiction should show evidence that they are in support of pedestrian facilities. Sidewalks should be included in the local jurisdiction’s Master Plan.
- 5) Continuity and Integration – It should be evident that the inclusion of the pedestrian facilities will provide a connection to an existing or proposed pedestrian network, e.g. the sidewalk will help to provide a critical link.
- 6) Pedestrian Traffic – It should be evident that there is either existing or projected pedestrian traffic. The support for pedestrian facilities can either be denoted by actual pedestrian counts or by evidence of well worn paths. The projected use can be based on experience with other similar facilities in similar land use settings.
- 7) Community Support – The project should have the support of the adjacent community that will be potential users of the facility.

Linear Feet of Sidewalks on Maryland State Highways

County	Length Existing (Miles)	Length Needed (Miles)
Allegany	12.63	12.76
Anne Arundel	28.67	33.11
Baltimore	75.52	38.71
Calvert	3.68	1.86
Caroline	10.49	4.70
Carroll	18.55	43.00
Cecil	18.12	12.35
Charles	8.54	7.27
Dorchester	10.11	1.85
Frederick	10.10	6.57
Garrett	4.51	3.49
Harford	22.87	11.92
Howard	3.51	6.43
Kent	8.47	2.88
Montgomery	146.00	32.05
Prince George's	109.71	26.59
Queen Anne's	10.51	1.25
St. Mary's	7.68	7.33
Somerset	6.47	5.59
Talbot	5.44	4.06
Washington	19.87	6.62
Wicomico	14.68	12.61
Worcester	28.95	8.34
Total State	585.08	291.34

Transportation Enhancement Program

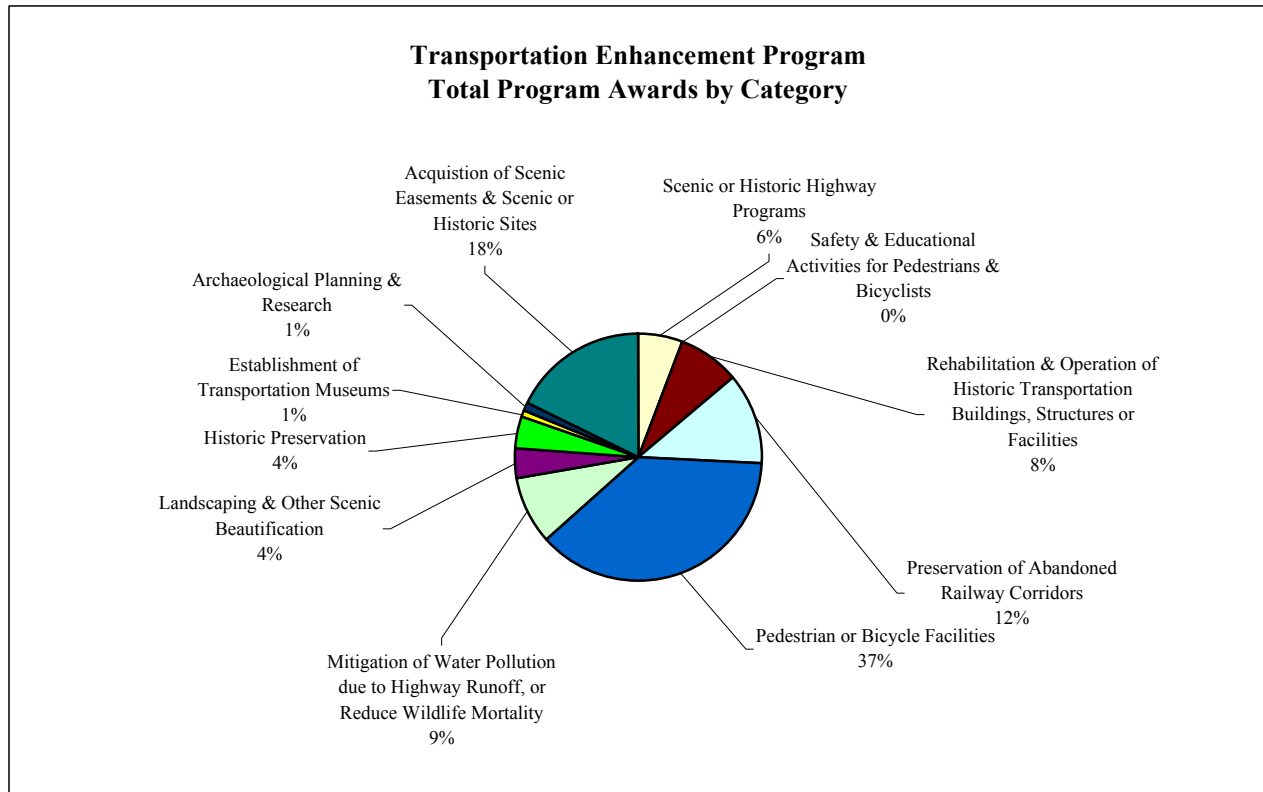


The Transportation Equity Act for the 21st Century (TEA-21) funds the Federal commitment to transportation related community amenities as part of the Federal Surface Transportation Program.



Transportation Enhancement Program funds are available on a reimbursable basis for a broad array of projects. In addition, because Transportation Enhancement Program funds are Federal funds, projects must conform to Federal requirements.

Transportation Enhancement Program



Enhancement Projects by Category	Award Amount
Pedestrian or Bicycle Facilities	\$41,138,623
Acquisition of Scenic Easements and Scenic or Historic Sites	\$19,996,171
Preservation of Abandoned Railway Corridors	\$12,948,323
Mitigation of Water Pollution due to Highway Runoff, or to Reduce Wildlife Mortality	\$10,094,799
Rehabilitation and Operation of Historic Transportation Buildings, Structures, or Facilities	\$8,228,304
Scenic or Historic Highway Programs Including Tourist and Welcome Center Facilities	\$6,000,180
Historic Preservation	\$4,004,421
Landscaping and other Beautification	\$3,875,437
Archeological Planning and Research	\$1,238,960
Establishment of Transportation Museums	\$640,000
Safety and Educational Activities for Pedestrians and Bicyclists	\$40,000
Total	\$108,205,218

Neighborhood Conservation and Streetscape Program



The Neighborhood Conservation Program began in 1996 in support of Maryland's Smart Growth initiative. It provides funding for transportation improvements on state highways located in existing communities where the improvements help to promote economic revitalization and neighborhood conservation. In addition, funding will be provided where these improvements will contribute to other revitalization activities, and where the projects promote transit use.



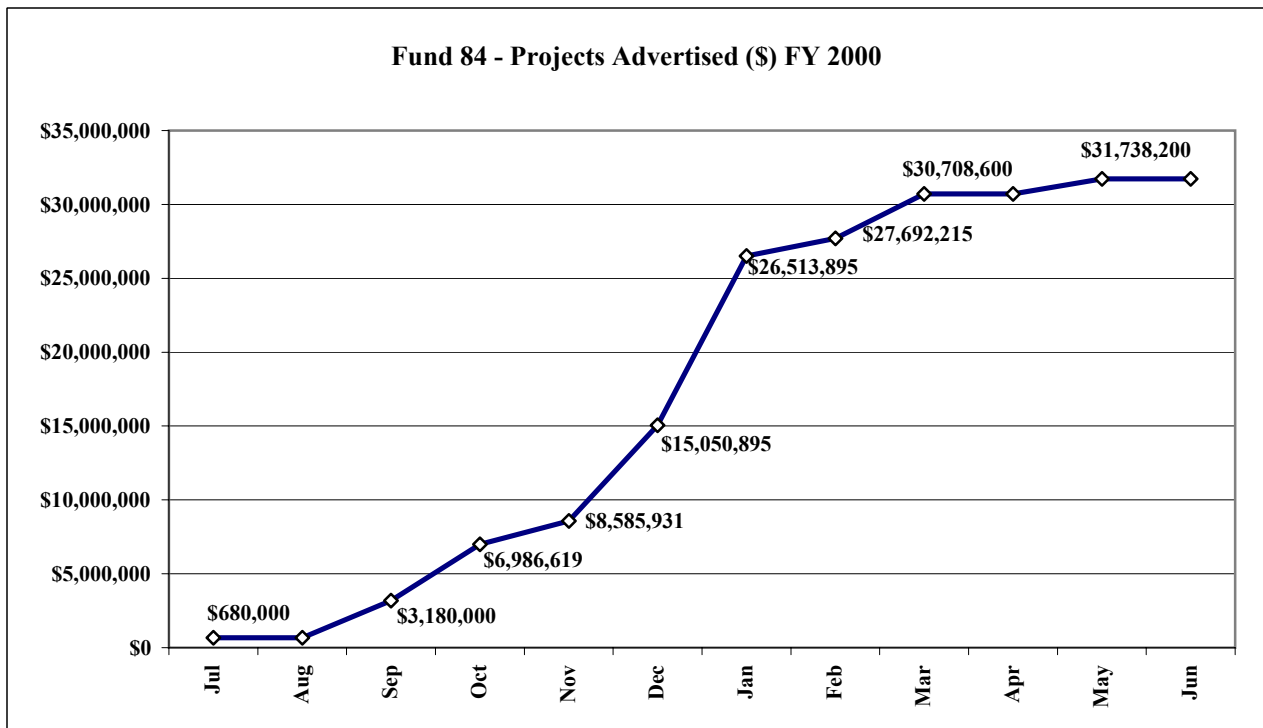
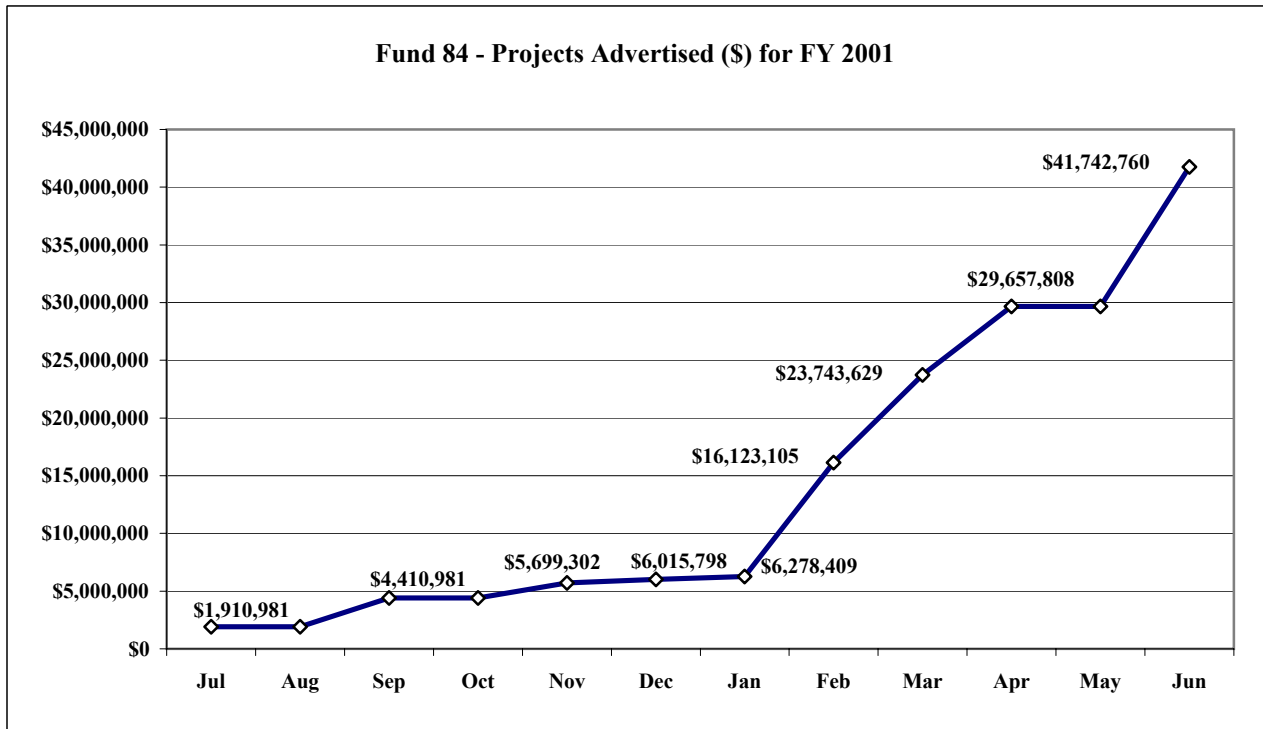
Funding for the Neighborhood Conservation Program, originally \$8 million per year, has tripled in fiscal year 2000. The program pays 100% of eligible project activities for projects on state highways in Existing Communities.



Projects eligible for these programs must improve structural or functional elements of the roadway, usually without adding capacity. SHA looks for community support when funding projects. Additionally, SHA places priority on projects that are integrated into other activities supporting revitalization of the neighborhood.

Status	Cost Est.	County	Town	Route	Project Description
Complete	\$1.3mil.	DO	Cambridge	MD 343	MD 341 to US 50
Complete	\$1.38mil.	CO	Greensboro	MD 314	Choptank Bridge to MD/DE Railroad
Complete	\$1.12mil	CO	Denton	MD 619	Fifth St. to Campground Rd.
Complete	\$305tho.	QA	Queenstown	MD 18C	Charity La. to Wall St.
Complete	\$1.2mil.	PG	Landover	MD 202	Phase I, MD 450 to Capital Beltway
Complete	\$600tho.	PG	Chillum	MD 211	D.C. Line to MD 202
Complete	\$428tho.	PG	Seat Pleasant	MD 214	At Addison Rd.
Complete	\$1.8mil.	PG	Port Towns	US 1 Alt	Phase I, D.C. Line to Anacostia River
Complete	\$1.63mil.	BA	Reisterstown	MD 140	MD 30 to Chartley Dr.
Complete	\$825tho.	BA	Catonsville	MD 144	Newburg Ave. to Bishops Lane
Complete	\$1.42mil.	HA	Bel Air	MD 924	Main Street Phase I, Gordon St. to US 1 Bus.
Complete	\$1.18mil.	AA	Brooklyn	MD 2	Baltimore City Line to 9th St.
Complete	\$2.5mil.	AA	Annapolis	MD 450	At Taylor Ave.
Complete	\$1.95mil.	CA	North Beach	MD 261	First Street to Anne Arundel Co. Line
Complete	\$1.24mil.	AL	Frostburg	US 40	Bowery St. to MD 36
Complete	\$1.61mil.	WA	Hancock	MD 144	Methodist St. to Church St., Phase I
Complete	\$1.4mil.	WA	Hagerstown	US 40	Potomac St. to Cannon Ave.
Complete	\$560tho.	FR	Brunswick	MD 17	At B Street Roundabout
Construction	\$400tho.	SO	Princess Anne	MD 675	Within Corporate Limits
Construction	\$6.27mil.	WO	Ocean City	MD 528	9th to 26th Street
Construction	\$2.37mil.	MO	Takoma Park	MD 320	Ritchie Ave to MD 787
Construction	\$1.3mil.	PG	Mt. Rainier	US 1	US 1 @ 34th St. and Perry St.
Construction	\$4.92mil.	PG	Laurel	US 1	Oak St. to MD 198
Construction	\$5.23mil.	BA	Loch Raven	MD 542	North of Joppa Rd to Taylor Ave.
Construction	\$2.69mil.	BA	Towson	MD 45	Investment Place to Fairmont Ave.
Construction	\$2.03mil.	BA	Randallstown II	MD 26	Courtleigh to Washington Rd.
Construction	\$3.23mil.	BA	Pikesville South	MD 140	West Village Drive to Baltimore City Line
Construction	\$3.58mil.	BA	Middlesex	MD 150	Selig Ave. to MD 700
Construction	\$1.28mil.	AA	Brooklyn	MD 171	MD 2 to Baltimore City Line
Construction	\$1.25mil.	CH	Indian Head	MD 210	Summers Rd. to Naval Surface Warfare Center
Construction	\$4.27mil.	WA	Boonsboro	US 40	W. Corp. limits to E. Corp. limits (Phase I & II)
Construction	\$1.94mil.	CL	Westminster	MD 32	MD 526 to MD 31

Neighborhood Conservation Program (Fund 84)



SHA Wetland Mitigation Statistics

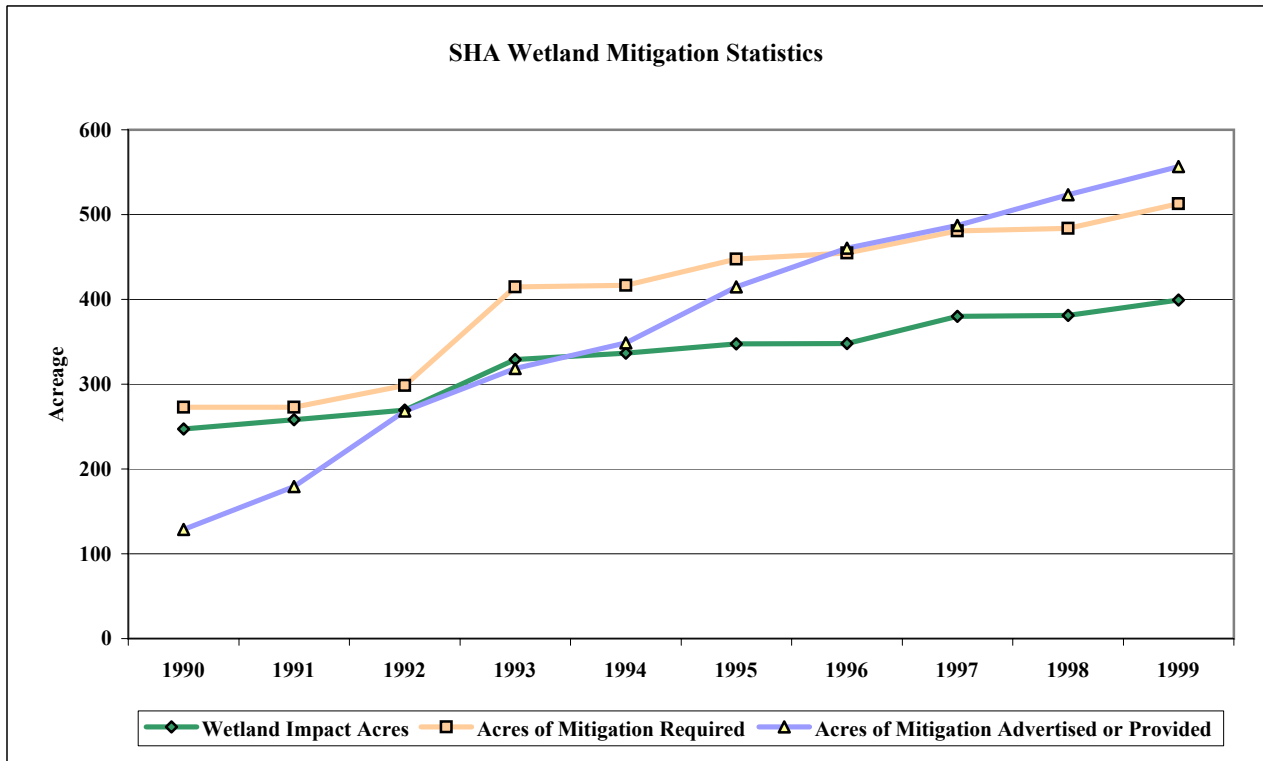


SHA's Environmental Programs Division identifies and analyzes wetland mitigation and stream restoration sites and coordinates their planning, design, construction, maintenance and monitoring. Examples include: wetland site search, wetland functional replacement, rare plant creation and acquisition, stream bank stabilization using bioengineering techniques and stream channel geometry improvements.



SHA in recent years has created or provided 40% more wetland acreage than that being impacted and 9% more than that being required.

SHA Wetland Mitigation Statistics



Year	Wetland Impact Acres	Acres of Mitigation Required	Acres of Mitigation Advertised or Provided
1990	247	273	129
1991	258	273	179
1992	270	298	268
1993	329	415	319
1994	337	417	349
1995	348	448	415
1996	348	455	461
1997	380	481	487
1998	381	484	523
1999	399	513	557

Note: Wetland Mitigation Statistics are Cumulative.