I. PURPOSE AND NEED

A. Identification in the Master Plan

I-95 in Maryland extends 110 miles from the Woodrow Wilson Bridge at the Virginia State line to the Delaware State line. It provides continuity for regional traffic from Florida to Maine and operates as an important backbone for commuter traffic within Maryland. As the "East Coast's Main Street," I-95 serves high volumes of regional commercial/business and recreational traffic. The Maryland Transportation Authority (hereinafter referred to as the Authority) owns, operates, and maintains a 50-mile portion of I-95 in Maryland, beginning north of Baltimore City and extending to the Delaware State line, known as the John F. Kennedy Memorial Highway (JFK).

The Authority, in cooperation with the Federal Highway Administration (FHWA) and the Maryland Department of Transportation (MDOT), developed the *I-95 Master Plan, I-895 Split(N) to the Delaware State Line* (hereinafter referred to as the I-95 Master Plan) study approach to comprehensively identify long-range transportation needs that establish clear goals for system maintenance, preservation and enhancement, and ensure the development of environmentally sensitive and intermodal-friendly solutions for the JFK.

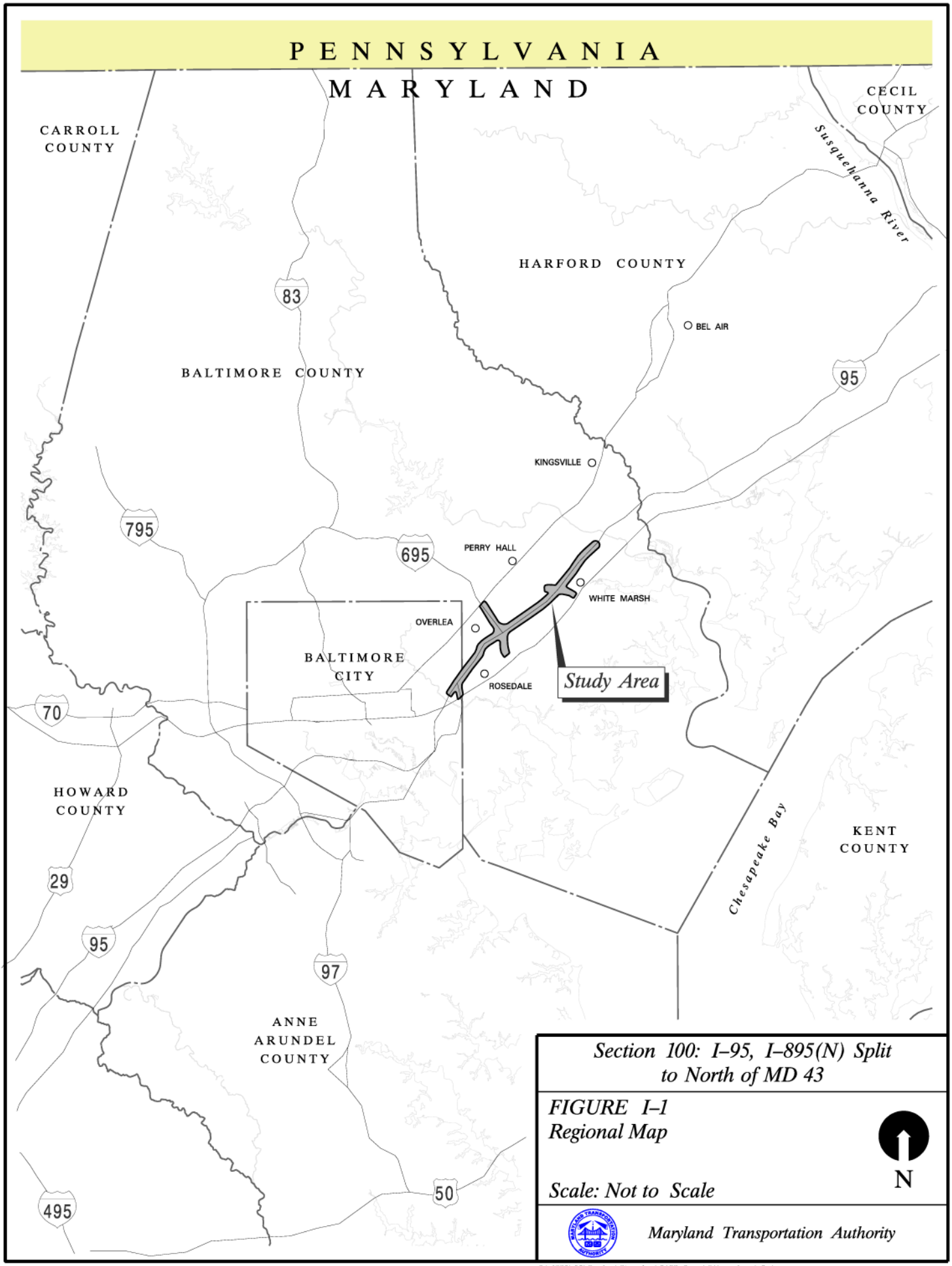
The Authority adopted the I-95 Master Plan in April 2003. It identified four independent projects including:

Section 100: I-95, I-895 (N) Split to North of MD 43
Section 200: North of MD 43 to North of MD 22
Section 300: North of MD 22 to North of MD 222
Section 400: North of MD 222 to the Delaware State Line

Throughout the I-95 Master Plan process, the Authority coordinated with local, State, and Federal regulatory and resource agencies. This coordination resulted in agency concurrence on the need for four independent projects and their termini and the concepts to be carried forward for each. Concurring agencies included the FHWA, EPA, USACE, NMFS, MDE, and DNR. Section 100 is the first independent project identified in the I-95 Master Plan to be initiated.

B. Project Location

The study area for Section 100: I-95, I-895(N) Split to North of MD 43 (hereinafter referred to as Section 100), is approximately nine miles long, extending north along I-95 from just south of the I-895(N) split on the northeast side of Baltimore City, to the New Forge Road overpass in Baltimore County, just north of the MD 43 Interchange. The study area includes the I-895(N), I-695, and MD 43 Interchanges, as well as the mainline of I-95 in this area, and extends approximately 0.25 mile out from the edge of the existing right-of-way (***Figures I-1 and I-2***).


PENNSYLVANIA
MARYLAND
CARROLL COUNTY
CECIL COUNTY
Susquehanna River
HARFORD COUNTY
83
BEL AIR
BALTIMORE COUNTY
95
KINGSVILLE
795
695
PERRY HALL
WHITE MARSH
OVERLEA
BALTIMORE CITY
ROSEDALE
Study Area
70
HOWARD COUNTY
Chesapeake Bay
KENT COUNTY
29
95
97
ANNE ARUNDEL COUNTY
50
495
Section 100: I–95, I–895(N) Split to North of MD 43
FIGURE I–1
Regional Map
Scale: Not to Scale
N
Maryland Transportation Authority
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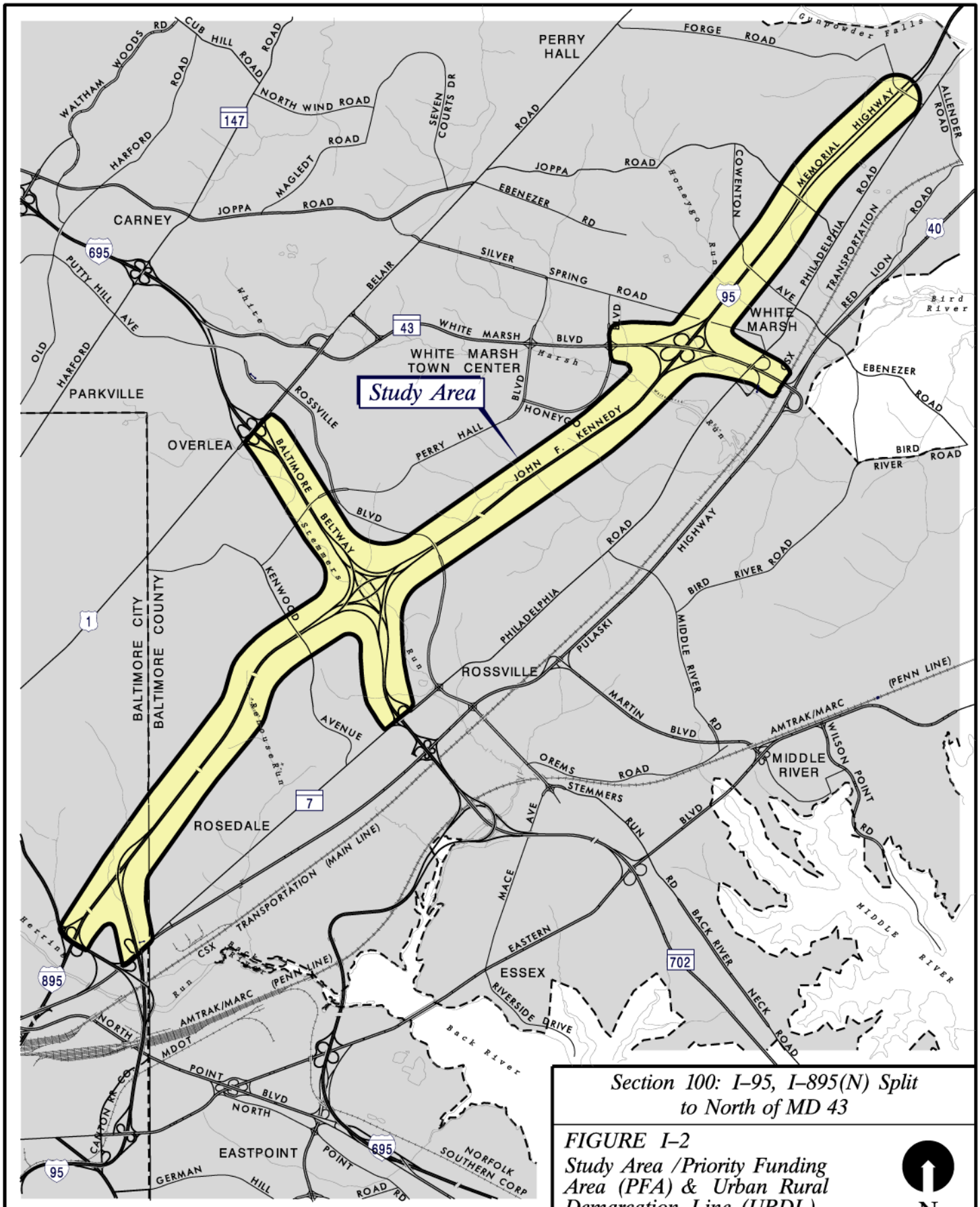

Section 100: I–95, I–895(N) Split to North of MD 43

FIGURE I–2
Study Area /Priority Funding Area (PFA) & Urban Rural Demarcation Line (URDL)

Maryland Transportation Authority

Source: Baltimore County GIS Services Unit

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The Section 100 study area is situated just north of Baltimore City's industrial and commercial areas. The northern boundary of the study area coincides with the Baltimore County Urban Rural Demarcation Line (URDL) and the Priority Funding Area (PFA) boundary (***Figure I-2***). The urban area, south of the URDL (and within the PFA boundary), is the focus for planned new and infill development activity. Further discussion of the URDL and PFA is provided in Section III-C of the Environmental Assessment (EA).

C. Project Description

This study will examine safety and service improvements to reduce congestion on I-95 from just south of the I-895(N) split to just north of the MD 43 Interchange by improving access, mobility, and safety, while helping to concentrate growth within the PFA. This study will also examine opportunities to increase safety at the I-895, I-695, and MD 43 Interchanges, as well as along the I-95 mainline.

Section 100 is the most congested section of I-95 in Maryland north of Baltimore City; currently operating at Level of Service (LOS) F during the morning and evening peak hours. (See Chapter I-H for a definition of LOS.) If capacity needs are not addressed, congestion is expected to increase by the design year of 2025, resulting in LOS E and F even during weekend peak periods. In addition, accidents in the study area have been steadily increasing, and are anticipated to further increase by 2025 due to the volume of diverging, merging, and weaving movements at the existing interchanges.

D. Purpose of the Project

The purpose of the proposed action is to address capacity and safety needs on Section 100 and thereby improve access, mobility, and safety for local, regional, and inter-regional traffic, including passenger, freight, and transit vehicles.

E. Need For the Project

The proposed action is intended to address the following capacity and safety needs on Section 100:

1. Capacity

Section 100 is the most congested section of I-95 in Maryland north of Baltimore City. Currently, Section 100, south of MD 43, operates at LOS F during the morning and evening rush hours. If capacity needs are not addressed, congestion is expected to increase by the planning horizon year of 2025. By 2025, Section 100, south of MD 43, is also expected to operate at LOS E and F during weekend peak periods. Unchecked, increased congestion levels will extend the existing peak hour into a peak period of

several hours in duration and increase the level of diversion to alternate routes, such as the community-oriented arterials US 1, US 40, and MD 7.

2. Safety

The accident rate on Section 100 currently is lower than the statewide average for comparable urban interstates within Maryland. However, the total number of accidents on Section 100 is increasing, especially in the vicinity of the urban I-895, I-695, and MD 43 Interchanges, where large volumes of merging, diverging, and weaving movements occur.

At some locations, left-hand exit and entrance treatments, limited auxiliary lane lengths, and restricted sight distances may increase the potential for accidents to occur. The majority of the reported accidents in Section 100 are of the types normally identified as congestion-related, such as rear-end and sideswipe. If the anticipated congestion levels in Section 100 are not addressed, an increase in the number and severity of congestion-related accidents would likely occur.

F. Background

I-95 is the backbone of the East Coast's highway infrastructure, serving Florida to Maine regional traffic, while at the same time serving as an arterial for local commuter traffic within each state. Within Maryland, I-95 provides access to two passenger rail systems (Maryland Rail Commuter (MARC) commuter rail and Amtrak), three freight railroad systems (Amtrak, CSX, and Norfolk-Southern), two airports (Baltimore/Washington International Airport (BWI) and Martin State Airport), and the Port of Baltimore. The proximity of I-95 to numerous intermodal terminals and urban centers ensures a growing travel demand generated by both local economic development and the transportation needs of the one-quarter of the United State's population that resides on the East Coast.

The portion of I-95, from the I-895(N) split to MD 43, was opened to traffic in 1963. Upon opening, I-95 consisted of three lanes in each direction between I-895 and MD 43. There were two lanes in each direction when the section of I-95 north of MD 43 opened in 1963. The interchange at I-695 and a partial interchange at MD 43 were constructed under independent contracts during the same time frame. In 1972, a third lane was added to each direction of I-95 from MD 43 to the north and the I-95/I-895 Interchange was constructed. In the mid-seventies, the remaining ramps at the MD 43 Interchange were completed. On January 30, 1991, ownership of the section of I-95 from I-895 to MD 43, was transferred from the Maryland State Highway Administration (SHA) to the Authority by an inter-agency agreement. In Spring 1993, the portion of I-95 from I-695 to MD 43 was widened to four lanes in each direction. The fourth lane was extended north of MD 43 in Spring 1994.

G. Land Use/Economic Development

I-95 is a major transportation facility that influences inter- and intra-regional road transportation within Baltimore County and Baltimore City. I-95 also provides access to local and regional inter-modal terminals, including the Port of Baltimore.

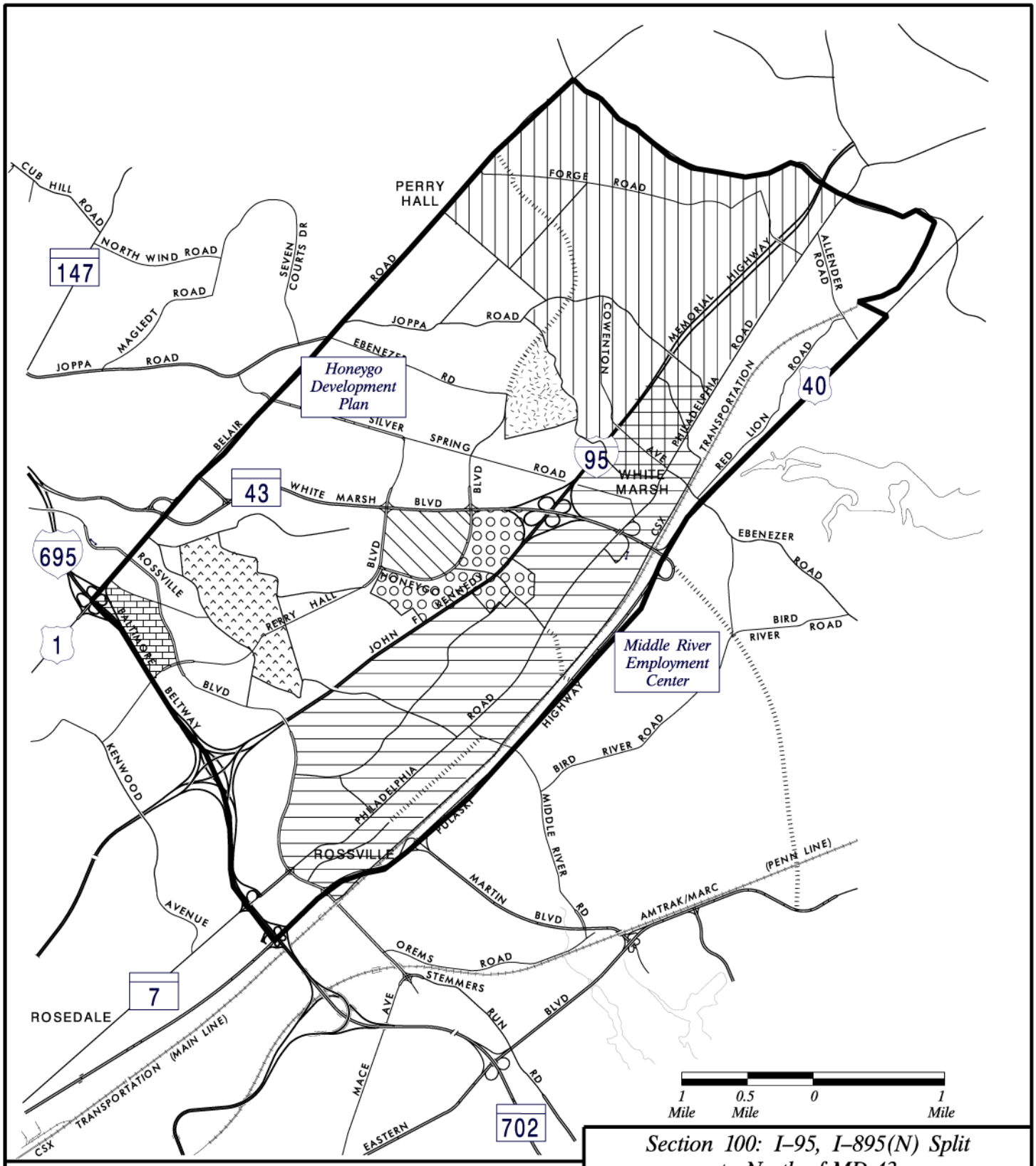
State and County land development policies and plans will strongly influence the pace and location of growth along I-95 in Maryland. Maryland's Smart Growth Priority Funding Areas (PFA) Act of 1997 (Smart Growth Act) directs State infrastructure funds to areas within or connecting county-designated and state-certified PFAs. In addition, Executive Order (EO) 01.01.2003.33, *Maryland's Priority Places Strategy*, directs agencies to implement PFAs and planned growth in order to "develop long-term solutions to the complicated issues of economic growth, community revitalization, and resource conservation to achieve the best "public return" on State investments." The study area is located within a PFA, as previously depicted on ***Figure I-2***, thereby indicating that the proposed infrastructure will be consistent with both the Smart Growth Act and the Maryland's Priority Places Strategy.

Land use immediately south of the study area, within Baltimore City, is primarily industrial with some interspersed residential use. The I-95/I-895(N) split occurs just south of the Baltimore City/Baltimore County line. Within Baltimore City, I-95 and I-895 serve the Canton Industrial Area, the Port of Baltimore, and the Fort Holabird Industrial Park, before continuing south through the Fort McHenry Tunnel and the Baltimore Harbor Tunnel, respectively.

Baltimore County has a 30-year history of considering growth management in its general plan. A key component of its growth control efforts is the designation of urban and rural zones, denoted by the URDL. Within the urban section (where 90 percent of the County population resides), emphasis is placed upon economic development, public safety, education, and community conservation.

The study area falls completely within the urban area of Baltimore County, south of the URDL (***Figure I-2***). The land-management areas within the urban section include community conservation areas (CCAs), growth areas, employment areas, and the Towson Urban Center. CCAs within the URDL, near I-95, contain established residential communities and industrial/commercial developments.

The White Marsh Business Community, adjacent to the MD 43 Interchange, includes dense commercial, business, residential, and institutional uses on both the east and west sides of I-95. Other major private developments that are planned near the study area include the Middle River Employment Center (MREC), the Honeygo development, and developments within the Perry Hall – White Marsh Growth Area (***Figure I-3***).



Legend

- *Road Network*
- *Proposed Road Project*
- *Perry Hall/White Marsh Growth Area*
- *Fitch Ave. Industrial Area*
- *Honeygo Park*
- *Fullerton Reservoir Site*
- *White Marsh Town Center*
- *Philadelphia Road Corridor*
- *White Marsh Business Community*
- *Honeygo*

Section 100: I–95, I–895(N) Split to North of MD 43

FIGURE I–3
Future Land Use/Economic Development Areas

N

Maryland Transportation Authority

Data Sources:
URDL, Land Management Areas:
Baltimore County Office of Planning (1:24000)
Roads: Baltimore Metropolitan Council (1:24000)

Data Sources:
Baltimore County Office of Planning
OIT – GIS Services Unit

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The planned MREC site is located southeast of the I-95/MD 43 Interchange. The MREC which includes a 1,000 acre undeveloped parcel, Martin State Airport, and the Chesapeake Industrial Park, is expected to attract approximately 10,000 to 15,000 new jobs to the region, including Lockheed Martin Aerostructures/General Electric facilities. The MREC site is currently served by Amtrak, and would also be accessible from the MD 43 Extended roadway, which is currently under construction. The Perry Hall – White Marsh Growth Area has been established to help promote further growth in the study area. The center of the Growth Area is located at the White Marsh Mall. Three primary sections within the Growth Area are designated for business development, including the White Marsh Business Community, the Philadelphia Road Corridor, and the Fitch Avenue Industrial Area.

Northwest of the I-95/MD 43 Interchange is the Honeygo development plan, a consortium of multiple private-development projects in the White Marsh area. Development projections for the Honeygo area call for 3,500 to 5,600 residential units, with buildout expected to occur by 2025 (some of the units are already in place). Also in the study area is the Baltimore Air Park, which is being redeveloped with residential land use.

H. Traffic Data and Level of Service

Travel demand forecasts were developed using the Baltimore Regional Transportation Board (BRTB) approved travel demand model (Round 6). Model inputs included socio-economic, roadway network, and transit network data. Socio-economic data, such as projected changes in population, households, and employment, were taken from regional forecasts developed by the metropolitan planning organization with the assistance of local jurisdictions.

The roadway network in the model is in accordance with the 2001 Baltimore Regional Transportation Plan. The model assumed Section 100 to include six general purpose lanes as a baseline. Some assumed improvements include the widening of I-695 from six to eight lanes between I-95 and I-83 and the extension of MD 43 to MD 150 as a four-lane roadway.

The transit network, as approved by the BRTB, includes express bus service from Bel Air to White Marsh, Hunt Valley, Towson, and eastern Baltimore County along Maryland 43 Extended. Bus service was also assumed to operate from White Marsh to Harford County, with circulation bus service in the White Marsh area. Light rail from White Marsh to Baltimore City was also part of transit network assumptions used in the future year model.

The highest weekday AM peak hour volume along Section 100 occurs between the I-895(N) and I-695 Interchanges, while the highest weekday PM peak hour volume occurs between the I-695 and MD 43 Interchanges (***Table I-1***). Weekday peak hour volumes are currently at or near capacity. Weekday peak hour traffic volumes exceed weekend peak hour volumes by 1,650 to 3,000 vehicles per hour (27 to 54 percent). By 2025, Average Daily Traffic (ADT) volumes are expected to increase by as much as 37 percent. Weekday peak hour travel demand will continue to exceed weekend peak period demand, even though weekend peak period travel is projected to increase at a higher rate.

LOS is a measure of congestion experienced by drivers. LOS ranges from A to F, with LOS A indicating free flow, and LOS B and C describing varying degrees of operation at or near the posted speed limit. At LOS D, speeds decline slightly, while a LOS E describes operations approaching, or at capacity, with little room to maneuver in the traffic stream. Finally, LOS F describes breakdowns in vehicular flow, with stop-and-go conditions.

The highest levels of congestion in the AM peak hour occur along southbound I-95, whereas the highest congestion levels in the PM peak hour occur along northbound I-95 (***Table I-2***). By 2025, congestion is expected to spread further north in both the AM and PM peak directions, with both peak periods operating at LOS F.

North of I-895, weekend peak period traffic currently operates at Level of Service (LOS) D or better. Without improvements, the predicted LOS for 2025 weekend peak period traffic throughout the study area would be an undesirable LOS E, with the exception of northbound I-95 between I-695 and north of MD 43, which is predicted to be LOS F, as shown in ***Table I-2***.

I. Accident Data/Safety Conditions

The Maryland State Highway Administration, Office of Traffic and Safety (SHA-OOTS) provided police-reported accident data for the 8.7-mile study area for the three-year period from 2000 through 2002. During that period, a total of 789 accidents were reported in the study area, including six fatal accidents, 288 injury accidents, and 495 property-damage-only accidents. The total number of accidents increased 46.5 percent during the three-year period, from 211 in 2000 to 309 in 2002.

The percentage of heavy vehicles on Section 100 is approximately 10 to 15 percent of the overall traffic volume, whereas the Maryland statewide average heavy vehicle percentage for urban interstates is six to ten percent. Overall, 158 of the 789 reported accidents involved a heavy vehicle, which equated to 10.2 truck-related accidents per 100 million vehicle miles traveled (MVMT). This rate is two percent greater than the statewide average of 10.0 truck-related accidents per 100 MVMT for similar Maryland urban interstates.

Table I-1. Existing and Future No-Build Traffic Volumes

Limits	2002 Volume	2025 Volume [1]	Percent Growth	2002 Volume	2025 Volume [1]	Percent Growth
	Average Daily Traffic (Vehicles/Day)			Weekend [2] (Vehicles/Hour)		
South of I-895(N)	101,000	138,000	37%	3,900	5,550	42%
I-895(N) – I-695	161,000	219,000	36%	5,800	8,100	40%
I-695 – MD 43	166,000	225,000	35%	6,650	9,075	37%
North of MD 43	161,000	221,000	37%	6,150	8,475	38%
	AM Peak [3] (Vehicles/Hour)			PM Peak [3] (Vehicles/Hour)		
South of I-895(N)	5,200	6,350	22%	5,075	5,825	15%
I-895(N) – I-695	8,550	10,200	19%	8,575	9,725	13%
I-695 – MD 43	7,850	9,600	22%	8,650	9,850	14%
North of MD 43	7,700	9,575	24%	7,950	9,300	17%

Source: Year 2002 volumes from various Maryland State Highway Administration/Maryland Transportation Authority traffic counts. Year 2025 volumes developed from the Baltimore Metropolitan Council Regional Travel Demand Model, Round 6.

[1] The 2025 volumes assume improvements to MD 43, I-695, and expanded transit service as shown in the constrained long range plan.
[2] Weekend peak period volumes represent approximately the 50th highest weekend hour that occurs in a calendar year.
[3] AM and PM peak hour volumes represent the highest hourly volumes in the peak direction that occur on an average weekday (Monday through Friday).

Table I-2. Existing and Future No-Build Levels of Service (LOS) [1]

Limits	I-895 to I-695		I-695 to MD 43		North of MD 43	
	2002	2025 [2]	2002	2025 [2]	2002	2025 [2]
Northbound						
AM Peak [3]	LOS A-C	LOS D	LOS A-C	LOS D	LOS A-C	LOS D
PM Peak [3]	LOS F	LOS F	LOS F	LOS F	LOS E	LOS F
Weekend [4]	LOS A-C	LOS E	LOS D	LOS F	LOS A-C	LOS F
Southbound						
AM Peak [3]	LOS F	LOS F	LOS E	LOS F	LOS E	LOS F
PM Peak [3]	LOS A-C	LOS D	LOS A-C	LOS E	LOS A-C	LOS D
Weekend [4]	LOS A-C	LOS E	LOS D	LOS E	LOS A-C	LOS E

Source: Year 2002 volumes from various Maryland State Highway Administration/Maryland Transportation Authority traffic counts. Year 2025 volumes developed from the Baltimore Metropolitan Council Regional Travel Demand Model, Round 6.

[1] LOS A-C describes varying degrees of operation at or above posted speed limits. At LOS D, speeds decline slightly. LOS E describes operations at capacity, with little room to maneuver in the traffic stream. LOS F describes breakdowns in vehicular flow (Source: *2000 Highway Capacity Manual*).
[2] The 2025 volumes assume improvements to MD 43, I-695, and expanded transit service as shown in the constrained long range plan.
[3] AM and PM peak hour volumes represent the highest hourly volumes in the peak direction that occur on an average weekday (Monday through Friday).
[4] Weekend peak period volumes represent approximately the 50th highest weekend hour that occurs in a calendar year.

Table I-3 summarizes reported accidents within the study area by accident type and location. More than 65 percent of the reported accidents in Section 100 are of the types normally identified as congestion-related, such as rear end or sideswipe. The calculated study area accident rate shown in ***Table I-3*** of 50.8 accidents per 100 MVMT was 8.3 percent below the average rate of 55.4 accidents per 100 MVMT for similar Maryland maintained interstates. (Study area rates were found by dividing the specific number of accidents by the 100 MVMT provided by SHA-OOTS.)

Table I-3. Accident Data Summary (2000-2002)

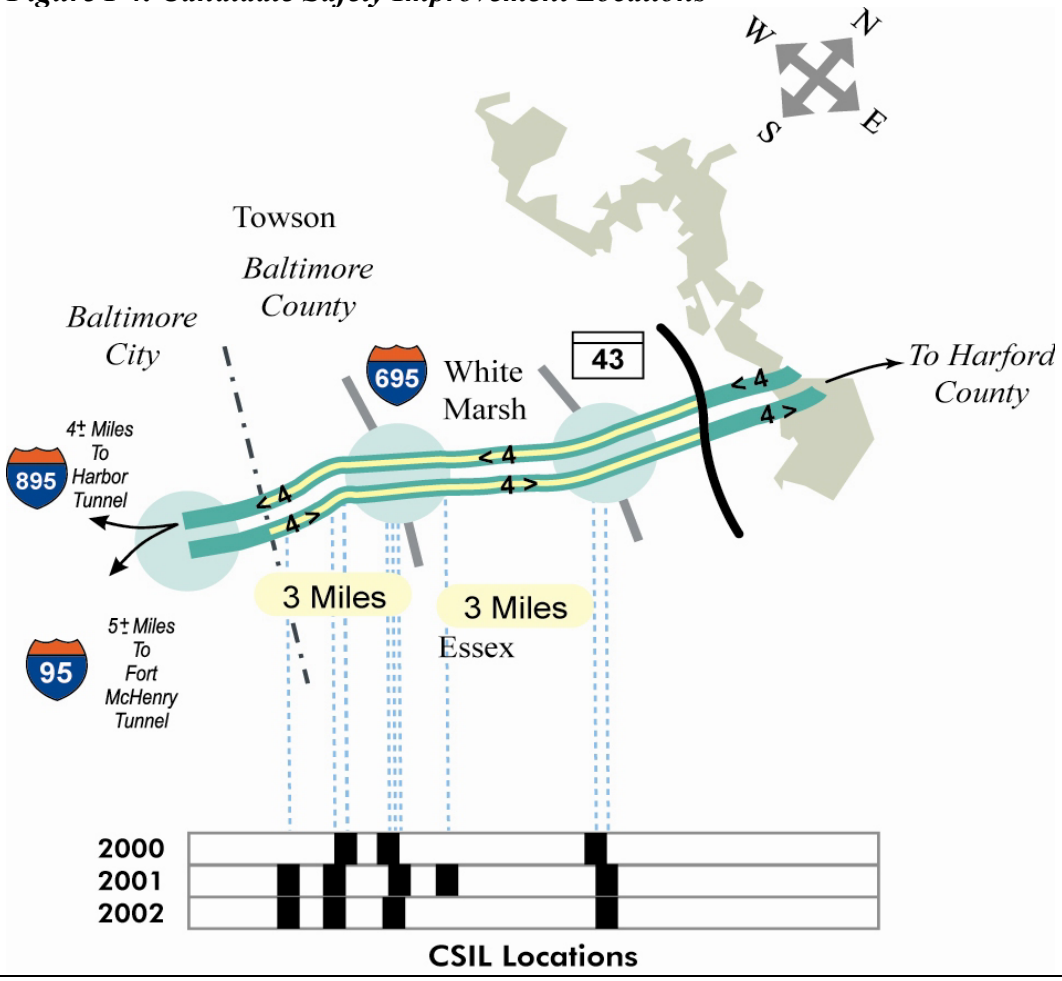
		Mainline Sections				Interchanges		Totals	Study Rate [1]	State-wide Rate [2]
		I-895(N) to I-695	I-695 to MD 43	North of MD 43	Sub-total	I-695	MD 43			
Mileage		**2.36**	**2.55**	**2.43**	**7.34**	**0.75**	**0.63**	**8.72**		
Accident Type	**Rear End**	140	71	52	263	55	33	351	22.6	21.7
	Fixed Object	47	42	28	117	27	29	173	11.1	14.8
	Sideswipe	28	31	10	69	22	13	104	6.7	7.2
	Parked	17	3	1	21	2	0	23	1.5	1.3
	Pedestrian	0	0	1	1	0	0	2	0.1	0.2
	Opposite Direction	0	0	1	1	0	1	2	0.1	0.3
	Other	35	36	27	98	21	16	134	8.6	4.7
Total		**267**	**183**	**120**	**570**	**127**	**92**	**789**	**50.8**	**55.4**
Severity	**Fatal**	2	0	2	4	0	1	6	0.4	0.4
	Injury	98	75	42	215	45	30	288	18.5	22.4
	Property Damage Only	167	108	76	351	82	61	495	31.9	32.6
Condition	**Nighttime**	81	56	30	167	39	31	233	30%	32%
	Wet Surface	37	51	21	109	28	21	144	18%	28%
	Alcohol	20	11	10	41	2	8	51	7%	8%

[1] Study rates are in 100 million vehicle miles traveled (MVMT) and are calculated by dividing the number of accidents by vehicle miles traveled provided by SHA-OOTS.
[2] Statewide rates are in 100 MVMT and are average rates for similar Maryland maintained interstates.

Most of the study area accident rates shown in ***Table I-3*** were comparable to their respective statewide average rates, with the exception of accidents categorized as "other." These accidents include those not directly applicable to other categories (such as u-turn accidents, backing accidents, or animal-related accidents) and accident types not indicated on accident reports. Based on the information available, it is not immediately clear why the rate of "other" accidents shown for the study area (8.6 accidents per 100

MVMT) was 83 percent greater than the statewide average rate of 4.7 accidents per 100 MVMT.

Figure I-4. Candidate Safety Improvement Locations



From 1999 through 2002, 17 sections of I-95 throughout the study area were identified as secondary Candidate Safety Improvement Locations (CSILs). CSILs are one-half mile long segments of roadway that have ten or more accidents. They are classified as priority or secondary depending on how much greater the segment's accident rate is compared to other Maryland highways with similar design characteristics. As shown in ***Figure I-4***, the 17 sections were concentrated primarily within the I-695 and MD 43 Interchanges. The CSILs are likely concentrated in the interchange areas because of the merging, diverging, and weaving movements that occur there. At some locations, left-hand exit and entrance treatments, limited auxiliary lane lengths, and restricted sight distances may increase the potential for accidents to occur. These factors, in combination with the overall congestion in Section 100, contribute to the CSILs.

J. Conclusion

The Section 100 Project focuses on safety and service improvements to reduce congestion on I-95 from the I-895(N) split to just north of the MD 43 Interchange. Improvements examined include efforts to improve access, mobility, and safety, while helping to concentrate growth within the PFA. This includes efforts to increase safety at the I-895, I-695, and MD 43 Interchanges, as well as the I-95 mainline within the study area.