NHS CORRIDOR
BETWEEN I-68 AND CORRIDOR H

US 220 TIER ONE
FINAL ENVIRONMENTAL IMPACT STATEMENT

April 2014

U.S. Department
of Transportation
Federal Highway
Administration

FHWA-WV-EIS-________

National Highway System Corridor between I-68 and Corridor H (US 220)
Tier One Final Environmental Impact Statement

Submitted pursuant to *42 U.S.C. 4332 (2)(c)*
by the U.S. Department of Transportation: Federal Highway Administration (FHWA),
the West Virginia Division of Highways (WVDOH)
and the Maryland State Highway Administration (MDSHA)

Cooperating Agencies

U.S. Army Corps of Engineers, U.S. Environmental Protection Agency,
U.S. Fish and Wildlife Service and the U.S. Department of the Interior, National Park Service

4/2/14	Thomas J. Smith
Date of Approval	Federal Highway Administration: WV Division
3/24/14	David L. Mattox, Jr.
Date of Approval	West Virginia Division of Highways (WVDOH)
3/13/14	
Date of Approval	Maryland State Highway Administration (MDSHA)

This is a Tier One Final Environmental Impact Statement for the National Highway System Corridor along US 220 between I-68 and Corridor H for FHWA by WVDOH and MDSHA. WVDOH is the lead state agency. The purpose of the project is to develop an improved transportation corridor connecting I-68 and Corridor H. Project needs include: geometric deficiencies on US 220 and parallel roads; inadequate capacity; safety deficiencies; economic development; and system linkage. After preliminary corridors were presented to state/federal agencies, local planning officials, and the public, they were refined and additional environmental analyses were conducted. Three transportation corridors were carried into detailed analysis. Corridor B has been identified as the preferred corridor to carry into Tier Two.

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A Federal agency may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that one or more Federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions will be barred unless such claims are filed within 150 days after the date of publication of the notice, or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.

Comments on this document are due by May 19, 2014 and should be directed to Mr. David P. Bodnar, Engineering Division, at the same address as for Mr. Hark.

NHS CORRIDOR
BETWEEN I-68 AND CORRIDOR H

US 220 TIER ONE
FINAL ENVIRONMENTAL IMPACT STATEMENT

Lead Agencies

United States Department of Transportation, Federal Highway Administration
West Virginia Department of Transportation, Division of Highways
Maryland Department of Transportation, State Highway Administration

Cooperating Agencies

United States Army Corps of Engineers
United States Environmental Protection Agency
United States Fish and Wildlife Service
United States Department of the Interior, National Park Service

Participating Agencies

Allegany County Planning Commission
Delaware Nation
Maryland Department of the Environment
Maryland Department of Natural Resources
Maryland Department of Planning
Maryland Historical Trust
Region 8 Planning and Development Commission
West Virginia Department of Environmental Protection
West Virginia Division of Culture and History
West Virginia Division of Natural Resources
U.S. Route 50 Association

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EXECUTIVE SUMMARY

1.0 BACKGROUND

A Tier One Final Environmental Impact Statement (FEIS) for the National Highway System (NHS) Corridor along US 220 between Interstate 68 (I-68) and Corridor H was prepared for the Federal Highway Administration (FHWA) by the West Virginia Department of Transportation, Division of Highways (WVDOH) and the Maryland State Highway Administration (MDSHA). The FEIS fulfills requirements set forth in the *National Environmental Policy Act of 1969* (NEPA), the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU), *Section 4(f) of the Department of Transportation Act of 1966,* and the *Federal Aid Highway Act*. The WVDOH is the lead state agency on the project.

Through the preparation of a tiered FEIS, separate NEPA and transportation planning processes are combined. Tiering for highway projects is governed by two federal regulations, 40 Code of Regulations (CFR) Part 1500 and 23 CFR Part 771. The regulations define tiering as "the coverage of general matters in broader environmental impact statements." In Tier One, generalized corridors are evaluated and screened, leading to the refinement of purpose and need and the identification of alternatives to be carried forward for corridor selection. Tier One will conclude with an approved Record of Decision (ROD) identifying the selected corridor.

2.0 AGENCIES INVITED TO PARTICIPATE IN THE ENVIRONMENTAL PROCESS

Environmental resource and transportation agencies with jurisdiction over, or having operating interest with, transportation projects within West Virginia and Maryland were invited to guide the project through the environmental process as either cooperating or participating agencies. In addition to FHWA, WVDOH, and MDSHA (the lead agencies for the project), representatives from the United States Environmental Protection Agency (USEPA), United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), United States Department of the Interior, National Park Service (NPS), and United States Coast Guard (USCG) were invited to be cooperating agencies. Additionally, the Delaware Nation, West Virginia Department of Environmental Protection (WVDEP), West Virginia Division of Culture and History (WVDCH), West Virginia Division of Natural Resources (WVDNR), Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (MDNR), Maryland Historical Trust (MHT), Maryland Department of Planning (MDP), Allegany County

Planning Commission, the Region 8 Planning and Development Commission, and the U.S. Route 50 Association were invited to assist with the planning and environmental process as participating agencies.

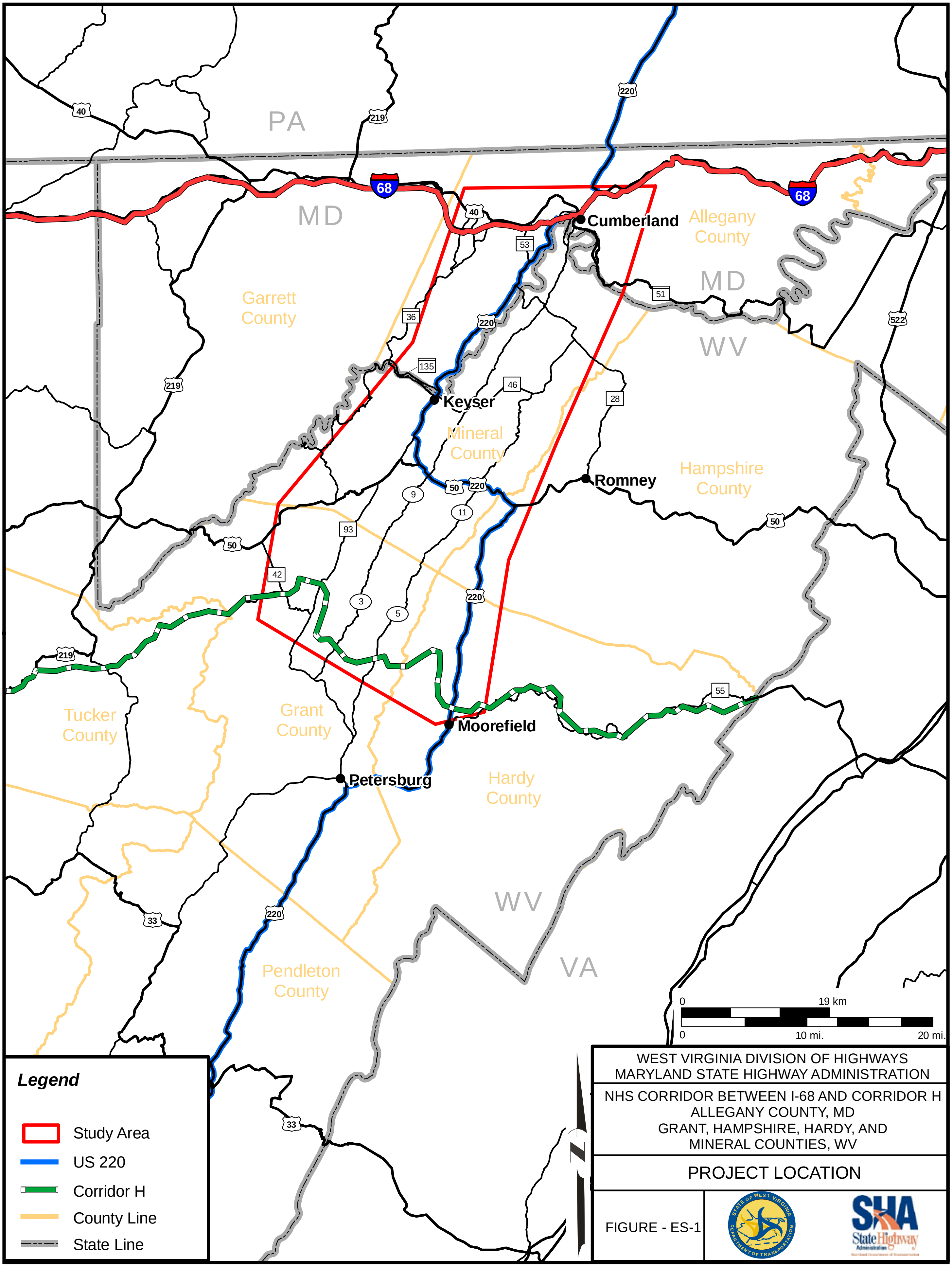
3.0 PURPOSE AND NEED

The project is located in Grant, Hardy, Hampshire, and Mineral counties in West Virginia, and Allegany County in Maryland. The project region stretches south from I-68 (or the National Freeway) near Cumberland, Maryland, to the proposed alignment of Corridor H. Corridor H is part of the Appalachian Development Highway System (ADHS). Figure ES-1 shows the project location in its regional context. At the northern end of the region, the project would terminate on I-68 at an existing interchange in or near the City of Cumberland. At the southern end, the project would terminate on Corridor H.

The current project is an outgrowth of the North South Appalachia Corridor Feasibility Study. Completed in July 2001, the North South Appalachia Corridor Feasibility Study was a multi-state transportation planning and economic development effort undertaken by MDSHA, WVDOH, the Pennsylvania Department of Transportation, and the Virginia Department of Transportation. The study analyzed the potential support for highway improvements for economic development in four north-south corridors bisecting the Appalachian regions of Maryland, Pennsylvania, West Virginia, and Virginia. The study concluded that US 220 south from I-68, *via* MD 53, to Corridor H and US 219 north from I-68 to the Pennsylvania Turnpike (I-76) would provide the greatest potential for benefiting Appalachian economic development.

The purpose of this project is to develop an improved transportation corridor connecting I-68 in western Maryland and Corridor H in West Virginia. Upgraded roadways resulting from this project will become part of the NHS. To some extent, this new corridor would parallel existing US 220 in western Maryland and West Virginia's Potomac Highlands area.

Project needs were examined in the early stages of the project through a collaborative process that included examination of past studies, a review of existing regional plans, consultation with citizens and local officials, consultation with the government agencies involved in the process,



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

PROJECT LOCATION

FIGURE - ES-1

and an analysis of the environmental and socioeconomic conditions of the region. Through this process, the following needs were identified within the study corridor:

- Current geometric deficiencies on US 220 and parallel roadways limit regional mobility;
- The study area has inadequate roadway capacity;
- There are safety deficiencies on roadway sections within the area;
- There is a need to support economic development efforts in the area; and
- Additional system linkage is needed to complete the regional road network.

Highway improvements for the proposed NHS Corridor, between I-68 and Corridor H, are consistent with growth and development plans at all government levels. Although development is expected throughout the region, development patterns are expected to remain similar to present day.

4.0 ALTERNATIVES

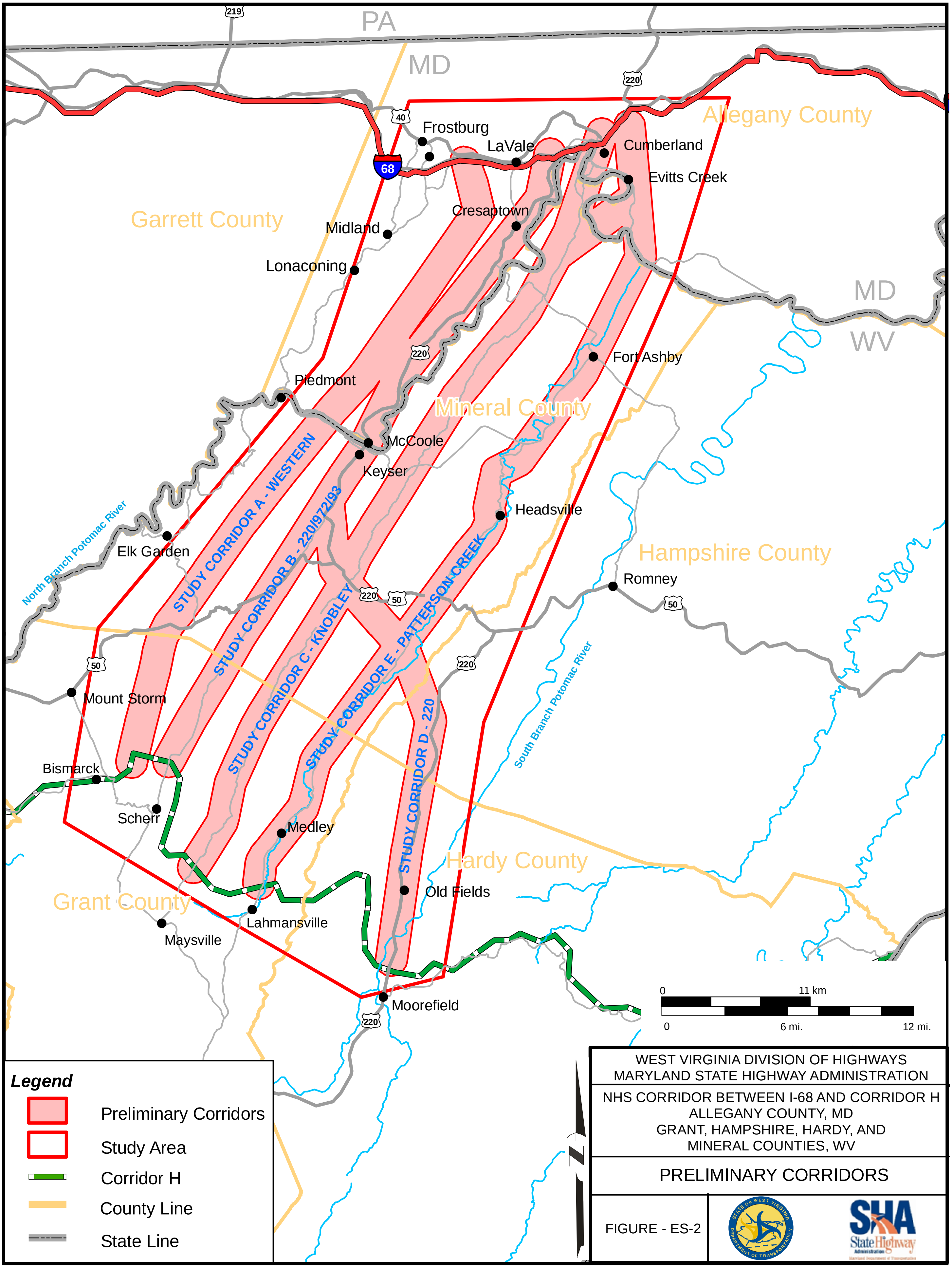
As part of the planning effort culminating in the North South Appalachia Corridor feasibility study, generalized north-south corridors bisecting the Appalachian regions of Maryland, Pennsylvania, West Virginia, and Virginia were analyzed to determine how highway improvements could support economic development. The North South Appalachia Corridor feasibility study concluded that US 220 south, from I-68 *via* MD 53 to Corridor H, and US 219 north, from I-68 to I-76 would provide the greatest potential for benefiting Appalachian economic development. Subsequent to the completion of the North South Appalachia Corridor feasibility study, MDSHA, and WVDOH entered into a Memorandum of Understanding (MOU). The purposes of that agreement were to establish roles and responsibilities for investigating additional corridors, developing alternatives, and ultimately preparing a Tier One Draft Environmental Impact Statement (DEIS) for a study area surrounding the US 220 corridor.

Development of project corridors began with an examination of both the MOU and the existing transportation system in the area. In an effort to best meet traffic demand, four of the corridors were developed to parallel existing roadways. A fifth corridor was developed farther west of the other four to offer additional opportunities for regional economic development. A 4,000-foot buffer, which represented 2,000 feet to either side of a hypothetical centerline, was attached to the corridors so that preliminary environmental information could be evaluated. These preliminary corridors are shown on Figure ES-2. The first and westernmost of these corridors, Corridor A, originated at I-68 near Frostburg, MD, and extended southwest to Corridor H near Bismarck, WV. Corridor B originated at I-68 near LaVale, MD, and extended southwest to Corridor H near Scherr, WV. Corridor C originated along I-68 near Cumberland, MD, and extended southwest to Corridor H near Maysville, WV. Corridor D originated at I-68 near LaVale, MD, and extended south to Corridor H at Moorefield, WV. The final corridor, Corridor E, originated at I-68 near Cumberland, MD, and extended southwest to Corridor H near Lahmansville, WV. Based on the results of the environmental and engineering studies completed during development of the Draft EIS, Corridor B with a northern spur of Corridor D that connects to I-68 in Maryland was identified as the preferred corridor.

After the five preliminary corridors were presented to several groups, including state and federal resource agencies, local planning officials, and the public, concurrent preliminary engineering studies and environmental analyses began. The primary purpose of the engineering studies was to determine whether reasonable highway alignments could be developed within each of the preliminary corridors already shown to the public and resource agencies. A best-fit alignment was developed for each corridor utilizing WVDOH and MDSHA engineering criteria and preliminary information about the region's major environmental features. The corridors are shown on Figure ES-3. Potential interchange configurations at I-68 and Corridor H were also evaluated as representative connection points and judged to be possible. Preliminary construction cost estimates were developed for the corridors using unit costs from similar types of projects. The cost estimates are shown in Table ES-1. The construction cost estimates do not include utility relocation, right-of-way acquisition, engineering, or environmental study costs.

TABLE ES-1
Construction Cost Estimates

Corridor	Length	Construction Cost	Interchange Costs	Total Construction Cost Estimate
A	34.5 miles	$13,400,000/mile	$28,000,000	$490,000,000
B	34.2 miles	$13,400,000/mile	$23,000,000 to $41,000,000	$482,000,000 to $500,000,000
C	44.5 miles	$13,400,000/mile	$54,000,000	$651,000,000
D	45.3 miles	$13,400,000/mile	$23,000,000 to $41,000,000	$630,000,000 to $648,000,000
E	45.0 miles	$13,400,000/mile	$54,000,000	$603,000,000

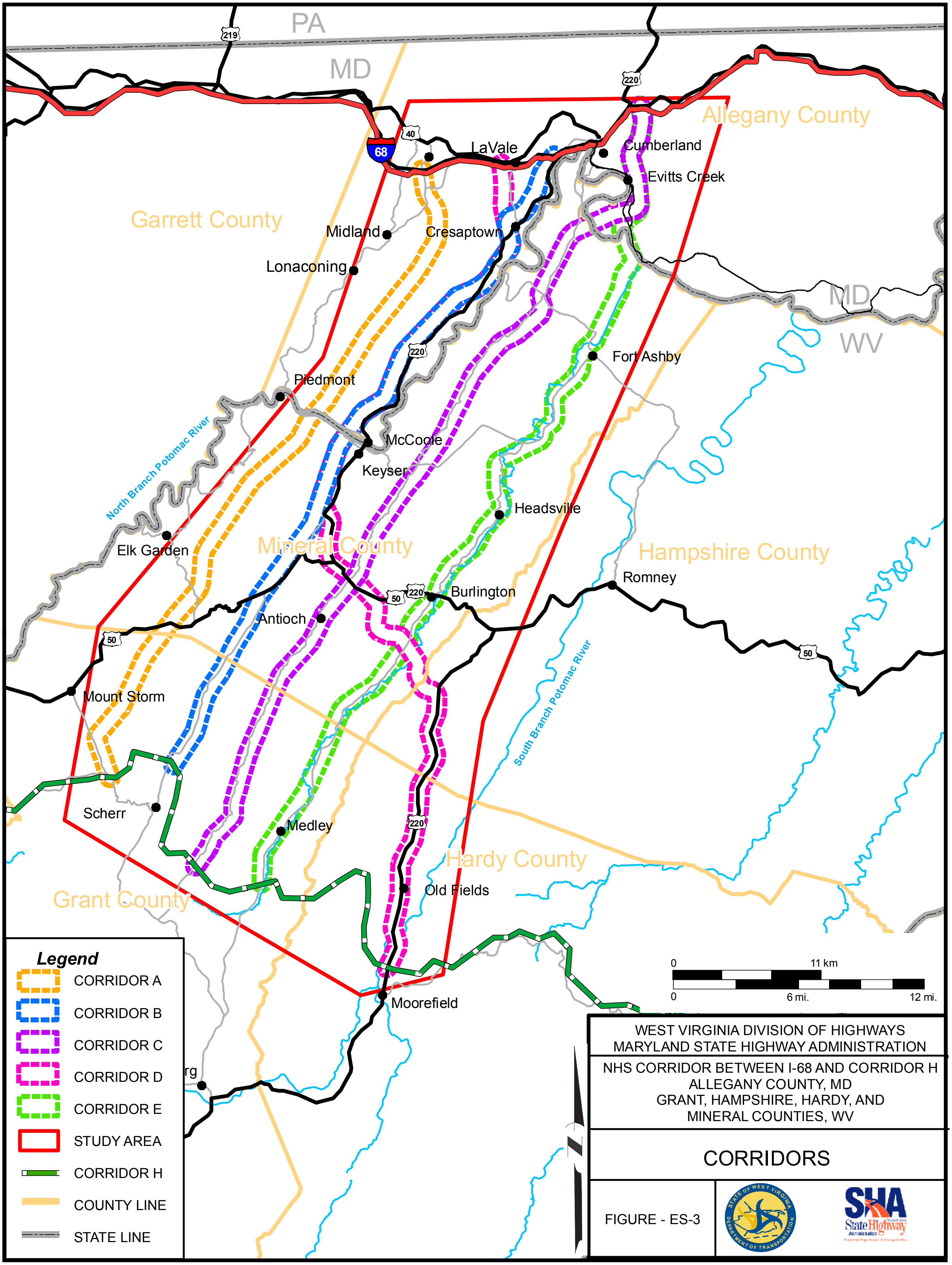


WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

PRELIMINARY CORRIDORS

FIGURE - ES-2


PA
MD
219
220
40
68
Allegany County
Garrett County
LaVale
Cumberland
Evitts Creek
Midland
Cresaptown
Lonaconing
220
MD
WV
Fort Ashby
Piedmont
North Branch Potomac River
McCoole
Keyser
Headsville
Elk Garden
Mineral County
Hampshire County
Romney
Burlington
50
Antioch
50
50
Mount Storm
South Branch Potomac River
Scherr
Medley
220
Hardy County
Grant County
Old Fields
Moorefield
Legend
CORRIDOR A
CORRIDOR B
CORRIDOR C
CORRIDOR D
CORRIDOR E
STUDY AREA
CORRIDOR H
COUNTY LINE
STATE LINE
0
11 km
0
6 mi.
12 mi.
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
CORRIDORS
FIGURE - ES-3
SHA
State Highway Administration

The costs of constructing interchanges at I-68 or on Corridor H are not included in Table ES-1. Preliminary estimates indicate that a new interchange on I-68 would cost between $9-40 million, depending on its location and configuration. An interchange on Corridor H would cost approximately $14 million.

As the development of the refined corridors and conceptual interchanges continued to progress, traffic issues were examined and a screening of potential environmental impacts from all five corridors was completed. Some additional alternatives were also investigated. As a result of the preliminary alternatives analysis, Corridors B, C, and D were carried forward as corridors to be retained for further analysis.

5.0 AFFECTED ENVIRONMENT

The study area includes portions of southwestern Allegany County, all of Mineral County, and portions of Grant, Hampshire, and Hardy counties. Situated equidistant from Baltimore, Washington, DC, and Pittsburgh, the study area encompasses an area over 835 square miles with a population of approximately 146,000. The landscape of the study area is primarily rugged terrain, characterized by a series of roughly parallel ridges and valleys. Although there are wider river valleys in the northwest and southeast centered on the North Branch of the Potomac River and Patterson Creek, respectively, narrower stream valleys and hollows are found throughout the remainder of the study area.

Land utilization in this hilly study area can be divided into three major categories: urban and small town, agricultural, and forested. Primarily rural in nature, the area is also home to much residential, commercial, and industrial development, as well as many parks, recreation areas, and community facilities.

The predominant land cover is forested and agricultural land. The rural valleys of the study area are dotted with active farms, and dense forests are found on the adjacent ridge tops. Many wetlands and streams are found throughout the area.

Wildlife habitat within the study area comes in numerous forms and is available to both local and migratory species. The higher elevation ridges in the western portion of the study area receive more annual precipitation, which allows for a mainly deciduous forest type, whereas the eastern portions of the study area receive less precipitation. Habitats reflect this condition and a diverse array of wildlife is found in the area, including big and small game (black bear, whitetail deer, groundhogs, and squirrels), fur-bearing species (muskrat, mink), other small and large mammals, songbirds and raptors, and amphibians and reptiles.

Cultural resources include pre-contact and historic period archaeological sites and above-ground historic structures and districts. Pre-contact archaeological sites consist of areas where culturally modified objects or features dating from the Paleoindian Period (12,000-18,000 BC) to approximately the Contact Period (*circa* 1550-1750) can be found. Historic period archaeological sites consist of subsurface historic period structures or artifacts that date from approximately the Contact Period up to 1955.

6.0 ENVIRONMENTAL CONSEQUENCES

The corridors carried forward for analysis are shown in Figure ES-4. The predominant social, cultural, and natural resources were identified within each corridor, based on a best-fit alignment and a buffer of 2,000 feet to each side of the centerline. This allowed for a “worst-case” identification of possible impacts within Corridors B, C, and D. Although the entire corridor was used for the analysis, an actual build alternative would have a much smaller footprint and therefore less potential for impacts. Information used for screening the original five transportation corridors was refined and supplemented where possible to conduct additional analyses on the three corridors advanced to this stage. The potential impacts in each corridor are summarized in Table ES-2.

All three corridors carried into detailed analysis would meet the project’s purpose and need. To varying degrees, each of the three corridors would correct current geometric deficiencies that limit regional mobility, add roadway capacity, support economic development efforts, and provide additional system linkage.

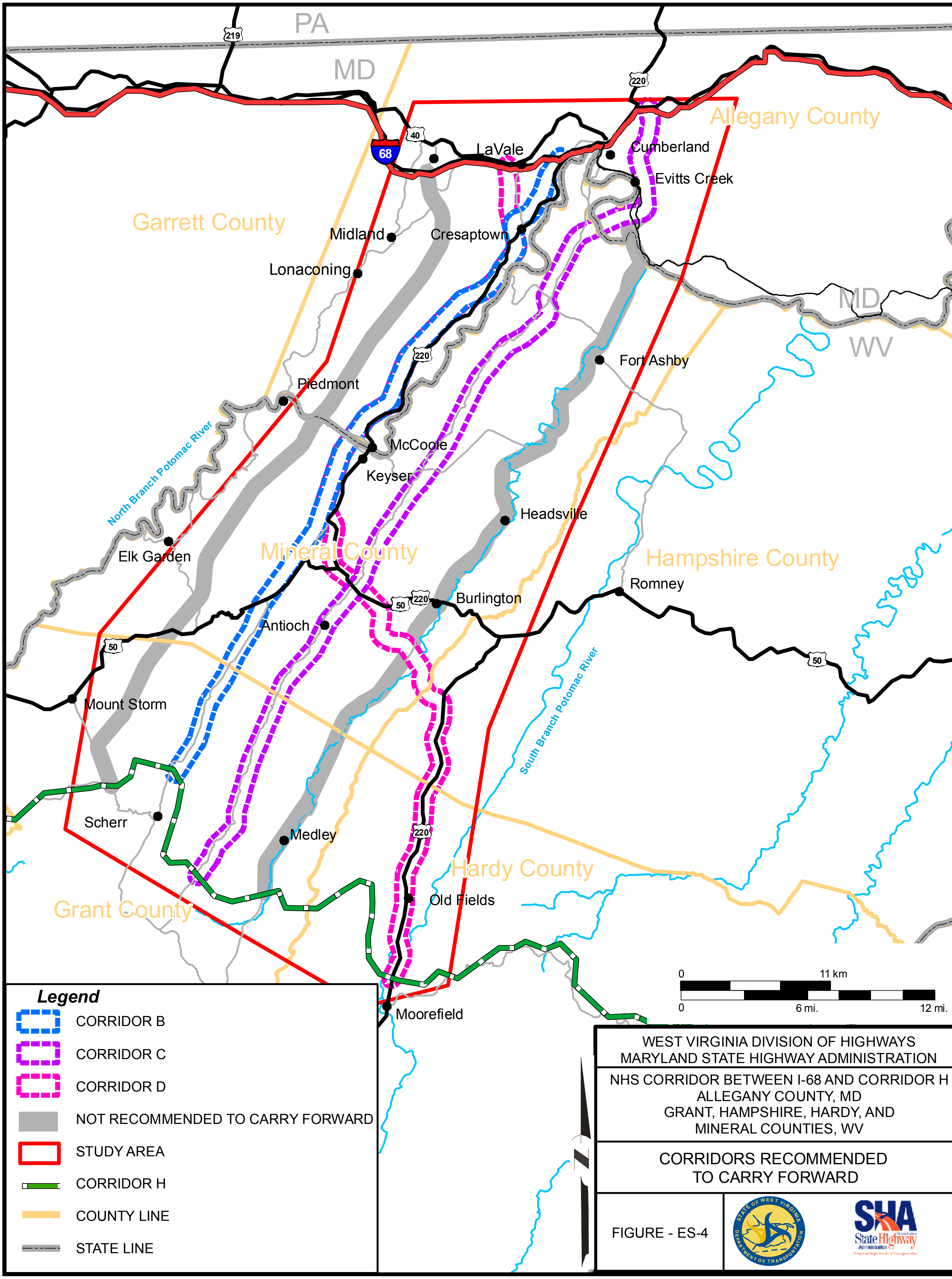

PA
MD
219
220
40
68
Allegany County
Garrett County
LaVale
Cumberland
Evitts Creek
Midland
Cresaptown
Lonaconing
220
Piedmont
Fort Ashby
MD
WV
North Branch Potomac River
McCoole
Keyser
Headsville
Elk Garden
Mineral County
Hampshire County
Romney
50
220
Burlington
Antioch
50
50
Mount Storm
South Branch Potomac River
Scherr
Medley
220
Hardy County
Grant County
Old Fields
Moorefield
0
11 km
0
6 mi.
12 mi.
Legend
CORRIDOR B
CORRIDOR C
CORRIDOR D
NOT RECOMMENDED TO CARRY FORWARD
STUDY AREA
CORRIDOR H
COUNTY LINE
STATE LINE
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
CORRIDORS RECOMMENDED
TO CARRY FORWARD
FIGURE - ES-4
SHA
State Highway Administration

TABLE ES-2
Summary of Potential Effects

Resource/Element	Corridor B	Corridor C	Corridor D
Residential Land Use	2,590 acres	2,400 acres	2,620 acres
Mixed Use, Built-up Land Use	1,300 acres	90 acres	860 acres
Commercial and Industrial Land Use	170 acres	450 acres	340 acres
Economic Development (trade centers served)	3	2	4
Impacts to Community Cohesion	3	2	3
Environmental Justice Impacts (minority populations)	Possible within Allegany, Grant & Mineral Counties, & Keyser	Possible within Allegany, Grant & Mineral Counties	Possible within Allegany, Grant & Mineral Counties, & Keyser
Environmental Justice Impacts (low-income populations)	Possible within Grant County & Keyser	Possible within Grant County	Possible within Hampshire County & Keyser
Community Facilities	58	70	58
Parks and Recreation Areas	8	10	9
Very High/High Archaeological Potential	5,338 acres	6,974 acres	7,709 acres
NRHP-Listed & NRHP-Eligible Resources	4	9	21
Wetlands	118 acres	152 acres	143 acres
Streams	300,239 feet	330,834 feet	448,803 feet
Floodplains	775 acres	719 acres	2,244 acres
Flood Control Dams	8	4	6
Rangeland	127 acres	644 acres	720 acres
Forests	9,890 acres	11,130 acres	11,409 acres
Mixed Forests/Rangeland	0 acre	53 acres	91 acres
Prime Farmland Soil	2,146 acres	1,491 acres	3,335 acres
Farm Soils of State or Local Importance	2,276 acres	5,456 acres	3,728 acres
Agricultural Land Cover	2,953 acres	6,489 acres	5,487 acres
Preservation Districts/Easements	0 acre	1 acre	67 acres
RTE Species	13	16	30
Potentially Contaminated Sites	43	42	55
Noise Sensitive Areas (residential)	2,590 acres	2,400 acres	2,620 acres
Potential Section 4(f) Resources	6	13	21
Residual US 220 Traffic (2025)	Local	6,100 AADT	Local
Estimated Cost of New Highway Facility	$482-$500 million	$651 million	$630-$648 million

7.0 COMMENTS AND COORDINATION

Public and agency scoping for the project began with a combination of meetings and field views held in early May 2006. Public meetings were held in Keyser on May 1, 2006, in Moorefield on May 2, 2006, and in Cumberland on May 10, 2006. About 120 people attended the public meetings. Specifically, at each meeting, comments were solicited on the project's purpose and need to meet requirements of SAFETEA-LU. In conjunction with the public meetings, two separate agency field views were held.

A second round of public informational workshops was held in May 2007. Meetings were again held in Moorefield, Keyser, and the Cumberland area. Excluding agency officials, over 260 people attended the meetings.

A final round of public meetings occurred in late summer and early autumn 2011 with a public workshop in Keyser on September 13, 2011, a formal public hearing in Cumberland on September 14, 2011, and a special community meeting in Short Gap, West Virginia, on October 5, 2011. Approximately 900 people combined attended these meetings to review the DEIS and offer comments on it. The comments generally fit into the following categories: Project Need, Corridor Selection, Environmental Impacts, Traffic, Economic Impacts, Relocation/Right-of-Way, Farmlands, Cultural Resources, and Other. Citizen comments were submitted through comment cards, letters, email messages, and special web-based forms. There were 419 comment cards submitted. Some of the comment cards, letters, and email messages were signed by more than one person, bringing the total number of individuals utilizing comment cards, letters, email messages, or the project websites to voice their opinion on the project to 474.

Similar to the public involvement efforts, agency coordination has also been an ongoing process throughout the project. Formal requests for information have occurred throughout the project, and a coordination plan was prepared in accordance with SAFETEA-LU. Interagency meetings were held with the Maryland resource agencies and federal agencies with jurisdiction in Maryland on February 15, 2006; January 17, 2007; June 20, 2007; May 19, 2010; April 18, 2012; November 28, 2012, and December 3, 2013. A meeting was also held with the West Virginia agencies and federal agencies with jurisdiction in West Virginia on February 27, 2007.

Several briefings were held with public officials and planners throughout the course of the project. Meetings were held with the governing boards of the Allegany County Planning Commission, the Region 8 Planning and Development Council, the U.S. Route 50 Association, and the Greater Cumberland Committee to present updates on the project at key points. Meetings were also held with staff members of the Allegany County Office of Planning Services, the Mineral County Planning Commission, the Hardy County Planning Department, the Grant County Development Authority, the City of Cumberland, and the NPS.

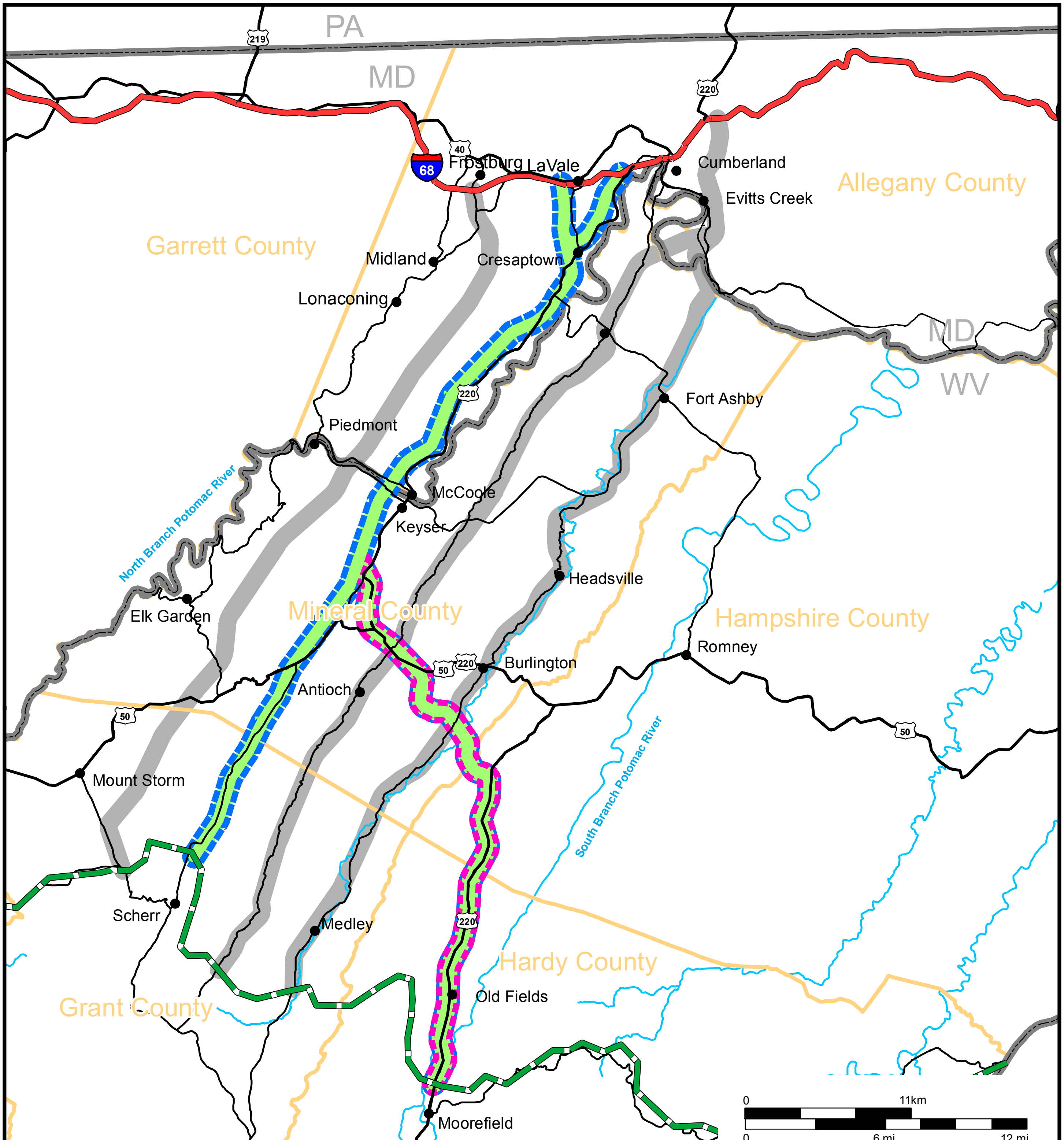
8.0 PREFERRED CORRIDOR

Public and agency participation was an integral part of the study process and was a major factor in selecting a preferred corridor. Public and agency meetings were held over the course of the project to identify issues, report project findings, discuss analytical methodologies, and gauge public opinion. Public opposition to Corridors A, C, and E heavily influenced the decision to eliminate these corridors from further study at specific milestones during the study. Public meetings were especially helpful in identifying concerns about groundwater in Mineral County and future plans for the eastern part of the county. Agency representatives and public concern also played a key part the analysis of potential crossover corridors and the elimination of these corridors from future consideration. A complete discussion of how these issues directed the course of the study, especially after the DEIS was distributed, is found in Chapter 7 of the FEIS.

Based on the results of the environmental and engineering studies, and in conjunction with the public participation process, completed during Tier One, Corridor B with either its connection to I-68 or the northern spur of Corridor D that connects to I-68 in Maryland is being recommended as the preferred corridor to be carried into Tier Two. Future upgrades and improvements to existing US 220 may occur in West Virginia from Keyser to the Hardy County connector with Appalachian Corridor H. Any of those upgrades and improvements will be advanced as separate projects with their own NEPA documentation.

Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources.

The recommended preferred corridor is shown on Figure ES-5. The potential impacts as a result of the preferred corridor are compared to Corridors B, C, and D in Table ES-3.



Legend

- RECOMMENDED PREFERRED CORRIDOR (NEW ALIGNMENT)
- RECOMMENDED SEPARATE FUTURE PROJECT (SYSTEM UPGRADE)
- NOT RECOMMENDED TO CARRY FORWARD
- CORRIDOR H
- COUNTY LINE
- STATE LINE

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

RECOMMENDED
PREFERRED CORRIDOR

FIGURE - ES-5

TABLE ES-3
Comparison of Potential Effects

Resource/Element	Corridor B	Corridor C	Corridor D	Recommended Preferred Corridor
Residential Land Use	2,590 acres	2,400 acres	2,620 acres	2,482 or 2,590 acres
Mixed Use, Built-up Land Use	1,300 acres	90 acres	860 acres	1,300 or 1,621 acres
Commercial and Industrial Land Use	170 acres	450 acres	340 acres	
Economic Development (trade centers served)	3	2	4	3
Impacts to Community Cohesion	3	2	3	3
Environmental Justice Impacts	Yes	Yes	Yes	Yes
Community Facilities	58	70	58	43 or 58
Parks and Recreation Areas	8	10	9	5 or 8
Very High/High Archaeological Potential	5,338 acres	6,974 acres	7,709 acres	5,061 or 5,338 acres
NRHP-Listed & NRHP-Eligible Resources	4	9	19	4 or 7
Wetlands	118 acres	152 acres	143 acres	118 acres
Streams	300,239 feet	330,834 feet	448,803 feet	300,239 or 301,886 feet
Floodplains	775 acres	719 acres	2,244 acres	734 or 775 acres
Flood Control Dams	8	4	6	8
Rangeland	127 acres	644 acres	720 acres	84 or 127 acres
Forests	9,890 acres	11,130 acres	11,409 acres	9,890 or 11,481 acres
Mixed Forests/Rangeland	0 acre	53 acres	91 acres	0 or 46 acres
Prime Farmland Soil	2,146 acres	1,491 acres	3,335 acres	2,146 or 2,276 acres
Farm Soils of State or Local Importance	2,276 acres	5,456 acres	3,728 acres	2,224 or 2,276 acres
Agricultural Land Cover	2,953 acres	6,489 acres	5,487 acres	2,953 or 2,999 acres
Preservation Districts/Easements	0 acre	1 acre	67 acres	0 acre
RTE Species	13	16	30	13
Potentially Contaminated Sites	43	42	55	34 or 43
Noise Sensitive Areas (residential)	2,590 acres	2,400 acres	2,620 acres	2,482 or 2,590 acres
Potential Section 4(f) Resources	6	13	21	6 or 12
Residual US 220 Traffic (2025)	Local	6,100 AADT	Local	Local
Estimated Cost of New Highway Facility	$482-$500 million	$651 million	$630-$648 million	$482-$500 million

In terms of the built-environment, there could be impacts in the Corridor D northern spur on residential and commercial development located north of I-68 and along MD 53 on the eastern edge of the corridor. In terms of the natural environment, the Corridor D termini area would impact forestland on the northern reaches of Dans Mountain, but well outside the boundaries of the WMA. Impacts would also occur to a large farm parcel located at its center and some streams including Warriors Run, Braddock Run, and three smaller unnamed tributaries. In terms of cultural resources, the LaVale Toll House is located within the Corridor D spur, but impacts are unlikely on it because the Toll House is located on the north side of I-68 at the western edge of Corridor D. The Toll House is on the NRHP. The Corridor D could also have impacts to the Julius Grabenstein Farmhouse and the Grabenstein Bungalow, two cultural resources that are NRHP-eligible. There are also two potentially NRHP-eligible resources located in the Corridor D spur area.

9.0 UNRESOLVED ISSUES

Several unresolved issues remain. In terms of cultural resources, the Section 106 process will continue into Tier Two, and a Programmatic Agreement will be developed in consultation with the WVDOH, MDSHA, State Historic Preservation Offices, and Advisory Council on Historic Preservation to detail the steps to be used for complying with Section 106. At the initiation of Tier Two studies, public and agency scoping meetings will help define issues related to cultural resources. Additional cultural resource investigations will also be necessary during Tier Two. The investigations will follow the procedures for Section 106 as outlined in 36 CFR 800.3 through 36 CFR 800.6 and the procedures of each SHPO. During Tier Two, a Memorandum of Agreement will also be developed addressing adverse effects and detailing the necessary avoidance/mitigation measures required. Because of the widespread occurrence of cultural resources throughout the area, a Section 4(f) Evaluation will be necessary during Tier Two. Section 4(f) of the U.S. Department of Transportation Act of 1966 requires that special efforts including avoidance, minimization, and mitigation be made to protect publicly owned parks, recreation areas, wildlife and waterfowl refuges, and significant historic site.

In terms of natural resources, coordination with state and federal agencies will continue in Tier Two, especially as it relates to rare, threatened, and endangered species and habitat. The development of actual alternatives in Tier Two may be able to avoid or minimize the extent of potential impacts on critical habitats and will be pursued as the project progresses into the next phase. Additional field activities, studies, coordination, and consultation during Tier Two will be necessary pursuant to Section 7 of the *Endangered Species Act of 1973* and the *Nongame and Endangered Species Conservation Act* (in Maryland). As a navigable waterway to the Cumberland area, the Potomac River is subject to Section 10 of the *Rivers and Harbors Act* and

Section 404 of the *Clean Water Act*. Additional coordination will be necessary with the USACE and, possibly, the USCG, as the project progresses.

In terms of permit requirements, other state and federal permits/actions will be required for implementation of the project. These permits/actions would include a Section 404 permit, a Section 401 Water Quality Certification, a National Pollutant Discharge Elimination System (NPDES) Water Pollution Control permit, an Erosion and Sedimentation Control Plan, and a Stormwater Management Plan. Specifically, in Maryland, a Joint Permit Application will be submitted to meet the combined federal/state requirements.

In terms of project funding, project costs were developed for this phase of the project utilizing unit costs from similar types of projects recently completed in West Virginia. These costs do not include utility relocation, right-of-way acquisition, engineering, or future environmental study. Consequently, the proposed costs are lower than expected and should be considered preliminary budgeting figures. Additional cost information for project alternatives will be developed during Tier Two. If breakout projects are identified, cost information for those projects will be developed within their respective environmental documents.

One of the major factors used in the development of the Tier One corridors was an analysis of how potential highway improvements within the corridors will support the Priority Funding Areas (PFAs) in the future. PFAs consist of existing Maryland communities and places where infrastructure is in place and public investment can better support growth. As the project progresses into Tier Two, all potential highway improvements will be further evaluated in terms of how effective the improvements are in encouraging “smart growth” and continuing to support the economic goals of communities within PFAs. Smart growth advocates communities with housing and transportation choices near jobs, shops and schools.

Finally, there are several areas of environmental concern within the preferred corridor (MDNR 2012), and two areas where the Dans Mountain Wildlife Management Area spans the entire corridor. Although crossover corridors were analyzed during the Tier One studies to measure their effectiveness in avoiding this important environmental resource, none of the corridors were found reasonable and they were dismissed from further consideration. Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, however, including a system upgrade of existing roads, transportation systems management strategies, and potential new highway alignments. If necessary to avoid Dans Mountain and other environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources. It is thoroughly understood that there are significant environmental resources within the preferred corridor, resources that will require considerable stewardship, enhancement measures, and mitigation as the project progresses to Tier Two. Many commitments for addressing these resources have already been made by MDSHA and WVDOH.

PREFACE

PREFACE

This Tier One *Final Environmental Impact Statement* (FEIS) for the National Highway System (NHS) Corridor along US 220 between Interstate 68 (I-68) and Corridor H was prepared for the Federal Highway Administration (FHWA) by the West Virginia Department of Transportation, Division of Highways (WVDOH) and the Maryland State Highway Administration (MDSHA). The FEIS fulfills requirements set forth in the *National Environmental Policy Act of 1969 (NEPA),* the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Section 4(f) of the Department of Transportation Act of 1966,* and the *Federal Aid Highway Act*. The WVDOH is the lead state agency on the project. The process used for the completion of this FEIS also complied with regulations established by the Council on Environmental Quality (CEQ) and the FHWA Technical Advisory 6640.8A, *Guidelines for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987).

NEPA requires that the potential for environmental impacts be assessed for every federal action that could "significantly affect the quality of the human environment." Thus, the FEIS was prepared for this project because the action could result in significant impacts. NEPA also applies to any project where there is major federal involvement, including federal financial assistance, the issuance of a permit, or a requirement for federal approval. The construction activities that may result for this project will likely be funded through a combination of federal and state programs.

Following the enactment of NEPA, regulations issued by the CEQ noted that Environmental Impact Statements (EIS) shall "provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment" (40 Code of Federal Regulations [CFR] Parts 1500-1508). An EIS is required when it is apparent from the beginning of the project, or through subsequent analysis, that the proposed project is likely to have a major effect on the human environment. For this Tier One FEIS, potential impacts were evaluated to a proposed "build-out" year of 2025.

With the signature of the President on August 10, 2005, SAFETEA-LU established a new environmental review process for highway development and other transportation projects. Of primary importance were new provisions and revised procedures for public and interagency involvement, development of a project's purpose and need, and identification of a range of alternatives to be considered for a project.

Through the preparation of a tiered Environmental Impact Statement (EIS), separate *NEPA* and transportation planning processes are combined with a consolidated approach. Tiering for highway projects, such as this one, is governed by two federal regulations, 40 Code of Regulations (CFR) Part 1500 and 23 CFR Part 771. The latter set of regulations, 23 CFR Part 771, represents joint FHWA/Federal Transit Administration regulations, while the former represents regulations issued by the Council on Environmental Quality (CEQ). The regulations define tiering as “the coverage of general matters in broader environmental impact statements.”

Utilization of a tiered process for this project provided a systematic approach for advancing transportation improvements in a cost-effective manner. In Tier One, corridors were evaluated at a planning level of detail. The screening of these corridors, in turn, led to the refinement of purpose and need and the identification of alternatives to be carried forward. By following a tiered approach, consideration of major environmental factors was incorporated into the planning process at a very early stage. Tier One will conclude with an approved Record of Decision (ROD).

During Tier Two, specific transportation alternatives, including a system upgrade and potential new roadway alignments, will be developed and evaluated. A ROD will also be required at the close of the Tier Two process.

Breakout projects having independent operational utility and logical termini (that do not restrict consideration of alternatives for other reasonably foreseeable transportation improvements) would be developed after a Tier One ROD is issued. Breakout projects would be independent of the larger Tier Two effort and would require separate detailed engineering studies and environmental documents (i.e., EIS, Categorical Exclusion Evaluations [CEE] or Environmental Assessments [EA]) in order to evaluate alternative alignments within the Tier One corridor, identify a preferred alternative, and for projects requiring an EIS, receive an approved ROD.

Breakout projects in the Maryland portion of the corridor will be coordinated with the resource agencies and in accordance with the *Maryland Streamlined Environmental and Regulatory*

Process and/or any subsequent revisions to this process. In West Virginia, breakout projects will also be coordinated with the resource agencies, but follow WVDOH policies and processes currently in place and previously approved by FHWA. If those policies or processes are revised, as well, future studies and environmental documentation will be consistent with the revised regulations.

Once potential highway alignments are developed during Tier Two, project planners will have considerable opportunity to develop avoidance, minimization, and mitigation strategies addressing potential impacts on cultural, environmental, and socioeconomic resources. With the development of actual highway alignments or other types of transportation improvements in Tier Two, the appropriate resource agencies, local planners, and citizens of the area can more easily assist in determining the appropriate avoidance, minimization, and mitigation strategies for each proposed alternative. The preferred corridor carried forward from Tier One could be widened to allow for the development of more environmentally sensitive alignments during Tier Two. Corridors not advanced to Tier Two, however, will not be revisited during the second tier studies unless significant new and relevant information requires reconsideration.

Both RODs will identify the selected corridor or alternative for that phase of the project, present the basis for the decision, and identify the corridor(s) or alternative(s) considered (FHWA 2010). The second ROD will also specify the environmentally preferable alternative and provide information on ways to avoid, minimize, and compensate for environmental impacts (FHWA 2010). Any construction programmed as a result of this project will not occur until after the second ROD is issued.

The current project was initiated with a notice to the public published in the *Federal Register* on April 14, 2006. The notice was issued by the FHWA and informed the public that an EIS was being prepared. Following a preliminary interagency coordination meeting in Baltimore, Maryland, formal project scoping and interagency review meetings were held in early May 2006, in LaVale, Maryland, and Moorefield, West Virginia. Preliminary project information and the proposed methodologies planned to be used during Tier One were discussed at the agency scoping sessions. This was followed by a series of public meetings that same month in Cumberland, Maryland, and Keyser and Moorefield, West Virginia. The primary purposes of these first meetings were to introduce the project to the public and begin gathering information on the purpose and need for the project and subsequent environmental analyses.

Prior to beginning preparation of the EIS, the WVDOH had already taken a proactive stance by exploring future transportation needs through the development of "sketch-plans." For potential highway projects, sketch-planning utilizes previous analytical studies, secondary source data, and intuitive design judgment as a means of evaluating community issues and any related transportation problems. It allows transportation planners to suggest reasonable study parameters that could form the basis for more detailed future studies. At the initial level of investigation that preceded work on the EIS, state planners had proposed five potential preliminary corridors to be carried into the full environmental process expected during the first tier.

AGENCIES INVITED TO PARTICIPATE IN THE ENVIRONMENTAL PROCESS

Environmental resource and transportation agencies with jurisdiction over, or having operating interests with, transportation projects within West Virginia and Maryland were invited to help guide the project through the environmental process as either cooperating or participating agencies. A cooperating agency is any public agency with jurisdiction by law over parts of the proposed project or with special expertise related to the project. Participating agencies are federal, state, tribal, regional, and local government agencies that may have an interest in the project. By definition, all cooperating agencies are also considered participating agencies, but participating agencies are not necessarily cooperating agencies.

In addition to FHWA, WVDOH, and MDSHA (the lead agencies for the project), representatives from the United States Environmental Protection Agency (USEPA), United States Army Corps of Engineers (USACE), United States Fish and Wildlife Service (USFWS), United States Department of the Interior, National Park Service (NPS), and United States Coast Guard (USCG) have been invited to be cooperating agencies. Additionally, the Delaware Nation, West Virginia Department of Environmental Protection (WVDEP), West Virginia Division of Culture and History (WVDCH), West Virginia Division of Natural Resources (WVDNR), Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (MDNR), Maryland Historical Trust (MHT), Maryland Department of Planning (MDP), Allegany County Planning Commission, the Region 8 Planning and Development Commission, and the U.S. Route 50 Association were invited to participate in the planning and environmental process for this project as participating agencies. All of these agencies have participated in the project by providing information on resources under their jurisdiction, reviewing preliminary documents, and attending coordination meetings. Both state transportation agencies, in coordination with FHWA, will consider requesting the involvement of relevant federal and state agencies as cooperating or participating agencies as appropriate in the Tier Two studies.

ROLES OF THE FEDERAL AGENCIES INVOLVED WITH THE PROJECT

The FHWA administers the Federal Aid Highway Program in accordance with the *Federal Aid Highways Act* (23 U.S. Code [USC] §101 et. seq.). As such, it also coordinates the development of highway programs with other modes of transportation. FHWA will update the agency coordination plan for Tier Two, including consideration of agency roles in being participating and/or cooperating agencies. At the start of Tier Two, the agencies will be contacted and invited again to participate in the process.

The USEPA serves as a clearinghouse for all EISs. It also has discretionary veto authority over the wetlands and waterways permit under Section 404 (c) of the *Clean Water Act*, as well as special expertise and authority with respect to the *Clean Water Act*, Section 404 (b)(1) guidelines. A Section 404 permit will not be sought for this project until Tier Two, however. The USEPA agreed to be a cooperating agency on June 14, 2006.

The USACE has jurisdiction over environmental impacts on wetlands and most surface waters within the study area. The USACE would likely be requested to issue a Section 404 permit (under the *Clean Water Act)* for the proposed project after preparation of a Tier Two EIS. Although this Tier One FEIS will provide background information for the USACE in support of a future Section 404 permit application, preparation of a permit application has been deferred until the Tier Two studies have been undertaken and impacts can more accurately be determined. The USACE agreed to be a cooperating agency on January 2, 2008.

The USFWS has special expertise with threatened and endangered species and their habitats. Throughout the process, the USFWS has provided considerable information on threatened and endangered species in the area. It will also review the Section 404 permit application during Tier Two. On March 21, 2007, the USFWS responded to a request for information concerning threatened and endangered species under its jurisdiction. It agreed to be a cooperating agency on December 8, 2010.

The NPS administers all National Parks, including the Chesapeake and Ohio Canal National Historical Park and the Western Maryland Railway Right-of-Way, within the study area. The NPS also has jurisdiction over properties and sites on the *National Register of Historic Places* (NRHP). It agreed to be a cooperating agency on May 7, 2007.

In conjunction with several different laws, the Commandant of the USCG must approve the locations and plans for any new bridges over the navigable waterways of the United States. The Potomac River is a navigable waterway to its confluence with Wills Creek near Cumberland. As the proposed project evolved, however, the USCG determined that the project would not cross the Potomac River in a navigable location. Consequently, on April 20, 2007, the USCG informed the FHWA that a Coast Guard permit would not be required because the project would not cross a waterway where the USCG had jurisdiction for bridge administration. Consequently, it is no longer necessary for the USCG to be a cooperating agency.

COMPARISON OF TIER ONE AND TIER TWO

Table P-1 lists the resources examined during Tier One, briefly describes the techniques used to examine them, and the Tier Two commitments. The build-out, or design year, for Tier One is 2025; during Tier Two, it will be advanced to 2034.

TABLE P-1
Tier One and Tier Two
Study Methodologies and Commitments

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Purpose and Need	• Maryland and West Virginia entered into a memorandum of understanding to study the US 220 corridor jointly. • Evaluated existing transportation network, traffic, safety, growth and development initiatives/trends, local and regional plans, and land use.	• Re-evaluate transportation network, traffic, safety, growth and development initiatives/trends, local and regional plans, and land use. • Develop revised purpose and need statement.
Alternatives Development	• Identified a single “best-fit” alignment. • Developed line and grade for “best-fit” alignment. • Provided 2,000-foot buffer to each side of conceptual centerline for potential impacts analysis, allowing 4,000 feet to develop viable alignments, minimize impacts, and avoid resources.	• Develop a full-range of alternatives. • Evaluate system upgrade throughout US 220 corridor; identify potential TSM improvements for existing roads. • Develop off-line alternatives. • Expand preferred corridor width to enable the development of Dans Mountain WMA and Mountain Ridge Legacy Area avoidance alternatives. • Identify and evaluate Section 4(f) avoidance/minimization alternatives.

**TABLE P-1 (continued)
Tier One and Tier Two
Study Methodologies and Commitments**

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Socioeconomics	• Analyzed socioeconomic data from a variety of sources to determine the potential impact of the project on man's built environment; analysis included preliminary review of settlement patterns, census data, aerial photography, county comprehensive plans, capital improvements programs, and locally developed regional and study area plans. • Conducted windshield surveys and interviewed local planning officials to verify and update secondary source data. • Identified potential disruptions to local communities, including residential and commercial displacements, and the disruption of existing transportation patterns and the creation of physical barriers to determine the impacts on community cohesion.	• Complete additional qualitative evaluations of potential to impact socioeconomic resources. • Quantify residential and business displacements. • Analyze potential impacts on community cohesion. • Update community resources. • Continue coordination with local communities to identify socioeconomic resources/issues. • Identify potential impacts on travel patterns, public safety, and community vitality. • Begin preliminary coordination related to federal and state relocation requirements, policies, and programs. • Evaluate potential economic impacts on local communities. • Continue coordination with local planning officials.
Parks and Recreation	• Conducted windshield surveys to identify public parks and private recreation areas. • Sent letters to parks and recreation officials requesting locations of any parks and recreation areas within the study area, their property boundaries, and a brief description of each. • Reviewed county parks/recreation and municipal comprehensive plans. • Examined West Virginia GIS Technical Center database, MD Dept. of Natural Resources database, Allegany County Planning Department's database, and the Nature Conservancy's database.	• Conduct additional coordination with local/state officials; evaluate school playgrounds as potential recreational facilities; identify future public parks and recreation sites/areas. • Identify any Section 4(f) involvement. • Complete Section 4(f) Evaluation. • Discuss avoidance/minimization, including Dans Mountain and Mountain Ridge Rural Legacy Area. • Identify potential mitigation measures. • Identify wildlife corridors/passages from Dans Mountain to the Potomac. • Conduct a forest delineation. • Identify highest quality forest areas that could provide habitat for forest interior dwelling species (FIDS).
Environmental Justice	• Conducted preliminary screening to determine if disproportionate effects on environmental justice populations are possible.	• Identify/map specific clusters of environmental justice populations. • Develop community outreach program for environmental justice populations. • Analyze the potential for high/disproportionate impacts on environmental justice populations.

TABLE P-1 (continued)
Tier One and Tier Two
Study Methodologies and Commitments

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Land Use/ Land Cover	• Categorized land cover according to the *Anderson Level II Classification System* (Anderson, *et al.* 1976); digitized and mapped land cover using aerial photography. • Conducted windshield surveys to verify actual land use. • Reviewed county comprehensive plans, evaluated data on business locations, and conducted broad property analysis of each refined corridor.	• Refine land use analyses; reevaluate consistency with land use plans. • Evaluate how proposed alternatives could affect changes in land use. • Evaluate consistency with Maryland's PFA laws, policies, and regulations. • Coordinate with state and local jurisdictions to address positive transportation and land use strategies in support of planned development and Smart Growth policies. • Use the USGS Breeding Bird Survey and representative list of birds to analyze the effects on avian species.
Cultural Resources	• Completed background research. • Developed pre-contact and historic period archaeological resource sensitivity maps. • Developed and analyzed archaeological predictive surface model. • Prepared historic context for the region. • Identified historic properties that are listed in, eligible for, or potentially eligible for listing in the NRHP. • Completed agency field views of study area. • Prepared *Historic Resources Abbreviated Report.*	• Continue Section 106 coordination. • Develop Programmatic Agreement in consultation with the WVDOH, the MDSHA, the State Historic Preservation Offices (SHPOs), and the Advisory Council on Historic Preservation, detailing the steps to be used for complying with Section 106 as part of the Tier Two approach. • Conduct Phase I archaeological survey for pre-contact and historic period archaeological resources. • Determine eligibility for listing of archaeological sites in the NRHP. • Prepare eligibility report for listing of historic resources in the NRHP. • Coordinate with SHPO on effects determination. • Coordinate Section 106 process with NEPA compliance by notifying SHPO and/or Tribal Historic Preservation Officer, Indian tribes, and other consulting parties. • Prepare Memorandum of Agreement (MOA) addressing adverse effects on NRHP sites and NPS concerns. • Complete Section 4(f) Evaluation (see Parks and Recreation).
Aquatic Resources	• Potential wetlands were identified through the use of existing information and preliminary field investigations. • Streams were identified through the use of existing information and limited field views.	• Identify and delineate sensitive aquatic habitat; assess eastern slope of Dans Mountain and other areas for brook trout populations. • Identify watershed boundaries. • Identify impacts in each watershed.

TABLE P-1 (continued)
Tier One and Tier Two
Study Methodologies and Commitments

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Aquatic Resources (continued)	• Water samples were taken at randomly selected locations to gain background data on streams and water quality.	• Conduct more detailed analysis of potential impacts on water quality and study area wetlands, including ephemeral streams. • Develop strategies to avoid, minimize, or mitigate impacts on aquatic resources.
Floodplains	• Analyzed National Flood Insurance Program maps to evaluate potential impacts on 100-year floodplains and identify the risk of future flooding. • Identified the number of potential transverse crossings that may occur as a result of the proposed project. • Identified flood control dams operated and maintained by the Potomac Valley Soil Conservation District.	• Identify natural and beneficial floodplain values. • Develop strategies to avoid, minimize, restore, and/or preserve floodplain values. • Conduct hydrology/hydraulic studies to determine potential effects on floodplains.
Vegetation and Wildlife	• Conducted coordination with state and federal agencies concerning rare, threatened, and endangered (RTE) species. • Identified land cover and habitat types from United States Geological Survey (USGS) topographic maps and through field investigation.	• Continue coordination with state and federal agencies concerning RTE species; conduct Section 7 coordination, if required. • Identify locations of RTE species and critical habitat, including Indiana bat, Northern Long-eared bat, and brook trout; evaluate potential impacts on RTE habitat. • Develop strategies to avoid, minimize, or mitigate impacts on RTE species, including development of potential wildlife corridors and passageways. • Develop specific Dans Mountain avoidance alternatives.
Farmlands	• Determined if soils listed in the *Farmland Protection Policy Act* (FPPA) would be impacted; identified soil types in each of the study area counties that are listed as prime, unique, statewide important, and locally important. • Identified agricultural land cover. • Identified farmland preservation areas.	• Identify internal operations of potentially impacted farms to avoid or minimize agricultural impacts. • Initiate and complete FPPA coordination requirements, including preparation of FPPA forms, where applicable.
Soils and Geology	• Reviewed literature and geologic information; evaluated impacts of the project on geologic formations. • Identified soil types through a review of county soil surveys, United States Department of Agriculture-Natural Resources Conservation Service digital soil data, and USGS maps.	• Identify unique geologic resources. • Identify any karst topography areas. • Identify high potential geologic hazard areas and highly erodible soils. • Conduct detailed analysis of the study area's geologic structures and soils. • Identify stormwater management and environmental site design locations.

TABLE P-1 (continued)
Tier One and Tier Two
Study Methodologies and Commitments

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Potentially Contaminated Sites	• Conducted windshield reconnaissance to assess the possibility of future project involvement with potentially contaminated sites. • Mapped and categorized each potentially contaminated site. • Performed a cursory review of state and federal hazardous waste site databases.	• Conduct detailed review of state and federal hazardous waste site databases. • Identify underground storage tanks. • Conduct Phase I Environmental Assessment for alternatives. • Solid waste generated from the project will be disposed of at a permitted solid waste acceptance. • If contaminated soil is encountered, the MDE or WVDEP will be contacted.
Traffic	• Developed a traffic assignment model consisting of trip generation productions, attractions, and distribution and traffic assignment. • Projected corridor level traffic and conducted a preliminary capacity analysis. • Projected future levels of traffic for major roadways. • Identified the amount of residual traffic expected on US 220 with a major new highway.	• Collect new traffic data. • Update the traffic assignment model. • Update traffic projections on major roadways. • Develop opening day and future traffic projections for any new proposed transportation facilities.
Air Quality	• Analyzed regional emissions through an evaluation of State Implementation Plans to determine general attainment designation.	• Reevaluate air conformity attainment. • Conduct micro-scale analysis for CO at worst-case locations. • Reevaluate mobile source air toxics and PM 2.5; provide information on ages of any existing structures that will be disturbed or demolished. • Utilize BMPs to reduce particles from becoming airborne with construction. • Provide information on equipment that has potential for creating emissions. • If traffic volumes change, evaluate resulting change in emissions. • Evaluate emissions resulting from construction or newly installed equipment to confirm emissions do not exceed permitted levels. • Cutback asphalt will not be used during June, July and August. • Evaluate the cumulative impacts of emissions from other concurrent construction projects.

TABLE P-1 (continued)
Tier One and Tier Two
Study Methodologies and Commitments

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Noise	• Completed field reconnaissance and review of study area mapping to identify potential noise sensitive areas.	• Identify noise receptors; develop noise level prediction model based on typical sections/future traffic volumes. • Conduct noise analyses, including evaluation of pre-construction, construction, and post-construction noise volumes. • Analyze/recommend abatement measures.
Indirect Impacts	• Examined development trends and redevelopment efforts. • Completed field views and interviews with planning, development, and other public representatives. • Analyzed representative interchanges for corridors under consideration and calculated impacts for adjacent areas.	• Refine potential impact area for indirect effects. • Identify potential land use changes and indirect impacts for non-growth areas within the study area. • Complete analyses on potential impacts related to Tier Two alternatives.
Cumulative Impacts	• Reviewed past and planned actions through the year 2025 to complete a preliminary assessment of cumulative impacts; reviewed comprehensive plans and related programming documents; interviewed local planners and economic development officials; and conducted study area field views.	• Update identification of all reasonably foreseeable future actions within the study area. • Complete cumulative effects assessment per CEQ guidelines; will analyze magnitude and extent of potential cumulative effects within context of the appropriate resource, ecosystem, and human community. • Cumulative impact assessment will include past, present, and reasonably foreseeable Tier Two breakout projects. • Future cumulative impact assessment in the Tier Two environmental document will include impact information for other breakout projects within the Tier One US 220 corridor.
Major Utilities	• Initiated coordination with utility companies and municipal services providers in the area.	• Coordinate with utility companies and municipal services providers. • Identify power plants, substations, major transmission lines, treatment plants, reservoirs and water intake areas, and cellular telephone towers; incorporate into project mapping.
Energy	• Briefly discussed energy impacts in EIS.	• Analyze effect of a new transportation facility on regional energy usage. • New construction will meet and/or exceed state requirements for energy efficiency.

TABLE P-1 (continued)
Tier One and Tier Two
Study Methodologies and Commitments

Resource/Issue	Tier One Methodologies	Tier Two Commitments
Construction	• Identified short term impacts and benefits.	• Coordinate with emergency services providers, public transportation agencies, and school bus operators. • Develop mitigation plan. • Analyze potential highway construction waste areas.
Public and Agency Involvement	• Distributed project information through direct mailings and local libraries. • Conducted preliminary agency field views. • Presented information to local, state, and federal agencies at several coordination meetings. • Conducted public meetings. • Provided resource agencies with preliminary drafts of DEIS and FEIS.	• In cooperation with the resource agencies, identify key coordination milestones for the project; develop updated proactive and collaborative agency coordination plan; conduct resource-specific agency field views. • Provide regular resource coordination meetings to give project updates and to solicit discussion, analysis and development of aspects of the project. • Distribute project information through direct mailings and local libraries. • Conduct resource-specific agency field views. • Continue to present information to local, state, and federal agencies. • Conduct public meetings/hearings. • Provide updates on project breakouts and anticipated level of NEPA studies. • Continue coordination with and present information to the public and agencies for all levels of NEPA study, including CEEs. • Notify agencies early in Tier Two process, including breakout projects of Tier Two. • Share breakout CEEs, EAs, and EISs with agencies. • Address remaining agency comments provided on Tier One that were noted to be addressed in Tier Two.

As noted earlier, it is possible that the development of breakout projects with their own logical termini and operationally independent utility may result from this Tier One study. Any other possible projects that may be an outgrowth of Tier One will require separate environmental documentation. Future environmental documentation could result in the development of EISs, EAs, or CEEs. The appropriate environmental permits will also be developed.

UNRESOLVED ISSUES

Cultural Resources

The *Section 106* process will continue into Tier Two. Early in the Tier Two process, a Programmatic Agreement (PA) will be developed in consultation with the WVDOH, MDSHA, the SHPOs from each state, and the Advisory Council on Historic Preservation to detail the steps to be used for complying with *Section 106*. During Tier Two, a Memorandum of Agreement (MOA) will also be developed in cooperation with the NPS to address adverse effects on all NRHP sites impacted by the project. The NPS had originally requested that a MOA be developed during the current phase of the project. As the project proceeded, however, it seemed more appropriate to defer the MOA until Tier Two, when the extent of potential impacts on NRHP sites will be better known.

The NPS offered comments on two preliminary reports for this project, *Purpose and Need Statement* and *Corridors Retained for Further Analysis*, but did not officially concur with either report. All other cooperating and participating agencies, except the MDE and Allegany County, have concurred with these two reports. The NPS has indicated that the project could have serious impacts on resources under its jurisdiction, or on nearby properties associated with those resources. To proceed, the project may require special avoidance, minimization, or mitigation measures for cultural resources.

Because of the widespread occurrence of cultural resources throughout the area, especially existing and potential historic districts and farmsteads, a *Section 4(f) Evaluation* will be necessary during Tier Two. *Section 4(f)* of the *U.S. Department of Transportation Act of 1966* requires that special efforts be made to protect publicly owned parks, recreation areas, wildlife and waterfowl refuges, and significant historic sites. Section 4(f) applies to projects that require approval by the FHWA or any other United States Department of Transportation agency. It requires that such projects avoid the acquisition, or “use,” of any of the previously defined Section 4(f) resources unless there is no prudent and feasible alternative to that use. If a use must occur, all possible planning measures must be included to minimize harm to that resource.

Natural Resources

Coordination with state and federal agencies is ongoing and will continue in Tier Two. The federally listed endangered Indiana bat, the federally listed endangered Virginia big-eared bat, and the federally protected bald eagle may be present in the study area. The Northern long-eared bat may also be present in the area. This species, though not federally-protected at the time of this writing, is expected to be a federally-listed species by the time Tier Two commences. Habitat suitable for the federally listed endangered shale barrens rock cress may also be present, as may flora and fauna of state concern. The MDNR is especially concerned about potential impacts on the Dans Mountain Wildlife Management Area and habitat suitable for brook trout and forest interior dwelling species (FIDS). FIDS habitat is a relatively scarce landscape feature and is vulnerable to destruction as land is converted to agricultural or, more common in recent decades, urban uses. Fragmentation or reduction in size of large forest blocks needs to be minimized as part of the land development process (MDNR 2003).

The development of actual alternatives in Tier Two may be able to avoid or minimize the extent of these potential impacts. Dans Mountain is one of the largest contiguous tracts of forestland in the state of Maryland; a considerable amount of coordination with the USFWS, MDNR, and MDE will be necessary during Tier Two to analyze actual alternatives that could impact it. The best options in this area are those that may avoid it altogether. However, if Dans Mountain cannot be avoided, alternatives that minimize impacts and restrict them to edge area of the resource may be advanced. Mitigation will be proposed for any loss of forestland or function. Additional field activities, studies, coordination, and consultation during Tier Two will be necessary pursuant to *Section 7 of the Endangered Species Act of 1973* and the *Nongame and Endangered Species Conservation Act* (in Maryland) to address these concerns. Mitigation could include the development of protected wildlife corridors or passageways from Dans Mountain to the Potomac River.

Additional studies will be conducted during Tier Two in Mill Run, a brook trout stream located near Rawlings, Maryland. This and other streams on the eastern slope of Dans Mountains will be assessed for brook trout through aquatic sampling as the project progresses. The purpose of this sampling will be to more precisely identify the locations of brook trout populations as Tier Two alternatives are developed. The results of the sampling may lead to further studies of brook trout populations.

The Potomac River, a navigable waterway to the Cumberland area, is subject to Section 10 of the *Rivers and Harbors Act* and Section 404 of the *Clean Water Act*. Additional coordination will be necessary with the USACE and, possibly, the USCG, as the project progresses into Tier Two.

On March 31, 2008, the USEPA and USACE issued revised regulations governing compensatory mitigation for authorized impacts on wetlands, streams, and other waters of the United States under Section 404 of the *Clean Water Act* (known as the 2008 Final Compensatory Mitigation Rule). These regulations are designed to improve the effectiveness of compensatory mitigation to replace lost aquatic resource functions and areas, expand public participation in compensatory mitigation decision making, and increase the efficiency and predictability of the mitigation project review process. The project is subject to these requirements; they will be addressed during Tier Two.

Some other comments from the resource agencies also remain unresolved because they appear to be more appropriate to the more detailed studies to be undertaken during Tier Two. Coordination will continue through Tier Two to further define these comments and resolve them.

<u>Permits</u>

In addition to the Tier Two studies, other state and federal permits/actions will be required for implementation of the project. These permits/actions would include a Section 404 permit, a *Section 401 Water Quality Certification*, a *National Pollutant Discharge Elimination System (NPDES) Water Pollution Control* permit, an *Erosion and Sedimentation Control Plan*, and a *Stormwater Management Plan*. Specifically, a Joint (federal/state) Permit Application will be submitted to meet the combined federal/state requirements for activities that impact *Waters of the U.S.* in Maryland. The MDSHA must demonstrate that any proposed impacts to streams and wetlands are necessary and unavoidable and that all minimization measures have been fully exhausted. Avoidance and minimization measures could include the use of compressed medians, reduced safety grading widths, design alternatives, bridging floodplains and wetlands, free-span structures, and bottomless arch culverts, among other possibilities.

Although the Potomac River is a navigable waterway to its confluence with Wills Creek near Cumberland, the proposed crossing area for the project is farther west. As a result, the USCG informed the FHWA on April 20, 2007, that the project is not subject to Section 10 of the *Rivers and Harbor Act*. Should the proposed crossing location change, the USCG will be informed and a new determination on the applicability of Section 10 will be made.

Priority Funding Areas Act and Smart Growth

The *Priority Funding Areas Act* capitalizes allows capital expenditures in Maryland to focus on economic growth and development. This legislation directs state funds to Priority Funding Areas (PFAs), which consist of existing communities and places where infrastructure is in place and public investment can better support growth. Growth-related projects covered by the legislation include most State programs that encourage or support growth and development, including highways, sewer and water construction, economic development assistance, and State leases or construction of new office facilities. Beginning in October 1, 1998, the State of Maryland directed funding for projects that support growth should go to PFAs and receive priority over other projects.

One of the major factors used in the development of the Tier One corridors was an analysis of how potential highway improvements within the corridors will support the PFAs in the future. As the project progresses into Tier Two, all potential highway improvements will be further evaluated in terms of how effective the improvements are in encouraging “smart growth” and continuing to support the economic goals of communities within PFAs. Smart growth advocates communities with housing and transportation choices near jobs, shops and schools.

Rural Legacy Program

The *Rural Legacy Program* was created in 1997 to protect large, contiguous tracts of cultural and natural resource lands within Maryland from the effects of sprawl. Allegany County has participated in this program by designating over 31,000 acres as the Mountain Ridge Rural Legacy Area. Much of the rural legacy area in Allegany County is coterminous with Dans Mountain, but the rural legacy area extends farther north to the state line of Pennsylvania.

Situated within the Ridge & Valley Physiographic Province where it meets the Allegheny Front, the first rural legacy area in Allegany County includes large blocks of unbroken forest, pristine ecologically significant areas and historic sites. It includes exemplary plant and wildlife habitat, an important migration corridor and perhaps the most significant golden eagle flyway in the state. The Area is delineated around 10,163 acres of existing protected lands which may be further connected and consolidated, forming a greenway potentially linking ridgetops in West Virginia with Pennsylvania, as well as westward into the Allegheny Plateau (Allegany County Planning Commission 2013).

Strategies for addressing the state and local requirements of the program will be developed in Tier Two. Local coordination efforts will continue in Tier Two to minimize impacts to these protected lands.

Costs

Project costs were developed for this phase of the project utilizing unit costs from similar types of projects recently completed in West Virginia. These costs do not include utility relocation, right-of-way acquisition, engineering, or future environmental study. Additional cost information for project alternatives will be developed during Tier Two. If breakout projects are identified, cost information for those projects will be developed within their respective environmental documents.

DOCUMENT ORGANIZATION

This FEIS comprises 11 chapters and several appendices, figures, and plates. Each of these chapters is described as follows:

Chapter 1.0, Purpose and Need Statement – Provides background information on the study area, discusses the purpose of the proposed project, and identifies the project needs. This chapter also establishes the reasons that public funds will be spent on a project that could have significant environmental impacts.

Chapter 2.0, Alternatives Development – Provides background on the process to develop a broad range of reasonable corridor alternatives to meet the project's purpose and needs; describes five preliminary corridors; establishes the engineering design criteria used for the project; and develops five "refined" corridors and their costs. Also, this chapter provides a traffic assessment of the alternatives and presents an initial screening that narrows the project alternatives to three of the corridors and a No-Build Alternative.

Chapter 3.0, Affected Environment – Provides information on important resources within the study area and the condition of the existing environment. Recognizing that the study area for the project is over 835 square miles, this chapter (out of necessity) paints a broad picture of the area's socioeconomic, natural, and cultural resources.

Chapter 4.0, Environmental Consequences – Provides additional detail on the resources within the three corridors that were carried forward and describes the impacts of project alternatives on the environment and the methodologies used in evaluating impacts.

Chapter 5.0, Potential Section 4(f) Resources – Provides an effects analysis and preliminary alternatives analysis for the Section 4(f) resources that could potentially be impacted once detailed alternatives are developed during Tier Two studies.

Chapter 6.0, Findings and Conclusions – Summarizes each of the three corridors carried through impact evaluation and presents conclusions related to future Tier Two studies.

Chapter 7.0, Comments and Coordination – Summarizes public and agency involvement in the project and addresses the substantive comments received on the DEIS.

Chapter 8.0, List of Preparers and Reviewers – Identifies the principal people working on the project, lists their educational background and experience, and identifies the primary functional or thematic areas they prepared or reviewed.

Chapter 9.0, Distribution List – Identifies the federal, state, and local agencies that were provided with a copy of this EIS for review during the official comment period.

Chapter 10.0, References – Provides bibliographic information on technical information reviewed or cited as part of this FEIS.

Chapter 11.0, Acronyms – Defines the acronyms found within this FEIS.

DIFFERENCES BETWEEN THIS DOCUMENT AND THE DEIS

In May 2013, after comments on the DEIS were reviewed, a preliminary copy of a final EIS was prepared and distributed to all agencies on the distribution list received copies of the Preliminary FEIS in May 2013. A coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies was held on December 3, 2013, to discuss the preliminary final EIS and develop a schedule for final circulation of the document. This additional level of review resulted in changes to the document that are further described in Section 7.7 and Appendix H.

CHAPTER 1.0

PURPOSE AND NEED STATEMENT

1.0 PURPOSE AND NEED STATEMENT

1.1 Project Location and Description

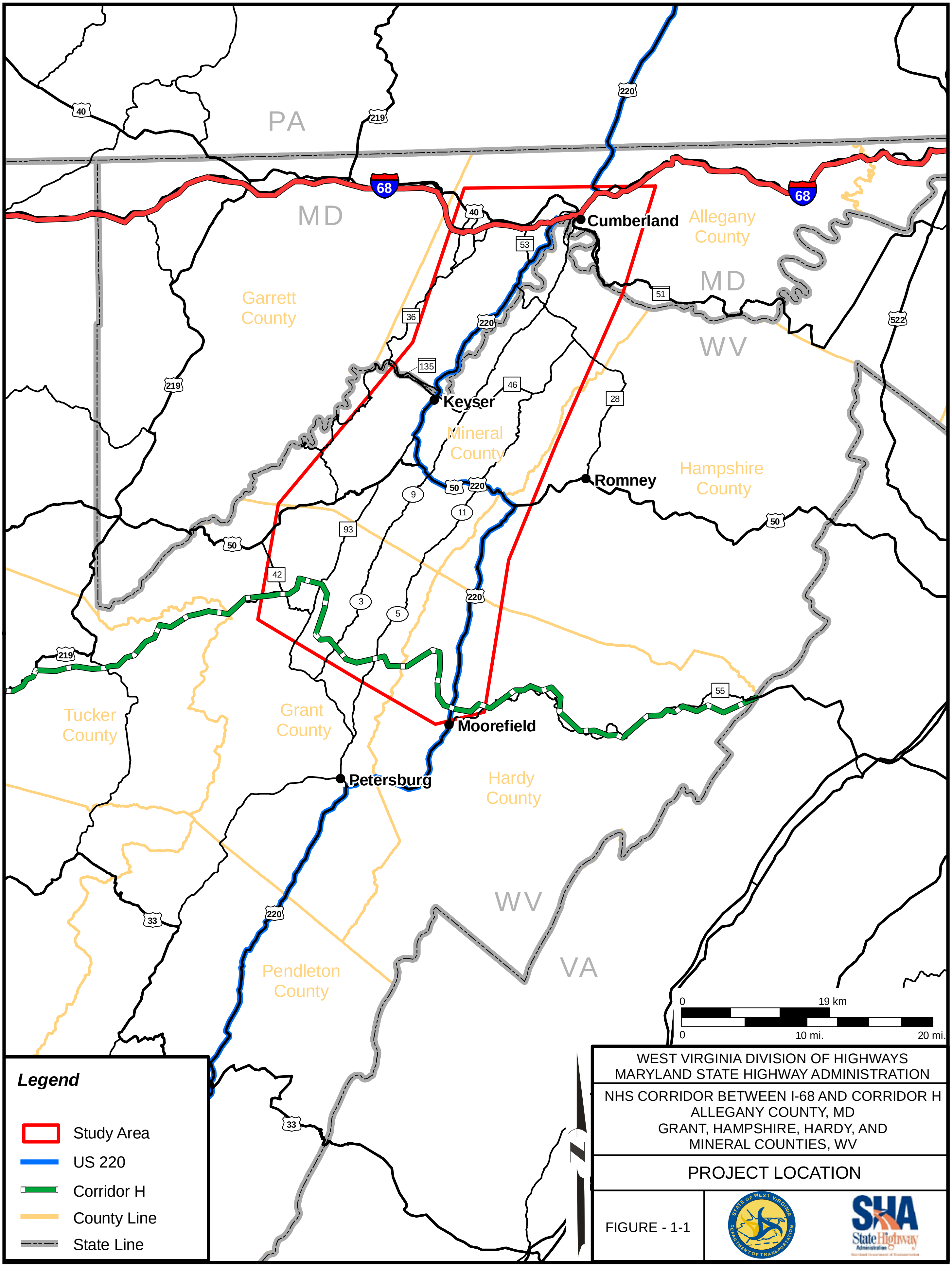
The project is located in Grant, Hardy, Hampshire, and Mineral counties in West Virginia, and in Allegany County in Maryland. The project region stretches south from I-68 (or the National Freeway) near Cumberland, Maryland, to the proposed alignment of Corridor H. Corridor H is part of the Appalachian Development Highway System (ADHS). Figure 1-1 shows the project location in its regional context.

The major routes in the area are I-68, US 220, US 50, MD 51, MD 53, MD 135, WV 972, WV 46, and WV 93. These routes connect the major population and employment areas of the region located at Cresaptown, Cumberland, Frostburg, and McCoole (all in Maryland) and Keyser, Romney, Moorefield, and Petersburg (all in West Virginia).

Besides being among the largest communities in the region in terms of residents and employment opportunities, Cumberland, Keyser, Romney, Moorefield, and Petersburg are also the county seats of their respective counties (i.e., Allegany, Mineral, Hampshire, Hardy, and Grant). These communities are also considered the economic, employment, and social centers for the region.

Logical termini for the project are proposed on I-68 and Corridor H. At the northern end of the region, the project would terminate on I-68 at an existing interchange in or near the City of Cumberland. At the southern end, the project would terminate on Corridor H at one of its proposed interchanges. Interstate 68 is the principal east-west route through the northern part of the region. When completely constructed, Corridor H will be the principal east-west travelway through the southern part of the region. Termini for the proposed project on each of these major highways will allow for a similar transportation connection between them.

The distance between Cumberland and Corridor H is approximately 40 miles. The current travel time between Cumberland and the West Virginia communities near the planned alignment of Corridor H is approximately one hour.



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

PROJECT LOCATION

FIGURE - 1-1

1.2 Project Overview and Background

The current project is an outgrowth of the *North South Appalachia Corridor Feasibility Report* (MDSHA *et al.* 2001). Completed in July 2001, the North South Appalachia Corridor feasibility study was a multi-state transportation planning and economic development effort undertaken by MDSHA, WVDOH, the Pennsylvania Department of Transportation, and the Virginia Department of Transportation. The purpose of the North South Appalachia Corridor feasibility study was twofold:

- To determine the relative costs and social, economic, and environmental benefits of transportation improvements in several north-south transportation corridors in Appalachian Maryland, West Virginia, Virginia, and Pennsylvania.
- To encourage economic development and improve quality of life while protecting and enhancing the environment in the study area *via* north-south transportation corridor improvements.

The North South Appalachia Corridor feasibility study analyzed the potential support for highway improvements for economic development in four north-south corridors bisecting the Appalachian regions of Maryland, Pennsylvania, West Virginia, and Virginia. The study also evaluated the potential environmental impacts that would be associated with a major transportation improvement in the region. The study concluded that US 220 south from I-68, *via* MD 53, to Corridor H and US 219 north from I-68 to the Pennsylvania Turnpike (I-76) would provide the greatest potential for benefiting Appalachian economic development. The report also concluded that the proposed NHS Corridor (which is being studied through the EIS process) should be given a high priority for future highway upgrades and other transportation improvements.

The North South Appalachia Corridor feasibility study further recommended that future improvements within the US 220 corridor should be consistent with Maryland's Smart Growth initiatives and that improvements associated with US 220 should not detract from planned or programmed improvements in other major corridors. The study also specifically noted that the Smart Growth initiatives highly suggested the following:

- Highway access points should be provided only in Priority Funding Areas (PFAs) to limit sprawl;
- Access points should encourage redevelopment in PFAs;

- Not only should highway improvements meet all environmental requirements, they should also emphasize environmental protection and enhancement;
- Improvements should complement scenic qualities of the region; and
- Improvements should be developed with active and continuous citizen participation.

Additional information on Smart Growth initiatives, PFAs, and project need is found later in this chapter.

1.3 Purpose of the Project

The purpose of this project is to develop an improved transportation corridor connecting I-68 in Western Maryland and Corridor H in West Virginia. Upgraded roadways resulting from this project will become part of the NHS. The new NHS Corridor, paralleling to some extent existing US 220 in Western Maryland and West Virginia's Potomac Highlands area, would improve the existing transportation system by providing an upgraded north-south road through a program of transportation projects.

The new corridor could comprise roadways on new alignment, an upgrade of existing roadways, or some combination of upgrading existing roads and building new roads. The use of existing right-of-way can potentially reduce the environmental impact of the proposed project. The development of a new corridor through the region will support efforts to increase mobility and regional commerce for residents, businesses, and visitors, especially within the region's built-up areas and existing commercial centers. It will also serve north-south interstate travel movements and support economic development throughout the Appalachian regions of Maryland, West Virginia, Pennsylvania, and Virginia.

1.4 Need for the Project

Project needs were examined in the early stages of the project through a collaborative process that included additional examination of past studies, a further review of existing regional plans, consultation with citizens and local officials within the study area, consultation with the government agencies involved in the process, and an analysis of the environmental and socioeconomic conditions of the region. Through this process, the following needs were identified within the study corridor:

- Current geometric deficiencies on US 220 and parallel roadways limit regional mobility;
- The study area has inadequate roadway capacity;
- Roadway sections within the area have safety deficiencies;
- Support is needed for economic development efforts in the area; and
- Additional system linkage is needed to complete the regional road network.

Although the major roads serving the area are well-maintained, they are primarily two-lane roads with grades as steep as 9 percent and deficient roadway geometry in some locations. The capacity of the existing roadway network is inadequate to accommodate future economic development and commerce. In many areas throughout the region, unrestricted access creates traffic conflicts on the roads. The lack of multi-lane transportation facilities, beyond I-68 and very small sections of US 220 and MD 53, has limited economic development in the region. Additionally, the high percentage of trucks on these two-lane roads, together with limited passing zones, creates conflicts with automobile traffic. Table 1.4-1 provides the existing characteristics and percentage of truck traffic on selected routes.

TABLE 1.4-1
Existing Characteristics and Truck Traffic on Selected Routes

Location	Functional Classification	Average Annual Daily Traffic (AADT)	Lane Width	Shoulder Width	Speed Limit	Truck Traffic
MD 53	Principal Arterial	14,475 vehicles	12 feet	2-10 feet	30-40 mph	5%
US 220(MD)	Principal Arterial	14,125 vehicles	12 feet	0-12 feet	25-50 mph	9%
US 220(WV)	Principal Arterial	4,700 vehicles	12 feet	0-12 feet	25-50 mph	4-5%
WV 93	Principal Arterial	2,000 vehicles	12 feet	<2 feet	55 mph	9-10%
WV 972	Principal Arterial	5,000 vehicles	12 feet	<2 feet	35-50 mph	9-10%

1.5 Existing Transportation Network

Speed limits for the through routes within the study area vary between 25 and 55 miles per hour (mph). Except for small sections of four-lane travelways on US 220 and MD 53 near Cumberland, the through-routes in the area are all generally two-lane facilities with 12-foot-wide travel lanes and shoulders that vary from 0 to 12 feet wide.

Turning lanes are found at many, but not all, of the major intersections. Several important intersections, however, are currently too narrow to allow for additional lanes.

1.5.1 Major Maryland Roadways in the Study Area

US 220

US 220 in Maryland is classified as an urban principal arterial. Urban principal arterials serve the major centers of activity of a metropolitan area, the highest traffic volume corridors, and the through movements to bypass the central city. Urban principal arterials also serve intra-urban and inter-city bus travel, travel between major inner city communities, and travel between central business districts. They are almost all fully and partially controlled access facilities and are stratified into three subsystems: interstates, freeways and expressways, and other principal arterials.

US 220 begins at I-68 and extends southward to the North Branch Potomac River at MD 135 in McCoole. The speed limit ranges from 40 to 50 mph on this roadway, with a reduced speed of 30 mph through Cresaptown and suggested speeds of 35 mph on numerous curves. Trucks are advised at 25 mph approaching McCoole because of the steep grade. The existing roadway section comprises two undivided, 12-foot-wide travel lanes with two- to eight-foot-wide paved shoulders. Truck climbing lanes exist at the northbound approach to I-68, northbound at Dawson, and on the northbound ascent from McCoole.

Numerous turning lanes exist along this stretch of US 220; specifically, at the Western Correctional Institute and throughout Cresaptown. Three traffic signals exist: one each at Barton Boulevard, Warrior Drive, and Winchester Road. A flashing yellow signal is located in McCoole at the intersection with MD 135. Traffic becomes congested through Cresaptown and Bowling Green where on-street parking exists.

Of the 18.7 miles of US 220 roadway from I-68 to the West Virginia state line, approximately 2,200 feet (2.2% of the entire segment) exhibits substandard horizontal alignment, and approximately 29,100 feet (29.5%) exhibits substandard vertical alignment. Substandard horizontal and vertical alignments do not meet the current engineering criteria of the WVDOH and MDSHA. These conditions create difficulties for members of the traveling public who anticipate modern highway facilities. Additionally, 14.1 percent of the segment is steeper than the maximum design criterion (9%) for this type of roadway.

Interstate 68

Interstate 68 is the principal east-west route through the northern part of the project region. On the western fringe, the route begins at Midlothian Road (Exit 33) in Frostburg and continues 16.7 miles east to MD 144, National Pike (Exit 47), in Wolfe Mill. Built in the 1960s, the elevated section of I-68 through Cumberland is substandard for its urban freeway classification because of a speed limit of 40 mph, narrow lane widths, and exit ramp speed limits of 15 mph.

The maximum speed limit on I-68 is 65 mph, with reductions to 50 mph when approaching Cumberland, and 40 mph through the Cumberland city limits. There are four 12-foot-wide travel lanes (two eastbound and two westbound), separated by a wide, grassy median with guard rail. Certain sections have five 12-foot-wide lanes with truck-climbing lanes; specifically, on the 6 percent grades between Exits 33 and 34 and Exits 42 and 47. Through Cumberland, there are four 10- to 11-foot-wide lanes with very narrow shoulders, separated by a concrete barrier. Trucks and buses are not permitted in the left lane or on Exit 42 eastbound because of the steep grades.

Of the 16.7 miles of I-68 roadway from Exit 33 to Exit 47, approximately 8,900 feet (10.1% of the entire segment) exhibits substandard horizontal alignment, and approximately 19,700 feet (22.3 percent) exhibits substandard vertical alignment. Additionally, 29.1 percent of the segment is steeper than the maximum design criterion (6%) for this type of roadway.

MD 36

MD 36 begins at the northern end of the project near I-68 and continues southward to MD 135 in Westernport. The speed limit ranges from 35 to 50 mph, with reductions to 25 mph in Midland and Lonaconing. There are two 12-foot-wide travel lanes, with the exception of a four-lane divided highway over I-68. The paved shoulder ranges in width from eight to 12 feet. There are four railroad crossings and three traffic signals along this stretch of MD 36.

Of the 15 miles of MD 36 roadway, approximately 17,000 feet (21.5% of the entire segment) exhibits substandard horizontal alignment.

MD 51/Industrial Boulevard

MD 51 begins at the northern end of the project near I-68 and continues southward through South Cumberland to Spring Gap. The speed limit ranges from 45 to 55 mph, with a reduction to 30 mph through Cumberland. There are two 12-foot-wide travel lanes with a paved two- to eight-foot-wide shoulder. Through Cumberland, MD 51 has three lanes southbound. The road splits through Virginia Avenue to become a one-way couple with two lanes on each side. The median is grass or raised concrete and varies in width from 16 to 20 feet. There are three traffic signals, one at the access ramp to I-68 and two at Virginia Avenue on each side of the couple.

Of the 7.2 miles of MD 51 roadway from I-68 to Spring Gap, approximately 4,100 feet (11% of the entire segment) exhibits substandard horizontal alignment, and approximately 16,300 feet (42.3%) exhibits substandard vertical alignment. Additionally, 11 percent of the segment is steeper than the maximum design criterion (9%) for this type of roadway.

MD 53

MD 53 begins at LaVale near I-68 and US 40 Alternate and runs southward to Cresaptown at US 220. The speed limit ranges from 30 to 40 mph on the MD 53 roadway. Four traffic signals are located in LaVale, and one traffic signal is located in Cresaptown at the junction with US 220. There are two 12-foot-wide travel lanes with a paved eight-foot-wide shoulder, except in LaVale, where MD 53 is a four-lane divided roadway with concrete curbs.

Of the 3.1 miles of MD 53 roadway, approximately 800 feet (4.9% of the entire segment) exhibits substandard horizontal alignment, and approximately 2,400 feet (14.4%) exhibits substandard vertical alignment.

MD 55

MD 55 is a small segment of roadway that begins in Clarysville at US 40 Alternate and runs to MD 36 near Vale Summit. The speed limit ranges from 45 to 50 mph, with two 12-foot-wide travel lanes and an eight- to 10-foot-wide paved shoulder. There are no traffic signals along this stretch of road. Of the 2.6 miles of this route, 1,600 feet (11.8%) exhibits substandard vertical alignment.

MD 135

MD 135 begins in Westernport at MD 36. From Westernport, MD 135 runs eastward to McCoole, terminating at US 220. The speed limit ranges from 30 to 50 mph, with a reduction to 25 mph through Westernport. There are two 12-foot-wide lanes with an eight-foot-wide paved shoulder. In Westernport, there are concrete curbs with sidewalks and a center island. One traffic signal is located at MD 36 and one railroad crossing is located near the same intersection.

Of the 5.3 miles of MD 135 roadway from US 220 to WV 46, approximately 1,100 feet (3.8% of the entire segment) exhibit substandard horizontal alignment. Additionally, 10 percent of the segment is steeper than the maximum design criterion (6%) for this type of roadway.

MD 658 (Vocke Road)

MD 658, a small segment approximately two miles long, consists of four 12-foot-wide lanes separated by a raised concrete median. The speed limit along this segment, which runs through LaVale from US 40 Alternate to MD 53, is 40 mph. The shoulders are paved and have a concrete curb. MD 658 includes numerous left and center turning lanes and three traffic signals. Only eastbound access to I-68 is available.

MD 936

MD 936 begins at US 40 Alternate in Frostburg and runs southward to MD 36 in Midland. The speed limit is 50 mph, with a reduced speed to 25 mph in Borden/Shaft. There are two 11-foot-wide travel lanes with little or no shoulder and numerous clear zone restrictions. One traffic signal is located at US 40 Alternate in Frostburg. Advisory signs suggest 35 mph on some curves. Of the five miles of MD 936 roadway, approximately 600 feet (2.3% of the entire segment) exhibits substandard horizontal alignment.

1.5.2 Major West Virginia Roadways in the Study Area

US 220

Beginning at Keyser, the West Virginia portion of US 220, which is classified as a rural principal arterial, continues southward to Corridor H at Moorefield and beyond. Rural principal arterials form a connected network of continuous routes that serve corridor movements having trip length and travel density characteristics indicative of substantial intrastate or interstate travel. Rural principal arterials are stratified into two subsystems: interstates and other principal arterials.

The speed limit on US 220 in this part of the study area ranges from 40 to 55 mph, with reductions to 25 mph through Keyser and 35 mph approaching Moorefield. Many curves have reduced speeds ranging from 20 to 45 mph.

There are two 12-foot-wide travel lanes separated by road markings, with two 12-foot-wide paved shoulders. In a few instances, the shoulder is gravel. Throughout Keyser, the roadway has concrete curbs with sidewalks, left turning lanes, and a broad center turning lane and median. Until recently, the Keyser-McCoole Bridge presented a narrower width than the approaching roadway and exhibited major structural deficiencies. A new two-lane bridge meeting all current design criteria opened to traffic in 2012.

Two bridge weight restrictions are posted along US 220 in the West Virginia portion of the study area at the southern end of the corridor in Hardy County. The first is near the northern leg of County Route (CR) 2 and the second is just north of WV 923. Both limits are 18 tons, and the bridges have narrower widths than the width of the approaching roadway. A 9 percent grade exists for approximately one mile, where US 220 couples with US 50, and a truck-climbing lane is in place at that location.

Of the 36.8 miles of US 220 roadway from the Maryland state line to Moorefield, approximately 18,200 feet (9.4% of the entire segment) exhibits substandard horizontal alignment, and approximately 14,000 feet (7.1%) exhibits substandard vertical alignment. Additionally, 4.8 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

US 50

Within the study area, US 50 begins at Mount Storm and extends eastward to Romney. The speed limit ranges from 40 to 55 mph except on approach to Romney, where it is reduced to 25 mph. The two 12-foot-wide travel lanes, which are separated by road markings, have gravel or paved shoulders that vary from zero to six feet in width. Numerous clear zone restrictions can be found along this curvy portion of US 50.

Three bridge weight restrictions are posted along this stretch of US 50: 20 tons at the WV 972 junction; 20 tons just east of there; and 18 tons over the South Branch Potomac River near Romney. The second location also has a bridge width that is less than the width of the approaching roadway. There is a 9 percent grade for four miles between Mount Storm and WV 93, and another 9 percent grade near the US 220 split. Truck climbing lanes exist at both locations.

Of the 27.3 miles of US 50 roadway from WV 42 to WV 28, approximately 17,600 feet (13.7% of the entire segment) exhibits substandard horizontal alignment, and approximately 13,300 feet (10.4%) exhibits substandard vertical alignment. Additionally, 13.7 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

WV 28

WV 28 begins in Cumberland at MD 51 and extends southward into West Virginia at the Hampshire County line. The speed limit ranges from 35 to 55 mph along two 12-foot-wide travel lanes. The shoulder type varies from less than two feet gravel to eight feet paved. One traffic signal is located at WV 46 and one railroad crossing is located near MD 51. Numerous advisories for reduced speeds of 30-50 mph are found on the roadway's curves.

Of the 15.5 miles of this roadway, approximately 9,600 feet (11.7% of the entire segment) exhibits substandard horizontal alignment, and approximately 11,700 feet (14.3%) exhibits substandard vertical alignment. Additionally, 5.8 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

WV 28 Alternate

WV 28 Alternate begins in Cumberland at the Potomac River and runs southward to WV 28 near the Greater Cumberland Regional Airport. The speed limit is 50 mph except in Ridgeley, where it is reduced to 25 mph. WV 28 Alternate consists of two 11-foot-wide lanes with no roadway shoulder and a single traffic signal near Cumberland. In Ridgeley, the railroad underpass has a height restriction of 11 feet, 11 inches. Both the underpass and the bridge over the Potomac River are narrow.

Of the 2.7 miles of this roadway, 5,900 feet (38.3%) exhibits substandard vertical alignment. Additionally, 63.9 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

WV 42

WV 42 begins near Kitzmiller and travels southward to WV 93 near Bismarck. The speed limit ranges from 30-55 mph and, generally, the travel lane widths vary from 10 to 11 feet. The gravel shoulder becomes very narrow in some places, but measures up to six feet wide in others. There is a railroad crossing at the North Branch Potomac River, suggested speeds of 20-35 mph on some curves, and a 9 percent steep grade for approximately three miles. Clear zone restrictions also exist along this roadway.

Of the 16.1 miles of WV 42, approximately 20,700 feet (24.4% of the entire segment) exhibits substandard horizontal alignment, and 11,050 feet (13%) exhibits substandard vertical alignment. Additionally, 28 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

WV 46

WV 46 begins in Elk Garden and runs northward and eastward to WV 28 in Fort Ashby. The speed limit ranges from 35 to 55 mph, with reductions to 25 mph through Piedmont, Keyser, and Fort Ashby. Two travel lanes range in width from eight to 12 feet, and in many instances along this roadway there is no shoulder. Four railroad crossings, four traffic signals, and one weight restriction are found on WV 46. Just southeast of Piedmont, the road contains severe clear zone restrictions, cautioned speeds reduced to 15 mph on some horizontal and vertical curves, and a narrow bridge.

Of the 34.7 miles of this roadway, approximately 20,000 feet (11% of the entire segment) exhibits substandard horizontal alignment, and approximately 30,200 feet (16.5%) exhibits substandard vertical alignment. Additionally, 22.4 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

<u>WV 93</u>

WV 93 begins at US 50 and extends southward to WV 42 in Scherr. The speed limit is 55 mph, with two 10-foot-wide lanes and a paved shoulder that is less than two feet wide. The roadway has a 7 percent grade for approximately two miles.

Of the 12.2 miles of WV 93 roadway, approximately 10,400 feet (16.1% of the entire segment) exhibits substandard vertical alignment. Additionally, 10.7 percent of the segment is steeper than the maximum design criterion (7%) for this type of roadway.

<u>WV 956</u>

WV 956 begins at US 220 near the Allegany Ballistics Laboratory and extends eastward for a short distance to WV 28. The speed limit ranges from 35 to 45 mph, with two 11-foot-wide lanes and a narrow gravel shoulder. Reduced speed advisories from 30 to 35 mph are posted around some curves. The Potomac River Bridge has a width that is less than the width of the approaching roadway.

Of the 7.4 miles of this roadway, approximately 6,100 feet (15.6%) exhibits substandard vertical alignment. Additionally, 18.8 percent of the segment is steeper than the maximum design criterion (10%) for this type of roadway.

<u>WV 972</u>

WV 972 starts at US 220 south of Keyser and extends for a short distance to US 50. The speed limit ranges from 40 to 50 mph, with two 12-foot-wide travel lanes and a narrow gravel or paved shoulder. Clear zone restrictions are located along the roadway and reduced speed advisories to 30 mph are found around some curves. Of the 2.1 miles of this roadway, approximately 900 feet (7.8% of the entire segment) exhibits substandard horizontal alignment, and approximately 400 feet (3.7%) exhibits substandard vertical alignment.

Grant CR 3

Grant CR 3 begins at the Mineral County line and runs southward to WV 42. The speed limit is 35 mph. The roadway consists of two travel lanes ranging from eight to 10 feet wide and a narrow shoulder. Suggested speeds on curves range from 20 to 30 mph. The majority of the roadway has no centerline markings.

Of the 10.2 miles of this roadway from the county line to Oak Hill, approximately 1,700 feet (3.3% of the entire segment) exhibits substandard horizontal alignment, and approximately 7,000 feet (12.9%) exhibits substandard vertical alignment. Additionally, 3.7 percent of the segment is steeper than the maximum design criterion (10%) for this type of roadway.

Grant CR 5

Grant CR 5 begins at the Mineral County line and extends southward to Lahmansville. The speed limit is 55 mph, with two 11-foot-wide lanes and a narrow shoulder. Suggested speed on some curves is 35 mph, and clear zone restrictions are found along sections of this roadway. Of the 9.8 miles of Grant CR 5 from the Mineral County line, 1,825 feet (3.5%) exhibits substandard vertical alignment.

Mineral CR 9

Mineral CR 9 begins at WV 28 and runs southward to the county line. The speed limit ranges from 35 to 45 mph, with two travel lanes ranging from eight to 11 feet wide and a narrow shoulder. Suggested speed on some curves is as low as 15 mph but generally ranges from 20 to 35 mph. Some clear zone restrictions also exist along Mineral CR 9.

Of the 13.5 miles of this roadway, approximately 3,500 feet (4.9% of the entire segment) exhibits substandard horizontal alignment, and approximately 15,000 feet (21.1%) exhibits substandard vertical alignment. Additionally, 9.9 percent of the segment is steeper than the maximum design criterion (10%) for this type of roadway.

Mineral CR 11

Mineral CR 11 begins at WV 46 and runs southward to the county line. The speed limit ranges from 30 to 55 mph, with a reduction to 25 mph through Burlington. The road consists of two eight- to 11-foot-wide lanes with little to no shoulder. Advisories posted along this roadway include horse crossings, slippery when wet, and 30 mph on curves. A 20-ton bridge weight restriction is found in Burlington near the intersection with US 50/US 220. Most of the roadway has no centerline markings and contains severe clear zone restrictions.

Of the 18.3 miles of this roadway, approximately 3,100 feet (3.2% of the entire segment) exhibits substandard horizontal alignment, and approximately 6,400 feet (6.6%) exhibits substandard vertical alignment. Additionally, 0.4 percent of the segment is steeper than the maximum design criterion (10%) for this type of roadway.

1.5.3 Geometric Deficiencies

Engineering deficiencies of various types exist on most of the area's roadways. The geometric deficiencies discussed in the previous roadway descriptions are summarized in Table 1.5-1.

TABLE 1.5-1
Summary of Geometric Deficiencies on Major Roads

Roadway	Length of Substandard Horizontal Alignment	Length of Substandard Vertical Alignment	Length of Steep Grades	Number of Height or Weight Restrictions	Number of At-Grade RR Crossings
US 220 (MD)	2,200 feet	29,100 feet	13,900 feet	0	0
I-68	8,900 feet	19,700 feet	25,900 feet	0	0
MD 36	17,000 feet	0 feet	0 feet	0	0
MD 51	4,100 feet	16,300 feet	4,200 feet	0	0
MD 53	800 feet	2,400 feet	0 feet	0	0
MD 55	0 feet	1,600 feet	0 feet	0	0
MD 135	1,100 feet	0 feet	2,800 feet	1	1
MD 658	0 feet	0 feet	0 feet	0	0
MD 936	600 feet	0 feet	0 feet	0	0

TABLE 1.5-1 (Continued)
Summary of Geometric Deficiencies on Major Roads

Roadway	Length of Substandard Horizontal Alignment	Length of Substandard Vertical Alignment	Length of Steep Grades	Number of Height or Weight Restrictions	Number of At-Grade RR Crossings
US 220 (WV)	18,200 feet	14,000 feet	9,300 feet	2	0
US 50	17,600 feet	13,300 feet	19,700 feet	3	0
WV 28	9,600 feet	11,700 feet	4,700 feet	0	1
WV 42	20,700 feet	11,050 feet	17,200 feet	0	1
WV 46	20,00 feet	30,200 feet	41,000 feet	1	4
WV 93	0 feet	10,400 feet	6,900 feet	0	0
WV 956	0 feet	6,100 feet	7,300 feet	0	0
WV 972	900 feet	400 feet	0 feet	0	0
Grant CR 3	1,700 feet	7,000 feet	2,000 feet	0	0
Grant CR 5	0 feet	1,825 feet	0 feet	0	0
Mineral CR 9	3,500 feet	15,000 feet	7,100 feet	0	0
Mineral CR 11	3,100 feet	6.400 feet	400 feet	1	0

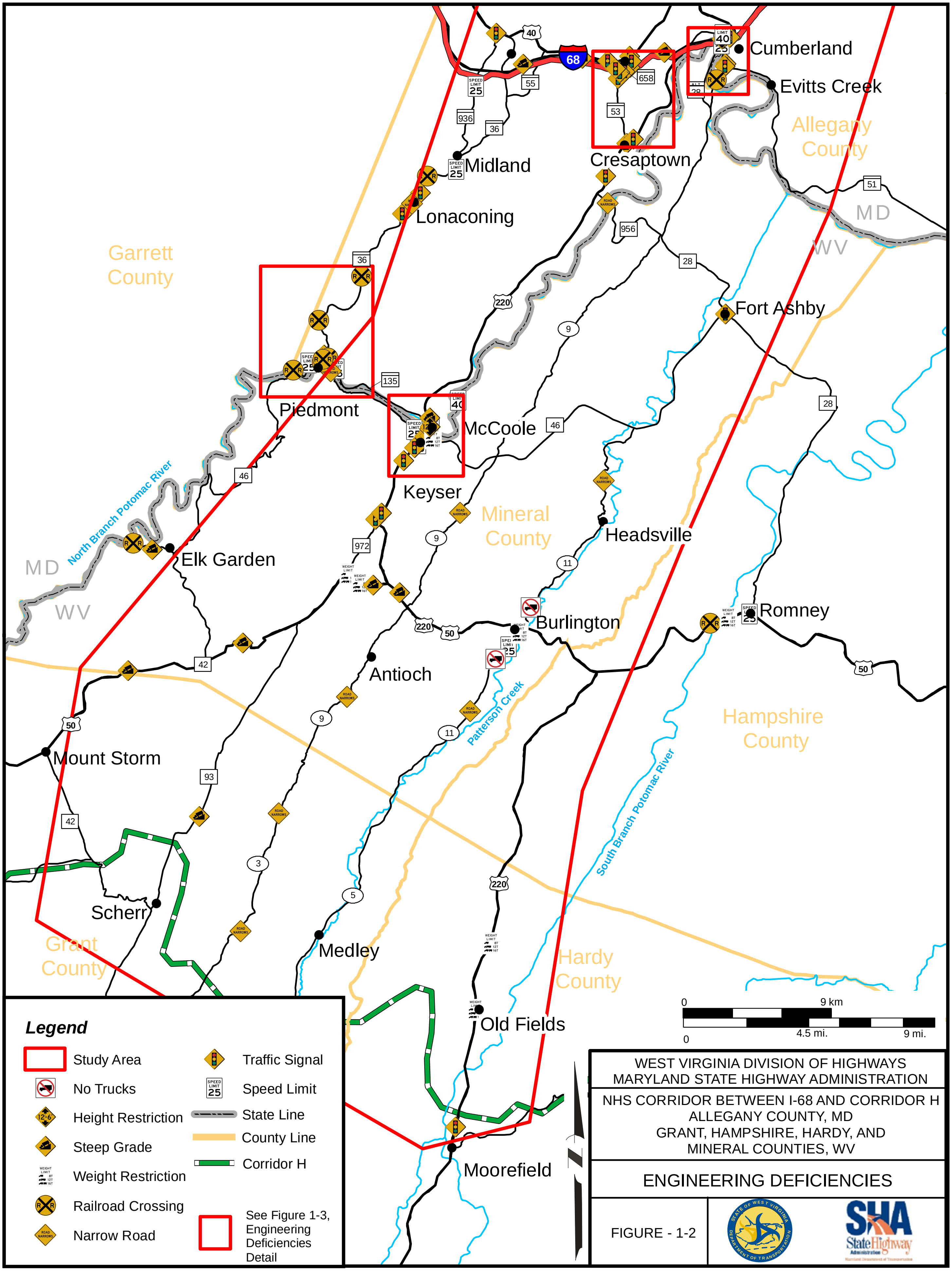
The locations where these engineering deficiencies occur in both the Maryland and the West Virginia portions of the study area are shown on Figures 1-2 and 1-3.

1.5.4 System Linkage in the Study Area

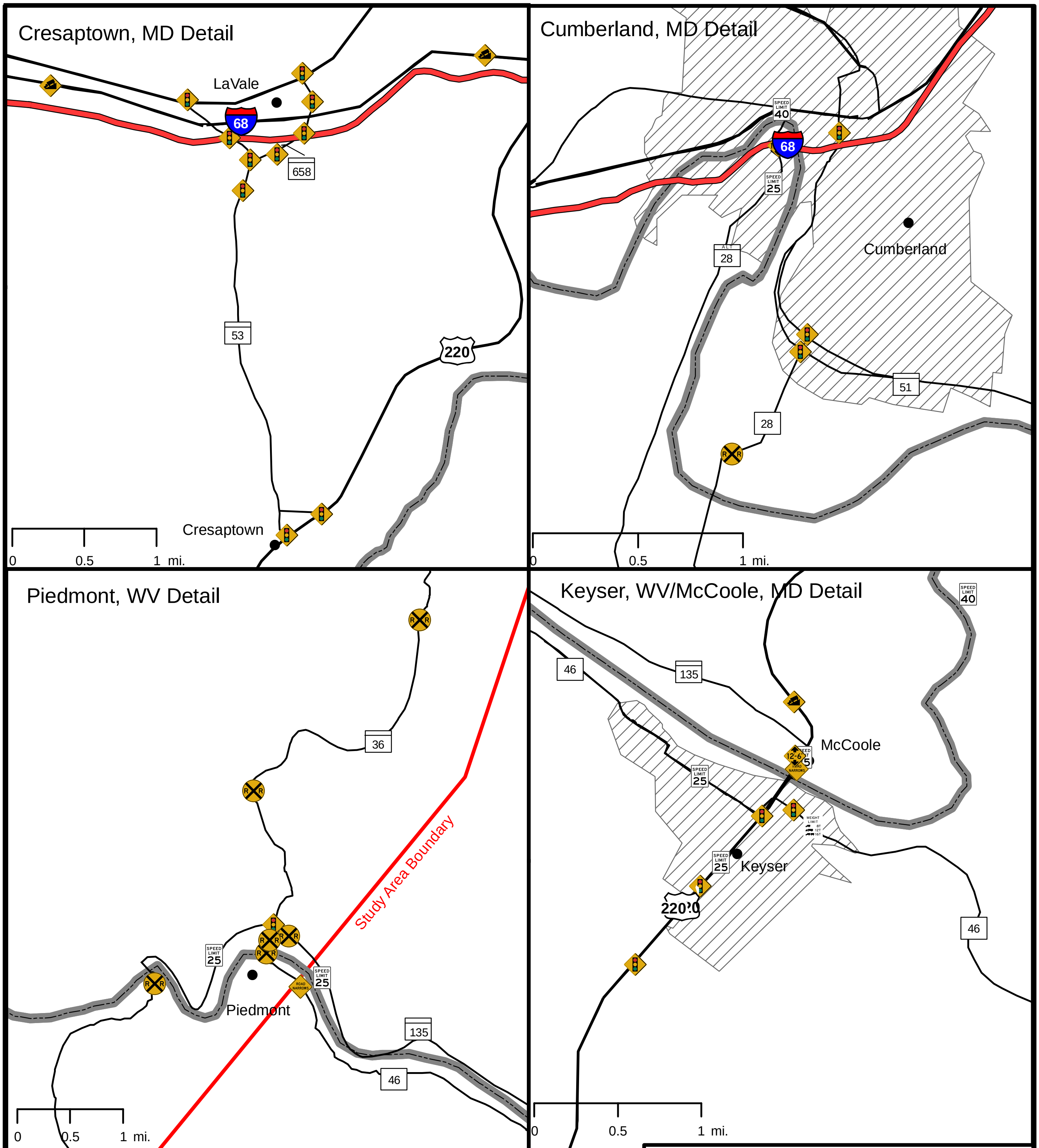
<u>Airports</u>

The Greater Cumberland Regional Airport is located near Cumberland, Maryland, off Canal Parkway and Airport Drive, *via* MD 51. The airport is owned by the Potomac Highlands Airport Authority and serves the general aviation community. Commuter air service was provided between the airport and Hagerstown Regional Airport and Baltimore-Washington International Airport until January 2006, when Independence Air, the airport's last remaining commercial carrier, ceased operations.

The Grant County Airport, which is near Petersburg, West Virginia, is the only other publicly owned airport in the area. It is owned by the Grant County Airport Authority and serves as a general aviation facility.



Cumberland
Evitts Creek
Cresaptown
Allegany County
MD
WV
Midland
Lonaconing
Garrett County
Fort Ashby
Piedmont
McCoole
Keyser
Mineral County
Headsville
North Branch Potomac River
Elk Garden
MD
WV
Burlington
Romney
Antioch
Patterson Creek
Hampshire County
Mount Storm
South Branch Potomac River
Scherr
Grant County
Medley
Hardy County
Old Fields
Moorefield
68
40
55
936
36
53
658
51
956
28
220
9
135
46
972
11
50
42
93
3
5
Legend
Study Area
No Trucks
Height Restriction
Steep Grade
Weight Restriction
Railroad Crossing
Narrow Road
Traffic Signal
Speed Limit
State Line
County Line
Corridor H
See Figure 1-3, Engineering Deficiencies Detail
0
9 km
4.5 mi.
9 mi.
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
ENGINEERING DEFICIENCIES
FIGURE - 1-2



Legend

- Height Restriction
- Steep Grade
- Weight Restriction
- Railroad Crossing
- Narrow Road
- Traffic Signal
- Speed Limit
- City Limits
- State Line

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

ENGINEERING DEFICIENCIES DETAIL

FIGURE - 1-3

Public Transit

Allegany County Transit provides fixed-route bus service in Cumberland and the surrounding Maryland communities of Barton, Cresaptown, Frostburg, LaVale, Lonaconing, Luke, Midland, and Westernport. This public agency operates 11 fixed-routes and a related demand-responsive service for its member communities. The demand response service is known as Alltrans. Alltrans operates two components, a demand response service for persons 65 years of age and older, and the Americans with Disabilities Act paratransit service for persons with disabilities.

The Potomac Valley Transit Authority provides bus service in Grant, Hampshire, Hardy, and Mineral counties. The authority also provides a special demand-responsive service for the non-emergency medical assistance transportation program and allows route deviation of up to three-fourths of a mile on all of its regular bus routes.

Various social service agencies also provide demand-responsive transit service throughout the entire study area. Generally, an individual must be a service client of the specific agency to use this form of transportation.

Railroads

Amtrak provides passenger service in the area, with stations at Cumberland, Martinsburg, and Harper's Ferry. All lines have connecting service to Washington, D.C., to the east, and Pittsburgh, PA, to the west.

Intermodal Facilities

There are no inter-modal facilities in the vicinity of the study area.

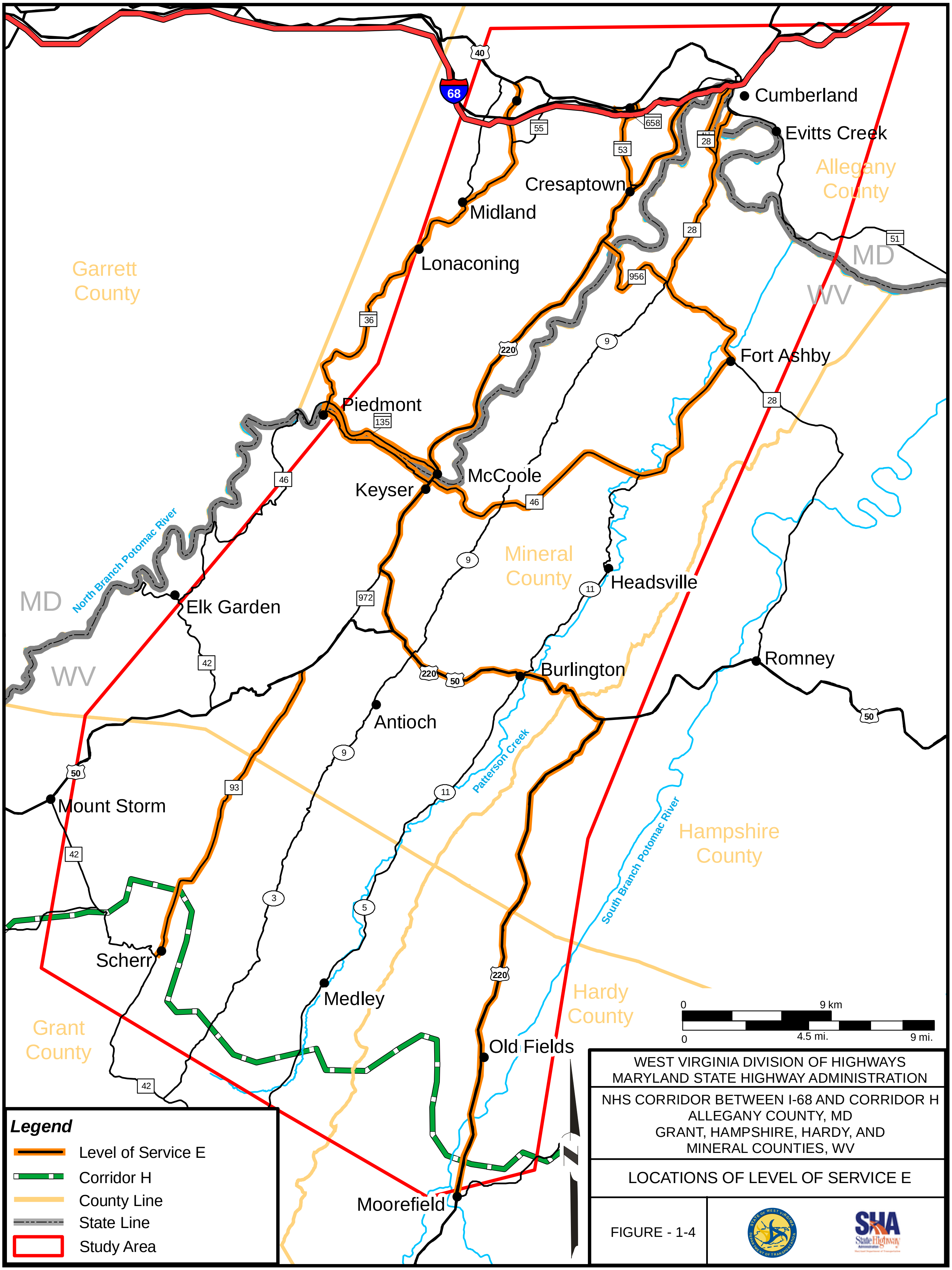
1.6 Traffic Analysis

The effectiveness of a roadway system to provide adequate traffic service is typically measured in terms of level of service (LOS). LOS describes the operation of a given highway by establishing a range of “A” to “F.” LOS A represents the best operation of a roadway, and LOS F represents the worst. Although the four-lane roadways in the northern portions of the study area exhibit sufficient levels of service through the corridor, several two-lane traffic segments in the area do not. Data collected in the year 2000 during the North South Appalachia Corridor feasibility study showed LOS D occurring on MD 53 and major segments of US 220. Under LOS D, speed and traffic maneuverability are severely restricted and driver comfort declines.

Although considered acceptable in urban areas, LOS D is generally assumed to be an unacceptable level of operation in rural areas. In the latest version of the American Association of State Highway and Transportation Officials (AASHTO) publication, *A Policy on the Geometric Design of Highways and Streets* (2004), LOS B is recommended for level and rolling freeways and level and rolling arterials in rural areas. LOS D is recommended only for rural local roads and rural mountainous collectors. Other categories in rural areas (level and rolling collectors and mountainous freeways and arterials) have a recommendation of LOS C. Much of the study area falls within rural areas.

Based on updated highway capacity modeling completed specifically for the development of this FEIS, all of the locations examined in the North South Appalachia Corridor feasibility study, as well as several other locations in the current study area, were found to be functioning at LOS E during the peak hour. Figure 1-4 shows areas where conditions now exhibit peak-hour LOS E. This is typical of what is generally predicted on two-way, two-lane highways of a similar nature. Even at volumes that are far from the actual physical capacity of the area’s rural roads, lower speeds prevail because of roadway design, and because the time spent following another vehicle tends to be high. The result is poor LOS.

As expected, traffic volumes reported in the North South Appalachia Corridor feasibility study were highest in the vicinity of Cumberland and on West Virginia’s rural routes. On some segments of the principal roadways, truck traffic accounted for up to 10 percent of traffic volume. The high percentage of truck traffic, although necessary for local and regional commerce, creates safety conflicts with automobile users, especially on narrow-lane roadways in mountainous terrain. Recent data collected by the WVDOH and MDSHA (*Traffic Flow Maps for Grant, Hampshire, Hardy, and Mineral Counties* [2005a] and *Traffic Volume Map for*



Cumberland
Evitts Creek
Allegany County
Cresaptown
Midland
Lonaconing
Garrett County
MD
WV
Fort Ashby
Piedmont
McCoole
Keyser
Mineral County
Headsville
Elk Garden
North Branch Potomac River
Romney
Burlington
Antioch
Patterson Creek
Mount Storm
Hampshire County
South Branch Potomac River
Scherr
Medley
Hardy County
Grant County
Old Fields
Moorefield
68
40
55
658
53
28
51
956
9
220
36
135
46
972
11
42
50
93
3
5
0
9 km
4.5 mi.
9 mi.
Legend
Level of Service E
Corridor H
County Line
State Line
Study Area
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
LOCATIONS OF LEVEL OF SERVICE E
FIGURE - 1-4
SHA
State Highway

Allegany County [2004], respectively) show that traffic has remained consistent in some parts of the study area and increased in others. Traffic volumes on US 220 south of Cumberland remain consistent at 14,125 average annual daily traffic (AADT). South of Keyser, traffic volumes have also remained consistent from the previous study, hovering around 10,000 AADT. Traffic on the more rural roads of the study area, especially WV 93 and WV 972, has seen minimum AADT growth from 1,200 to 2,200. Many residents of the area, however, perceive even more traffic on these two roadways because traffic has grown at such a high rate. Heavy truck traffic is still found throughout the study area and ranges from 5 to 10 percent in several locations. Current and projected future traffic and LOS for the area's roadways are shown in Table 1.6-1.

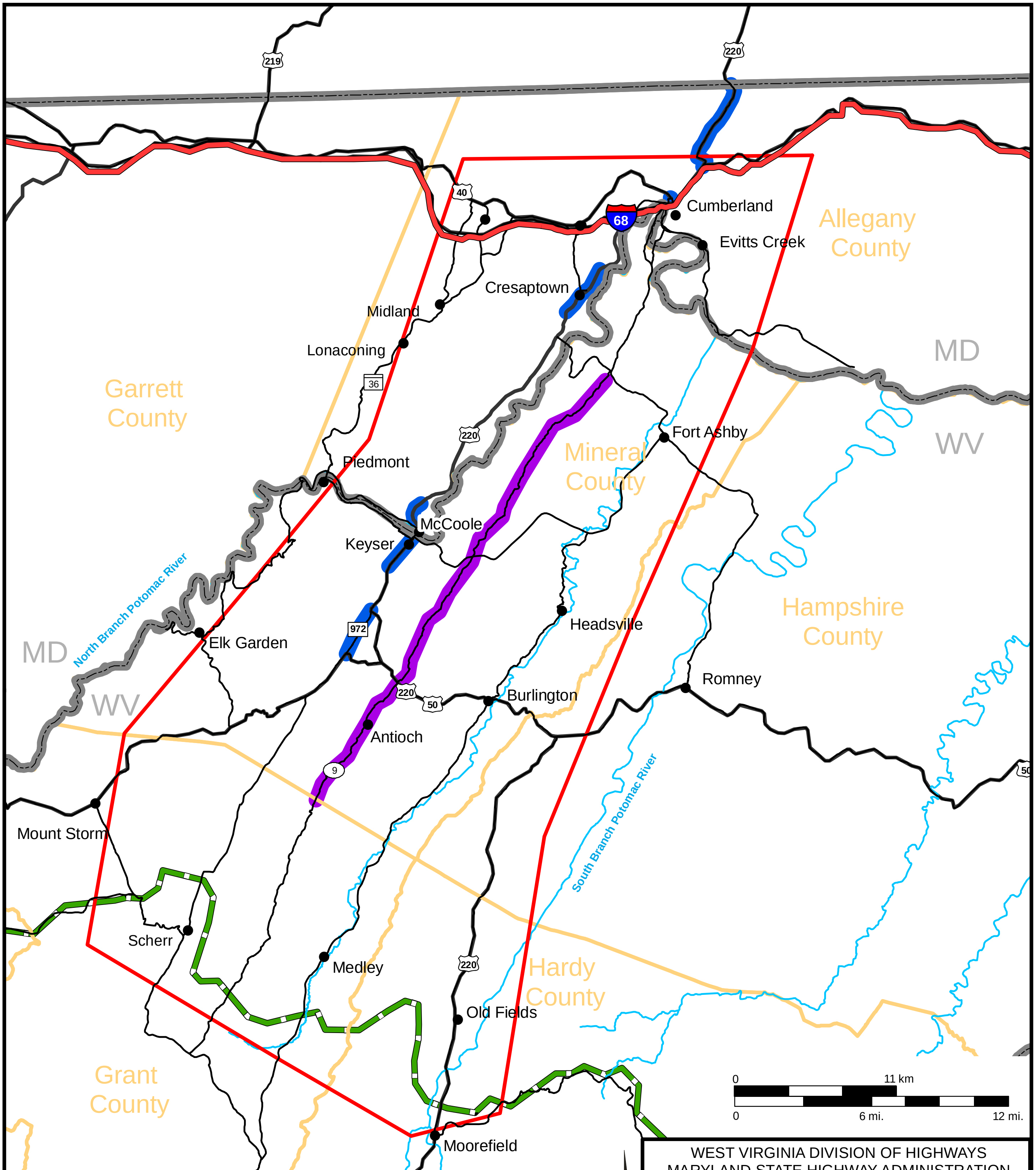
TABLE 1.6-1
Current and Future Traffic and Levels of Service

Route	Segment	Current AADT	Current LOS	Year 2025 AADT	Year 2025 LOS
US 220	Moorefield to Junction	3,800	E	5,600	E
	Junction to New Creek	4,700	E	7,000	E
	New Creek to State Line	4,400	E	6,500	E
	State Line to MD 53	10,125	E	12,400	**F**
	MD 53 to I-68	14,125	E	20,200	**F**
MD 36	Westernport to Frostburg	8,150	E	11,650	**F**
MD 53	US 220 to I-68	14,575	E	20,800	E
MD 135	Westernport to Keyser	6,975	E	9,950	E
WV 28	Ft. Ashby to WV 956	9,300	E	14,700	E
	WV 956 to Cumberland	9,900	E	15,700	E
WV 46	Westernport to Keyser	2,000	E	3,300	E
	Keyser to Ft. Ashby	3,200	E	5,300	E
WV 93	Scherr to New Creek	2,200	E	3,400	E
WV 956	WV 28 to US 220	5,200	E	8,000	E

Traffic volumes are expected to increase by the year 2025 for all parts of the study area. As traffic volumes increase, roadway capacity will remain the same or decrease. As a result, roadways will continue to experience LOS E and three are expected to drop to LOS F.

1.7 Safety Analysis

Crash data collected as part of the North South Appalachia Corridor feasibility study showed that several travel segments throughout the area exhibited crash rates higher than the statewide average for similar types of roadways. Roadway sections along US 220 and WV 972 exceeded the statewide averages. These segments are shown on Figure 1-5. Some roadway improvements in the area, especially on US 220 in Maryland, have already corrected



Legend

Roadway Segments with Crash Rates Higher than the Statewide Average (N/S Appalachia Corridor Study)

Roadway Segments with Crash Rates Higher than the Statewide Average (updated data)

Corridor H

County Line

State Line

Study Area

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

ROADWAY SEGMENTS WITH CRASH RATES HIGHER THAN THE STATEWIDE AVERAGE

FIGURE - 1-5

conditions contributing to these high crash rates. Updated crash rates on each of the major roadways in the study area highway network are shown in Table 1.7-1 and on Figure 1-5. Because of different reporting procedures in each state, crash rates were analyzed for different lengths of time. For the Maryland roadways, the crash rates are based on data from January 2001 through December 2005. For the West Virginia roadways, they are based on data from July 2002 through June 2005. The timeframes are consistent with typical study parameters in support of other projects in Maryland and West Virginia and are sufficient samples of data from steady state conditions. Additionally, no major changes occurred on study area roadways during the period that could affect the crash data analysis by shifting potential problems to other roads. Only one of the segments, Mineral CR 9, had a crash rate per million vehicle miles traveled (VMT) higher than the statewide average for similar types of highways.

TABLE 1.7-1
Crash Rates for Study Area Roadways

Route	Segment	State	Crash Rate per Million VMT	Statewide Average
I-68	Exit 34 to Exit 47	MD	0.23	0.54
MD 135	Westernport to Keyser	MD	0.60	1.49
MD 36	Westernport to Frostburg	MD	0.63	1.32
US 220	MD/WV State Line to I-68	MD	0.66	1.59
MD 53	US 220 to I-68	MD	1.15	1.99
WV 28A	WV 28 to MD/WV State Line	WV	0.62	3.06
WV 42	Mt. Storm to WV 93	WV	1.01	3.06
Grant CR 5	County Line to Lahmansville	WV	1.14	3.80
WV 42	US 50 to MD/WV State Line	WV	1.36	3.06
WV 93	Scherr to New Creek	WV	1.39	3.06
WV 972	US 220 to US 50	WV	1.59	3.06
Grant CR 3	County Line to Oak Hill	WV	1.92	3.80
WV 28	Romney to MD/WV State Line	WV	2.11	3.80
WV 956	WV 28 to MD/WV State Line	WV	2.14	3.80
US 220	Moorefield to MD/WV State Line	WV	2.34	3.80
WV 46	Elk Garden to WV 28	WV	2.45	3.80
US 50	Mt. Storm to Romney	WV	2.50	3.80
Mineral CR 11	WV 28 to Grant County Line	WV	3.67	3.80
Mineral CR 9	WV 28 to Grant County Line	WV	3.98	3.80

1.8 Growth and Development

The existing transportation system is a critical factor that hinders economic development in the study area. The Appalachian regions of Maryland and West Virginia have been adversely impacted by a surface transportation system adapted to mountainous terrain and by an inadequate system of regional highways. Although tremendous improvements have been made in other parts of both states, the region has been unable to meet the demands of all roadway users.

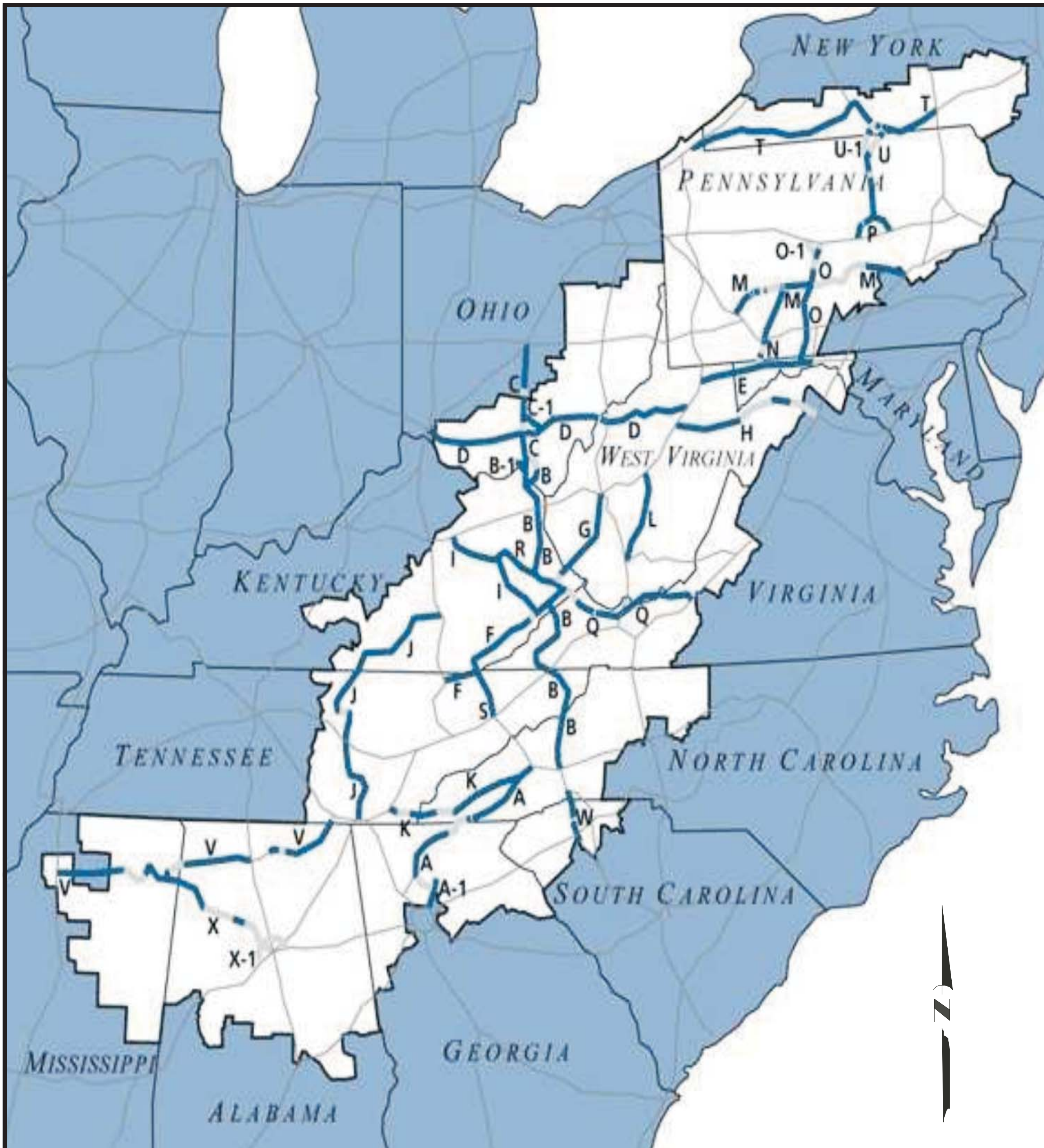
Approximately 43,000 jobs are located within the region. Past studies have shown that, with specific transportation investments in north-south access, the area could support additional jobs. The North South Appalachia Corridor feasibility study noted that job opportunities would increase by 19 percent with such transportation improvements, representing the highest rate of job growth in the region. Expected job growth by industrial sector is shown in Table 1.8-1.

TABLE 1.8-1
Expected Job Growth by Industrial Sector

Industrial Sector	Expected New Jobs	Percentage of Total New Growth
Agriculture	90	1.1
Construction	660	8.1
Manufacturing	690	8.4
Transportation & Utilities	580	7.0
Trade, Wholesale & Retail	1,880	22.8
FIRE (fire, insurance, and real estate) & Service	4,330	52.6
Total	8,230	100

The U.S. Congress authorized construction of the ADHS in the *Appalachian Development Act of 1965*. The ADHS was designed to generate economic development in previously isolated areas, supplement the interstate system, connect Appalachia to the interstate system, and provide access to areas within the region and to markets in the rest of the nation. The ADHS is currently authorized at 3,090 miles. By the end of Fiscal Year (FY) 2005, approximately 85 percent of the authorized system was complete or under construction. Corridor H, the southern terminus of the proposed project, is part of the ADHS. Although its entire length has not yet been completely designed, parts of Corridor H are already open. When fully opened, Corridor H will provide an additional east-west travel choice for the public and commerce. Currently, I-68 is the principal east-west highway in the region. Figure 1-6 shows the status of the ADHS as of September 2005.

Congress approved the NHS in 1995 to include roadways important to the nation’s economy, defense, and mobility. Although the NHS includes only 4 percent of the nation’s roads, it carries more than 40 percent of all highway traffic, 75 percent of heavy truck traffic, and 90 percent of



Legend

Open to Traffic

Not Open to Traffic

Interstate System

Source: Appalachian Regional Commission, September 30, 2005

WEST VIRGINIA DIVISION OF HIGHWAYS MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H ALLEGANY COUNTY, MD GRANT, HAMPSHIRE, HARDY, AND MINERAL COUNTIES, WV
APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM
FIGURE - 1-6 NOT TO SCALE

tourist traffic. An improved US 220 will be part of the NHS and link I-68 in the north to Corridor H in the south. The Interstate Highway System comprises about 30 percent of the NHS roadways. The linkage of these two nationally important highway systems in the region will bring economic and transportation benefits to the area.

In Maryland, the closest NHS roadways providing north-south connections between I-68 and points to the south are US 219 (approximately 32 miles to the west) and I-81 (approximately 65 miles to the east). In West Virginia, the closest NHS roadways providing similar connections are US 219 (approximately 30 miles to the west) and US 522 (approximately 42 miles to the east). Because so few NHS roadways provide suitable connections, north-south travel in the study area is often circuitous and time-consuming.

1.9 Master Plan

Highway improvements for the proposed NHS Corridor, between I-68 and Corridor H, are consistent with growth and development plans at all government levels. At the federal level, the U.S. Congress has established the ADHS and the NHS – two key components of the proposed project. The project is also consistent with the Continental 1 initiative, a proposed 1,500-mile international trade route stretching through nine states and the Canadian province of Ontario. Other studies have suggested that US 220, or US 219 could be used as part of the Continental 1 corridor, since it traverses Allegany and Mineral counties.

At the state level, the proposed project is listed on the *West Virginia Statewide Transportation Improvement Program*. Additionally, construction of a new US 220 is listed in the *Maryland Highway Needs Inventory*. To further advance the project, the WVDOH and MDSHA entered into a Memorandum of Understanding (MOU) on May 21, 2004, which established specific parameters and coordination activities associated with studying the corridor. Both state transportation agencies had previously participated in the development of the *North South Appalachia Corridor Feasibility Report* (MDSHA *et al.* 2001). Subsequent to preparing the MOU, a project-specific coordination plan was developed, in cooperation with FHWA and other interested state and federal agencies, between WVDOH and MDSHA to guide the preparation of this Tier One FEIS.

At the regional level in West Virginia, the *Regional Development Plan Update: Comprehensive Development Strategy and Annual Report* (2006), prepared by the Region 8 Planning and Development Council, identified US 220 as a roadway critical to the region's economic development. The Region 8 Planning and Development Council was established on May 3, 1972, through the *West Virginia Planning and Development Act of 1972*. As such, the Council is the primary agency for planning and economic development for Grant, Hampshire, Hardy, Mineral, and Pendleton counties. Specifically, the *Regional Development Plan Update* called for a renewed highway program "to focus on a highway's impact on long-term growth" (Region 8 Planning and Development Council 2006). In addition to US 220, the *Update* also identified US 50, WV 28, and WV 93 as roadways vital to the area's economy. All of these roadways fall within the study area developed for this FEIS. During public meetings on the project, Region 8 officials emphasized that economic growth in the area hinges upon an improved north-south transportation corridor.

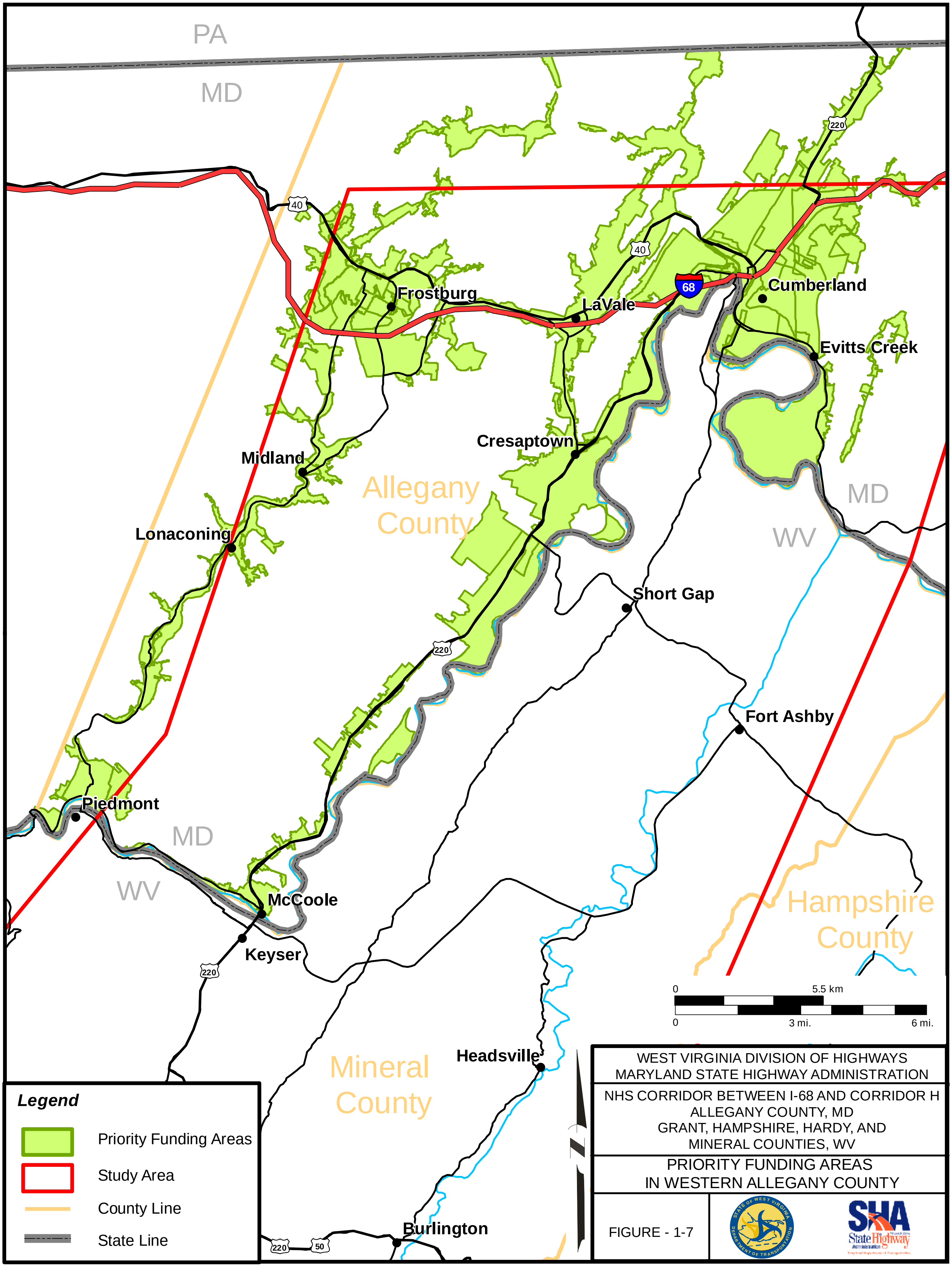
At the regional level in Maryland, the Cumberland Metropolitan Planning Organization (MPO) has identified upgrades to existing US 220 as a proposed major highway improvement. The MPO is the Cumberland area's officially designated agency for carrying out a federally mandated metropolitan planning process. Geographically, the MPO includes most of Allegany County and a small portion of northern Mineral County. One of the MPO's major responsibilities is the annual development of a long-range transportation plan (LRTP) for Cumberland and the surrounding area. In a major update to that transportation plan, the *Cumberland Area Long Range Transportation Plan, Final Report,* the MPO called for construction of "a new US 220 that will eventually connect Cumberland with Appalachian Development Highway System Corridor H south of Keyser" (Cumberland MPO 2005). Furthermore, the LRTP identified the proposed new transportation corridor as "one of the most significant potential regional highway improvement projects in both Allegany and Mineral counties."

At the local level, four of the five counties within the study area, as well as the City of Cumberland, have developed comprehensive plans. Major transportation improvements in the area are recommended within the *Allegany County Comprehensive Plan, 2002 Update* (Allegany County Planning Commission 2002), the *Hampshire County Comprehensive Plan* (Hampshire County Planning Department 2003), the *Hardy County Comprehensive Plan* (Hardy County Planning Commission 1999), and the *Mineral County Comprehensive Plan* (Mineral County Planning Commission 2011).

The *Allegany County Comprehensive Plan* contains considerable discussion on the role of US 220 as one of the area's major roadways. The plan identifies the need for a transportation network that allows the movement of people and goods with maximum efficiency. It also encourages construction of "a new Route 220 as a four-lane limited access highway that will connect Cumberland with Corridor H" (Allegany County Planning Commission 2002). Allegany County is currently updating its comprehensive plan, but coordination meetings between the county planning staff, Maryland Department of Planning (MDP), and MDSHA and a review of the draft plan indicate that the project will remain consistent with the new plan (ACPC 2013).

Recognizing the strong relationship between transportation and land use, comprehensive planning is currently receiving a renewed emphasis in many Maryland communities. In support of these local planning efforts, the Maryland General Assembly passed legislation and budget initiatives in 1997 known collectively as the *Smart Growth Priority Funding Areas Act*. Smart Growth targets programs and funding to support established communities and locally designated growth areas and to protect rural areas. Smart Growth initiatives also encourage more efficient design for residential, commercial, and industrial development and emphasize a compatible mix of land uses. They enable local citizens and government officials to develop future plans and growth-management strategies in a coordinated and responsible manner. The Smart Growth initiatives provide a geographic focus for investment in growth-related infrastructure. They capitalize on the influence that state-sponsored initiatives can have on economic growth and development. Growth-related projects identified in the legislation include highways, sewer and water facilities construction, economic development assistance, and new office facilities. The following areas qualify as PFAs: every municipality, as they existed in 1997; areas inside the Washington Beltway and the Baltimore Beltway; and areas already designated as enterprise zones, neighborhood revitalization areas, heritage areas and existing industrial land. The Smart Growth legislation recognizes the important role local governments play in managing growth and determining the locations most suitable for State-funded projects. Figure 1-7 shows the PFAs located within Allegany County.

Although an upgrade of US 50 is the top transportation priority identified in the *Hampshire County Comprehensive Plan*, US 220 is an important roadway for north-south connectivity to I-68 and Corridor H. Access management issues are of "particular concern" as they relate to roadways falling within the "Corridor H Areas of Influence" (i.e., US 220 and WV 28, among



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

PRIORITY FUNDING AREAS
IN WESTERN ALLEGANY COUNTY

FIGURE - 1-7

other roads within Hampshire County). While not specifically identifying a north-south corridor project by name, the *Hardy County Comprehensive Plan* notes that "transportation is the most urgent problem to be addressed within the [comprehensive] plan" (Hardy County Planning Commission 1999). The plan did, however, identify completion of Corridor H for its whole length as the most significant road project for Hardy County.

On the other hand, the *Mineral County Comprehensive Plan* contains a considerable amount of specific discussion about US 220 and other north-south routes through the county, recognizing their important role in the continued vitality of Mineral County. Throughout the plan, the Mineral County Commission has indicated that an upgraded US 220 continues to be of the utmost importance to area residents and businesses. The *Economic Adjustment Strategy for Mineral County*, a Mineral County study related to the 1996 *Comprehensive Plan*, suggested that "U.S. Route 220 be upgraded its entire length to provide competitive access for future industrial sites in the county" (Mineral County Planning Commission 1993).

1.10 Land Use

Existing land use in the study area can be characterized as a distinct mixture of urban and rural. Densely populated residential, commercial, and industrial developments are found in three core areas around Cumberland, Keyser, and Moorefield. Heavy development in and around Cumberland extends from LaVale through the City of Cumberland to the east and along MD 53 and US 220 to the south through Cresaptown. Of importance in the Cumberland area are its commercial centers in downtown and along US 220 and MD 53, as well as the large industrial and transportation complexes emanating from the center of Cumberland to the southeast along MD 51 (Industrial Boulevard). In Keyser, there are two primary commercial centers: the Keyser central business district and the suburban-type development along US 220 that extends from Keyser to WV 972. In Moorefield, commercial development is centered on US 220. Farther south in Moorefield are large processing plants associated with the poultry industry.

Although there are a few small communities in the area, including Burlington, Fort Ashby, McCoole, and New Creek, the remainder of the study area is rural in nature and is primarily used for agricultural purposes or as forested land. Important farmlands are found in the Patterson Creek Valley on the project's eastern edge, on the lower slopes of Knobley Ridge, and along US 220 in Allegany County south of Cresaptown. Vast tracts of forested land are found along the ridge tops. An area of special importance within this large forested area is Dans Mountain, located immediately to the west of US 220 on the Maryland side of the project. The Dans Mountain Wildlife Management Area (WMA) is one of the largest contiguous tracts of public land in Maryland.

Based on a review of the existing land use plans in the area and supplemented by discussions with planning officials at all five counties, the proposed project appears to be consistent with future land use plans. Although development is expected throughout the region, development patterns are expected to remain similar to present day patterns. In Allegany County, land use policies place primary emphasis on in-fill development within existing communities. Where that is not possible, development is encouraged to locate adjacent to existing built-up areas. Between 2000 and 2020, moderate population growth is expected between Cumberland and the West Virginia state line, but new development will be restricted to the existing suburban areas surrounding Cumberland and LaVale. Nonetheless, the *Allegany County Comprehensive Plan* (Allegany County Planning Commission 2002) indicates that some additional development could extend south of Cresaptown and north of McCoole, within the existing US 220 corridor, if sewer and water lines are extended from these areas. Nevertheless, redevelopment of the traditional urban areas is highly preferred to expansion into open space.

Similarly, future infrastructure needs limit the intensity of potential development in the study area's West Virginia counties. Population growth is stagnant in the area and employment is not expected to grow more than 1 percent in the near future. As in Allegany County, some development will occur, but it is expected to be in areas that have traditionally seen settlement: US 220 south from Keyser, the WV Alt. 28/WV 28 corridor between the Maryland state line and Fort Ashby, and US 220 north of Moorefield. One exception to this settlement pattern will be communities with easy access to Corridor H. As noted in the Mineral County Comprehensive Plan update (Mineral County Planning Commission 2011), if water and sewer needs can be met, additional development is likely to occur along the southern tier of Mineral County and westward out of Hardy County from Moorefield.

1.11 Conclusions

The purpose of this project is to develop an improved transportation corridor as part of the NHS. The improved corridor will connect I-68 in Maryland and Corridor H in West Virginia. Upgraded roadways resulting from this project will provide a better north-south road than the road that currently exists. Several preliminary needs for the region were identified in the North South Appalachia Corridor feasibility study, a multi-state planning effort completed in 2001. Those needs were further expanded under the current effort to address regional mobility, inadequate roadway capacity, safety deficiencies, economic development, and additional system linkage.

Engineering deficiencies exist on most of the study area's major routes. Among the transportation deficiencies found in the study area are numerous curves, reduced speeds, steep grades, few truck climbing lanes, inadequate shoulders, and substandard geometry. The engineering deficiencies contribute to additional concerns about capacity and safety. Inadequate roadway capacity restricts traffic maneuverability and driver comfort. Although traffic volumes are below actual physical capacity on many of the area's roadways, lower speeds prevail. This results in both poor LOS and safety concerns at some locations.

Growth and economic development have been hindered by the area's transportation system. Past studies have shown that an increase of 19 percent in jobs could occur with improved north-south connections. Improvements in north-south travel would also serve to link the area's two most important east-west transportation facilities: I-68 and Corridor H.

Issues of concern were evaluated further as the project progressed. The consequences of taking no action, however, would result in a continuation of inadequate conditions on the existing transportation facilities in the study area. Future transportation demand, especially north-south travel through the region, would not be accommodated, and existing levels of service on the transportation facilities could worsen. Safety concerns would also remain. These conditions could impede the future economic growth of the area and limit its attractiveness for residents and businesses. The efficient movement of people and goods is a priority of comprehensive land use planning efforts and Smart Growth initiatives. This project will support the goals of such planning initiatives within the study area's counties and throughout the region. Although the proposed project will cause environmental impacts, taking no action is likely to result in varying degrees of other impacts.

CHAPTER 2.0

ALTERNATIVES DEVELOPMENT

2.0 ALTERNATIVES DEVELOPMENT

An alternatives evaluation process was developed early in the project to define a broad range of reasonable, potential corridors. Under the Tier One investigations, elements of advanced transportation planning and environmental analysis were combined. Corridors were developed, analyzed, and advanced based on their ability to meet the project's purpose and need; potential environmental impacts; and comments received by the public, resource agencies, and local elected, planning, and economic development officials. Initially, five corridors (Corridors A through E) were evaluated. Based on the results of the environmental and engineering studies completed during development of the Draft EIS, Corridor B with a northern spur of Corridor D that connects to I-68 in Maryland was identified as the preferred corridor.

2.1 Introduction

Corridors were analyzed in two stages. In the first stage, as part of the planning effort culminating in the North South Appalachia Corridor feasibility study, four generalized north-south corridors bisecting the Appalachian regions of Maryland, Pennsylvania, West Virginia, and Virginia were analyzed to determine how highway improvements could support economic development. The North South Appalachia Corridor feasibility study concluded that two of those corridors, US 220 south from I-68 *via* MD 53 to Corridor H and US 219 north from I-68 to I-76, would provide the greatest potential for benefiting Appalachian economic development. The report concluded that the proposed NHS Corridor, generally paralleling existing US 220, should be given a high priority for future highway upgrades and other transportation improvements.

One representative corridor was developed during the North South Appalachia Corridor feasibility study to determine the relative social, economic, and environmental impacts between major, broad-brush corridors that bisected the multi-state region under investigation. For most of the environmental analyses associated with the North South Appalachia Corridor feasibility study, the representative corridor was set at a 300-foot width to approximate the right-of-way needed for a major transportation improvement. When necessary, to assess more far reaching impacts such as noise and visual impacts on historic resources, the 300-foot width was expanded to 1 mile.

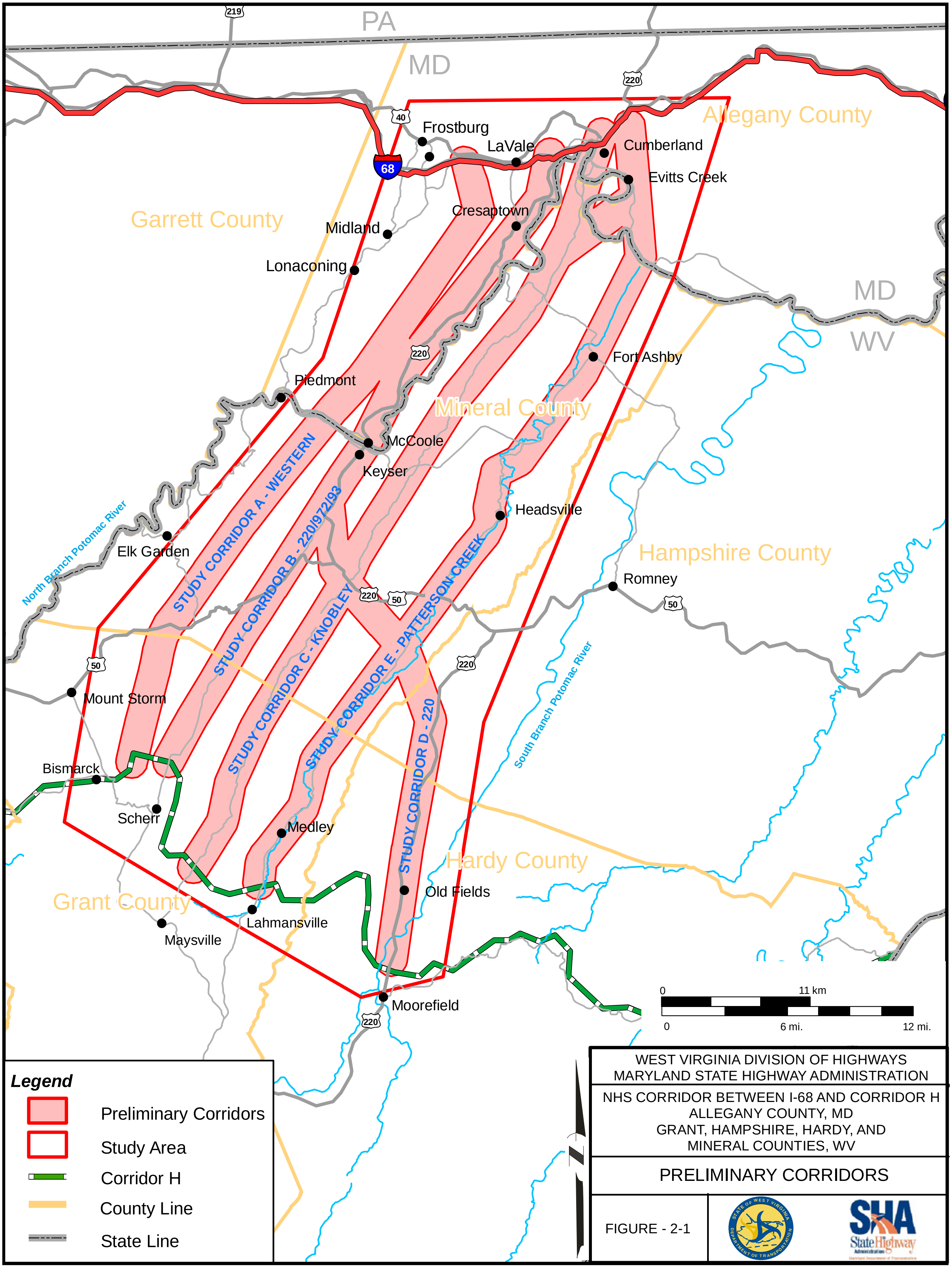
Subsequent to the completion of the North South Appalachia Corridor feasibility study, MDSHA and WVDOH entered into a MOU on May 21, 2004. The purpose of that agreement was to establish roles and responsibilities for investigating additional corridors, developing other alternatives, and ultimately preparing a Tier One EIS for a study area surrounding the US 220 corridor. Upon signing the MOU, the second stage of corridor development was initiated.

A full range of preliminary alternatives was developed during Tier One and relevant environmental and engineering studies were completed. At the conclusion of Tier One, the corridor retained for further analysis will be evaluated in more detail during subsequent Tier Two studies. The preferred Tier Two corridor may be expanded in width to allow the development of more alignments, and/or avoidance and mitigation strategies. The MDSHA is willing to work closely with MDNR in order to develop avoidance strategies or corridor crossings for sensitive species due to the sensitive nature of the preferred corridor.

2.2 Preliminary Corridors

Five preliminary corridors were identified in the MOU prepared by the MDSHA and WVDOH. The preliminary corridors were developed by the WVDOH utilizing sketch-planning techniques as a means of identifying the general locations of future study corridors. Specific potential corridor widths were not developed as part of the MOU. The process of determining how wide the study corridors should be was deferred until work on the Tier One EIS began. As such, the development of preliminary corridors for the MOU was highly dependent on previous analytical studies, secondary source data, and intuitive design judgment. A major concern at the time these corridors were developed was that a full range of alternatives would be investigated, during the early stages of the project. The preliminary study corridors are shown on Figure 2-1.

The development of corridors began with an examination of the MOU and the existing transportation system. To meet traffic demand, four of the corridors parallel existing roadways. A fifth corridor offered additional opportunities for regional economic development in a less densely populated area. A 4,000-foot buffer, representing 2,000 feet to each side of a hypothetical centerline, was attached to the corridors so that preliminary environmental elements could be evaluated. This buffer will not be part of future construction, but represents the study area for each corridor. Future right-of-way would likely not exceed 300 feet.


PA
MD
WV
MD
219
220
40
68
50
Frostburg
LaVale
Cumberland
Evitts Creek
Allegany County
Garrett County
Midland
Cresaptown
Lonaconing
Piedmont
Mineral County
McCoole
Keyser
Fort Ashby
Headsville
Elk Garden
North Branch Potomac River
Hampshire County
Romney
Mount Storm
Bismarck
Scherr
Medley
Old Fields
Hardy County
Grant County
Lahmansville
Maysville
Moorefield
South Branch Potomac River
STUDY CORRIDOR A - WESTERN
STUDY CORRIDOR B - 220/972/93
STUDY CORRIDOR C - KNOBLEY
STUDY CORRIDOR E - PATTERSON CREEK
STUDY CORRIDOR D - 220
0
11 km
0
6 mi.
12 mi.
Legend
Preliminary Corridors
Study Area
Corridor H
County Line
State Line
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
PRELIMINARY CORRIDORS
FIGURE - 2-1
SHA
State Highway

2.2.1 Description of Preliminary Corridors

Corridor A

The first and westernmost of these corridors, called Corridor A, originated at I-68 near Frostburg, MD, and extended southwest to Corridor H near Bismarck, WV. The corridor would traverse parts of Allegany, Mineral, and Grant counties. It could provide direct connections to MD 36, 55, and 135; WV 42, 46, and 93; and US 50. By doing so, it would provide increased transportation opportunities to the communities of Frostburg, Midland, Lonaconing, and Westernport in Maryland, and Piedmont, Elk Garden, and Mount Storm in West Virginia. Traveling south from I-68, to the West Virginia–Maryland state line, the corridor roughly paralleled existing MD 36 and Dans Mountain. After crossing the state line, the corridor was centered on CR 4 and WV 42 in Mineral County and to the east of WV 42 in Grant County. As with all of the corridors, it terminated at ADHS Corridor H. When first shown at a series of public meetings held in May 2006, Corridor A was labeled as “the Western Corridor.”

Corridor B

The second corridor, called Corridor B, originated at I-68 near LaVale, MD, and extended southwest to Corridor H near Scherr, WV. The corridor would traverse parts of Allegany, Mineral, and Grant counties. Corridor B could provide direct connections to MD 53 and 135; WV 46, 93, and 972; and US 50 and 220. It would provide a major new transportation facility for the communities of LaVale, Cresaptown, and McCoole in Maryland, and Keyser and New Creek in West Virginia. Traveling south from I-68 to Keyser, the corridor was centered on existing US 220. Just south of Keyser, the corridor continued to be centered on US 220 and WV 972 and 93 to its termination at Corridor H. When first shown at public meetings held in May 2006, Corridor B was labeled as “the 220/972/93 Corridor.”

Corridor C

The third corridor, Corridor C, originated at I-68 near Cumberland, MD, and extended southwest to Corridor H near Maysville, WV. The corridor would traverse parts of Allegany, Mineral, and Grant counties. It could provide direct connections to MD 51, WV 28 and 46, Mineral CR 9 and Grant CR 3, as well as US 50 and 220. It would provide improved transportation opportunities to the central part of Cumberland and its eastern side in Maryland, and the communities of Ridgely, Carpendale, Short Gap, the eastern side of Keyser, and Antioch in West Virginia. Paralleling the eastern face of Knobley Ridge, most of the corridor lies in West Virginia. It is centered on CR 9 in Mineral County and CR 3 in Grant County. When first shown at public meetings held in May 2006, Corridor C was labeled as “the Knobley Corridor.”

Corridor D

The fourth corridor, Corridor D, originated at I-68 near LaVale, MD, and extended south to Corridor H at Moorefield, WV. It would traverse parts of Allegany, Mineral, Hampshire, and Hardy counties. It could provide direct connections to MD 53 and 135, WV 46, CRs 9 and 11 (Mineral County), and US 50 and 220. It would provide an improved transportation corridor to Cumberland, Cresaptown, and McCoole, MD. In West Virginia, it would service the communities of Keyser, New Creek, Old Fields, and Moorefield. For the most part, the corridor is centered on existing US 220. When first shown at public meetings held in May 2006, Corridor D was labeled as “the 220 Corridor.”

Corridor E

The final corridor, Corridor E, originated at I-68 near Cumberland, MD, and extended southwest to Corridor H near Lahmansville, WV. It would traverse parts of Allegany, Mineral, and Grant counties. It could provide direct connections to MD 51, WV 28 and 46, Mineral CR 11, Grant CR 5, and US 50 and 220. It would provide an improved transportation facility for the eastern side of Cumberland and the West Virginia communities of Patterson Creek, Fort Ashby, Burlington, and Medley. The corridor parallels the Patterson Creek Valley for most of its length. When first shown at public meetings held in May 2006, Corridor E was labeled as “the Patterson Creek Corridor.”

2.2.2 Initial Public and Agency Coordination

As required by *SAFETEA-LU*, public and agency coordination was an important component in the development of the preliminary corridors. As the initial stages of the project progressed, an agency coordination plan was developed and circulated among the cooperating and participating agencies. By establishing the appropriate roles among the participants and reaching several milestones early in the process, sufficient agency coordination and public involvement in the development of potential corridors was assured. The initial public and agency milestones are shown in Table 2.2-1, but information on the continuing public and agency involvement as the project evolved is found in Chapter 7.0, *Comments and Coordination*.

TABLE 2.2-1
Public and Agency Involvement in the Initial Development of Study Corridors

Agency/Group	Date	Activity
Interagency Project Review Meeting (Maryland)	February 15, 2006	Introduced project, presented background data, defined study area issues, identified broad study corridors
Region 8 Planning and Development Council	April 20, 2006	Introduced project, defined study area issues, identified broad study corridors
Public Scoping (Keyser)	May 1, 2006	Introduced project, presented background data, defined study area issues, identified preliminary study corridors, identified preliminary purpose and need, surveyed public opinion
Public Scoping (Moorefield)	May 2, 2006	Introduced project, presented background data, defined study area issues, identified preliminary study corridors, identified preliminary purpose and need, surveyed public opinion
Field View/Scoping (West Virginia Resource Agencies)	May 3, 2006	Presented background data and study methodologies, identified preliminary study corridors and environmental issues, identified preliminary purpose and need
Field View/Scoping (Maryland Resource Agencies)	May 10, 2006	Presented background data and study methodologies, identified preliminary study corridors and environmental issues, identified preliminary purpose and need
Public Scoping (Cumberland)	May 10, 2006	Introduced project, presented background data, defined study area issues, identified preliminary study corridors, identified preliminary purpose and need, surveyed public opinion
Planning Updates (Grant, Hardy, and Mineral counties)	August 2006	Presented study methodologies, identified refinements to preliminary study corridors, presented refined purpose and need statement
Planning Update (Allegany County)	September 20, 2006	Presented study methodologies, identified refinements to preliminary study corridors, presented refined purpose and need statement

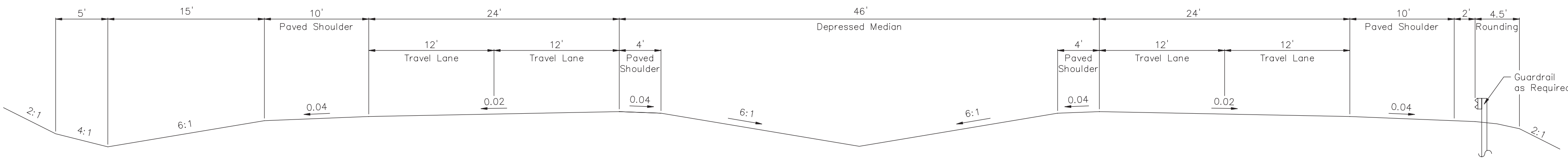
Most importantly, the preliminary corridors were shown at each of the public and agency meetings along with information on the project's purpose and need. Through each of these activities, information was collected that would eventually lead to the refinement of the preliminary study corridors into workable transportation solutions for the area.

Overwhelmingly, the public and local officials endorsed the need for the project. Although there was not an agreement on any one corridor, the public and local officials agreed that a full range of alternatives had been presented to them as possible transportation solutions. Based on follow-up information received from the resource agencies, the results of the public surveys conducted during the scoping meetings, and comments provided by local planning and economic development officials, it was determined at this point that the study corridors represented a logical starting point to begin engineering studies and environmental analyses. Having secured a consensus on purpose and need and the locations of the five broad study corridors, it became necessary to begin project refinement.

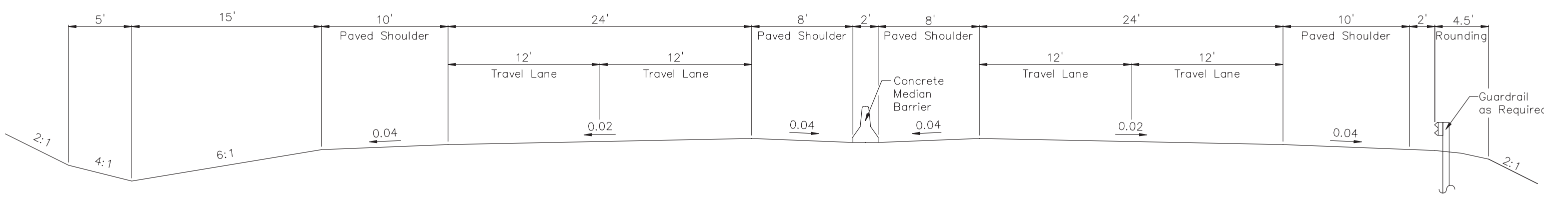
2.3 Engineering Design Criteria Utilized for the Project

Although the project could result in a program of individual transportation improvements throughout the US 220 Corridor – with several projects having independent utility and serving different logical termini – design criteria for a four-lane, partially controlled roadway were used for the preliminary engineering studies through the entire length of the project. This allowed environmental and engineering studies to proceed in unison while assuming the maximum "project footprint" realistically possible. By analyzing the impact of a four-lane facility spanning the entire study area, a conservative, or worst-case, estimate of the potential impacts was able to be calculated.

Because the proposed project will be located in two different states, slightly different design criteria were used for the ultimate development of transportation improvements in Maryland and West Virginia. The design criteria and typical sections for the Maryland portion of the study area were developed from information in the AASHTO publication, *A Policy on the Geometric Design of Highways and Streets* (2004). The design criteria and typical sections for the West Virginia portion of the study area were developed from the same AASHTO publication as well as the *Design Manual and Directives, DD-601, Geometric Design Criteria for Rural Highways* (WVDOH 2006a). In West Virginia, a typical section requires 136 feet, in Maryland, 140.5 feet. Typical sections for West Virginia and Maryland, illustrating the proposed roadway, if constructed, are shown on Figures 2-2 and 2-3, respectively. With the addition of more right-of-way for construction cuts or fill, the actual roadway width and associated right-of-way could generally be about 300 feet. The actual width of land needed to construct the project, however, will not be

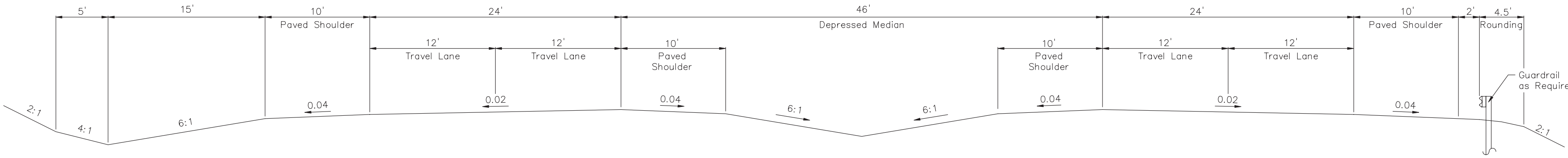


NORMAL SECTION

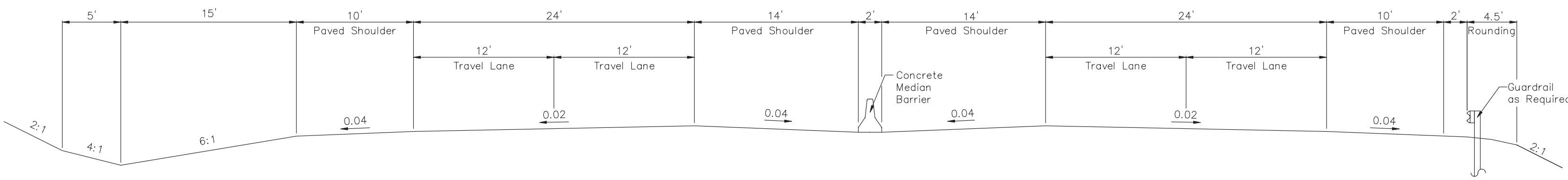


ALTERNATE SECTION

WEST VIRGINIA DIVISION OF HIGHWAYS MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H ALLEGANY COUNTY, MD GRANT, HAMPSHIRE, HARDY, AND MINERAL COUNTIES, WV
WEST VIRGINIA DIVISION OF HIGHWAYS TYPICAL SECTION
FIGURE - 2-2



NORMAL SECTION



ALTERNATE SECTION

WEST VIRGINIA DIVISION OF HIGHWAYS MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H ALLEGANY COUNTY, MD GRANT, HAMPSHIRE, HARDY, AND MINERAL COUNTIES, WV
MARYLAND STATE HIGHWAY ADMINISTRATION TYPICAL SECTION
FIGURE - 2-3

known until detailed alternatives are developed in Tier Two. The design criteria are shown in Table 2.3-1.

TABLE 2.3-1
Design Criteria

Criteria	West Virginia	Maryland
Functional Classification	Rural Divided Arterial	Rural Divided Arterial
Design Speed	65 mph	65 mph
Maximum Grade	6% (limited 7% permitted)	5% (mountainous terrain)
Minimum Grade	0.5%	0.5%
Access Control	At-grade intersections with public roads	At-grade intersections with public roads
Number of Lanes	4 (12' through lanes in each direction)	4 (12' through lanes in each direction)
Horizontal Radius	1,480 LF (min.) D =3°52'17"	1,485 LF (min.) D =3°51'30"
Cross Slope	2% minimum, 8% maximum	2% minimum, 8% maximum
Clear Width of Bridge	Clear roadway width of approach	Outside edge of paved shoulder to outside edge of paved shoulder

Almost immediately after the scoping meeting and field view with the Maryland resource agencies, concerns were raised about the potential amount of environmental impacts that could occur if a new transportation facility were located within Corridor A and the consequences of impacting Dans Mountain. The Dans Mountain WMA is the largest tract of contiguous state owned forestland in Maryland. Located in the northwestern corner of the study area, it is one of the most important ecological and regional resources in western Maryland. Because of the concern about potential impacts to Dans Mountain, a shift was considered for Corridor A to avoid Dans Mountain. Although only considered conceptually, it was determined that such a shift would not be practical because further shifts east would convert Corridor A into Corridor B while shifts to the west would be unpractical for a number of reasons and likely not meet the goals of the project. A more complete analysis of Corridor A shifts to the west is found later in this chapter.

It is important to note that even though the studies in this FEIS may lead to the development of a program of transportation projects rather than construction of one transportation facility, the project was initially perceived by the public as a divided rural arterial with a high design speed. Nearby projects closely similar to it are represented by Corridor H, and parts of US 219 and US 220 in neighboring states.

2.4 Refinement of Preliminary Corridors

After the five preliminary corridors were presented to several groups, including state and federal resource agencies, local planning officials, and the public, between February and September 2006, concurrent preliminary engineering studies and environmental analyses began. The primary purpose of the engineering studies was to determine if reasonable highway alignments could be developed within each of the preliminary corridors already shown to the public and resource agencies. If the reasonable alignments within the corridors were shown to be feasible, the related environmental analyses could commence.

Although the preliminary corridors were 4,000 feet wide, in most areas only about 300 feet will be needed for a highway alignment. Consequently, a best fit alignment (BFA) was developed for each corridor utilizing the engineering criteria of WVDOH and MDSHA and, to a limited degree, information about the region's major environmental features. Thus, the BFAs within each of the preliminary corridors represented only one possible line and grade for a new highway among many possible future roadway alignments.

Although, in theory, many alignments and other possible transportation alternatives could be developed within the corridors that differ from the BFAs, the BFAs were developed to assure that at least one alignment was possible within each corridor. Other possible transportation alternatives within a program of projects could also include widening, turning lanes, signalization, transportation systems management, and spot improvements at a limited number of locations rather than a completely new highway stretching from I-68 to Corridor H. Utilizing each BFA as a potential centerline, a 2,000-foot buffer was attached to each side to provide a refined 4,000-foot corridor. The refined corridors were very similar to the preliminary ones but there were some modifications in their appearance as a result of the buffers being developed on a conceptual engineered centerline.

2.4.1 No-Build Alternative

The No-Build Alternative serves as the baseline or benchmark against which the build alternatives are evaluated. Typically, a No-Build Alternative is defined as an alternative that incorporates "planned" improvements that are included in the fiscally constrained long-range plan or, more conservatively, only "committed" improvements such as those in a state or metropolitan transportation improvement program. The currently programed projects included within the No-Build Alternative are listed in Section 2.4.7 of this FEIS.

The No-Build Alternative would consist of taking no action to develop a new NHS Corridor between I-68 and Corridor H. Currently programmed projects included as part of the No-Build Alternative all have independent utility and their own logical termini. They include, to varying degrees, improvements such as widening of existing roadways, the addition of turning lanes or signalized intersections, transportation systems management, and new facilities on new alignment. (To achieve independent utility, a project must be able to function on its own without further construction of an adjoining segment. Logical termini are rational end points for a transportation improvement, typically major traffic generators.)

The No-Build Alternative would not meet the identified purpose and need for the project. The No-Build Alternative is included for comparison with the build alternatives. It will also be carried into Tier Two as more detailed studies establish a baseline for the environmental consequences of future build alternatives.

2.4.2 Corridor A

Corridor A and all four of the other corridors are four-lane, rural divided arterials. Corridor A begins with an interchange near existing Exit 34 along I-68 in Allegany County south of Frostburg and ends with a connection to Corridor H in Grant County east of Bismarck. Generally, Corridor A's limits exist in sparsely populated, low-density areas. Corridor A briefly parallels MD 36 (George's Creek Road) on the western side, after which it crosses and then parallels the western slope of Dans Mountain in the vicinity of the Mountainview landfill. Moving southwest and paralleling MD 36 on the eastern side, Corridor A follows along the western extent of Dans Mountain. Corridor A is well east of Midland, Lonaconing, Piedmont, Elk Garden, and Mount Storm.

Corridor A enters Mineral County east of Piedmont as it crosses over MD 135 (Westernport Road) and WV 46. It crosses the North Branch Potomac River at this same location. Corridor A continues southwest, passing Jennings Randolph Lake and Elk Garden to the east. Corridor A crosses US 50/WV 42 at Hartmansville before entering Grant County. From there, Corridor A continues east of Mount Storm to WV 42 where it turns southeast and parallels the existing road, terminating at the junction with WV 93 and Corridor H.

All of the refined corridors are shown on Figure 2-4.

2.4.3 Corridor B

Corridor B begins with an interchange near existing Exits 41 and 42 along I-68 between LaVale and Cumberland and ends with a connection to Corridor H in Grant County north of Scherr. Generally, Corridor B's limits in the north exist in congested areas, particularly in the vicinity of Cresaptown and Keyser while in the south Corridor B services mostly low-density rural areas.

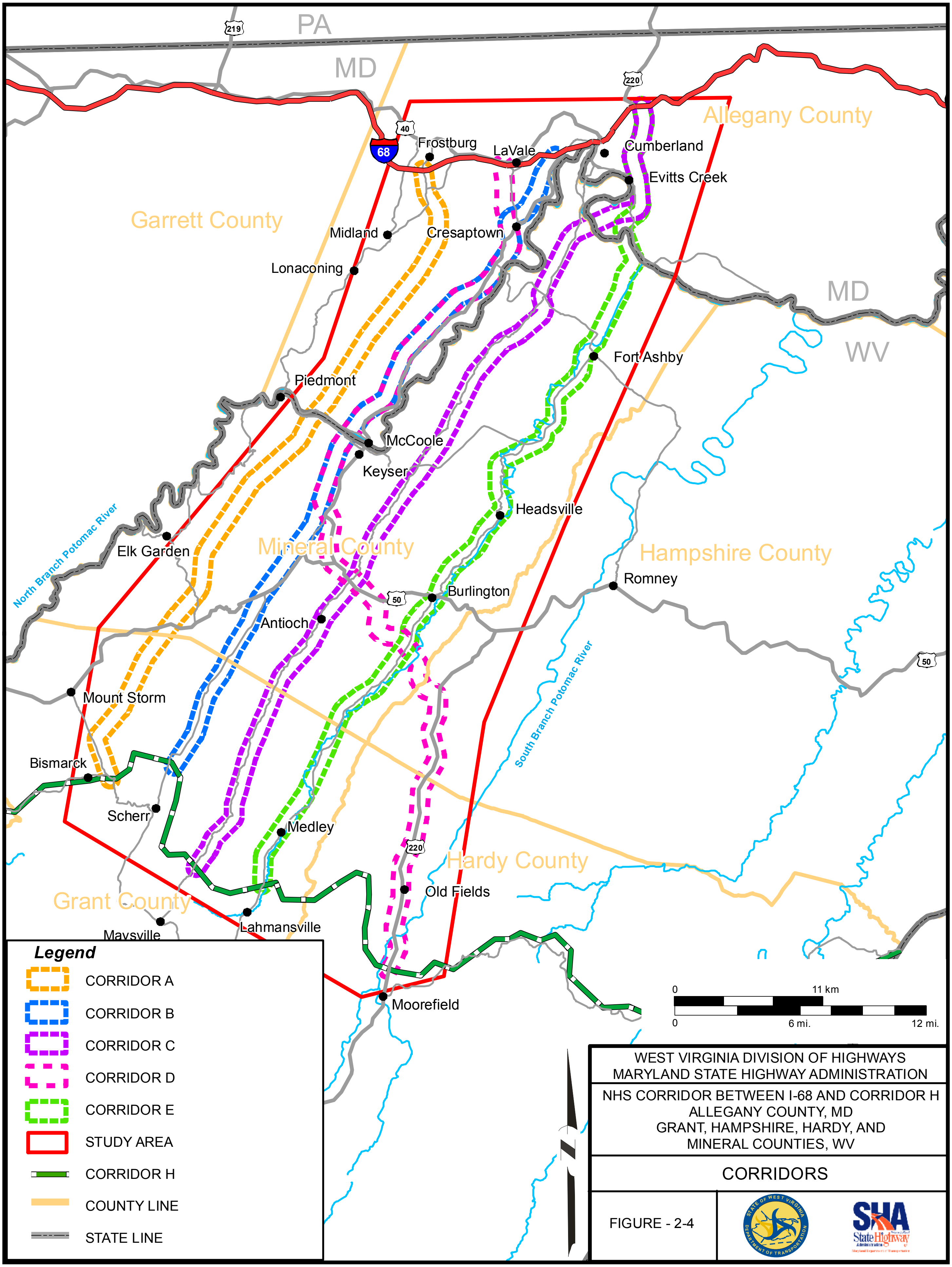
Corridor B originates along Haystack Mountain at I-68 and extends southwest to Cresaptown crossing MD 53 (Winchester Road). At this point, it parallels US 220 to the west and Dans Mountain to the east. West of McCoole, Corridor B crosses MD 135, the North Branch Potomac River, and WV 46.

Entering Mineral County, Corridor B is west of Keyser and continues to parallel US 220 on the western side. At the junction with WV 972, Corridor B continues southwest along US 50. Near Claysville, Corridor B begins to parallel WV 93, entering Grant County and extending to a terminus at Corridor H.

2.4.4 Corridor C

Corridor C begins with an interchange near existing Exit 46 along I-68 east of Cumberland and ends with a connection to Corridor H in Grant County north of Maysville. Generally, Corridor C's limits in the north exist in congested areas, particularly in the vicinity of Cumberland, while in the south they are in mostly low-density rural areas.

Originating near Nave's Crossroads, Corridor C extends south through the Willowbrook Road area near the Allegany College of Maryland to Evitts Creek and briefly parallels MD 51. Corridor C then turns west through Mexico Farms and crosses the North Branch Potomac River into Mineral County where it parallels WV 28.



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

CORRIDORS

FIGURE - 2-4

Continuing southwest, Corridor C parallels CR 9 (Knobley Road) west of Short Gap, well east of Keyser. Crossing US 50/220 at Ridgeville and continuing southwest, Corridor C enters Grant County paralleling CR 3 (Knobley Road). It connects with Corridor H just north of Maysville.

2.4.5 Corridor D

Corridor D begins with an interchange near existing Exit 39 along I-68 near LaVale and ends with a connection to Corridor H in Hardy County north of Moorefield. Corridor D closely follows Corridor B between Cresaptown and the US 50/220 coupling just south of Keyser. Generally, Corridor D's limits in the north exist in congested areas, particularly in the vicinity of LaVale, Cresaptown, and Keyser, while within the south Corridor D falls mostly within low-density rural areas.

Corridor D originates on the eastern slope of Dans Mountain and extends south for a short distance on the western side of MD 53. From Cresaptown, Corridor D runs southwest paralleling US 220 to the west and Dans Mountain to the east. West of McCoole, Corridor D crosses MD 135, the North Branch Potomac River, and WV 46.

Entering Mineral County, Corridor D runs west of Keyser and continues to parallel US 220 on the western side. At the junction with WV 972, Corridor D turns southeast along US 220. Corridor D continues along US 50/220, CR 50/4 (Shirley Lane), and CR 13 crossing into Hampshire County. Rejoining US 220/WV 28, Corridor D turns southward and crosses into Hardy County. Corridor D parallels US 220 until its connection with Corridor H just north of Moorefield.

2.4.6 Corridor E

Corridor E begins with an interchange near existing Exit 46 along I-68 east of Cumberland and ends with a connection to Corridor H in Grant County near Lahmansville. Generally, Corridor E's limits in the north exist in congested areas, particularly in the vicinity of Cumberland, while in the south they fall mostly within low-density rural areas.

Corridor E originates in the vicinity of Corridor C near Nave's Crossroads. Corridor E extends south through the Willowbrook Road area near the Allegany College of Maryland to Evitts Creek and briefly parallels MD 51. Corridor E then crosses the North Branch Potomac River into Mineral County near the town of Patterson Creek and parallels Patterson Creek itself to the west.

Continuing southwest, Corridor E crosses WV 28 west of Fort Ashby and follows WV 46 to CR 11 (Patterson Creek Road). It then parallels CR 11 and Patterson Creek passing near Reese's Mill and Headsville. Corridor E crosses Patterson Creek at numerous points along its projected path. Corridor E intersects US 50/220 near Burlington and continues southwest into Grant County. It then parallels CR 5 (Patterson Creek Road) to its terminus with Corridor H near Lahmansville.

2.4.7 Programmed Projects

Specific major projects currently listed on the *Cumberland Area Long Range Transportation Plan* (Cumberland MPO 2005), the *Draft Cumberland Area Long Range Transportation Plan Addendum* (Cumberland MPO 2007), the *Cumberland Urbanized Area Transportation Improvement Program FY 2006-FY 2008* (Cumberland MPO 2006), and other Maryland and West Virginia state highway programming plans that could be considered part of the No-Build Alternative include the following:

- I-68 – Freeway reconstruction from MD 53 to US 220 North
- Corridor H – Construction between Forman and Moorefield
- US 40 Alternate – Reconstruction from Vocke Road to Cumberland
- US 50 – Resurfacing and bridge improvements
- US 220 – Geometric improvements and roadway rehabilitation at various locations in Maryland
- US 220 – Replacement of the Keyser-McCoole Bridge (completed in 2012)
- MD 53 – Highway reconstruction with access control improvements from I-68 to US 220
- MD 51 – Resurfacing from Cumberland to Evitts Creek
- WV 28 – Roadway renovation
- WV 46 – Resurfacing between Keyser and Ft. Ashby

Separate environmental documentation has been or will be required for each of these projects. It is likely that environmental impacts would occur as a result of each of these projects as well. The cumulative impacts from these projects will be analyzed in detail as they pertain to the US 220 project when the project is carried forward into Tier Two.

The projects currently programmed as part of the No-Build Alternative may not completely address future regional transportation needs in a timely manner. Additionally, they may not sufficiently enhance development efforts and economic growth throughout the Appalachian regions of Maryland, West Virginia, Pennsylvania, and Virginia. The result of taking no action would likely be a continuation of conditions on the existing transportation facilities in the study area. As a consequence, the No-Build Alternative may not meet the satisfaction of local officials and the public in the area.

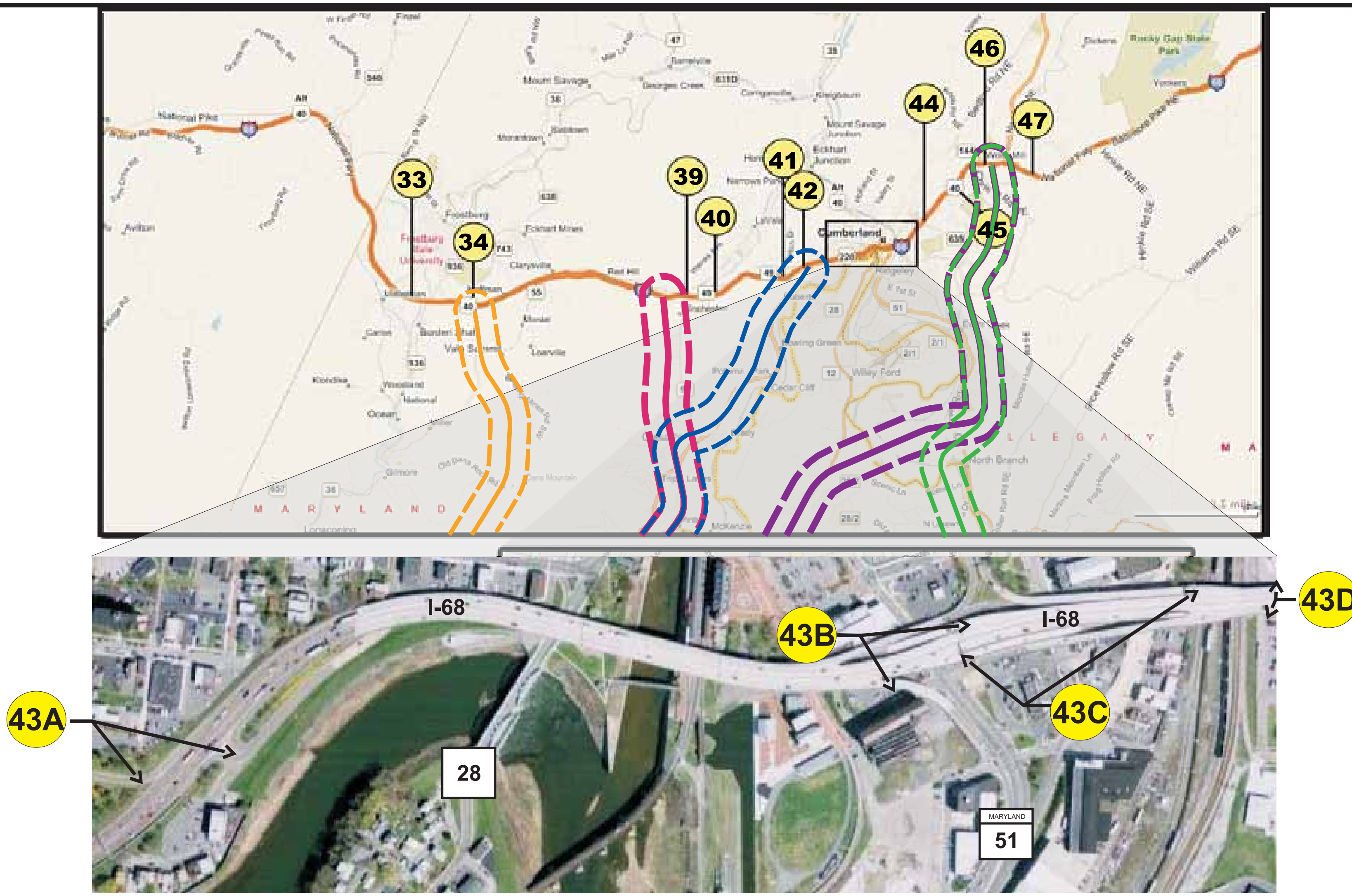
2.5 Potential Interchange Configurations

Early in the process, concern was raised that a possible highway alignment could be found to have minimal environmental impacts, but might fail to connect properly with either of the termini points. To alleviate that concern, interchange configurations at I-68 and Corridor H were evaluated utilizing the line and grade of the BFAs as a representative connection point. Potential interchange locations and configurations were examined at the northern terminus with I-68. As conceptualized, these configurations are not necessarily project alternatives, merely illustrations that suitable engineering design is possible at the logical termini. They represent full interchange connections depicting the largest footprint reasonably possible. If the project progresses to Tier Two, additional refinements will be made to them. These and other interchange alternatives will be further developed in Tier Two, but the future interchanges will depend on additional traffic studies, environmental analysis, and public involvement.

Proper interchange placement will continue to be a challenge. Interstate-68 has a series of eight closely spaced full and partial interchanges between mileposts 39 and 47 that pose specific problems for the motoring public and limit, to some degree, the types of future improvements possible. The roadway section consists of steep terrain and a number of physical barriers such as the Potomac River, CSX Railroad, and downtown Cumberland, all of which constrain efforts to improve the current conditions along this heavily traveled interstate. Existing interchange locations are shown on Figure 2-5.

2.5.1 Potential I-68 Interchange Configurations

Conceptual interchange alternatives were examined for each terminus location to ensure that a new roadway could be physically tied to I-68 while maintaining entrance and exit ramp spacing



Legend

- CORRIDOR A
- CORRIDOR B
- CORRIDOR C
- CORRIDOR D
- CORRIDOR E
- 33 INTERCHANGE NUMBER

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

INTERCHANGE LOCATIONS ON I-68

FIGURE - 2-5
NOT TO SCALE

as per the AASHTO publication, *A Policy on Geometric Design of Highways and Streets* (2004) design criteria. All were found to have the ability to connect with the termini as described below.

Potential Corridor A Interchange

Corridor A follows the existing MD 36 alignment and grade south of I-68 and ties into I-68 at Exit 34. The most practical option at this location would be to use the existing diamond interchange with some roadway widening and lane additions as needed. Preliminary traffic projections for the Corridor A interchange, however, indicated that a full interchange may be necessary in place of the existing diamond interchange (French Engineering 2006).

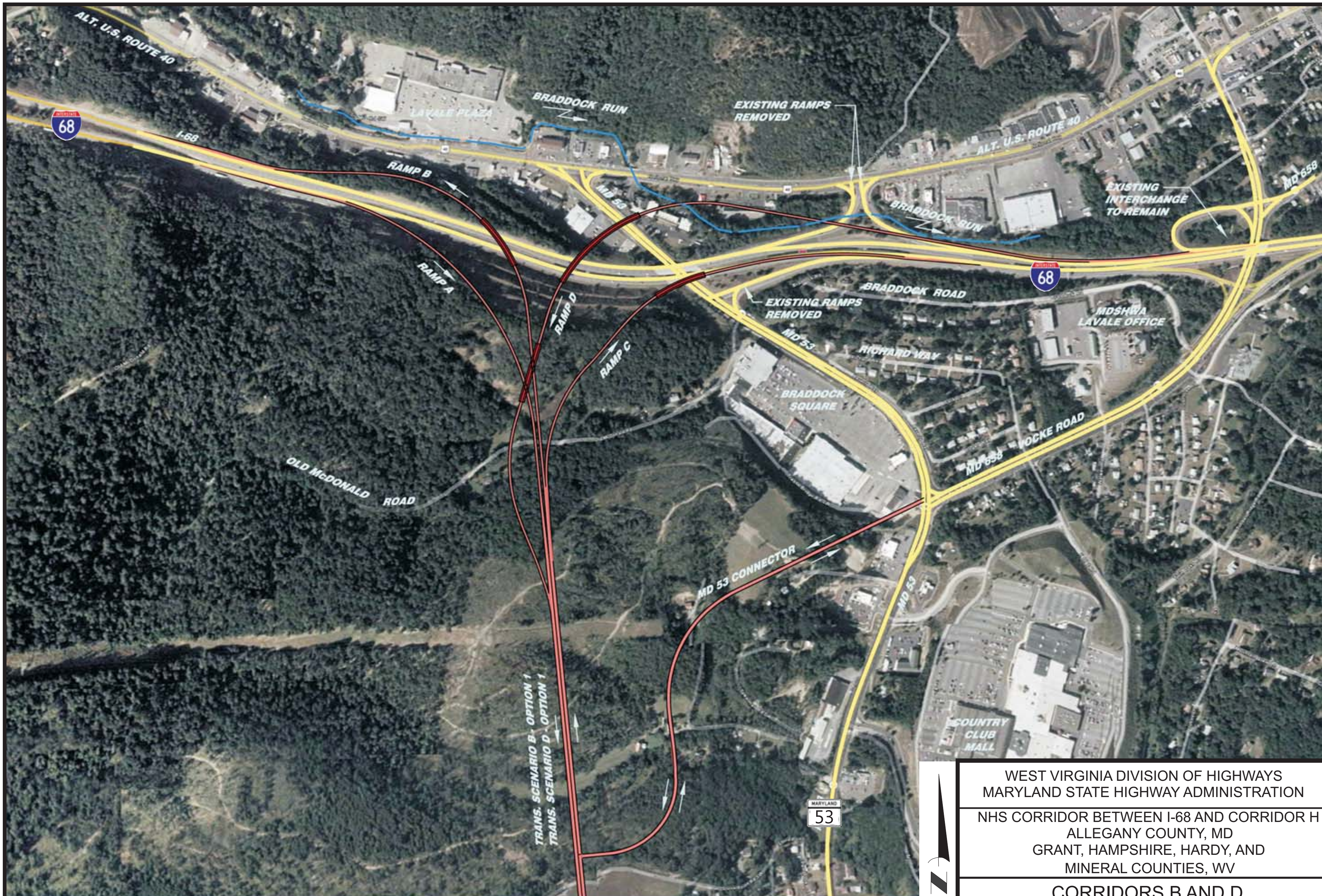
Potential Corridors B and D Interchanges

There are three possible interchange locations for Corridors B and D at I-68. Those options are as follows:

- Option 1 parallels MD 53 between Cresaptown and Lavale and ties into I-68 west of Exit 39. The full interchange between Corridor B or Corridor D and I-68 would provide access between the two roadways in all directions. A service connector road to MD 53 and MD 658 northwest of the Country Club Mall is required to provide direct access to the corridor and indirect access to I-68. The service connector road has an at-grade intersection at each terminus. The western interchange from Alternate US 40 and MD 53 to I-68 may require relocation or partial or full removal with this option. Option 1 is shown on Figure 2-6.

- Option 2 parallels US 220 between Cresaptown and Cumberland and provides a partial interchange with I-68 between Exits 41 and 42. The partial interchange provides access from Corridor B or Corridor D to I-68 eastbound and from I-68 westbound to Corridor B or Corridor D. Traffic traveling to and from the corridor to I-68 to the west would use existing MD 53 between Lavale and Cresaptown with access near the existing US 220/MD 53 intersection. The partial interchange design could leave intact the single westbound exit ramp from I-68 to MD 49. Partial interchanges may be avoided if the demand for a specific movement is light and that movement can be accommodated at the adjacent interchange. Construction of a full interchange will have substantial impacts and displacements given the existing grades and terrain at this location. This option may also present weaving problems and signing overlaps. Additional engineering analysis during Tier Two will be necessary to alleviate these concerns. Option 2 is shown on Figure 2-7.

- Option 3 requires the construction of both Option 1 and Option 2 with partial interchanges at each connection to I-68. The western interchange west of Exit 39 connects eastbound I-68 to Option 1 and Option 1 to westbound I-68 *via* ramps A and B of Option 1. A service connector road between MD 53/MD 658 and Corridor B



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

CORRIDORS B AND D
OPTION 1 INTERCHANGE

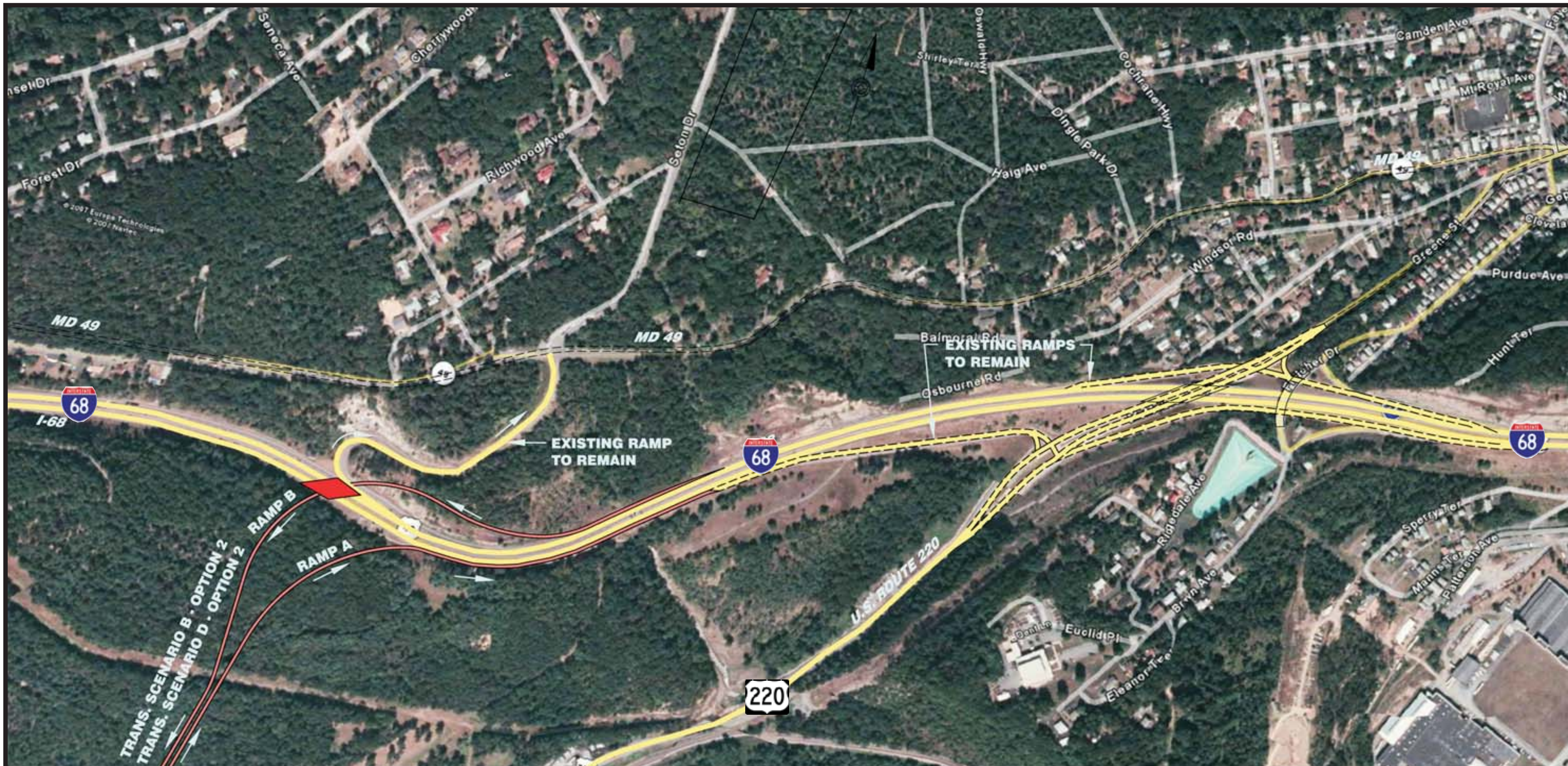
FIGURE - 2-6

LEGEND

- Existing Roadway
- Proposed
- Bridge

0 306m

0 850' 1700'



LEGEND

- Existing Roadway
- Proposed
- Bridge

0 252m
0 700' 1400'

N

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

CORRIDORS B AND D
OPTION 2 INTERCHANGE

FIGURE - 2-7

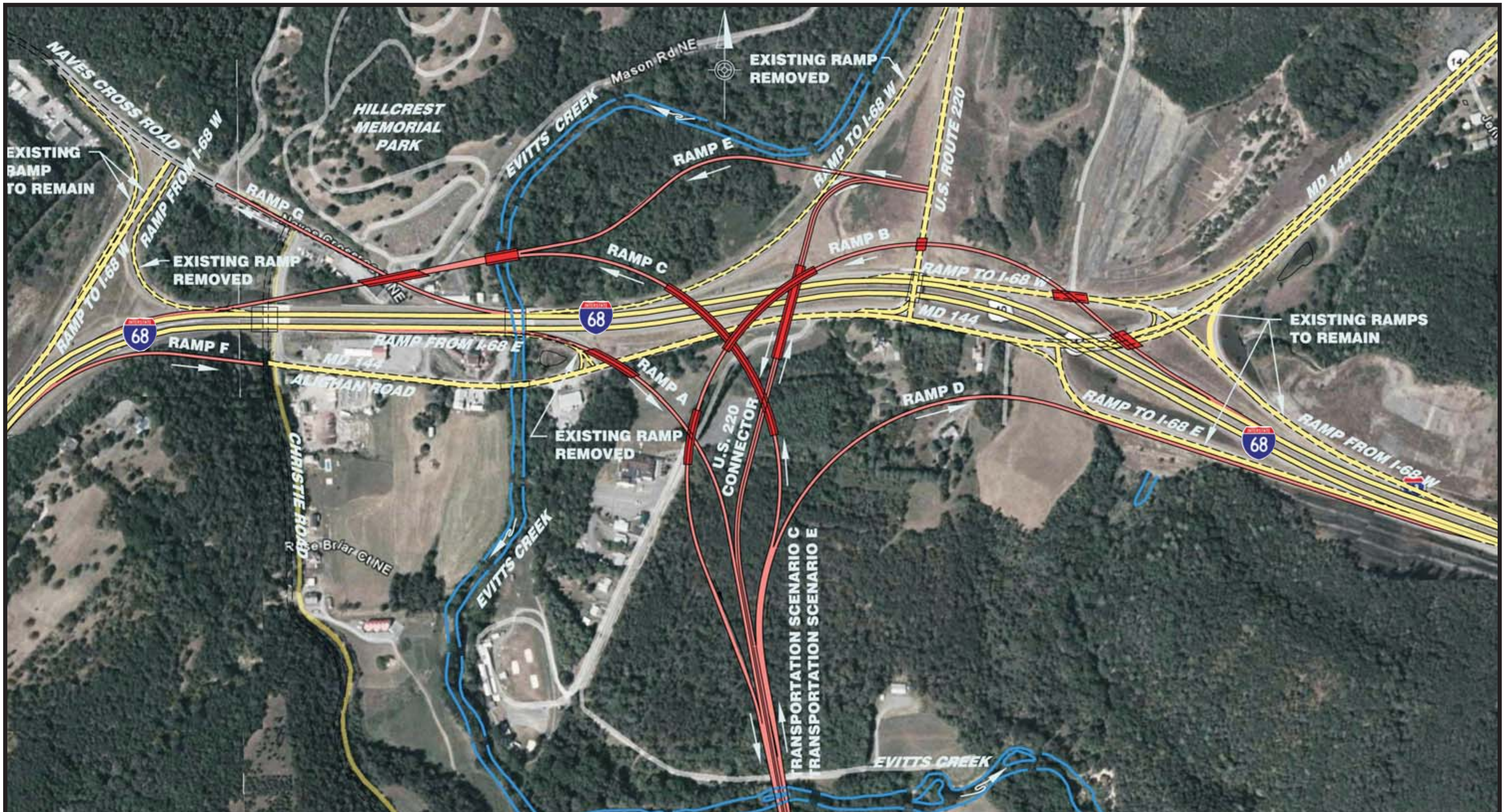
is needed. The eastern interchange between Exits 41 and 42 connects westbound I-68 to Option 2 and Option 2 to eastbound I-68. The *Cumberland Area Long Range Transportation Plan* (Cumberland MPO 2005) projects severe congestion on both MD 53 and US 220 in the Cresaptown area with moderate improvements closer to I-68. Option 3 may help alleviate congestion in both corridors by providing added capacity and traffic management options. Half interchange options will provide smaller, less intrusive interchange footprints. The existing I-68 ramps will remain in place. Option 3 will match general traffic flow patterns, with Option 1 accommodating traffic to the LaVale commercial area and I-68 west and Option 2 handling traffic to Cumberland and I-68 east. Option 3 will have a higher overall cost with increased right-of-way and environmental impacts. Additionally, if the ramps are too close to one another, Option 3 could create signing overlaps.

Potential Corridors C and E Interchanges

Corridors C and E tie into the same location on I-68 at the interchange with US 220 (North), MD 144, and Naves Cross Road (Exits 46 and 47) east of Cumberland. A complex, full interchange between Corridor C or Corridor E and I-68 could be constructed at that location while maintaining access from US 220 (North) and MD 144 to both the new facility and I-68. The conceptual interchange requires the relocation of three existing ramps and the construction of at least ten structures. An identical conceptual interchange for both Corridor C and Corridor E is shown on Figure 2-8.

2.5.2 Potential Corridor H Interchange

Construction is currently underway for Corridor H to the west of the US 220 project's southern termini. The WVDOH anticipates completion in late 2015. Corridor H is now to traffic from Bismarck (west of the project area) to Wardensville (east of Moorefield). Outside Moorefield, the alignment of Corridor H within the study area traverses a predominantly rural landscape with almost no commercial establishments nearby and few built-up residential areas. Corridor H is being built to similar design and capacity standards as the planned US 220 project discussed in this EIS. The termini with Corridor H were examined to determine if traffic signals are warranted. As suggested by current WVDOH guidelines, if traffic signal warrants are met at the Corridor H termini (with construction of intersections), then an interchange will be utilized instead. Although Corridor H is access-controlled, the WVDOH has made allowances for intersection construction and traffic signalization at specific locations where necessary. More studies will be necessary during Tier Two to determine if the potential US 220/Corridor H terminus would be a candidate for construction of a signalized intersection.



LEGEND

- Existing Roadway
- Proposed
- Bridge

0 252m

0 700' 1400'

N

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

CORRIDORS C AND E
INTERCHANGE

FIGURE - 2-8

The design hour volume for each corridor was calculated to be between 730 vehicles per hour (vph) and 1,430 vph depending on the corridor examined. It is also anticipated that the majority of traffic will be traveling to and from the east on Corridor H because of the attractiveness of this route between I-68 and I-81. This will result in a higher left-turn volume from each corridor. Consequently, a traffic signal will be warranted with these volumes and a basic diamond interchange is assumed. Based on the projected traffic volumes and the general terrain of the area, a diamond interchange appears to be sufficient. Although additional analysis will be required to confirm this during the next phase of the project, a diamond interchange was assumed in order to develop preliminary cost estimates.

2.6 Cost Estimates

Preliminary construction cost estimates were developed for the corridors using a new build, arterial, controlled access alternative for the BFAs. The construction cost estimates were developed using unit costs from similar type projects based on the typical sections. Alternatives developed later in Tier Two may be less than a full build alternative.

The construction cost estimates do not include utility relocation, right-of-way acquisition, engineering, or environmental study costs. Nor do they include future maintenance costs. At this level of preliminary detail, maintenance costs would be applied based on a "per mile" basis. Thus, longer corridors could be expected to have higher maintenance costs than shorter ones. More refined costs will be calculated during Tier Two. Factors that may affect future costs include the type(s) and location(s) of the build alternative(s) selected, types and locations of the interchanges, earthwork balance and geotechnical issues, typical section modifications, the locations and number of bridges, and inflation. A summary of the construction cost estimates for each corridor and for the I-68 and Corridor H interchanges are shown in Tables 2.6-1 and 2.6-2.

TABLE 2.6-1
Corridor Construction Cost Estimates

Corridor	Length	Construction Cost	Total Construction Cost Estimate
A	34.5 miles	$13,400,000/mile	$462,000,000
B	34.2 miles	$13,400,000/mile	$459,000,000
C	44.5 miles	$13,400,000/mile	$597,000,000
D	45.3 miles	$13,400,000/mile	$607,000,000
E	45.0 miles	$13,400,000/mile	$603,000,000

TABLE 2.6-2
Interchange Construction Cost Estimates

Interchange	Length Roadway (Ramps)	Roadway Construction Cost	Deck Area Structures (Bridges)	Roadway Construction Cost	Total Construction Cost Estimate
Corridor A	12,000 feet	$660/foot	26,400 square feet	$225/square foot	$14,000,000
Corridors B/D Option 1 (Full Interchange)	20,960 feet	$660/foot	57,000 square feet	$225/square foot	$27,000,000
Corridors B/D Option 2 (Partial Interchange)	7,370 feet	$660/foot	New I-68 Bridge 18,000 square feet	$225/square foot	$9,000,000
Corridors C/E (Full Interchange)	24,000 feet	$660/foot	106,000 square feet	$225/square foot	$40,000,000
Corridor H (Full Diamond)	12,000 feet	$660/foot	26,400 square feet	$225/square foot	$14,000,000

2.7 Alternatives Analysis

As the development of the transportation corridors and conceptual interchanges continued to progress, traffic issues were examined and a screening of potential environmental impacts from all five corridors was completed. The assessment of existing and future traffic, together with the environmental impact overview, allowed for the number of corridors to be narrowed from five to three.

2.7.1 Traffic Assessment

Concurrent with the refinement of the preliminary corridors, potential issues with traffic were evaluated for the area. Future traffic was projected using a traffic assignment model and estimates of long-distance through traffic from intercity locations to the east and west of Cumberland on I-68. The traffic assignment model consisted of four components: trip generation productions; trip generation attractions; trip distribution; and traffic assignment.

Because long-distance traffic through Cumberland could use the combination of Corridor H and an improved US 220 corridor, a thousand vehicles per day were added to the forecasts. This represented travelers that would shift from other long-distance through routes in the area to a new facility in one of the corridors if a highway were ultimately constructed. In addition to the projections, the amount of regional residual traffic expected on US 220 was calculated.

Residual traffic would be those trips remaining on existing US 220 if a new highway corridor were developed and traffic shifted to it. In effect, the less residual traffic on US 220, the more successful a new roadway would be. The amount of traffic each corridor would carry, together with the residual traffic on US 220, is shown in Table 2.7-1.

TABLE 2.7-1
Projected Residual Traffic on US 220

Corridor	Traffic Projections		Residual Traffic on US 220	
	Year 2005	Year 2025	Year 2005	Year 2025
A	6,100-9,000	9,100-12,900	3,600-7,000	6,100-8,500
B	8,000-15,500	11,900-21,100	Primarily Local	Primarily Local
C	5,600-12,000	8,300-18,500	2,400-4,500	6,100-6,300
D	9,200-15,500	13,700-21,100	Primarily Local	Primarily Local
E	5,200-11,200	7,700-17,600	3,900-5,200	6,100-6,300

Across all five corridors, the lower range of traffic would occur between Corridor H and US 50. Future traffic volumes would range from a low of 7,700 on the more rural parts of Corridor E to a high of 21,100 on Corridor B and Corridor D in the vicinity of Cumberland and Cresaptown.

Of the five proposed corridors, B and D were shown to divert the most traffic from existing US 220, leaving primarily local traffic on the roadway. Corridor A would divert the least traffic, leaving the most traffic on US 220 in the year 2025. Though faring slightly better, Corridor C and Corridor E would leave about a third of the traffic on US 220 that is expected there in the year 2025. Table 2.7-2 shows the upper limits of the five corridors ranked in order of their ability to divert future US 220 traffic.

TABLE 2.7-2
Future Traffic on US 220

Corridor	Maximum US 220/MD 53 Traffic (AADT) Year 2025	Traffic (AADT) Year 2025	Residual Traffic (AADT) on US 220 Year 2025
B & D	20,200	21,100	Primarily Local
C	20,200	18,500	6,300
E	20,200	17,600	6,300
A	20,200	12,900	8,500

In terms of meeting future traffic demand, Corridors B and D offer the greatest promise, followed in order by Corridors C, E, and A. Besides being diverted to a proposed corridor (if built), some of the growth in US 220 traffic could shift to other roadways, possibly compounding congestion and safety problems in the area. This shifting to other through routes would be greatest in the corridors that divert lesser amounts of future US 220 traffic and lowest for Corridor B and Corridor D. Although additional traffic analysis in Tier Two would be necessary to determine how much traffic is actually diverted to the other north-south routes, they all have less capacity than US 220 for bearing increases in traffic.

2.7.2 Impacts Screenings

The natural resources and important manmade features of the area were identified as part of the screening process of alternatives. The resources and features found within the study area were identified by reviewing secondary data (e.g., National Wetland Inventory [NWI] data, county soil surveys, digital Flood Insurance Rate Maps, comprehensive plans, and other resource inventories) provided by local, state, and federal agencies. This data collection was followed by extensive field investigations to provide further insight into specific resources and environmental conditions.

The natural resources inventoried as part of the screening process included soils and geologic features, land cover, wetlands, streams, water quality, floodplains, threatened and endangered species, terrestrial habitat, and farmlands. Secondary source information on all of the resources was collected by contacting local and state agencies with jurisdiction over, or interest in, the various landscape features. All information was incorporated into the project's geographic information system (GIS) and field verified. Updated data, based on the field verifications, were then incorporated into the GIS datasets and appropriate maps.

The manmade features included community facilities, urban/built-up areas, businesses, cultural resources (archaeological sites, historic structures, and historic districts), potential Section 4(f) resources, and potentially contaminated sites. Locations with archaeological potential were assessed through a predictive model developed specifically for the project. Additionally, information on local planning initiatives, programs, and projects was gathered by contacting planning officials in the area. Similar to the natural resources, this information was field verified and mapped in GIS.

The results of the screening for potential impacts for each corridor are shown in Table 2.7-3. Additional qualitative information was also incorporated into the screenings. That information is not easily portrayed on a table and is therefore not included here.

TABLE 2.7-3
Preliminary Impacts Screening

Feature	Corridor				
	A	B	C	D	E
Aquatic Resources					
Wetlands					
Acreage	147	118	152	143	306
Number	123	117	255	211	277
Streams					
Perennial					
--feet	198292	246322	269902	326380	564359
--number	74	150	199	198	362
Intermittent					
--feet	24065	53917	60932	122423	70793
--number	19	33	55	84	55
Floodplains					
Acreage	44	775	719	2244	5395
Potential Transverse Encroachments	1	3	3	9	9
Land Cover *(Acreage)*					
Built-Up Land	823	4427	3483	4439	2082
Agricultural Lands	1403	2953	6489	5487	8667
Forests	13016	9890	11130	11409	9921
Rangeland	1291	127	644	720	586
Mixed Forests and Rangeland	193	0	53	91	154
Potentially Contaminated Sites *(Number)*	17	43	42	55	28
Community Facilities *(Number)*					
Parks & Recreation					
Public Ownership	2	2	3	2	7
Private Ownership	0	4	4	2	4
Government Buildings	1	3	3	4	3
Cemeteries	1	9	18	14	12
Schools	0	8	2	7	4
Churches	2	18	19	20	13
Emergency Management	0	4	2	0	1

TABLE 2.7-3 (continued)
Preliminary Impacts Screening

Feature	Corridor				
	A	B	C	D	E
Major Health Care Facility	0	0	1	0	2
Prisons	0	2	1	0	0
Other Public Facilities	2	4	3	1	8
Agricultural Resources					
Farmlands *(Acreage)*	1403	2953	6489	5486	8667
Agricultural Preservation Districts *(Number)*	0	0	1	0	0
Agricultural Preservation Easements *(Number)*	0	0	0	67	0
Cultural Resources					
Historic Resources *(Number)*					
NRHP Sites	0	0	5	9	10
NRHP-Eligible Sites	0	4	5	14	16
Potential NRHP-Eligible Sites	4	29	29	31	51
Archaeological Resources *(Acreage)*					
Post-Contact Features					
- -Low Potential	2033	3812	4791	5443	5609
- -Moderate Potential	1018	679	1114	1029	1080
- - High Potential	19	213	441	618	582
Prehistoric Features					
- - Low Potential	12834	8368	13961	13895	12820
- - Moderate Potential	3118	3968	1353	1229	417
- - High Potential	1139	5125	6533	7091	8594
Potential Section 4(f) Resources *(Number)*					
Parks & Recreation	2	2	3	2	7
Wildlife Refuges	0	0	0	0	0
NRHP Sites	0	0	5	9	10
NRHP-Eligible Sites	0	4	5	14	16
Socioeconomic Resources					
Residential *(Acreage)*	253	2591	2369	2623	1002
Mixed Built-Up Land *(Acreage)*	243	1253	86	858	115
Commercial/Industrial *(Acreage)*	58	172	456	343	440
Industrial Parks *(Number)*	0	1	0	0	1
Business Locations *(Number)*	4	153	101	163	42

TABLE 2.7-3 (continued)
Preliminary Impacts Screening

Feature	Corridor				
	A	B	C	D	E
Employees *(Number)*	25	1215	1258	1813	355
Cost					
Estimated Construction Cost (in millions)	$488.3	$500.0	$651.0	$648.0	$657.0

Although there would be impacts within any of the potential corridors, Corridors B, C, and D were judged to have the fewest impacts overall when each corridor was analyzed as a whole. Additional details on the environmental screening are found in the project report, *Corridors Retained for Further Analysis* (Skelly and Loy, Inc. 2007a).

2.8 Identification of Other Possible Corridors

As the project progressed and the refined corridors were shown to local officials and the public, suggestions were made to examine four other potential corridors. Originating primarily through the public involvement process, each suggested new corridor was reviewed and a determination made to advance or eliminate it from further consideration. The additional corridors were identified as Modifications to Corridor B, Connections to US 219, Crossover Corridors, and Shifts of Corridor A to the West.

2.8.1 Modifications to Corridor B

Following a presentation to the Allegany County Planning Commission in September 2006 and a second round of public meetings where the refined corridors were shown, the Planning Commission voiced concern about the potential socioeconomic impacts of Corridor B and Corridor D through LaVale and Cresaptown. LaVale and Cresaptown provide a dense mixture of commercial, institutional, and residential development. LaVale and Cresaptown are communities where many jobs and single-family homes are located. Their neighborhoods are considered by many people in the area to be a good place to live, work, and shop.

This posed a dilemma, however. Because of the heavy development throughout LaVale and Cresaptown, the Planning Commission felt these two corridors offered the best solutions to roadway deficiencies in the area. On the other hand, with either of these two corridors, there would be a high potential for incurring impacts – precisely because there is so much development already in place. Consequently, the Planning Commission suggested that possibly the easiest way to minimize potential impacts would be to simply push the termini further west for Corridor B and Corridor D. Instead of tying-in a new roadway along I-68 between Exits 39 and 42, the Planning Commission proposed that Corridor B and Corridor D tie-in at Exit 34, the proposed terminus for Corridor A.

At first glance, this modification to Corridor B and Corridor D appeared to be a good environmental compromise for solving the transportation issues associated with US 220. To accomplish a tie-in at Exit 34 from points east, however, would require future alternatives to cross the steep terrain of Dans Mountain. Theoretically, it might be possible to skirt those parts of Dans Mountain with this type of corridor modification, but potential alignments would have to begin well south of Cresaptown to meet grade at I-68. This would lessen the possibility of avoiding Dans Mountain, result in a roadway profile with major earthwork balancing, and require additional valley fills that could further impact Dans Mountain. Under this type of modification, very high construction costs (similar to Corridor A) would be likely. Additionally, to alleviate existing and future traffic conditions, a roadway in this modified corridor would require more access roads to US 220. Not only would additional access roads increase costs, the potential to increase the environmental consequences of the project would exist. As a result, the modified corridor was judged unreasonable and eliminated from further consideration.

As the project moves into Tier Two, the termini of Corridors B and D will be merged into the same project alternative, providing an opportunity for either to serve as a connection to I-68. In effect, the northern parts of each corridor are interchangeable and either of them could serve as a suitable connector to I-68.

2.8.2 Connections to US 219

After the corridors were shown at the second round of public meetings, some people in the community expressed disappointment that no corridors were developed that would link directly with US 219. Although US 219 is an important regional roadway providing a north-south connection in neighboring Garrett County (Maryland's westernmost county), it is over 30 miles west of US 220.

The existing roadway is two lanes for all sections in Maryland, although several sections in Pennsylvania have been upgraded to four-lane, interstate conditions. MDSHA and Pennsylvania officials are currently conducting environmental and engineering studies in support of future upgrades of US 219 to four-lanes from I-68 north to Meyersdale, Pennsylvania.

Connections to US 220 with an upgraded US 219 would be possible *via* I-68, but because of the distance between the two routes, efforts to upgrade both routes are clearly separate projects. Each project has different needs, independent utility, and their own logical termini. As a result, the suggestion to link these two projects directly was judged unreasonable and eliminated from further consideration.

2.8.3 Crossover Corridors

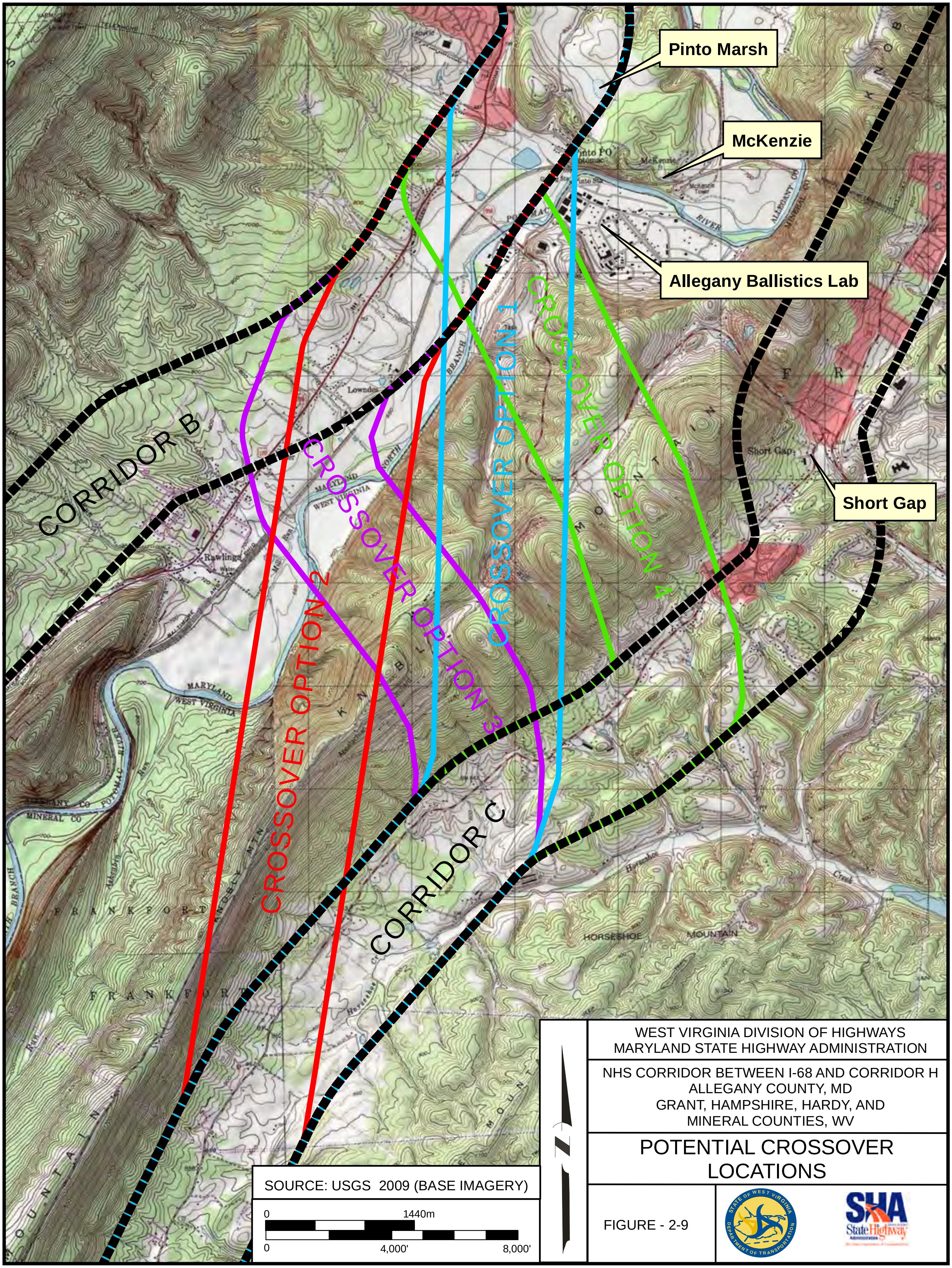
One other recurring suggestion was raised by some members of the public, the Maryland Department of the Environment (MDE), and the Maryland Department of Natural Resources (MDNR) during the study process – that perhaps some combination of corridors would be an appropriate transportation solution for roadway deficiencies in the area and avoid certain environmental or socioeconomic features of the landscape. It was hoped that a combination corridor, or crossover corridor, could avoid important environmental features and have limited socioeconomic impacts, especially a crossover utilizing Corridor C and Corridor B or Corridor D.

Crossover connections could offer a safety valve, of sorts, to existing bottlenecks in the transportation system. As it currently stands, I-68 is the only practical east-west route through the project region for truck traffic and heavy volumes of passenger cars. Additionally, I-68 would serve as the major route from Washington, D.C., during a national emergency or evacuation of our nation's capital. In the past, however, weather-related and local emergency incidents have caused a shutdown of I-68 on occasion, forcing all traffic onto local roads. In each event, the resulting traffic congestion created serious operational problems for the local transportation system. Potential crossover connections from the US 220 project could serve as an I-68 bypass and relieve some future safety concerns.

Following the distribution of a Draft EIS for the project, the MDE specifically requested consideration of a Modified Corridor C, near McKenzie, utilizing the southern portion of the corridor but not the northern. Such an alternative could allow additional opportunities for future alternatives that avoid the Dans Mountain (WMA) and Dans Mountain State Park. MDR also submitted a map showing sensitive environmental resources and high quality habitat that are found within Corridor B (see Figure 6-2 in Chapter 6.0). With considerable overlap of Corridor B and the resources, MDNR offered the Modified Corridor C as a way of avoiding those resources. Four options for a conceptual corridor were developed with input from the resource agencies. Those options, including crossover corridors BC-1, BC-2, BC-3 and BC-4, are shown on Figure 2-9.

In order to determine what effects might occur within these corridor options, a preliminary environmental screening, utilizing the same information collected for the development of the DEIS, was conducted. As with the original five corridors, a 4,000-ft study width was used for the crossover analysis. Dans Mountain WMA and the C&O Canal National Historic Park would be avoided with any of the crossover options, but Pinto Marsh could still be impacted and not avoided by any of them. Pinto Marsh, a two- to three-acre marshy pond near Cresaptown, is designated by MDNR as non-tidal wetlands of special state concern. Wetlands like Pinto Marsh receive special state attention because of their value as known habitat for rare, threatened, or endangered species. A breeding record of the state-listed rare sora (*Porzana Carolina*) was previously observed in Pinto Marsh. The *sora* is a marsh bird, six to eight inches in length with a wingspan of 12 inches.

The area where the crossover options are located is mostly undeveloped and impacts to forestland are still possible, but on Knobley Ridge instead of the lower slopes of Dans Mountain. Although no habitat analysis has been done on Knobley Ridge, at a coordination meeting in December 2013, representatives from the state resource agencies informally agreed that its habitat and wildlife are as important to the ecological vitality of the region as Dans Mountain. Both Dans Mountain and Knobley Ridge have similarities in terms of topography, land cover, terrestrial habitat, wildlife, streams, wetlands, and other natural resources. Crossovers in this area would require considerably large cuts and earthwork that would have significant environmental impacts, especially to existing stream valleys. Following an informal fieldview of the potential crossover area by representatives of the MDE and United States Army Corps of Engineers (USACE) Baltimore District, the engineering and environmental constraints of the area also became more apparent, as did the great potential for creating additional environmental impacts if this corridor were carried forward to construction.



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NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

POTENTIAL CROSSOVER LOCATIONS

FIGURE - 2-9

The crossover corridors would also impact the American Discovery Trail for approximately 26 miles of its length. The American Discovery Trail is a multi-use trail, providing for hiking, bicycle, and equestrian use. It is managed and administered by the American Discovery Trail Society, a nationwide non-profit organization.

Future highway alternatives utilizing the crossover corridors would provide less access to economic development centers and the City of Keyser, West Virginia, than the preferred corridor. Providing support to economic development areas is a key element of the project's need. Additionally, during the public comment period in 2012 the Mineral County Commission and the Mineral County Development Authority both commented that they do not support Corridor C because of its potential impact to existing development, groundwater, and farmlands. Both entities also deemed that Corridor B would have a more positive impact on economic development in the area. In addition, comments received from Allegany County and the City of Cumberland all support the project, but neither government has identified preference for any specific corridor.

Although parts of the proposed crossover corridors could avoid some of the more densely populated areas of Corridor C, there would still be impacts to a growing area of Mineral County and any crossover corridor impacting this part of West Virginia may still continue to generate considerable public controversy. Concern about potential public controversy is particularly important to WVDOH, especially where the potential socioeconomic impacts of a project are a primary factor affecting community perception.

During the comment period for the DEIS, 235 people expressed opposition to Corridor C, by far the most number of people expressing any position, either in favor or against, for any corridor. Additionally, a special meeting of representatives from the Mexico Farms area in Maryland expressed strong opposition to Corridor C and over 400 people attended a special community meeting in Short Gap, West Virginia, organized to present opposition to Corridor C. This community-initiated meeting was one of the largest public turnouts for a transportation project that experienced WVDOH staff present had ever seen. Following a brief presentation on the project, WVDOH staff spent over two hours listening to comments on the project and answering questions. There was no doubt that the community was opposed to a new highway anywhere within Corridor C.

Following the Short Gap meeting, two petitions with over 1,400 signatures combined were submitted to the West Virginia Division of Highways opposing Corridor C. While crossover options would avoid impacts to the more developed areas at the northern end of Corridor C and not affect many of the people who attended the meeting or signed one of the petitions, many of these people are opposed to the entire corridor, not just how it affects the immediate Short Gap area. Considerable concern was voiced over the potential impacts within Corridor C to community cohesion, the area's rural character, the effect on elderly residents, churches, groundwater resources, farmlands, and historic resources.

Additionally, new information about the Knobley Ridge aquifer increases the potential impact from possible alternatives within Corridor C. The aquifer (shown later in the FEIS in Figure 7-1 in Chapter 7.0) runs along the entire eastern face of Knobley Mountain through Mineral County and part of Grant County. The aquifer is coterminous with Corridor C for a surface distance of over 30 miles. There is a strong perception within the community from citizens and public officials alike that highway alignments in Corridor C could negatively impact this aquifer. Knobley Mountain is the only portion of Mineral County where groundwater-source public supplies of water have been successfully developed in the area (WVU 2012). As a result, local citizens and elected officials fear both existing and future water supplies in the area could be jeopardized if a new highway is constructed in Corridor C. This is particularly troublesome to the community because this part of the county has been identified as a growth area within its recently adopted comprehensive plan. While the US 220 project has been determined to be generally consistent with the comprehensive plan, the development of highway alignments within Corridor C during Tier Two may not be.

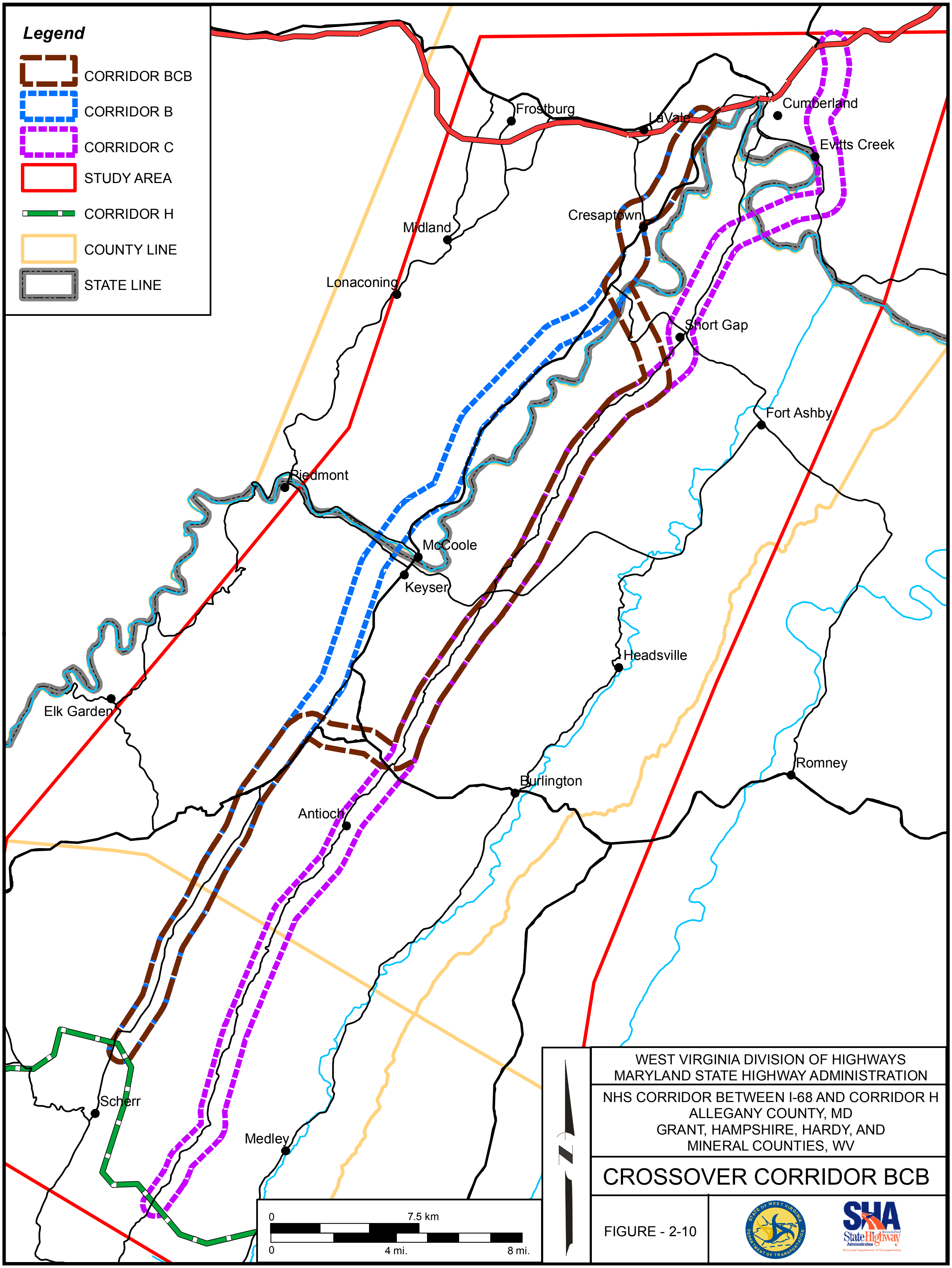
Although a preliminary analysis of the aquifer has indicated that highway alignments might be able to be developed above the aquifer without damaging it, additional analysis would have to be undertaken to confirm that. It is unlikely, however, that any amount of scientific research could convince the public that a new highway in this vicinity would not impact the aquifer. WVDOH has also encountered serious post-construction problems in other parts of the state where engineering studies had shown that development could occur on land underlain with extensive aquifers. As a result, it is hesitant to proceed with Corridor C and potentially create future groundwater problems in Mineral County where they can be avoided with advancement of a different corridor.

The USEPA also requested consideration of a different modified corridor utilizing portions of Corridor B at its northern and southern ends, the middle portion of Corridor C, and two crossovers of Knobley Ridge, the northernmost in the vicinity of WV 956 and the southernmost in the vicinity of US 50. Corridors B and C, as well as this proposed Corridor BCB, are shown on Figure 2-10.

In order to determine what effects might occur within this proposed corridor, another preliminary environmental screening utilizing a 4,000-ft width was conducted. Following the screening, the potential impacts were compared to those found within Corridors B, C, and D. Dans Mountain WMA and the C&O Canal National Historic Park would be avoided with Corridor BCB, but Pinto Marsh could be impacted. Corridor BCB would also impact the American Discovery Trail (ADT) for approximately 17 miles of its length. Additionally, although it would avoid the more densely populated areas of Corridor C, a crossover corridor utilizing Corridor BCB may still continue to generate considerable public controversy for the same reasons as the other crossover options.

Also of major concern with Corridor BCB is the requirement to cross Knobley Mountain twice. Based on past experience with highway construction in Appalachian topography, this is expected to increase both earthwork and costs significantly. Although Knobley Ridge is not a wildlife management area, it is undeveloped forest land, with very similar habitat to the neighboring Dans Mountain. While the potential to develop alignments within the preferred corridor at the edge of the Dans Mountain WMA along US 220 exists, any crossing of Knobley Ridge would impact the heart of the mountain. With the need for increased earthwork and approach roads, it is reasonable to assume that the impact of crossing Knobley Mountain could exceed the preliminary corridor width of 4,000 feet. Consequently, a higher range of environmental impacts may be encountered once actual highway alignments are developed.

Not only would crossover corridors require additional earthwork to cross the steep terrain, they would require additional access roads to serve travelers and create additional environmental impacts through heavily forested areas. Additionally, the crossover corridors were not shown to offer any improvement over the five corridors as they were originally developed (in terms of meeting the project's purpose and need). Thus, this suggestion would likely increase both costs and the environmental consequences of the project. As a result, crossover corridors have been dropped from further consideration. Additional information on potential crossovers, including an impacts matrix is found in Appendix G, Analysis of Crossover Corridors.



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CROSSOVER CORRIDOR BCB

FIGURE - 2-10

The City of Cumberland also suggested a transportation systems management alternative that would function as a crossover corridor. "TSM is the application of construction, operational, and institutional actions to make the most productive and cost effective use of existing transportation facilities and services" (Institute of Transportation Engineers 1992). The City's proposal would utilize some combination of WV 956, WV 28, and MD 51 to connect project corridors to I-68 on the east side of Cumberland. TSM-type alternatives have been deferred until Tier Two, however, so that possible connections with future highway alignments could be better analyzed.

2.8.4 Shifts of Corridor A to the West

As noted earlier, Corridor A has the potential to impact the Dans Mountain WMA, one of western Maryland's most important natural resources. In an effort to avoid impacting it, conceptual shifts to the corridor were investigated. It was determined, however, that a shift of Corridor A would not be practical for the following reasons:

- Constructability – Although Corridor A falls mainly in steep terrain with poor accessibility, shifting only a short distance farther west would do little to alleviate future construction in these conditions. A shorter construction season would be likely and most of the excavation could be into rock. The roadway profile would require major earthwork balancing and increase the costs of any proposed project. Any Potomac River crossings from the vicinity of Dans Mountain into West Virginia would be approximately 2,500 feet long and 500-600 feet high. Other major structures would also be required to cross streams and local roads.

- Traffic Diversion – A shift farther west to avoid Dans Mountain completely would be too far from US 220 and not attract sufficient traffic volumes to meet the project's purpose and need. Nor would a westward shift improve conditions within the existing US 220 corridor. Limited access locations and potentially longer travel times from more populated areas would prevail. Although a more westward shift could improve accessibility to areas along MD 36, it would not reduce travel times and accessibility from the US 220 corridor.

- Economic Development and Smart Growth – Any far western corridor, including the one through Dans Mountain, would become a true bypass of the most populated areas in the study area, including Cumberland, LaVale, and Keyser. Although new areas would become open for future development as a result of a western alternative, they would not be in Maryland's PFAs, nor would they enhance existing economic development efforts in the study area's older, more established communities. This could limit future growth and result in sprawl by providing a major transportation improvement in an area without other public infrastructure.

- Access – Except for MD 36, existing roads immediately west of Dans Mountian are mostly narrow, local roads, often located in steep terrain. Local roads would require considerable improvement to handle the additional traffic and truck volumes expected from a major new north-south route through the area. Additionally, access would be from the western side of Dans Mountain with no direct access from US 220.

- Impacts to Historic Resources – The area on the western side of Dans Mountain is rich in cultural resources associated with the coal and iron industries. Several existing resources in the area are already on the National Register of Historic Places (NRHP), including the Lonaconing Historic District, the Lonaconing Furnace, and the Waverly Street Bridge in Westernport. A new transportation corridor through this area would require more detailed investigations to identify potential historic resources and identify the potential impacts of the proposed transportation improvements. Any additional studies in an area with so many historic sites are likely to reveal more buildings and properties as potentially eligible for the NRHP.

- Maintenance – Shifts further west could have future maintenance problems. A new roadway in the vicinity of Dans Mountain would be exposed to year-round high winds, heavy snow in winter, and seasonal fog typical of Appalachian mountaintop areas. The roadway here would be located in a micro-climate more typical of western Allegany County and Garrett County than the immediate Cumberland area. Maintaining the proposed mainline and access roads in this area would be especially difficult in the winter months. Severe weather conditions could also lead to accelerated wear on the roadway surface and require more frequent patching and resurfacing.

- Safety – Weather conditions on the exposed mountaintop or western face could result in safety concerns pertaining to poor visibility and vehicle traction. Any mountaintop alternative will have frequent snow, snow drift, fog, and high winds, creating hazards for traffic.

As a result of this conceptual analysis, shifts to the west were judged both unreasonable and unable to meet the project's purpose and need. Consequently, shifts farther west of Corridor A were eliminated from further consideration.

2.9 Corridors Carried Forward for Detailed Analysis

As a result of the preliminary alternatives analysis, Corridors B, C, and D were retained for detailed analysis. A special report prepared for the project, *Corridors Retained for Further Analysis* (Skelly and Loy, Inc. 2007a), recommended that these three corridors be advanced. That report was sent to all of the cooperating and participating agencies shortly after it was prepared. Copies of the report were also sent to local municipal governments, local planning agencies, and any citizens or community groups requesting a copy. The report was also available for review at public meetings held in May 2007. The information in that report is included in this FEIS.

Each corridor was evaluated on its ability to meet the project's purpose and need. For the most part, any of the proposed corridors could meet the purpose and need, but to varying degrees. Each corridor would address the current transportation deficiencies that limit regional mobility by providing an improved north-south roadway through the region. Each would provide additional capacity while addressing safety deficiencies on existing roads. Corridor B and Corridor D, however, would divert the most traffic from US 220, the area's busiest north-south road, and, as a result, correct current transportation deficiencies best.

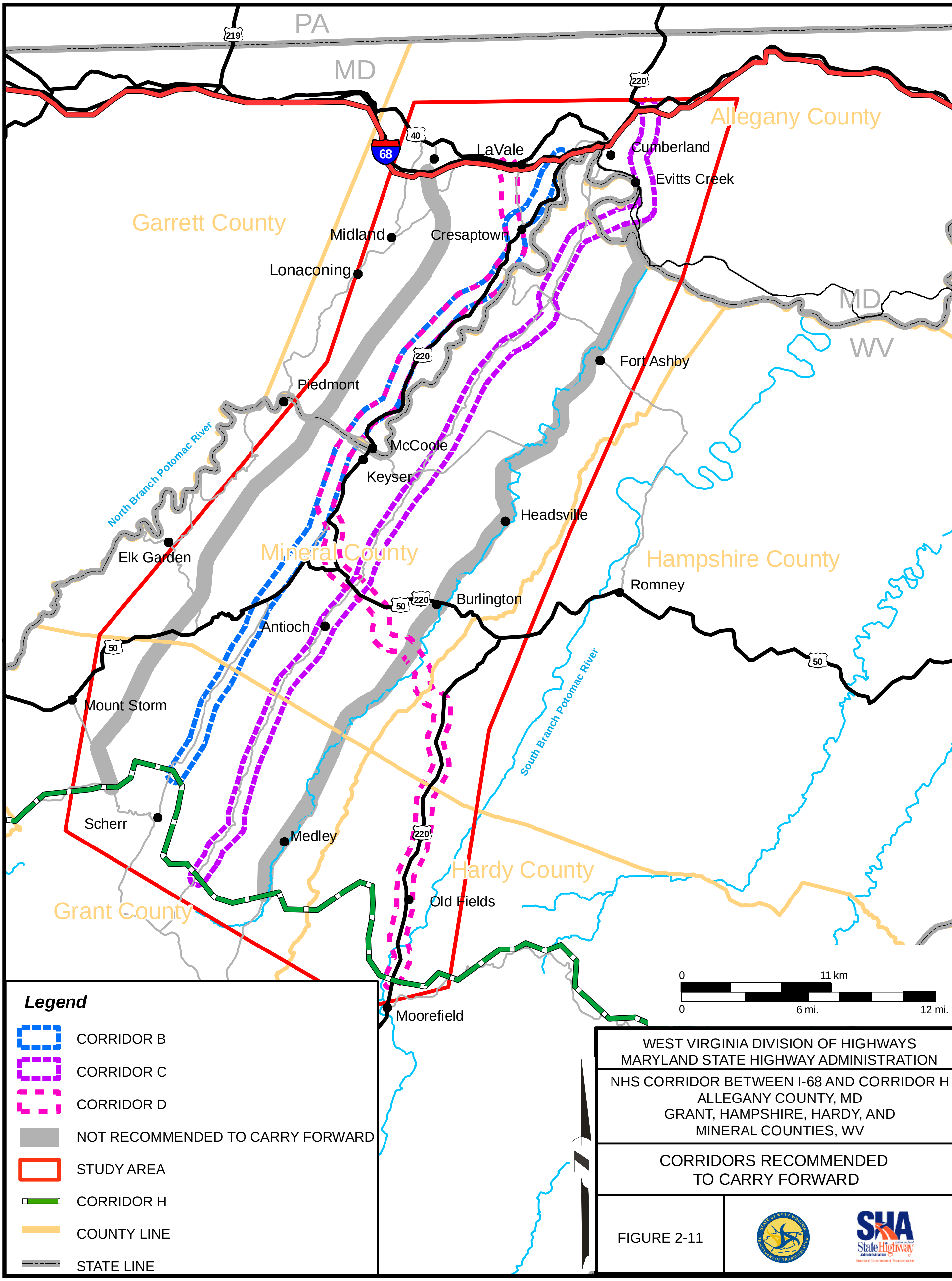
Each corridor would also add additional system linkage to the regional road network and support economic development efforts in the area. Corridor B and Corridor D would provide the greatest access to Cumberland, LaVale, Cresaptown, and Keyser, the major populated areas of the region and locations where economic development efforts are strongest. Corridor D would also provide additional access to Moorefield, a growing community with many jobs and economic infrastructure currently in place. Corridor C would provide access to Mexico Farms (a major employment location in Cumberland), the WV 28 area (a densely developed residential corridor in Mineral County that includes the Greater Cumberland Regional Airport), and the east side of Keyser *via* WV 46 (an area that includes Keyser Industrial Park, a 211-acre facility with nearly 60 acres available for future use).

The corridors retained for detailed analysis are shown on Figure 2-11. Each analytical feature that was used in developing the recommendation to carry these corridors forward is shown in ranked order in Table 2.9-1. Rank is ordered from one to five, with one being the least impact and five being the greatest. Rank was based on the number of impacts not the magnitude.

TABLE 2.9-1
Potential Impact of Analytical Features in Ranked Order

Corridor	Traffic Relief	Wet-lands	Streams	Flood-plains	Pot. Haz. Waste	Comm. Facilities	Agric. Resources	Cultural and Sec. 4(f)
A	5	2	1	1	1	1	1	1
B	1	1	2	2	4	3	2	2
C	3	4	3	2	3	5	4	3
D	1	3	4	4	5	2	3	4
E	4	5	5	4	2	3	5	5

Order: 1 = Least Impact; 5 = Greatest Impact


PA
MD
WV
219
220
40
68
50
Allegany County
Garrett County
Mineral County
Hampshire County
Hardy County
Grant County
LaVale
Cumberland
Evitts Creek
Midland
Cresaptown
Lonaconing
Fort Ashby
Piedmont
McCoole
Keyser
Headsville
Elk Garden
Burlington
Romney
Antioch
Mount Storm
Scherr
Medley
Old Fields
Moorefield
North Branch Potomac River
South Branch Potomac River
0
11 km
6 mi.
12 mi.
Legend
CORRIDOR B
CORRIDOR C
CORRIDOR D
NOT RECOMMENDED TO CARRY FORWARD
STUDY AREA
CORRIDOR H
COUNTY LINE
STATE LINE
N
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
CORRIDORS RECOMMENDED
TO CARRY FORWARD
FIGURE 2-11
SHA
State Highway

Socioeconomic resources were not included in the table because it is difficult to differentiate between negative and positive socioeconomic impacts at a Tier One level of detail. For example, Corridors B, C, and D generally traverse areas with a higher level of development than Corridors A or E. Consequently, they could have the greatest impacts, positive and negative, to residential land, commercial land, business locations, and jobs. Also, because Corridors B, C, and D traverse the most densely developed settlement corridors in the study area, in some respects they also address the greatest need for transportation improvements. While the taking of homes or businesses would be a negative impact, the additional access and highway safety afforded to the homes and businesses that remained would be positive. Additionally, in analyzing socioeconomic resources, the Tier One studies looked at "built-up" land rather than individual residences and businesses. To determine the actual amount of potential impacts to homes and businesses, it will be necessary to map individual buildings within each corridor. Although impacts to socioeconomic resources are very important and will be one of the major study components of Tier Two, a more detailed analysis now is beyond the scope of the initial screening offered by Tier One investigations.

There will also be additional impacts as potential historic resources are determined eligible for the NRHP. Until the *Section 106* review process is completed, it is impossible to predict how many potential historic resources will be determined eligible for the NRHP. That process is currently ongoing and is not expected to be completed until the project enters Tier Two. Options for avoidance and minimization will be developed as the project progresses.

2.10 Corridors Not Carried Forward for Detailed Analysis

Corridor A was not carried forward for detailed analysis because of the potential impact to Dans Mountain. Dans Mountain contains the largest amount of state-owned contiguous forest in western Maryland and was identified by the MDNR as having high habitat values associated with forest interior, wildlife corridors, and green infrastructure. Corridor A was also not carried forward because it would divert the least amount of traffic from US 220. A new highway alignment within Corridor A would still leave as much as 8,500 AADT, or approximately 42 percent of the expected traffic in the year 2025, on existing US 220. Corridor A was also not carried forward because it would likely have the least economic development benefits without other major public infrastructure improvements. With the fewest residential units and commercial facilities found in any of the corridors, the handful of communities located within the area of Corridor A would require substantial investment in land development, utility extensions, and water and sewer improvements to attract economic growth.

Corridor E was not carried forward because it would have the greatest impact on all natural resources. When the potential environmental impacts of each corridor were compared against one another, Corridor E consistently ranked at or near the bottom in terms of the number of impacts. Corridor E was also not carried forward because it would divert the second least amount of traffic from US 220. A new highway alignment within Corridor E would still leave as much as 6,300 AADT, or approximately 31 percent of the expected traffic in the year 2025, on existing US 220. Corridor E was also not carried forward because it would likely create the most public controversy. About 120 people attended the first public meetings and, although they were generally supportive of the project, potential impacts to the Patterson Creek Valley located within Corridor E were considered a major concern.

2.11 Conclusions

Based on the results of the environmental and engineering studies discussed in Chapter 4.0, and in conjunction with the public participation process, completed during Tier One, Corridor B with either its connection to I-68 or the northern spur of Corridor D that connects to I-68 in Maryland is being recommended as the preferred corridor to be carried into Tier Two. Future upgrades and improvements to existing US 220 may occur in West Virginia from Keyser to the Hardy County connector with Appalachian Corridor H, but if they do, they will be advanced as separate projects with their own NEPA documentation. Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources. A complete discussion of the preferred alternative is found in Chapter 6.0.

CHAPTER 3.0

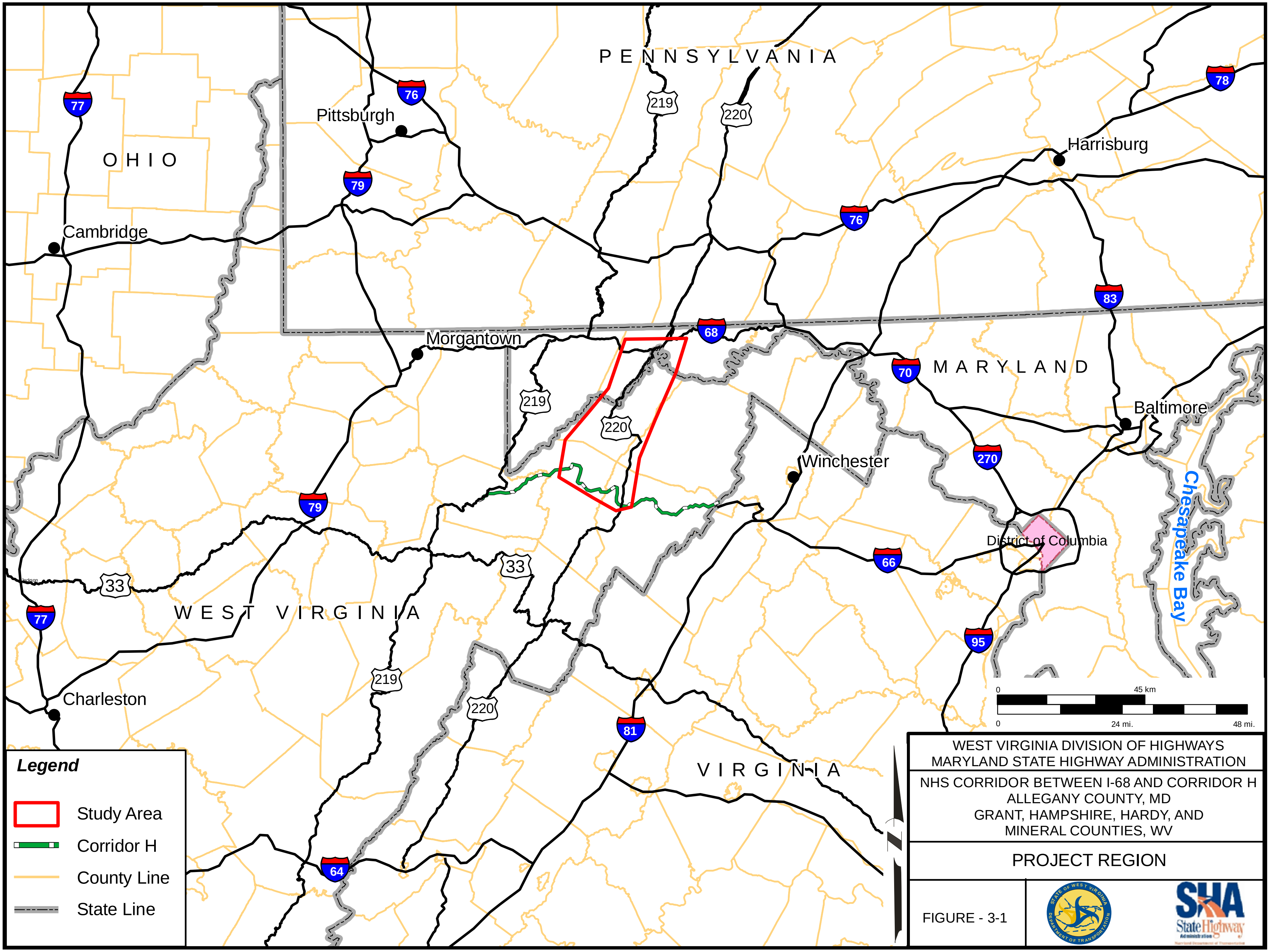
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

This chapter describes the affected socioeconomic, cultural, and natural environment of the study area. It is intended to provide a regional overview of the features present in and around the study area. With some minor deviations that are dependent upon the environmental resource being described, the discussions in this chapter attempt to keep the level of detail consistent. In some cases, however, more information is provided to give a deeper understanding of the current health or regulatory background associated with specific resources. In other cases, readily obtainable existing background information was less detailed than expected. Chapter 4.0 builds on the information contained in Chapter 3.0 and provides more information on the resources found within each corridor carried forward. Hence, while the data presented within Chapter 3.0 are regional, the analysis of resource impacts presented in Chapter 4.0 is described at a corridor level.

The proposed project would extend from I-68 in the north, near Cumberland, to Corridor H in the south, for a distance of approximately 40 miles. Five preliminary study corridors were established for the environmental investigations. Through a process of environmental screening, these corridors were narrowed to three. Located in West Virginia's Potomac Highlands region and one of Maryland's westernmost counties, the overall study area generally includes southwestern Allegany County in Maryland; all of Mineral County, West Virginia; and portions of Grant, Hampshire, and Hardy counties in West Virginia. Situated equidistant from Baltimore, Washington, D.C., and Pittsburgh, the region encompasses an area of over 835 square miles, with a population of approximately 153,000 (United States Census Bureau [USCB] 2010). The larger region in which the study area is set includes all land area of the five counties. Figure 3-1 shows the study area in its regional context. (Please note that because of their scale, the figures shown in this chapter are general in nature. More specific information on geographic features, including community, natural, and cultural resources, is shown on the Plates.)

The landscape of the study area is primarily rugged terrain, characterized by a series of roughly parallel ridges and valleys. Although there are wider river valleys in the northwest and southeast centered on the North Branch Potomac River and Patterson Creek, respectively, narrower stream valleys and hollows are found throughout the remainder of the study area.



PENNSYLVANIA
OHIO
MARYLAND
WEST VIRGINIA
VIRGINIA
Pittsburgh
Harrisburg
Cambridge
Morgantown
Baltimore
Winchester
District of Columbia
Charleston
Chesapeake Bay
77
76
78
79
76
83
68
70
270
79
66
77
95
81
64
219
220
219
220
33
33
219
220
0
45 km
0
24 mi.
48 mi.
Legend
Study Area
Corridor H
County Line
State Line
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
PROJECT REGION
FIGURE - 3-1
SHA
State Highway

Land use in this hilly study area can be divided into three major categories: urban and small town, agricultural, and forested. The predominant land cover is forested and agricultural land. The rural valleys of the study area are dotted with many active farms, and dense forests are found on the adjacent ridge tops. Environmental resources that do not exist in the study area include coastal zones, wild and scenic rivers, national natural landmarks, and wildlife sanctuaries.

The climate of the study area is a temperate, continental type that ranges from humid to sub-humid; however, the varied topography creates diversified local climates. The divide of the Allegheny Mountains, the main topographic barrier through the western portion of the study area, forms a “rain shadow” that shelters most of the study area from prevailing storm systems that move from west to east. Because of this condition, climatic data from the western portion of the study area show lower average temperatures and higher average precipitation than data from the central and eastern portions. The western portion of Allegany County receives approximately 25 percent more annual precipitation than the eastern portion receives and has a lower average temperature (United States Department of Agriculture [USDA]-Natural Resources Conservation Service [NRCS] 1977, 1978, and 1989). The study area has four distinct seasons with high, moderate, and low variations in temperature and precipitation.

3.1 Land Use

3.1.1 Land Use Patterns

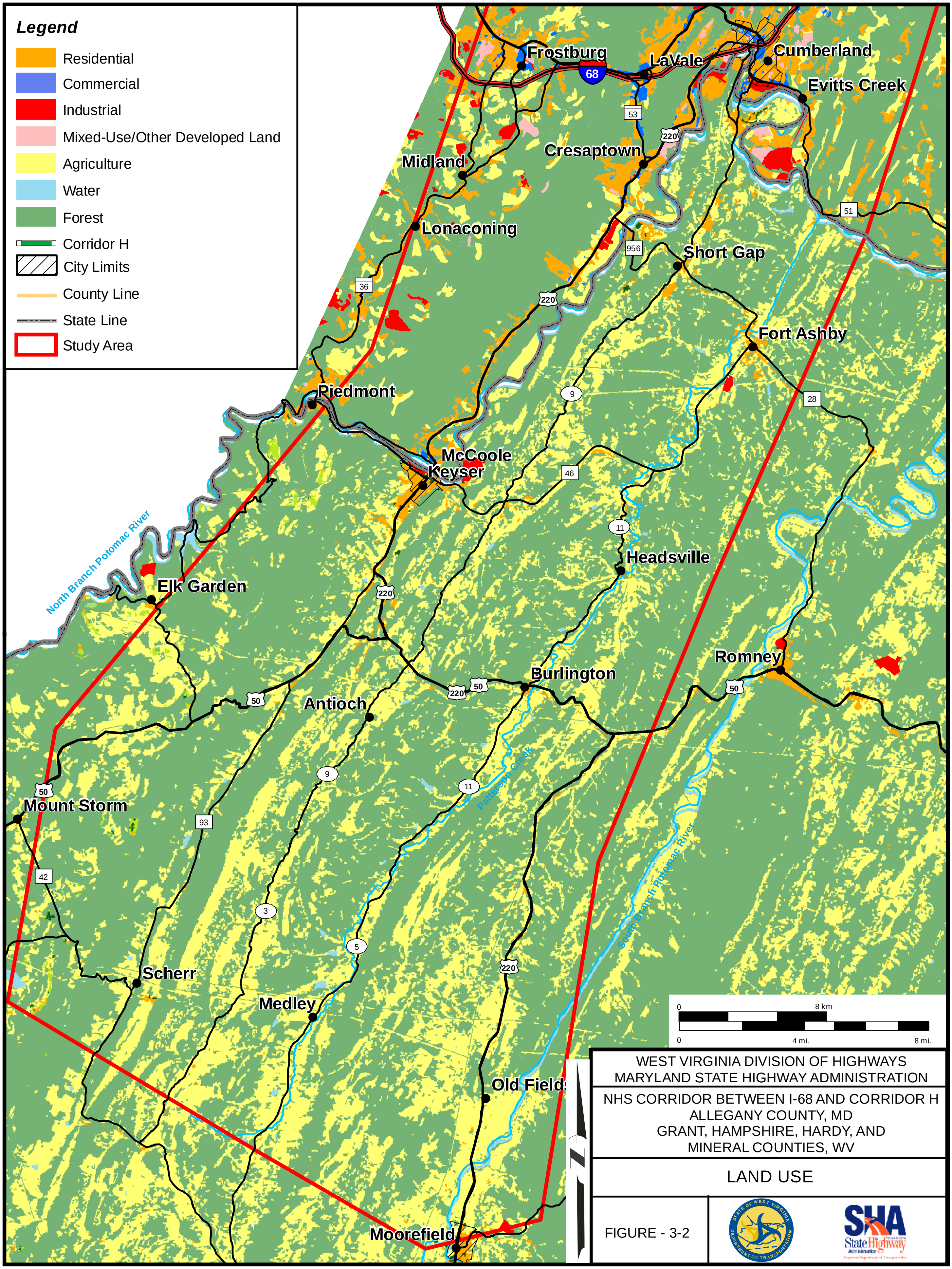
Overall, the land uses in the study area are primarily forestland, agricultural, mixed-use/other developed land, and residential, with concentrations of commercial and industrial uses scattered throughout the region. Densely residential, commercial, and industrial development is generally found in four core areas around the City of Frostburg and in the county seats of the City of Cumberland, the City of Keyser, and the City of Moorefield. Although several small communities (Burlington, McCoole, and Cresaptown, among others) are scattered throughout the area, the remainder of the study area is rural in nature and is used mainly for agricultural purposes or as forested land. Important farmland areas are found in the Patterson Creek Valley on the project’s eastern edge, on the lower slopes of Knobley Ridge, and along US 220 in Allegany County south of Cresaptown. Vast tracts of forested land are found along the ridge tops, including an area of special importance, Dans Mountain WMA, located immediately to the west of US 220 on the Maryland side of the project. The Dans Mountain WMA is one of the largest contiguous tracts of public land in the state of Maryland.

A generalized land use map is shown on Figure 3-2. The land use map was assembled from a variety of sources, including county comprehensive plans, state databases, aerial photography, and windshield surveys. Although it does not present land use information exactly as it is found in the various countywide comprehensive plans, the map provides updated project information that is consistent with those plans.

3.1.1.1 Existing Land Use

Typically, the residential areas are low-density and usually set on large parcels of rural land. In places like Cumberland, LaVale, Cresaptown, Keyser, and Moorefield, however, denser residential parcels exist. The major commercial centers are located in downtown Frostburg, Cumberland, LaVale, Keyser, and Moorefield. Commercial strip development is common along Vocke Road, Winchester Road, and the National Highway in LaVale and along the US 220 corridor through Cresaptown and Keyser. Industrial parks are interspersed throughout the five-county region. Mexico Farms is a fairly large industrial/business park found in Corridor C. As is common across the project region, the industrial areas are normally in or near the cities and towns. A large percentage of the area’s remaining land use consists of forestland and agriculture. Prime farming lands can be found along the Middle South Branch Potomac River Valley and the southern portion of the Knobley Road corridor. Residential areas here consist mostly of single-family homes on large tracts of land. Small towns consist of clusters of single-family homes on smaller lots like those found at Williamsport, Medley, Purgitsville, Burlington, and Patterson Creek.

In Allegany County, agricultural land use is limited to areas south of Frostburg, the Evitts Creek Valley, and the Potomac River Valley south of Cresaptown. Most of the undeveloped slope areas of the county are covered by forests. Commercial and institutional centers are found in or around the City of Cumberland, with smaller clusters at LaVale, Frostburg, Lonaconing, and Westernport. Some of the most popular shopping centers are Country Club Mall in LaVale, Queen City Center in Cumberland, and Main Street in Frostburg.



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LAND USE

FIGURE - 3-2

Heavy development in and around Cumberland extends from LaVale through Cumberland to the east and along MD 53 and US 220 to the south through Cresaptown. Of importance to Allegany County are the residential neighborhoods from Cumberland through Cresaptown and nearby Bel Air in which several generations have created strong, cohesive neighborhoods. Also of importance to Allegany County are the commercial centers in downtown Cumberland and along US 220 and MD 53 and the large industrial and transportation complexes emanating from the center of Cumberland to the southeast along MD 51 (Industrial Boulevard). Five identified industrial parks are located in Allegany County: Barton Business Park, North Branch Industrial Park, Upper Potomac Industrial Park, Riverside Industrial Park, and Cumberland Commerce Center.

Similar to the surrounding counties, Grant County exhibits a rural character typical of this part of West Virginia and includes widespread farming, particularly through the eastern and southern areas of the county. Forestland covers the majority of the land. Mining is prominent in the mountainous northwestern part of the county along US 50 and WV 42 and 93. Mount Storm Lake is a popular recreation area where the public can fish and boat. Petersburg, the county seat, is the commerce and population center. Other small residential clusters include Bayard and Mount Storm, which have limited commercial activity.

Hampshire County is covered by vast forests and grasslands. According to the *Hampshire County Comprehensive Plan* (Hampshire County Planning Department 2003), almost 80 percent of the county is forestland and about 19 percent is farmland. Few urban areas are located in the county, with Romney and Capon Bridge being the only two incorporated places. Less than 1 percent of the land is urban in character, with the few existing urban areas dispersed along the US 50 and WV 28 corridors. Agriculture, orchards, and waterways occupy the remainder of the land. Among the forested lands are the preserved areas of Nathaniel Mountain, Short Mountain, and the Springfield and Edwards Run WMAs. Two business parks are located in Hampshire County: the County Industrial Park in Romney and the Capon Bridge Industrial and Technology Park in the Town of Capon Bridge. Together, they total less than 150 acres.

In Hardy County, agriculture constitutes a primary land use. The county's industrial areas are situated around Moorefield and Wardensville and include three industrial parks: the Moorefield

Industrial Park along US 220 just south of Moorefield, the Robert C. Byrd Industrial Park, and the Wardensville Industrial Park, both along WV 55, which together occupy about 160 acres.

In Hardy County, commercial and industrial development within the study area is found in and around Moorefield along the length of US 220, including large processing plants associated with the poultry industry at Moorefield's southern end. Residential development is concentrated within the Moorefield city limits.

As in the surrounding counties, much of the land development in Mineral County occurs adjacent to existing roads and away from the mountain slopes. Four distinct mountain chains, which limit development to the valleys nestled between them, extend north-south through the county: Patterson Creek Mountain, Knobley Mountain, New Creek Mountain, and the Allegheny Front.

Two primary commercial centers are located in Mineral County: the Keyser central business district and the suburban-type development along US 220 that extends from Keyser to WV 972, and one secondary commercial area in Fort Ashby. The major commercial district in Mineral County is found in Keyser, adjacent to US 220 and spreading south to New Creek. Large industrial areas are scattered throughout Mineral County. Two of the largest are the Westvaco complex in Luke and the Allegany Ballistics Laboratory near Pinto. Smaller industrial parks include the Keyser-Mineral Industrial Park and the Fort Ashby Business Park. The Greater Cumberland Regional Airport, which no longer provides commuter service, is also located in Mineral County. Major public lands in Mineral County include Jennings Randolph Lake, Larenim Park, and Camp Minco. Tertiary commercial development is scattered throughout the county. Outside the vicinity of Keyser, residential development is concentrated along WV 28 from the state line south to Fort Ashby and along Mineral CR 9 from Short Gap to WV 46 just east of Keyser.

3.1.1.2 Future Land Use

Future land use in the area is expected to remain relatively consistent with existing patterns of development, with a few exceptions. New subdivisions and commercial growth are occurring along US 220 from LaVale through Cresaptown and south of Keyser through the New Creek Valley. Newer subdivisions are also being developed along WV 28 around Wiley Ford and Fort

Ashby, on WV 46 between Keyser and Fort Ashby, and along Mineral CR 9 from Short Gap to WV 46 just east of Keyser. Hampshire County is also expecting a spillover of residents from Virginia and the Baltimore/Washington Metropolitan Area, especially as a result of Corridor H construction.

3.1.2 Socioeconomic Characteristics

The socioeconomic characteristics of the region include existing and projected population, age composition, race and ethnicity, household income, and housing. Each characteristic is discussed in the following sections.

3.1.2.1 Population

In the year 2000, the population of the five-county region was 146,179 (USCB 2000 a, b, c, d, e). As shown in Table 3.1-1, the population of the five-county region had grown to 153,225 by the year 2010, a growth rate of 4.8 percent. Population is expected to reach 157,312 by the year 2030. This will represent an approximately 7.6 percent growth in population from the year 2000.

TABLE 3.1-1
Population in the Region

County	Year 2000 Population	Year 2010 Population	Year 2030 Population Projection	Percent Change from 2000 to 2010
Allegany	74,930	75,087	77,150	0.2
Grant	11,299	11,937	12,835	5.6
Hampshire	20,203	23,964	25,108	18.6
Hardy	12,669	14,025	15,336	10.7
Mineral	27,078	28,212	29,045	4.2
Total	146,179	153,225	159,474	4.8

Sources: USCB 2000, 2010; MDP 2006.

Population varies considerably for communities within the study area. In Maryland, the 2010 population was 5,773,552, and in West Virginia, it was 1,852,994 (USCB 2010). Although West Virginia’s land area (24,078 square miles) is more than double that of Maryland’s (9,773 square miles), West Virginia has a third of Maryland’s population. Maryland’s higher population is a result of dense urban areas around the state and especially in the Baltimore metropolitan area.

Even though parts of West Virginia include large urban areas, the state is generally characterized as more rural and small town. The most populous city in Maryland is Baltimore (located approximately 140 miles east of the study area), which had a 2010 population of 620,961. The most populous city in West Virginia is Charleston, the state capital (located approximately 220 miles south of the study area), which had a 2010 population of 51,400 (USCB 2010). Both of those cities lost population between 2000 and 2010. Projections from the years 2000 through 2030 indicate that Maryland could experience a dramatic 32.6 percent increase in population, bringing it to 7,022,251 (USCB 2005). During the same period, West Virginia's population could decrease by 4.9 percent to 1,719,959 (USCB 2005).

As shown in Table 3.1-2, the most populous counties of Maryland are projected to experience large increases through 2030, while those in West Virginia are expected to decrease moderately from the year 2000. The neighboring Maryland counties of Montgomery and Prince George's have more than 850,000 residents each and are projected to experience population increases of more than 23 percent through the year 2030 (MDP 2006). Because the two counties border Washington, D.C., they offer suburban communities to people who work in the Baltimore/Washington Metropolitan Area and who value the area's numerous cultural and entertainment resources.

TABLE 3.1-2
Population by States and Largest Counties in the States

Locality	Year 2000 Population	Year 2010 Population	Year 2030 Projected Population
Maryland	**5,296,486**	**5,773,552**	**7,022,251**
Montgomery County	873,341	971,777	1,145,000
Prince George's County	801,515	863,420	985,200
West Virginia	**1,808,344**	**1,852,994**	**1,719,959**
Kanawha County	200,073	193,063	179,742
Cabell County	96,784	96,319	96,308

Sources: USCB 2000f, 2000g, 2010; MDP-Planning Data Services 2006; West Virginia-University Regional Research Institute (WVURRI) 2005

West Virginia's most populous counties for 2010 are Kanawha (193,063) and Cabell (96,319). From 2010 to 2030, they are expected to decrease in population by 10.2 percent and 0.5 percent, respectively (WVURRI 2005). Kanawha County's projected population decline is attributed to the loss of jobs in manufacturing, chemicals production, and mining. Generally, West Virginia's rural mountain character has led to sparse residential and commercial development.

Among the study area counties, Allegany has the highest population (75,087), and Mineral has the second highest (28,212). Hampshire County's population is 23,964; Hardy County's is 14,025; and Grant County's is lowest at 11,937. The most populous city in the study area is Cumberland, with a 2010 population of 20,859. Frostburg is second most populous, with a population of 9,002; Keyser is third, with 5,439; and Moorefield is fourth, with 2,554 (USCB 2010). These four cities are the centers of most commercial activity in the study area, particularly along the US 220 corridor from Cresaptown to Cumberland and farther south along the same corridor from McCoole through Keyser. Dense commercial and industrial strips and residential city-lots are common along this corridor. Population information for the region is found in Table 3.1-3.

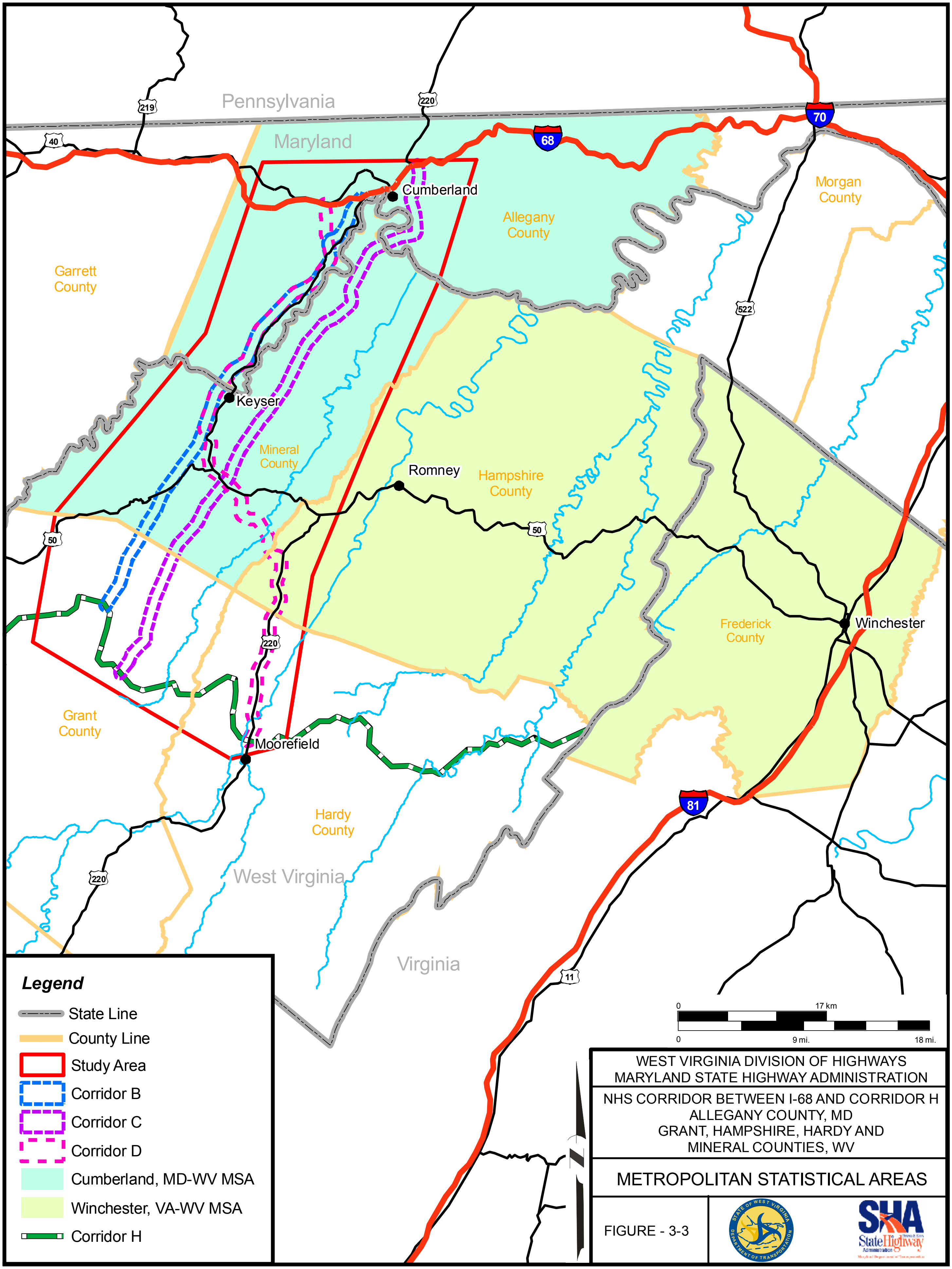
TABLE 3.1-3
Population by States and Counties in the Region

Locality	Year 2000 Population	Year 2010 Population
Maryland	**5,296,486**	**5,773,552**
Allegany County	74,930	75,087
West Virginia	**1,808,344**	**1,852,994**
Grant County	11,299	11,937
Hampshire County	20,203	23,964
Hardy County	12,669	14,025
Mineral County	27,078	28,212

Sources: USCB 2000f, 2000g; MDP 2006; WVURRI 2005; USCB 2010.

Two Metropolitan Statistical Areas (MSAs) are located within the region, as shown in Figure 3-3. The Cumberland, MD-WV MSA includes Allegany County and Mineral County. The Winchester, VA-WV MSA includes Frederick County and the City of Winchester in Virginia, and Hampshire County in West Virginia. MSAs are typically delineated using an entire county boundary and usually do not include only parts of counties. A MSA is defined by the federal Office of Management and Budget (OMB) as "a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core" (OMB 2008). For example, many people who reside in Hampshire County travel to Winchester for employment and commerce, and many residents of Mineral County travel to Cumberland for similar reasons. The creation of MSAs lends an awareness of community trends and population statistics on a regional scale.

Relative to the average population of other Maryland counties, Allegany County's population is of medium size. In addition to being the only Maryland County in the study area, it is also the



Pennsylvania
Maryland
West Virginia
Virginia
Cumberland
Keyser
Romney
Moorefield
Winchester
Garrett County
Allegany County
Morgan County
Mineral County
Hampshire County
Frederick County
Grant County
Hardy County
219
220
40
68
70
522
50
81
11
0
17 km
0
9 mi.
18 mi.
Legend
State Line
County Line
Study Area
Corridor B
Corridor C
Corridor D
Cumberland, MD-WV MSA
Winchester, VA-WV MSA
Corridor H
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY AND
MINERAL COUNTIES, WV
METROPOLITAN STATISTICAL AREAS
FIGURE - 3-3

most populous of the five counties within the region. According to projections outlined in the *Allegany County Comprehensive Plan, 2002 Update* (Allegany County Planning Commission 2002), between the years 2000 and 2020, moderate population growth within the county might be concentrated in Cumberland, Ellerslie, Frostburg, and LaVale because of existing or planned infrastructure and services. Estimates made by MDP also suggest that, between 2000 and 2030, the population of Allegany County, as a whole, will increase to 77,150 (MDP-Planning Data Service 2006).

Mineral has the largest population of the four West Virginia counties and is comparable to other medium-sized West Virginia counties. Its population is expected to experience a slight increase through 2030.

Although Grant County has the smallest population of the study area counties, its population has continued to grow since the early 1900s, with some fluctuation to lower numbers in 1930 and 1960. It was not until 1980 that the population exceeded 10,000. According to WVURRI projections, Grant County should experience a steady increase in population through the year 2030, to 12,835 (WVURRI 2005). Petersburg, the county seat, has experienced steady population growth since the 1970s.

Hardy County, like its surrounding counties, is relatively small. Since 1960, its population has steadily increased, with a slight loss in 1970. According to the WVURRI, the population of Hardy County should rise to over 15,000 by the year 2030 (WVURRI 2005).

Hampshire County's population should steadily increase to just below 24,500 by the year 2030 (WVURRI 2005). Hampshire is comparable in size to other small- to medium-sized West Virginia counties. Since 1950, Hampshire County's population has nearly doubled from 12,577 to 23,964 and is expected to grow steadily through 2030. Hampshire County is becoming an attractive vacation and seasonal home location for residents of the Baltimore/Washington Metropolitan Area (WVURRI 2005).

Only the southwestern corner of Hampshire County is within the study area. Hampshire County tends to follow population and commuting trends of adjacent Allegany County, Maryland, and Frederick County, Virginia, as opposed to its neighboring West Virginia counties of Mineral and Hardy. Similar to the counties that surround it, and except for US 50, Hampshire County lacks a major east-west road system. Many residents travel to Winchester or Cumberland for employment, shopping, and higher education.

Table 3.1-4 summarizes the socioeconomic characteristics of Maryland, West Virginia, and the counties within the study area. The largest minority populations within the project area are African American and Hispanic/Latino.

TABLE 3.1-4
Characteristics of the Population by States and Counties in the Study Area

Population Characteristic	MARYLAND	Allegany County	WEST VIRGINIA	Grant County	Hampshire County	Hardy County	Mineral County
Total Population (year 2010)	5,773,552	75,087	1,852,994	11,937	23,964	14,025	28,212
Under Age 18 (year 2010)	1,352,964	13,519	387,414	2,557	5,386	3,009	5,871
Over Age 65 (year 2010)	707,642	13,402	297,404	2,189	3,896	2,329	4,893
White (year 2010)	3,359,284	66,981	1,739,988	11,657	23,301	13,161	26,890
African American (year 2010)	1,700,298	6,232	63,124	107	288	379	846
Hispanic or Latino (year 2010)	470,632	1,126	22,268	143	264	505	226
Median Household Income (year 2010)	$68,854	$70,647	$38,218	$35,593	$31,792	$31,347	$36,571
Number of Housing Units (year 2010)	2,378,814	33,311	881,917	6,366	13,688	8,078	13,039
Homeownership Rate (year 2010)	66.6%	69.0%	74.6%	79.7%	67.6%	74.6%	76.9%
Mean Travel Time to Work in Minutes (year 2010)	25.2	31.3	25.4	25.2	35.8	25.1	27.9

Sources: USCB 2010.

3.1.2.2 Age Composition

Age composition within the study area in the year 2010 is similar from county to county. In Allegany County, 18 percent of the population was under age 18 and 17.8 percent was 65 or older. In Grant County, 21.4 percent of the population was under 18 and 18.3 percent was 65 or older. In Hampshire, 22.5 percent of the population was under 18 and 16.3 percent was 65 or older. In Hardy, 21.5 percent of the population was under 18 and 16.6 percent was 65 or older. In Mineral, 20.8 percent of the population was under 18 and 17.3 percent was 65 or older. In the year 2010, 23.4 percent of Maryland's population was under 18 and 12.3 percent was 65 or older. In West Virginia in 2010, 20.9 percent of the population was under 18 and 16 percent was 65 or older.

3.1.2.3 Race and Ethnicity

Race and ethnicity trends, which are also similar among the counties in the study area, show great disparity in the numbers of Whites and African Americans. Based on 2010 census data, in Allegany County approximately 89.2 percent of the population is White; approximately 8 percent are African American; and approximately 3 percent are other minorities. The percentage of Whites in Allegany County (89.2%) is much higher than it is in Maryland (58.1 percent), and the county's percentage of African Americans (8%) is much lower than the state's (29.4%). However, the percentage of Whites and African Americans in Allegany County is generally consistent with the other counties in the region.

Also according to the 2010 U.S. Census, Whites make up 97.7 percent of Grant County, 97.2 percent of Hampshire County, 93.8 percent of Hardy County, and 95.3 percent of Mineral County. Of the remaining minority population in each of these four counties, the majority is African American, which is generally consistent with West Virginia as a whole, where 93.9 percent are White, 3.4 percent are African American, and approximately 2 percent are other minorities.

3.1.2.4 Household Income

Except in Allegany County, median household income within the region is relatively consistent from county to county. In 2010, median household income was $70,647 in Allegany County; $35,593 in Grant County; $31,792 in Hampshire County; $31,347 in Hardy County; and $36,571 in Mineral County. Statewide, median household income was $68,854 in Maryland and $38,218 in West Virginia.

3.1.2.5 Housing

Homeownership ranges from approximately 68 to 80 percent throughout the region, with a considerable number of the area's residents living in owner-occupied housing. The median value of owner-occupied housing units ranges from a low of $105,300 in Grant County to a high of $134,100 in Hampshire County. Information on the region's housing is found in Table 3.1-5.

TABLE 3.1-5
Housing and Households in the Region

County	Housing Units	Home Ownership Rate	Median Value of Owner-Occupied Housing Units	Number of Households	Persons per Household
	Year 2010				
Allegany	33,311	69.0%	$116,800	2,877	2.34
Grant	6,366	79.7%	$105,300	4,899	2.42
Hampshire	13,688	67.7%	$134,100	9,755	2.36
Hardy	8,078	74.6%	$130,600	4,877	2.83
Mineral	13,039	76.9%	$114,700	11,308	2.41
Total	74,482	--	--	33,716	--

Source: USCB 2010

The total number of households in the region is 74,482. The number of persons per household, which ranges from 2.34 to 2.83, is expected to drop as new housing is created and family size shrinks, a common occurrence throughout the country.

3.1.3 Environmental Justice

In accordance with *Executive Order 12898*, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (Office of the President of the United States of America 1994), federal agencies are required to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income populations. Demographic information from the 2000 U.S. Census was collected for the total, minority, and low-income populations of each study-area county and its municipalities. Year 2000 block-group data were used to establish a preliminary screening threshold for environmental justice populations. Although 2010 population data are available at the census tract level, it is necessary to use counts from the 2000 U.S. Census to examine aggregated data at the block-group level because the 2010 block group data has not been released for the study area. The results of the environmental justice screening are discussed in Chapter 4.0 *Environmental Consequences*. Additional analysis will be necessary as the project moves forward.

Information provided in the previous section that summarizes the social characteristics of the study area provides an overall context for understanding potential environmental justice effects. Approximately 5 percent of the region's population is considered minority and approximately 14.2 percent have incomes below the poverty level. Table 3.1-6 provides a summary of this information. Additional information on potential environmental justice populations in the study area is found in Chapter 4.0. Included in Chapter 4.0 is block group information from the 2000 U.S. Census.

TABLE 3.1-6
Minority and Low-Income Populations in the Region (2000)

County	Year 2000 Population	Minority Population*	Minority Population as % of Total Population	Persons with Incomes below the Poverty Level	Low-Income Population as % of Total Population
Allegany	74,930	5,245	7.0%	10,149	13.5%
Grant	11,299	189	1.7%	1,820	16.1%
Hampshire	20,203	396	2.0%	3,221	15.9%
Hardy	12,669	396	3.1%	1,640	12.9%
Mineral	27,078	1,041	3.8%	3,892	14.4%
Total	146,179	7,267	5.0%	20,722	14.2%

Sources: USCB 2000 a-e
*The minority population was calculated by subtracting the number of Whites from the total population. More analysis specific to the study area is found in Chapter 4.0.

Information on minority and low-income populations in the region was updated with the release of data from the 2010 U.S. Census. That information is shown in Table 3.1-7.

TABLE 3.1-7
Minority and Low-Income Populations in the Region (2010)

County	Year 2010 Population	Minority Population*	Minority Population as % of Total Population	Persons with Incomes below the Poverty Level	Low-Income Population as % of Total Population
Allegany	75,087	8,106	10.8%	11,424	15.2%
Grant	11,937	280	2.3%	1,522	12.8%
Hampshire	23,964	663	2.8%	3,867	16.1%
Hardy	14,025	864	6.2%	2,055	14.7%
Mineral	28,212	1,322	4.7%	3,730	13.2%
Total	153,225	11,235	7.3%	22,598	14.7%

Sources: USCB 2010
*The minority population was calculated by subtracting the number of Whites from the total population. Considerably more analysis specific to the study area is found in Chapter 4.0.

From 2000 to 2010, population in the area grew. As overall population grew, so, too, did environmental justice populations. In 2000, the area's minority population was 7,267. By 2010, it had grown by approximately 55 percent, to 11,235. In 2000, the number of persons with incomes below the poverty level was 20,722. By 2010, that number had grown by approximately 9 percent, to 22,598.

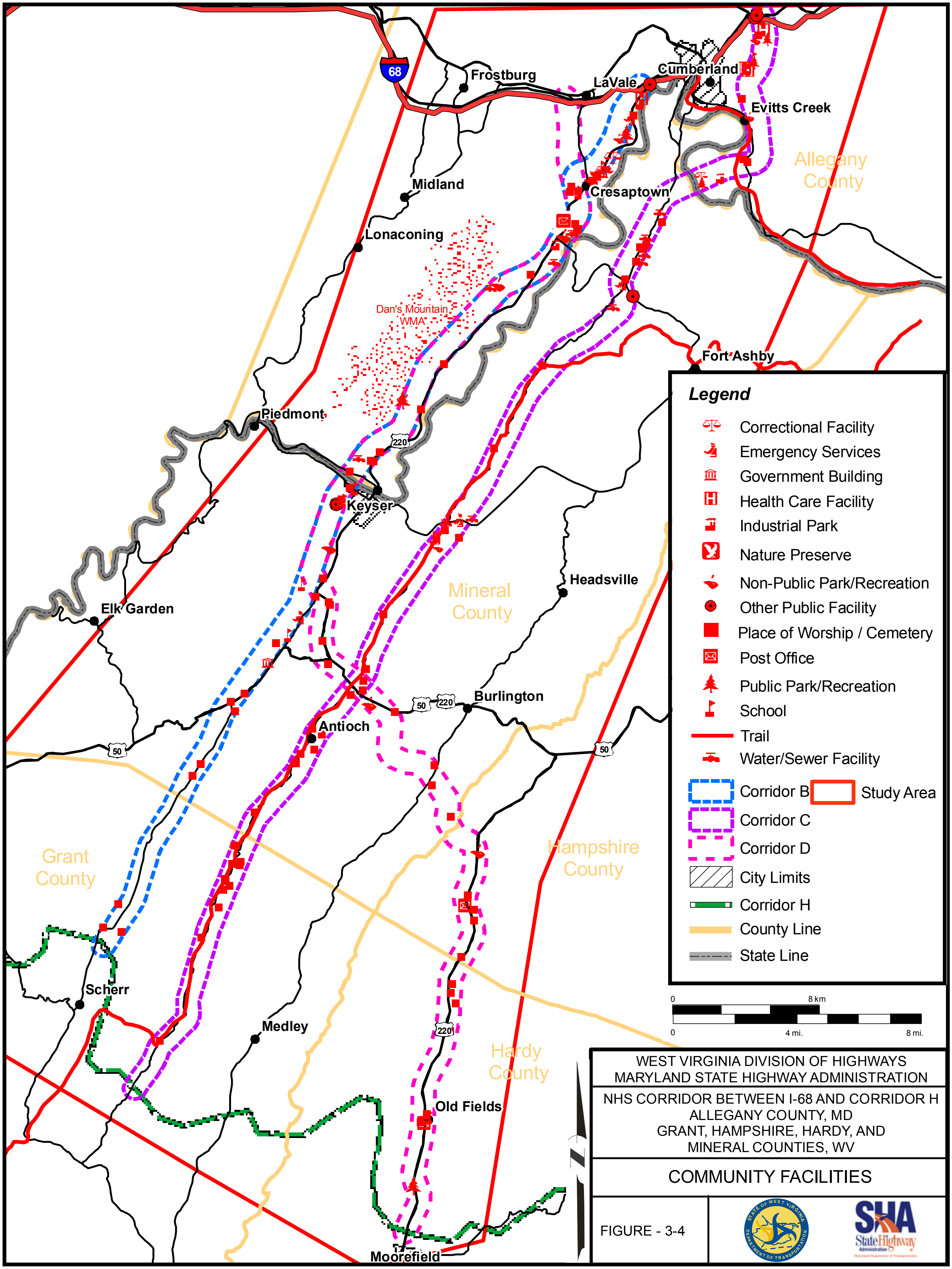
3.1.4 Community Facilities and Services

Typical community facilities found in the study area include government buildings, post offices, emergency services buildings, healthcare facilities, parks and recreation areas, water and sewage treatment plants, public schools and colleges, libraries, correctional facilities, cemeteries, and places of worship. More than half of the community facilities in the study area are places of worship or cemeteries, which are scattered throughout the project region. The community facilities are shown on Figure 3-4.

Maryland

Allegany County is served by 22 public schools: 14 elementary schools, four middle schools, and four high schools. The county is also served by one technical school (the Center for Career and Technical Education), and two private schools that are recognized by the Maryland Department of Education: Bishop Walsh High School and Calvary Christian Academy. In addition, a number of private schools are operated by religious establishments. Allegany College of Maryland, a two-year school, and Frostburg State University, a four-year school, serve the higher education needs of the region.

Six full-service libraries make up the Allegany County Library System: two in Cumberland, with the main branch on Washington Street, and one each in Frostburg, LaVale, Lonaconing, and Westernport. Since 1960, the library system has had a bookmobile, which makes scheduled stops at schools and daycare centers, nursing homes, and neighborhoods throughout the county. The bookmobile is headquartered at the LaVale branch library along Alternate US 40. The library facilities at Allegany College of Maryland and Frostburg State University are also available to the public.



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

COMMUNITY FACILITIES

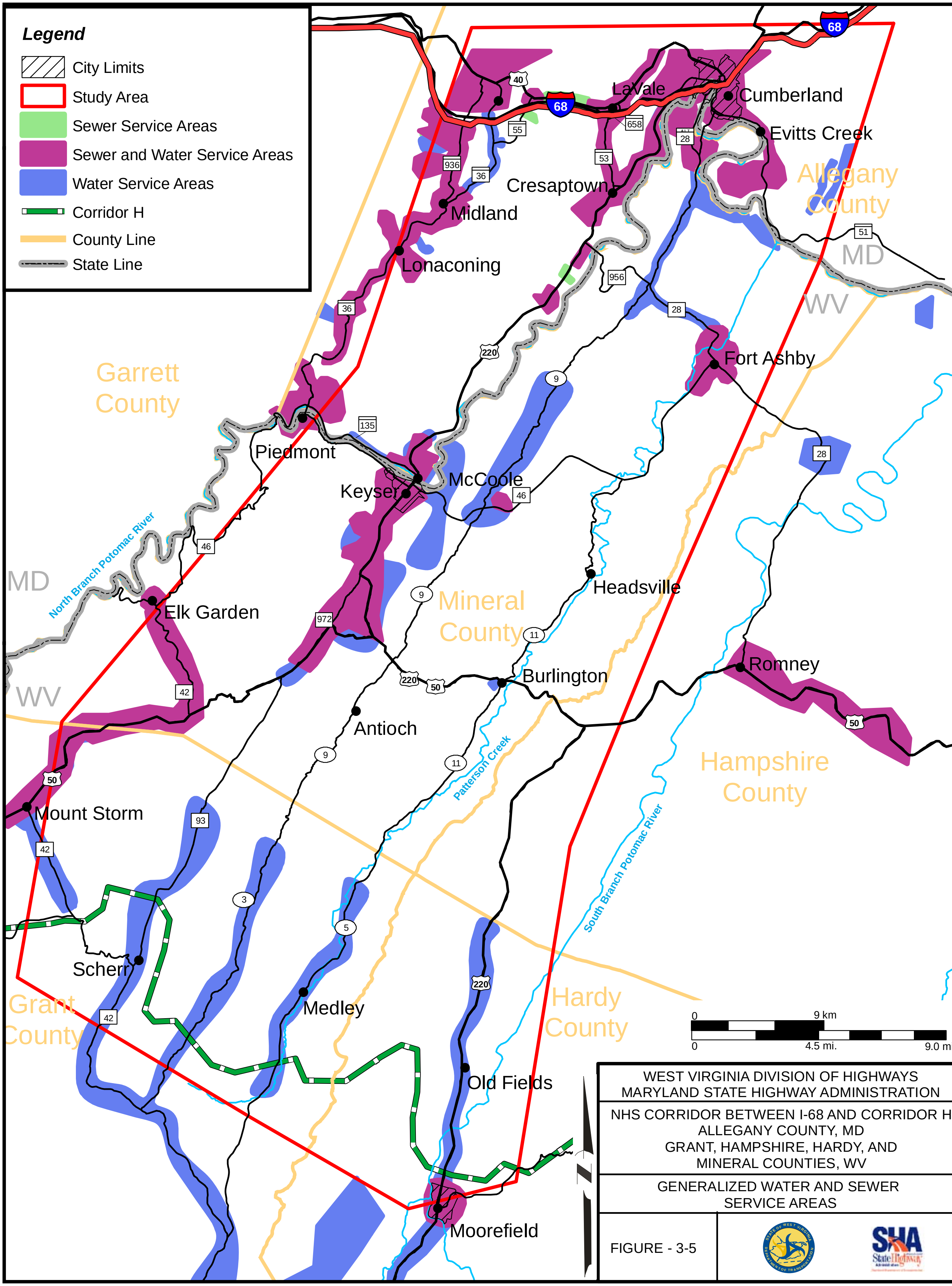
FIGURE - 3-4

There is one hospital in Allegany County: the Western Maryland Health System, a consolidation of Sacred Heart Hospital and Memorial Hospital, located on Willowbrook Road in Cumberland. The Willowbrook Road corridor is home to educational, health, and recreational facilities and is the potential site of a major commercial development, Willowbrook Market Place, which would provide large-scale shopping, dining, and entertainment for the region.

With an approximate size of 9,600 acres, Dans Mountain WMA is the largest tract of contiguous state-owned forestland in Maryland. A state park with a swimming pool, playing courts, and an overlook called Dan's Rock are separate MDNR landholdings located near the WMA. The Chesapeake and Ohio Canal National Historical Park is a facility of regional and national importance operated by the National Park Service (NPS). Large areas of the park are located in Allegany County and extend eastward. Other public parks and recreational areas in the county include Rocky Gap State Park, New Germany Park, Green Ridge State Forest, and Constitution Park. A number of hiking trails are located throughout the county, some of which follow the Chesapeake and Ohio Canal Towpath and abandoned railroad beds.

One state police barracks, a county sheriff's department, the City of Cumberland and City of Frostburg police departments, and the Lonaconing and Westernport local police departments are located in Allegany County. Fourteen fire companies (some of them volunteer) provide emergency medical and fire rescue services. The county is also home to three large prisons: the Western Correctional Institute at Potomac Park, the Federal Correctional Institution at Mexico Farms, and a county detention center at Cresaptown.

Many of the populated areas in Allegany County are provided with water service and sewage service *via* public (i.e., Allegany County Public Works) and private systems. Water service areas use a common source for obtaining a water supply. Sewer service areas discharge to a common treatment plant. Water and sewer systems are found in the cities of Cumberland, Frostburg, and Westernport and throughout the George's Creek Valley, Barton, LaVale, McCoole, Mexico Farms, and Rawlings Heights. Figure 3-5 shows the generalized limits of public water and sewer service in the study area.



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

GENERALIZED WATER AND SEWER
SERVICE AREAS

FIGURE - 3-5

West Virginia

There are two general aviation airports in the West Virginia portion of the study area: Greater Cumberland, a regional airport that once provided passenger service, and the Grant County Airport near Petersburg.

Six public schools are located in Grant County: three elementary schools, one high school, one combined high school/elementary school, and one technical school. One private school and the South Branch Center in Petersburg (which offers Associate degrees from Shepherd College) are also located in the county, as are two public libraries: the Allegheny Mountaintop Public Library in Mount Storm and the Moomau-Grant County Public Library in Petersburg.

One of three hospitals in the West Virginia portion of the study area, Grant Memorial Hospital, is located in Petersburg. Grant County has a shared West Virginia State Police detachment in Moorefield and a county sheriff's office and a municipal police force in Petersburg. Grant County also has four fire departments and one emergency medical services unit.

Grant County has no state forests or state parks. The Potomac WMA, which is owned by the U.S. Forest Service and includes the Dolly Sods Wilderness Area, is located in the county. The Monongahela National Forest, found in the southern part of the county, offers camping sites and hiking trails. Three public fishing and boating lakes, including Mount Storm Lake, which is the largest, are located in the western part of the county. The South Branch Potomac River is used for recreational boating and rafting.

Parts of Grant County are served by two public service districts (PSDs). The Mountain Top PSD provides water and sewer service to Bayard, Gormania, Sulphur City, and Mount Storm in Grant County and to Elk Garden and Hartmansville in Mineral County. The Grant County PSD provides water service to Dorcas, Maysville, North Fork, Hedrick Hill, and Johnson Run. The City of Petersburg provides water and sewer service within its limits.

Ten public schools are located in Hampshire County: six elementary schools, two middle schools, one high school, and one technical school. The county also includes three private schools and two public libraries: the Capon Bridge Public Library in Capon Bridge and the Hampshire County Public Library in Romney. Romney is also home to the West Virginia School for the Deaf and Blind and Hampshire Memorial Hospital, one of three hospitals in the West Virginia study area.

The six WMAs located in Hampshire County provide outdoor recreation for county residents and attract other residents of the region for hunting, fishing, boating, and other activities. These WMAs, which are not within the study area, include Edwards Run WMA, Fort Mill Ride WMA, Nathaniel Mountain WMA, Short Mountain WMA, Springfield WMA, and Wardensville WMA. Together, they comprise more than 82,000 acres. Wardensville, at 55,327 acres, is the largest.

Hampshire County has a West Virginia State Police detachment in Romney, a county sheriff's department, and the Romney and Capon Bridge police departments. Eight fire companies that provide emergency medical and fire rescue services are found in Romney, Augusta, Springfield, Slanesville, Levels, North River, Capon Springs, and Capon Bridge. The Potomac Highlands Regional Jail is located in Augusta. It is the only correctional facility in the study area in West Virginia.

Hampshire County is served by two PSDs: the Green Spring PSD and the Central Hampshire PSD. The Green Spring PSD provides water service to the Green Spring Valley, the town of Greenspring, and the town of Springfield. The Central Hampshire PSD provides water and sewer service to the outskirts of Romney, Shanks, Frenchburg, and Augusta. According to the *Hampshire County Comprehensive Plan* (Hampshire County Planning Department 2003), the Green Spring PSD is to undergo a $3 million extension that will combine it with the Greenspring/Springfield facility. Eventually, water service will be extended along Goldsboro Road off WV 28, and sewer service will be extended to Springfield. Plans for the Central Hampshire PSD include extending water service to Pleasantdale Acres along US 50 and three miles along Heidi Cooper Road. The PSD could also serve the new Capon Bridge Tech Park. The cities of Romney and Capon Bridge provide water and sewer service to their municipal areas.

Six public schools are located in Hardy County: four elementary/middle schools and two high schools. One private school is also located in the county. Eastern West Virginia Community and Technical College offers Associate degrees and a nursing program degree. Hardy County has two public libraries: the East Hardy County Public Library in Baker and the Hardy County

Public Library in Moorefield. A Bookmobile provides pickup and delivery service to area schools and churches.

Two community parks are located in Moorefield and Wardensville, in Hardy County. In addition, Lost River State Park near Mathias, the Trout Pond Recreation Area between Lost River and Wardensville, and the Kimsey Run Dam near Lost River provide outdoor recreation for local, county, and regional residents. The eastern part of the county contains part of the George Washington National Forest and small parts of Nathaniel Mountain and Short Mountain public hunting areas. A relatively new community area is Welton Park, south of Moorefield. Numerous community centers are also found throughout the county.

Hardy County shares a West Virginia State Police detachment with Grant County, located near Moorefield, and also has its own county sheriff's office. Two municipal police departments, Moorefield and Wardensville, are located in Hardy County, and four fully volunteer fire companies, which also provide ambulance service, are located in Moorefield, Mathias, Baker, and Wardensville. Hardy County has no hospital.

Parts of Hardy County are served by the Hardy County PSD. Moorefield and Wardensville have their own water and sewer systems. Other water systems include the Rig Water Association, the Critestown Water Association, and Caledonia Heights. On April 1, 2006, the Hardy County PSD was given control of Caledonia Heights' sewer lines.

Thirteen public schools are located in Mineral County: nine elementary/intermediate and middle schools, two high schools, and two technical/alternative schools. Mineral County is also home to one private school and Potomac State College of the West Virginia State University system, which is located in Keyser.

Mineral County has four public libraries. The Mineral County Library Association comprises the main library in Keyser and branches at Burlington and Fort Ashby. A public library can also be found in Piedmont. Potomac Valley Hospital, one of three hospitals in the West Virginia study area, is located in Keyser along US 220.

Public recreation areas in the county include Jennings Randolph Lake, Larenim Park, Camp Minco, Barnum Whitewater Area, Mill Meadow, and Dam Site 21. Many towns in the county provide local parks and playgrounds, including Keyser's North End, South End, East End, and West End parks; Ridgeley's playing fields; and public pools owned by Keyser and Piedmont.

The Allegany WMA exists as two separate tracts that total more than 6,000 acres: (1) a large tract (5,034 acres) of public land approximately four miles southwest of Keyser, and, (2) a smaller tract (1,168 acres) 6 miles north of Elk Garden.

A West Virginia State Police detachment is located east of Keyser. The Mineral County Sheriff's Department is located in downtown Keyser. Keyser, Ridgeley, and Piedmont each have a local police force. Potomac State College has a campus police department. At least 13 fire and rescue departments (some volunteer) provide emergency medical and fire rescue services.

Mineral County has five PSDs: Fort Ashby, Fountain, Frankfort, New Creek, and Mountain Top. The Fort Ashby PSD provides water and sewer service to Fort Ashby; the Fountain PSD provides water service to Fountain; and the Frankfort PSD provides water and sewer service to Short Gap and Patterson Creek. The New Creek PSD provides sewer service for the areas along Old New Creek Drive, Mount View, Stony Run Road, and Limestone. The Mountain Top PSD, which originates in Grant County, provides water and sewer service to Elk Garden and Hartmansville. Carpendale, Keyser, Mountainaire Village, Piedmont, and Ridgeley have their own municipal water and sewer service. Knobley Estates has its own sewer service, and the Pinnacle and Applewood subdivisions have their own water system. The New Creek Water Association and the Wiley Ford Water Company are providers of water service to their respective localities. The Burlington Children's Home and the Lakewood Estates have their own small water systems.

3.1.5 Economic Characteristics

3.1.5.1 Employment – Regional/Study Area

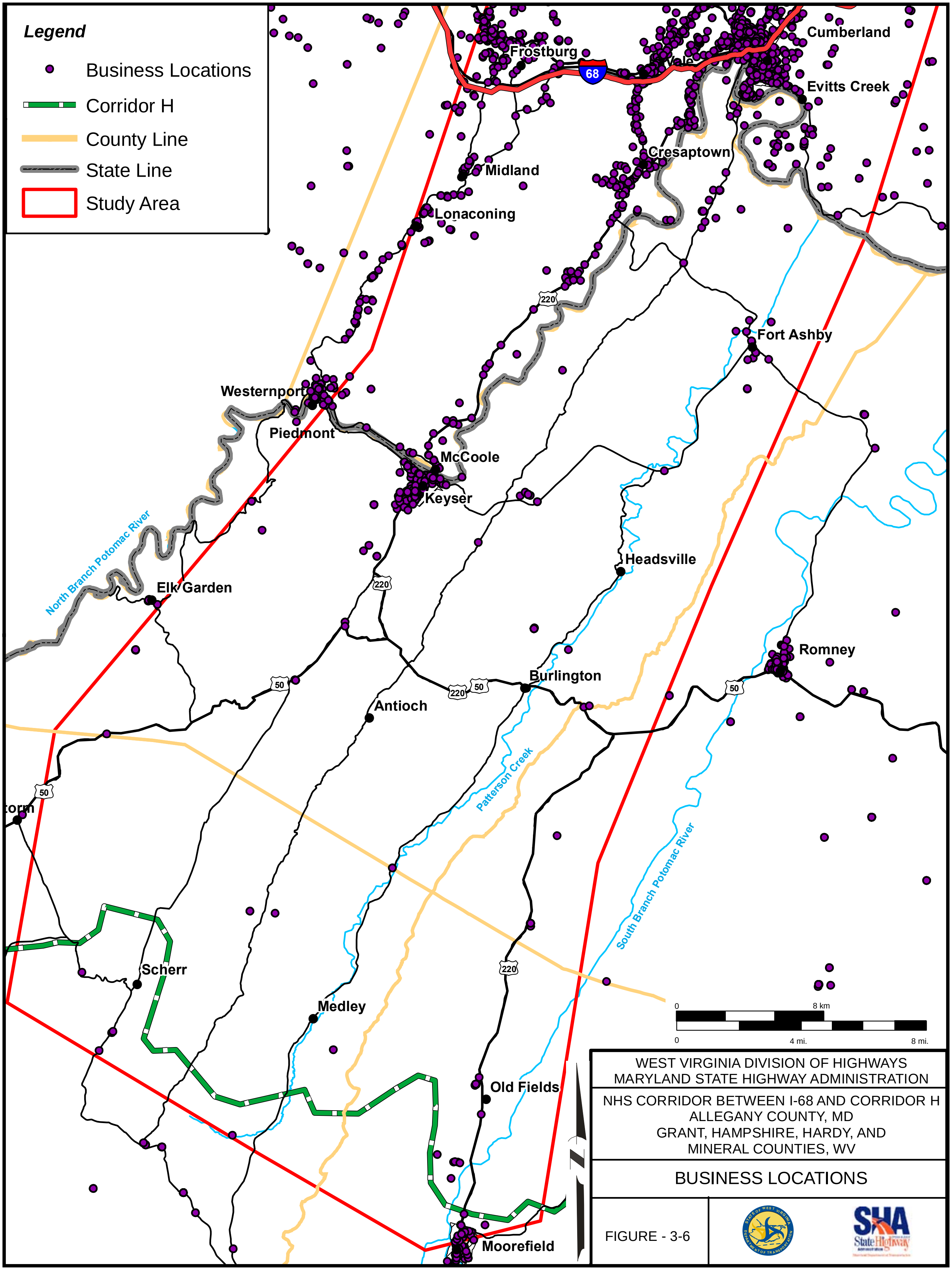
Although jobs can be located anywhere people are, major employment centers in the region are located in and around Cumberland, Frostburg, Cresaptown, Keyser, McCoole, Fort Ashby, Moorefield, and Westernport. Because the settlement patterns of the area followed specific paths, employment is unevenly distributed and the major employers are concentrated in certain communities. Figure 3-6 shows the business locations in the area, and the top employers in each county within the study area are listed in Table 3.1-8.

TABLE 3.1-8
Top 5 Employers by County in 2006

County	Largest Employers	Numbers of Employees
Allegany County	1. Western Maryland Health System	2300
	2. New Page	1200
	3. ATK Tactical Systems Company, LLC	1100*
	4. CSX Transportation	1000
	5. Frostburg State University	825
Grant County	1. Allegheny Dimension	580
	2. Grant Memorial Hospital	300
	3. Virginia Electric and Power Company	300
	4. Grant County Board of Education	175
	5. Allegheny Wood Products, Inc.	165
Hampshire County	1. Hampshire County Board of Education	390
	2. Hampshire Memorial Hospital, Inc.	150
	3. West Virginia Schools for the Deaf and Blind	125
	4. Potomac Comprehensive Diagnostic Guidance Center	75
	5. Genesis Eldercare Network Services	75
Hardy County	1. Wal-Mart Associates, Inc.	250
	2. American Woodmark Corporation	210
	3. Pilgrim's Pride Corporation of West Virginia	190
	4. Hardy County Board of Education	125
	5. CPBEC, Inc.	n/a
Mineral County	1. ATK Tactical Systems Company, LLC	1100*
	2. Mineral County Board of Education	545
	3. Wal-Mart Stores, Inc.	540
	4. Potomac Valley Hospital of West Virginia	200
	5. West Virginia University's Potomac State College	170

Source: Dun & Bradstreet, Inc. 2006
* Indicates total number of employees in both Allegany and Mineral counties

According to the U.S. Department of Labor, the labor force of Allegany County totals approximately 37,000, with an unemployment rate of 7.6 percent (2012). Major employers in the county include Western Maryland Health System, New Page (a paper and pulp production company), ATK Tactical Systems, CSX Transportation, and Frostburg State University. The major employment occupations are management, professional and related services; sales and office; and service.



Legend
Business Locations
Corridor H
County Line
State Line
Study Area
Frostburg
Vale
68
Cumberland
Evitts Creek
Cresaptown
Midland
Lonaconing
Fort Ashby
Westernport
Piedmont
McCoole
Keyser
North Branch Potomac River
Elk Garden
Headsville
Romney
Burlington
Antioch
Patterson Creek
South Branch Potomac River
Scherr
Medley
Old Fields
Moorefield
220
50
0
8 km
4 mi.
8 mi.
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
BUSINESS LOCATIONS
FIGURE - 3-6

Allegany County has experienced a 50 percent decline in manufacturing and transportation jobs and an identical 50 percent increase in professional and business services since 1950. Much of the employment is centered in the City of Cumberland, with smaller employment clusters in Frostburg and LaVale. Almost 8,000 people work in the educational, health, and social services sector (Dun & Bradstreet, Inc. 2006). Tourism is also becoming more prevalent in Allegany County at historic sites like the Chesapeake and Ohio Canal, the National Highway (US 40), and the Western Maryland Railroad Station in Cumberland. The area's location on regional and national hiking/biking networks also contributes to the tourism industry. In the western part of the county, it is still possible to find mining operations.

Allegany County has eight modern industrial parks and participates in the Historically Underutilized Business Zones (HUBZones) Empowerment Contracting Program. The HUBZones program is an effort by the U.S. Small Business Administration to help small businesses in urban and rural communities gain preferential access to federal procurement opportunities. Two HUBZones are located in the county, one each in South Cumberland and Frostburg. Three Maryland Enterprise Zones have also been designated in the county. The Maryland Enterprise Zone program is administered by the Maryland Department of Business and Economic Development. Businesses locating in these zones may be eligible for income tax credits and real property tax credits in return for job creation and investments made in the zones.

Although it is not the county's largest employer, the 1,600-acre Allegany Ballistics Laboratory (ABL), located just east of US 220 along MD 956 near Pinto, is a major employer for Allegany and Mineral counties. The facility is owned by the U.S. Navy and ATK Tactical Systems Company, LLC. ATK manufactures products for the U.S. Department of Defense but has been expanding into the commercial market. A spokesperson for ATK has stated that the vast majority of raw materials, explosive ingredients, and finished products are shipped to and from ABL *via* US 220 (approximately 30 shipments per day). The U.S. Navy is also in the process of adding government and non-government space to the office complex. No existing corridor will directly impact the ABL property.

Specific to economic development in Maryland, PFAs can act as a catalyst for economic development and redevelopment by supporting Smart Growth in existing communities. Smart

Growth supports established communities and locally designated growth areas while protecting rural areas and limiting sprawl. In 1997, the Maryland General Assembly passed amendments to the *Economic Growth, Resource Protection, and Planning Act of 1992*. Each county is required to pinpoint locations, through the use of a comprehensive plan, that are eligible for state funding. In Allegany County, the PFAs consist of areas served by public water and sewer and industrial, municipal, and enterprise zones. They are generally found in the western half of the county along the US 220 and MD 36 corridors and around the cities of Cumberland and Frostburg. The PFAs are the focus for growth-related infrastructure, state investment, economic development, and future growth. The PFAs were discussed in more detail in Chapter 1.0 *Purpose and Need Statement*. Geographic boundaries of the PFAs in Allegany County are shown in Figure 1-7.

Major employers in Grant County include Allegheny Dimension, Grant Memorial Hospital, and Virginia Electric and Power Company. The labor force totals 5,300. The unemployment rate was 5.3 percent in 2006.

The major employment occupations are production, transportation, and material moving; and management, sales, and service. From 2001 to 2004, Grant County lost over 1,000 jobs, an 8 percent decrease. Construction, manufacturing, and professional and business services experienced the sharpest declines. The decline is due in part to the closing of a Perdue Farms poultry processing plant in Petersburg in 2002 and the completion of a large utility construction project at Mount Storm. The sectors experiencing the highest job growth were information, natural resources and mining, repair and maintenance, personal services, and non-profits. Agriculture still accounts for 9 percent of total employment, with poultry the dominant farming livestock in the county (West Virginia University Research Corporation [WVURC] 2006a).

In Grant County, approximately 100 acres have been developed as modern industrial parks by the Grant County Development Authority. The Airport Industrial Park is a 60-acre facility adjacent to the Grant County Airport and the South Branch Valley Railroad. The Johnson Run Industrial Park is adjacent to the Airport Industrial Park and has almost 40 acres of usable land. Together, the two properties are being marketed as the Grant County Industrial Park. Two other properties, the Mountain Top Industrial Park at Mount Storm in the northwestern part of the county and the Borrow Site in Petersburg, are also being developed for use. They comprise about 250 acres. Although neither facility has tenants, both properties have water and sewer service already in place.

Major employers in Hampshire County include the Hampshire County Board of Education, the Hampshire Memorial Hospital, and the West Virginia Schools for the Deaf and Blind. The labor force totals 9,100. The unemployment rate was 3.3 percent in 2006. The major employment occupations are production, transportation, and material moving; and management, professional, and related services.

Hampshire County has two modern industrial parks. Hampshire County Industrial Park, located in Romney adjacent to WV 28, covers approximately 58 acres, half of which are occupied. Capon Bridge Industrial and Technology Park, located about one mile from Capon Bridge in the southeastern portion of the county, is a 90-acre facility adjacent to US 50.

Hampshire County added 281 jobs from 2001 to 2005, with a 1.8 percent growth rate. Construction sector jobs showed a rate of increase of more than 10 percent, and professional and business services showed an increase of more than 8 percent. Job losses occurred in natural resources and mining and in manufacturing. Agriculture accounts for 9.7 percent of the county's total employment. As in Grant and Hardy counties, poultry farming dominates (West Virginia University Research Center [WVURC] 2006b).

Major employers in Hardy County include Wal-Mart, American Woodmark Corporation, and Pilgrim's Pride. The labor force totals 6,400. The unemployment rate was 4.3 percent in 2006. Nearly a third of the labor force is employed in production, transportation, and material moving. Hardy County has three modern industrial parks: Wardensville Industrial Park, Robert C. Byrd Industrial Park, and Moorefield Industrial Park. The Wardensville Industrial Park is a 29-acre parcel located north of Wardensville on WV 55 and 259. The Robert C. Byrd Industrial Park is a 160-acre facility located on WV 55 one mile from Moorefield. The Moorefield Industrial Park is a 50-acre facility on US 220 just south of Moorefield.

Hardy County added 238 non-farm jobs from 2004 to 2005. Since 2001, Hardy County has had an average annual job growth rate of 2.4 percent, greater than those of the surrounding counties and the state of West Virginia (0.3%). It has the largest growth rate in the Potomac

Highlands Region. Manufacturing is dominated by the poultry processing industry. Pilgrim's Pride Corporation of West Virginia, located in Moorefield, was one of the largest employers in 2006. Agriculture accounts for 9.1 percent of employment in Hardy County (WVURC 2006c).

Major employers in Mineral County include ATK Tactical Systems, the Mineral County Board of Education, and Wal-Mart. The labor force totaled 13,600, with an unemployment rate of 4.6 percent in 2006. The major employment occupations are management, professional, and related services; sales and office; and service.

Mineral County has three modern industrial parks and three sites under development. The existing industrial parks include Fort Ashby Business and Technology Park, Keyser Industrial Park, and the Robert C. Byrd Hilltop Complex. The sites under development are the Cumberland Regional Airport Business Park, the Keyser CSX site, and the Maryland CSX Yard site. The existing industrial parks provide more than 300 acres of industrial land for the business community.

Mineral County has added 236 jobs since 2001, a growth rate of about 0.9 percent, which is greater than those of the surrounding counties and the state of West Virginia. Professional and business services experienced a decline of over 10 percent, and other services (repair and maintenance, personal services, and non-profits) experienced losses of over 5 percent. Growth was found in construction, education and health services, financial activities, and manufacturing (WVURC 2006d).

Hampshire and Hardy counties experienced the sharpest job growth in the study area, and Grant County experienced the least. From 2001 to 2004, professional and business services and construction jobs declined more than 10 percent in the Potomac Highlands Region (WVURC 2005a, b). Manufacturing and information services also showed a noticeable decline. Job growth could be found in financial activities; education and health services; and trade, transportation, and utilities sectors. Agriculture still accounts for 9.4 percent of the Potomac Highlands employment.

3.1.5.2 Travel Times

Because most daily automobile travel is work-related, travel times are often considered a function of economic conditions in the area. Trends in travel times vary among the counties in the region. In the Allegany County study area, travel time to work is less than 20 minutes for 4,154 people and more than 20 minutes for 2,403 people. Compared to the Maryland statewide average of 25.2 minutes, travel time is somewhat higher for study area commuters. Because public transportation is limited throughout Allegany County, most people use a personal vehicle as their means of transport to work.

Travel time to work is greater than 20 minutes for 551 people living in the Grant County study area and less than 20 minutes for 212 people. Travel time in the county is similar to the statewide average of 25.4 minutes. In the Hampshire County study area, 254 people travel more than 20 minutes to work and only 73 have less than 20-minute travel times, making theirs the longest average travel time for study area commuters. About 922 people travel less than 20 minutes to work in the Hardy County study area and about 598 people travel more than 20 minutes. The majority of the people in the Mineral County study area (4,196 people) travel longer than 20 minutes to work and about 3,292 people travel less than 20 minutes to work. In all of these counties, the majority of commuters use a personal vehicle as their means of transportation to work, due to a combination of limited public transportation and the distance traveled to work.

3.2 Cultural Resources Setting

Cultural resources include pre-contact and historic period archaeological sites and above-ground historic structures and districts. Pre-contact archaeological sites consist of areas where culturally modified objects or features can be found dating from the Paleoindian period (12,000-8,000 BC) to approximately the Contact period (*circa* [*ca.*] 1550-1750). Historic period archaeological sites consist of subsurface historic period structures or artifacts that date from approximately the Contact period up to 1955. Potential above-ground historic resources are considered to be any standing structure, object, or above-ground cultural feature that is 50 years of age or older. Through the continuation of the *Section 106* process, cultural resources will be studied in more detail during Tier Two of the project.

3.2.1 Archaeological Resources

In order to evaluate the potential for archaeological resources within the study area, a staged methodology was developed. The initial archaeological research undertaken during Tier One of the project included the development of pre-contact and historic period archaeological resource sensitivity maps within a GIS. The sensitivity maps were based on the concept that the spatial distributions of cultural remains represented by archaeological sites are the result of human decision-making activities within environmental conditions. Background research of historic maps, atlases, and records; literature, environmental documentation, and archaeological site reviews; and windshield surveys were used to develop the sensitivity maps. The sensitivity maps were developed during the alternatives selection process in order to provide preliminary information about archaeological resources that might be expected in the study area. Subsequently, this allows for an assessment of the relative potential for impacts within each corridor.

3.2.1.1 Pre-Contact Period Archaeological Resources

Previously recorded information about pre-contact period archaeological sites in the region was utilized for the development of site distribution patterning during the development of the archaeological resource sensitivity mapping and Phase I archaeological survey methodology. The project region is characterized mainly by rolling rural agricultural land punctuated by population centers located at Cresaptown, Cumberland, and McCoole in Maryland and Keyser, Romney, Moorefield, and Petersburg in West Virginia. The types of pre-contact period archaeological resources expected in the study area might include lithic scatters, habitation sites (e.g., short-term camps, villages, base camps), quarries, procurement sites/workshops, earthworks/mounds, burials, petroglyphs, caves/rockshelters, and isolated artifacts.

Based on the presence of numerous previously identified archaeological sites that are associated with all periods of the pre-contact period, it is clear that the region was used continuously throughout the pre-contact period and that there is potential for additional archaeological sites to be present. The study area exhibits rugged topography with parallel, steep-sided, and high ridges running southwest to northeast. Terraces, floodplains, and, to a lesser degree, gently sloping hillsides have the highest potential to contain pre-contact period archaeological sites because these are the topographic landforms that comprise nearly level, well-drained land proximal to water sources.

3.2.1.2 Historic Period Archaeological Resources

Previously recorded information about historic period archaeological sites in the region and historic maps and atlases were utilized for the development of site distribution patterning during the development of the archaeological resource sensitivity mapping. Data were collected for historic archaeological resource types that had been identified as regionally important by previous surveys and by the newly collected data. The study area contains potential historic resources associated with residential, commercial, industrial, and agricultural activities. Most of the historic commercial/residential development in the region was situated near transportation corridors and their crossings and the population centers. Historic agricultural sites in the area include a number of farmsteads and early settlements. Of particular importance are locations where historic maps indicate that buildings, features, or events once occurred but are no longer extant.

The types of historic period archaeological resources expected in the study area might include artifact scatters; house, farmstead, church and other building ruins and features; cemeteries and graves; military-related, especially Civil War era, ruins and features; industrial ruins and features related to mills, tanneries, mining, lumbering, brick and iron production; and transportation-related ruins related to canals, roads, and railroads. Due to the geographic, topographic, and soil constraints in the study area, agriculture has played much less of a role in the historic period land use of the area than in adjoining regions; therefore, the potential for agricultural-related historic period archaeological resources is less than that of industrial- and transportation-related resources. Based on the late settlement of the study area, there is better potential for the identification of historic period archaeological resources related to the later periods of historic land use when transportation-related advancement into the area made industrial ventures such as mining and logging economically lucrative, and population and land use in the study area increased.

3.2.2 Historic Resources

The area contains a wide range of historic resource types, including farmsteads, residential, commercial, and industrial structures. The resources are of national, state, and local importance. The locations of resources listed and eligible for inclusion on the NRHP within the area, over 260 of them, are summarized in Table 3.2-1 and shown on Figure 3-7.

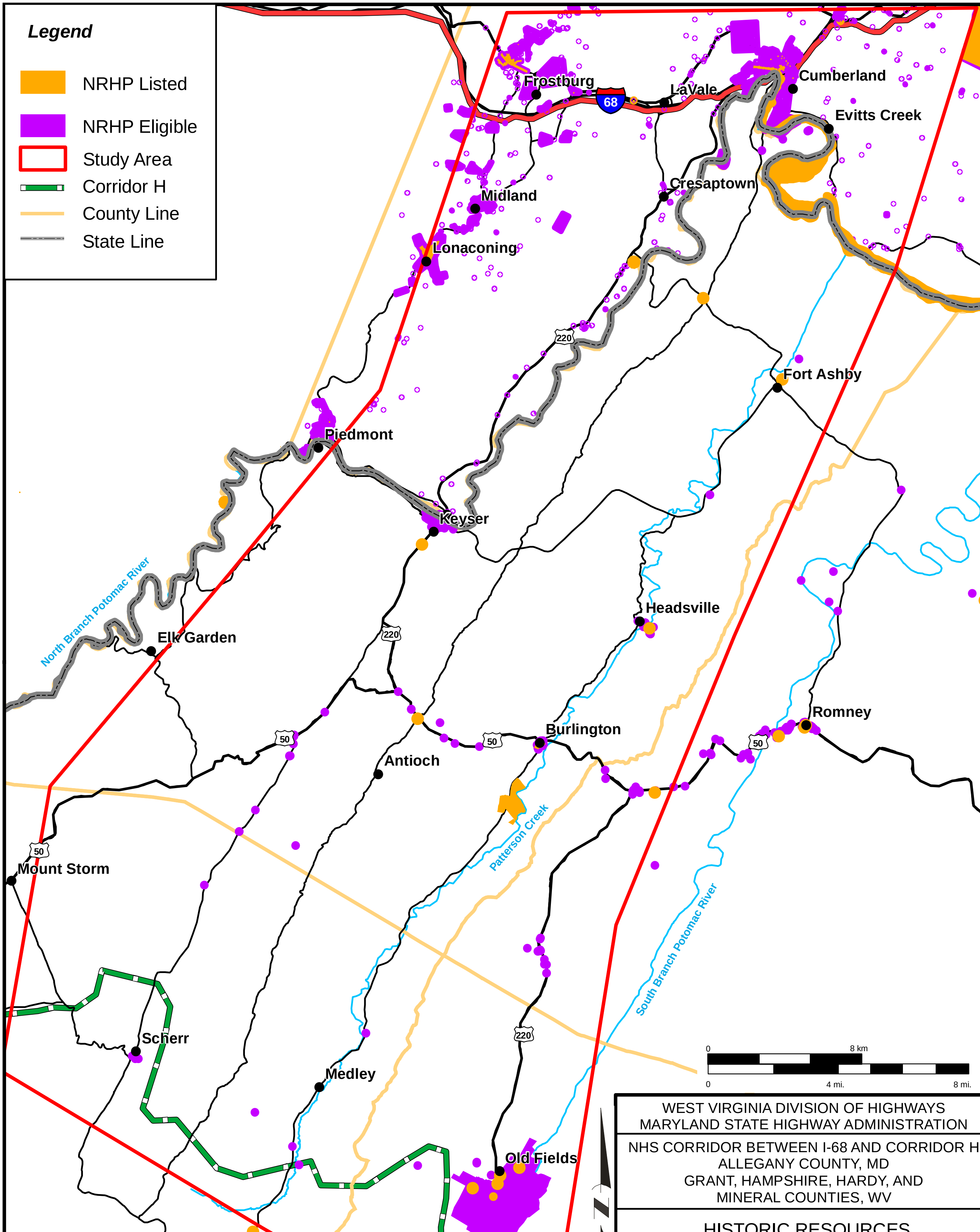
TABLE 3.2-1
Historic Resources in the Area

County	Listed on the NRHP	Determined Eligible for the NRHP	Total Historic Resources	Representative Types of Resources
Allegany	41	29	70	Railway R-O-W, canal-related, Mexico Farms landing field, toll house, farmsteads, farmhouses, other residences, houses of worship, commercial and civic buildings, log houses, cemeteries, schools, and historic districts
Grant	2	7	9	Farmsteads and residences
Hampshire	5	98	103	Farmsteads, residences, and commercial buildings
Hardy	21	7	28	Farmsteads, residences, commercial and civic buildings, battlefield grounds, cemeteries, and historic districts
Mineral	10	43	53	Farmsteads, residences, log houses, commercial and civic buildings, schools, cemeteries, churches, and historic districts
Total	79	184	263	

As evidenced by the number of NHRP properties identified in the area, the area is rich in historic resources. In addition to properties already listed or determined eligible for the NRHP, there are many others that may be determined eligible as studies progress.

3.2.2.1 Early Agricultural Development (1615-1815)

The early history of the area reflects the struggles among early land grant holders to justify their claims and settle the colonies. Most of the area was included within Virginia's Northern Neck, a 1664 land grant from England's Charles II to Thomas, Lord Culpepper, totaling 2,800 square miles (or approximately 6,000,000 acres). The grant encompassed all land between the



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

HISTORIC RESOURCES

FIGURE - 3-7

Rappahannock and Potomac rivers as far as their headwaters. Culpepper and his grandson, Thomas, Lord Fairfax (who would inherit the land grant), interpreted the grant to mean all land to the source of the North Branch Potomac River (Wolfe 1974). Maryland's proprietor, Lord Baltimore, also claimed a portion of the same land from an earlier grant. In 1632, Charles I granted Lord Baltimore all land south of the Pennsylvania border to the Potomac River. Lord Baltimore considered his territory to include all lands north of the Potomac River's South Branch, putting him at odds with Fairfax (Ware 1991).

Despite the competing claims, settlement began in the South Branch Valley about 1725, making it the oldest site of Euro-American settlement in what is now West Virginia. By 1740, families were firmly established along the valley's rich bottom land (North 1998). Permanent Euro-American settlers came to western Maryland at about the same time (Ware 1991). The initial settlers constructed primarily one or two room hall-and-parlor log houses out of the readily available timber resources. They cleared surrounding land and planted fields to grow subsistence crops like corn (Weaver 1989). Tobacco was also grown as a medium of exchange in this early period (Maxwell and Swisher 1897).

A greater impetus for settlement occurred in 1748, when the Ohio Company of Virginia was formed with Lord Fairfax as a major investor. The company was organized to compete with the French for the potentially lucrative Ohio Valley frontier trade. The Ohio Company sent a party, including 16 year old George Washington, to survey Fairfax's lands (Ware 1991). Between 1748 and 1751, the best lands were laid out in two large manors – Wappacoma, containing 55,000 acres and the Patterson Creek Manor of nearly 10,000 acres (now in Mineral County, West Virginia) – along with 300 additional lots (Mineral County Heritage Society 1980:2). In 1750, the Ohio Company constructed a storehouse on the west side of Wills Creek north of the Potomac River at the present site of Cumberland; a second storehouse was built on the Virginia side of the river at the present site of Ridgeley in 1752 (Ware 1991).

In his journal, George Washington noted that most of the squatters living on Fairfax's land were of Dutch or German descent (Maxwell and Swisher 1897). Other early settlers were Scott-Irish, English, and Welsh (Wolfe 1974). Many settlers moved down the Appalachian Valley from Pennsylvania (Stegmaier, Jr. *et al.* 1976). The area's first county, Hampshire, Virginia, was founded in 1754 and included all of what is now Hampshire, Hardy, Grant, Mineral, and parts of

Morgan counties, West Virginia. Moorefield (now in Hardy County), a town in the county, was chartered as early as 1744. Romney, the county seat, was established in 1762 (North 1998).

Fort Ashby is the lone survivor of a series of forts built in the area in 1755 under the direction of George Washington (Works Progress Administration [WPA] 1941). Hostilities associated first with the French and Indian War and later with the American Revolution hindered further settlement in the region, despite the construction of Fort Cumberland in 1775 (Maxwell and Swisher 1897; Ware 1991). As an inducement for service in the latter war, the Maryland General Assembly offered soldiers land in western Maryland. Following the revolution, both Fairfax's and Baltimore's lands were seized and opened to settlement. Although much of the property was snapped up by speculators, the end of the Revolutionary War brought a fresh round of settlement to the region (Maxwell and Swisher 1897; Ware 1991). Hardy County, Virginia was established in 1786, and Allegany County, Maryland was established three years later (North 1998; Stegmaier, Jr. *et al.* 1976).

At the beginning of the nineteenth century, the area was predominantly agricultural in nature. Most housing continued to be built of log, although a few stone houses were also built. Brick homes were rarer and were only built by wealthy landowners, as in the Middle South Branch Valley near Moorefield (Weaver 1989). The farmers in Allegany County grew corn, wheat, rye, and orchard products, particularly apples (Stegmaier, Jr. *et al.* 1976). Those settling along Virginia's Patterson and New creeks grew similar crops and raised livestock (Maxwell and Swisher 1897). Gristmills and sawmills processed agricultural products. Because of the difficulty of moving bulk crops like corn, wheat, and rye to market, distilleries that processed grains into whiskey were also important and common in the area (Maxwell and Swisher 1897). In the late eighteenth century, towns began to form in the region. Cumberland was founded in 1787 and, within ten years, it had a post office, blacksmith's shop, hatter, butcher, cooper, brick mason, tannery, and gristmill (Stegmaier, Jr. *et al.* 1976). To the southwest, Paddytown (present day Keyser) was established *ca*. 1811 around a general store, several mills, and an iron foundry owned by Patrick McCarthy (North 1998).

Settlement in the area was aided by a growing transportation system. In 1786, the government of Virginia authorized the construction of an all-Virginia trade route between Winchester and the Ohio River. A road was in place to Cumberland by 1786 (WPA 1941). In 1810, Cumberland was also made the eastern terminus of the National Road, the nation's first federally funded interstate highway, which made the town a gateway to the west. The route was used by migrants from the east; people and goods moving up the Cumberland, Wills Creek, and Georges Creek valleys; and drovers bringing animals from the upper Midwest (Stegmaier, Jr. *et al.* 1976).

3.2.2.2 Agricultural-Industrial Transition (1815-1865)

The period between 1815 and 1865 was a time of transition in the study area. Aided by transportation improvements, agriculture advanced beyond the subsistence stage, and industry began to play an increasingly prominent role in the economy. Coal mining, iron-making, and railroading became prominent local industries. At the end of the period, political differences associated with the American Civil War resulted in the formation of the new State of West Virginia.

Roads were the first transportation system to be improved. The National Road, which was constructed from Cumberland to Wheeling, (West) Virginia, between 1811 and 1820, became a major corridor for western migration and east-west commerce. Several state and local roads from northern Virginia, eastern Maryland, and eastern Pennsylvania converged at Cumberland to connect with the National Road (Stegmaier, Jr. *et al.* 1976). In Virginia, the North-Western Road Company was incorporated to upgrade the existing road between Winchester and Parkersburg on the Ohio River as a turnpike. The effort struggled to succeed until 1831, when engineer Cladius Crozet was put in charge of construction. Under his direction, the turnpike, which roughly followed the present day path of US 50, reached Parkersburg *via* Romney by 1838 (WPA 1941). Called “the finest mountain road in the country,” the turnpike encouraged the development of stage coach routes as early as 1830 (Ware 1991). Connecting roads were built or improved through the Patterson, New, and Georges Creek valleys (Ware 1991). Burlington, for example, developed at the junction of the Northwestern Turnpike and the Patterson Creek Turnpike (Chambers 2004).

The new routes were useful in transporting livestock, which could be easily driven along the roads, and other agricultural products, but bulkier items were still difficult to haul over the roads. Most bulk grains and timber still had to be transported on boats and barges on the Potomac River during times of high water. Taverns, wagon stands, inns, feed lots, and wagon repair shops were built every few miles to service travelers along the road (Maxwell and Swisher 1897;

WPA 1941). The most substantial inns were constructed of brick or stone and built in a loose Georgian style. Most, however, were modestly proportioned and constructed of logs or sawn lumber (Weaver 1989).

Plans to improve navigation on the Potomac River had been discussed since the late eighteenth century. Some engineering features were added, but calls for a canal along the Potomac River intensified during the first part of the nineteenth century. Ground was broken for the Chesapeake and Ohio Canal on July 4, 1828. Its planned route connected the nation's capital and the Ohio River by way of Cumberland.

On the same day, construction also began on the Baltimore & Ohio (B&O) Railroad. The City of Baltimore, concerned about losing trade with the Midwest to the canal, responded by staking its future on a newer and less tested technology – the railroad. Engineering problems, financial difficulties, and litigation over routes (both operations sought to use the Potomac River's south bank as their artery) plagued the ventures. The railroad reached Cumberland in 1842, followed by the canal in 1850.

Both the Chesapeake and Ohio Canal and the B&O Railroad had profound impacts on the economy and settlement patterns of the study area. The impact was perhaps most dramatic in Cumberland and in Maryland's Georges Creek Valley. It had long been known that the valley possessed significant deposits of coal (Howe 1845). Allegany County included portions of both the Pittsburgh (also known as the "Big Vein" seam) and Upper Potomac coal fields. In addition to coal, ancillary industries were founded or expanded in the Georges Creek Valley, including the iron-making and fire clay businesses (Ware 1991). Iron-making facilities in the valley included a furnace in Lonaconing, where in 1839 the first American iron was produced using coke and hot blast (Ware 1991). Railroad and canal construction attracted a wave of settlement to the region, producing a building boom (Weaver 1989). Entire towns in the Georges Creek and Wills Creek valleys were founded in the mid-nineteenth century as company towns, including Pinto, Lonaconing, Vale Summit, Midland, and Barton (Weaver 1989).

The arrival of the canal and railroad had a less dramatic but nevertheless important impact on the Patterson and New Creek valleys. West Virginia's coal resources, although extensive, were located predominantly to the west and south of the study area, and they were not fully exploited until after the Civil War. Patterson Creek Valley remained predominantly agricultural in nature, as an area of prosperous farms and with numerous farm buildings (Chambers 2004; WPA 1941). Market crops, including bulk grains, were now easier to ship due to the transportation improvements.

The railroad's biggest impact in this era occurred at the junction of the North Branch Potomac River and New Creek. The village then known as Paddytown had a measure of prosperity in the 1810s, when it included a general store, flour mill, sawmill, lime kiln, and a forge and foundry. However, economic downturns in the 1820s and 1830s forced many families to leave the area. The 1835 *Itinerary of Virginia* recorded only six dwelling houses in the village. The arrival of the B&O Railroad in 1852 revived the town. It was renamed New Creek (which is present day Keyser) and given a passenger railroad station.

The Civil War tested the resolve of New Creek's residents. The town was strategically important to the Union forces. New Creek was positioned at the base of the Allegheny Mountains on roads leading to Franklin, Petersburg, Moorefield, and Winchester. It was located on the B&O Railroad's mainline, a key transportation and communication link among the Midwestern states, pro-Union sympathizers in western Virginia, and Washington, D.C. The railroad was also an important transporter of local coal, a major source of power for northern factories, ships, and homes. New Creek served as an important military base for the dispatch of Union troops (Shawkey 1928). Fort Fuller was built in 1861 and occupied by a permanent Union garrison charged with protecting the town and the railroad line. It was located on the high ground now occupied by Potomac State College. Nearby, Fort William and Fort Piano played similar roles (Maxwell and Swisher 1897).

For Confederate forces, disrupting the B&O Railroad's mainline was a major objective during the war. Thus, it was in Confederate interest to drive Union forces out of New Creek. Despite the presence of Union troops and garrisons, New Creek changed hands 14 times during the war. Consequently, "what buildings of importance had been built . . . were razed to the ground or reduced to ashes, by the relentless flames of the military incendiary" (Industrial Publishing Company 1906). However, the Union secured a larger victory when West Virginia was created as the nation's 35th state from Virginia's western counties in 1863.

3.2.2.3 Post Civil War Era (1865-1930)

Following the Civil War, mineral exploitation and industrial development dominated the economy immediately to the west of the project region. In the fertile valleys of Wills, New, and Patterson creeks and along the North and South branches of the Potomac River, agriculture remained the primary industry. Cattle, dairy and poultry farms; orchards; and fields of corn, wheat, rye, and other crops dotted the lengths of the valleys.

In the new State of West Virginia, political and economic changes were dramatic and far-reaching. In 1866, Mineral County was formed from the northwestern portion of Hampshire County, and New Creek was named the county seat. In the same year, Grant County was created from Hardy County (North 1998). Mineral County benefited markedly from the presence of the B&O Railroad. The volume of traffic on the B&O's mainline rose so dramatically after the war that a new yard had to be built in order to accommodate the demand. Geographic constraints precluded expanding the existing rail yard at Piedmont. As a consequence, a great yard for B&O lines west of Cumberland was created at New Creek. In appreciation, the citizens had the town's name changed to Keyser, in honor of William Keyser, Second Vice-President of the railroad, when the town was incorporated in 1874 (Industrial Publishing Company 1906).

In the late nineteenth century, the Keyser railroad yards expanded dramatically. By 1904, a 24-stall roundhouse was completed, along with machine shops, a coal trestle, and a multitude of yard tracks (Baltimore & Ohio Railroad Company 1907). The strain that the mountain passage placed on railroad cars also made Keyser an ideal location for a major repair center. In 1897, a 40,000-square foot car repair shop was completed. Another was built in 1907 (Baltimore and Ohio Railroad Company 1907; Roberts 1991).

The B&O also expanded its facilities in Cumberland. It constructed a large shop complex in 1867, and in 1906, the railroad purchased nine acres and constructed a terminus for three divisions. The complex included a huge roundhouse and yard to accommodate 3,000 cars. By 1906, the B&O complex in Cumberland employed more than 2,000 workers (Stegmaier, Jr. *et al.* 1976).

In order for the increased traffic to reach the B&O mainline, connecting railroads were built or expanded. The Cumberland & Pennsylvania Railroad ran between Cumberland and Piedmont *via* Frostburg. Founded in 1845, it came under the control of Consolidation Coal in 1864 and the B&O Railroad in 1877 (Stegmaier, Jr. *et al.* 1976; Ware 1991). Competitors of Consolidation Coal built the Georges Creek & Cumberland Railroad linking Lonaconing and Cumberland between 1879 and 1881 (Ware 1991). The West Virginia Central & Pittsburg Railway, founded in 1881, opened the massive coal and timber reserves of central West Virginia. It followed the north bank of the North Branch Potomac River. In the early twentieth century, the Georges Creek & Cumberland and the West Virginia Central & Pittsburg Railway became part of the newly created Western Maryland Railway (Cook and Zimmerman 1987).

Industrial expansion extended beyond coal and railroads. By 1900, Cumberland was Maryland's third largest city and home to 250 manufacturing operations. Important industries included glassmaking and brewing. In the 1920s, the Kelly-Springfield tire company erected a plant that operated into the early 1980s. The Celanese Corporation, a pioneer in synthetic fabrics, also established a large plant in Cumberland (Stegmaier, Jr. *et al.* 1976). In the Georges Creek Valley, a silk mill was established in Lonaconing in 1906 and enlarged in 1918. It employed the wives and daughters of area miners (Ware 1991). In Keyser and the surrounding region, the timber industry and its off-shoots provided employment for many. The largest single employer in the region was the West Virginia Pulp and Paper Company, founded in 1888 and headquartered in West Piedmont (present day Luke), Maryland (Shawkey 1928).

The booming industrial growth of the period fostered residential expansion in Cumberland, Keyser, Moorefield, and, to a lesser extent, throughout the project region. The building stock in the project region reflects the boom period of the mid-nineteenth century to about 1930 (Weaver 1989). Between the 1880s and 1910s, Cumberland expanded to the north and south (Stegmaier, Jr. *et al.* 1976). Keyser expanded in all directions. Home to no more than 200 citizens at the start of the Civil War, it had grown to some 1,700 by 1880 (Wolfe 1974). By the first decade of the twentieth century, Keyser's population had quadrupled to nearly 6,700 (Industrial Publishing Company 1906). In 1888, the village of McCoole was founded across the North Branch Potomac River from Keyser (Steiding 1966). In the 1920s, the advent of large-scale automobile ownership further expanded the boundaries of the cities and villages in the area and facilitated the creation of "strip towns" (Weaver 1989).

Much of the West Virginia portion of the study area outside of Keyser remained agricultural during this period. Livestock raising and fruit cultivation, notably apples and peaches, were particularly important (Industrial Publishing Company 1906; Maxwell and Swisher 1897). A guidebook written in the early 1940s noted that along US 220 between Cumberland and Moorefield by way of Keyser:

> *Except for small, locally owned plants, the countryside is untouched by industry; farming is the chief occupation. Many old houses, their high-porticoes half-hidden from the road by groves of maples and elms, are occupied by descendants of families who settled holdings of Lord Thomas Fairfax* (WPA 1941).

Between Keyser and US 50 there were “broad and fertile fields” extending west to the foothills of the Allegheny Front (WPA 1941). The trip from the New Creek Valley across Knobley and Patterson mountains and into the South Branch Valley at Moorefield is described as having “high forested hills and pleasant valley farms,” with “numerous fort sites” and “rambling brick houses” (WPA 1941).

In Maryland’s Wills Creek and Georges Creek valleys, half the land was listed in censuses between 1870 and 1930 as being in agricultural production. The bottom lands supported corn and oats; buckwheat and rye were common in the mountainous areas. The valley also supported orchard crops (Ware 1991).

Houses and other buildings built in the study area during this period reflected the architectural styles of the day. Queen Anne, Georgian (Colonial) Revival, Craftsman style bungalows, and American Foursquares were popular. Utilitarian, practical, and inexpensive vernacular houses were also constructed, such as I-houses, L-houses, and front gable houses. Some of the vernacular houses contained modest elements or simplified ornament of the high style examples being built at the time. Business districts in the industrial towns and villages were also expanded during this era, primarily through the construction of utilitarian commercial buildings (Weaver 1989).

3.2.2.4 Modern Period (1930-Present)

Coal mining in Allegany County peaked in 1907 and then declined. It rebounded during the World War I years and then slumped precipitously beginning in the 1920s and into the Great Depression of the 1930s (Ware 1991). Energy demands associated with World War II again caused a spike upwards, but coal ceased being a driving force in the Georges Creek Valley after World War II. Some surface mining remained, but automation had reduced the number of workers employed (Stegmaier, Jr. *et al.* 1976).

Industrial decline affected other sectors of the economy. Between 1945 and 1975, some of the area's oldest industries completely disappeared or greatly reduced operations. Glass-making and brewing in the Cumberland area became extinct. The Celanese plant, which had once employed 13,000 workers, was down to 1,006 by 1975. Skyrocketing inflation in the 1970s made the price of raw materials prohibitive and brought disaster to several local companies, including Kelly-Springfield Tires and Pittsburgh Plate Glass (Stegmaier, Jr. *et al.* 1976).

The decline of the railroad industry was particularly dramatic, with dire consequences for the Keyser-McCoole area. Deferred maintenance during the Depression and World War II, plus increased competition from other forms of transportation, took a heavy toll on the B&O and Western Maryland railroads. With the construction of the Interstate Highway System beginning in the 1950s, considerable freight traffic was diverted from the railroads to trucks. Passenger traffic was diverted to buses, private automobiles, and later to airplanes. The change from steam to diesel locomotives and the switch from coal heating to oil and natural gas accelerated the decline in coal consumption and further reduced train traffic in Keyser. Diesel locomotive engines required less maintenance and repair than steam engines and increased the length of haul; consequently, shop and road crews were cut as trains grew longer and fewer in number. Technological improvements in signal systems and yard operations and consolidation of facilities eliminated other jobs. In 1963, the financially ailing B&O merged with the Chesapeake & Ohio Railroad to form the Chessie System. In the mid-1970s, the Western Maryland Railway was absorbed into the Chessie System as well. Although some activity remained at the Keyser yard until the early 1980s, Keyser was virtually abandoned as a major rail center by the late 1960s, resulting in many employee furloughs (Stegmaier, Jr. *et al.* 1976). As the local economy declined, many people abandoned the region and moved to more prosperous areas for jobs.

The economic decline had a profound impact on the area's built environment. Compared to the boom period of the preceding era, little new home or commercial construction occurred in the project region after 1930. Consequently, post-World War II building designs are not greatly represented in the area (Weaver 1989). Timber remained an important industry during this period. Much of the economic growth during the 1970s and 1980s relied heavily on suburbanization. The construction of shopping malls and strip developments provided much employment. In the 1980s, I-68 was completed through the western Maryland counties of Allegany and Garrett to Morgantown (Weaver 1989). Despite the close proximity of the interstate, the Keyser-McCoole area remained semi-isolated. Industrial parks have been developed on the east and south sides of Keyser, but the attraction and retention of industries remains a problem. In both Mineral County and Allegany County, facilities of higher education – Potomac State College, Allegany College of Maryland, and Frostburg State University – are now major employers (Stegmaier, Jr. *et al.* 1976). Agriculture still plays an important role in portions of the study area, especially in the South Branch Valley, which continues to support orchards, pastureland, and poultry farms. Hardy County is known as the "Poultry Capital of West Virginia" (North 1998).

3.3 Natural Environment Setting

Because of its location on the cusp of two physiographic provinces, the region is blessed with the splendor of steep, mountainous terrain and broadly sweeping valleys. It is an area of contrasts, falling partially in the Allegheny Plateau and partially in the Ridge and Valley section of the country. The rugged land of the Allegheny Plateau is characterized by steep-sided ridges that have been thoroughly dissected by small streams and water courses, giving the appearance of an endless formation of low hills and contrasting valleys. Midway through the region, the Allegheny Plateau gives way to the Ridge and Valley physiographic province characterized by broad valleys and parallel ridges. Most of the valleys are narrow and flat, but several widen out to form larger settlement areas. Consequently, the dominant natural features of the region are its steep, hilly topography and narrow stream valleys.

3.3.1 Aquatic Resources

3.3.1.1 Wetlands

Soils associated with wetlands generally consist of silty clays that reduce soil permeability and result in poor drainage, causing wetland areas to remain inundated or saturated for long periods after storm events. Flooding events or shallow water tables mostly provide wetland hydrology. Herbaceous wetland vegetation typically found in western Maryland and eastern West Virginia consists of a mixture of grasses, sedges, and rushes. Scrub-shrub wetlands occur along stream and river systems, often providing a transition zone between herbaceous and forested wetlands. Forested wetlands are located mainly in the floodplains of the larger stream and river valleys. The majority of forested wetlands have been logged and they now primarily consist of second- or third-growth trees.

A variety of plant and animal species utilize wetlands, which are essential for feeding, breeding, nesting, and refuge. Waterfowl and wading birds are the most recognized group of animals that occupy wetlands. Reptiles and amphibians requiring wetland habitat for survival include toads and frogs, salamanders, water snakes, and turtles.

All wetland types (open-water, emergent, scrub-shrub, and forested), sizes, and conditions were encountered throughout the study area. Wetlands in the study area listed on the NWI are shown on Figure 3-8.

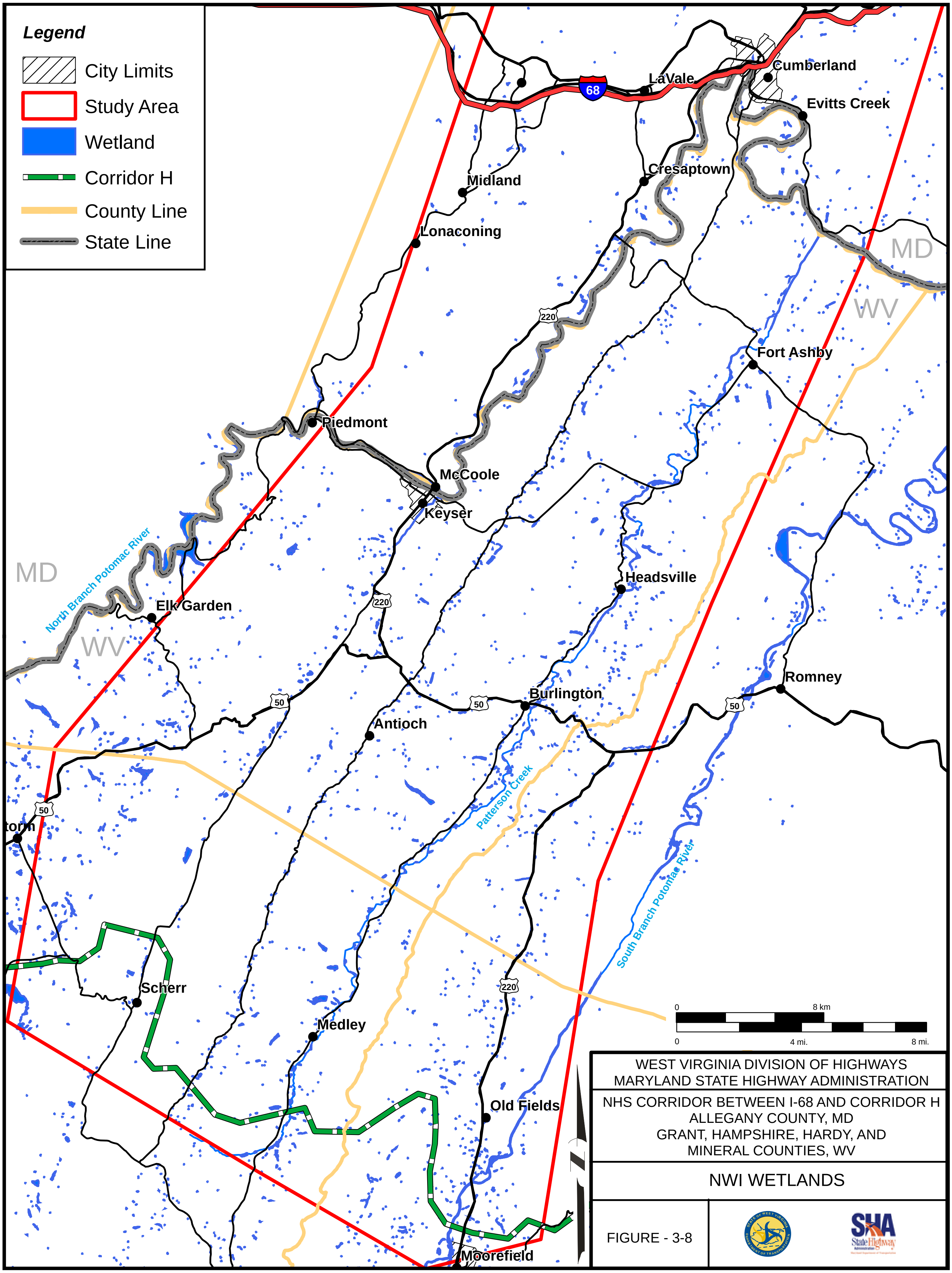
3.3.1.2 Streams

The study area is located within the Potomac River watershed and the following major sub-basins: North Branch Potomac River in MD and WV and South Branch Potomac River in WV. Other, smaller watersheds are recognized within each sub-basin, including Georges, Wills, Evitts, Patterson, and New Creek. There are no Wild and Scenic Rivers in the study area.

The North Branch Potomac River is considered a Section 10 navigable water by the USACE; however, this designation extends upstream on the North Branch Potomac River only to Cumberland. Upstream of this point, the North Branch Potomac River is no longer considered a navigable river (under Section 10 authority) by the USACE (USACE-Baltimore District 2005).

West Virginia – Water Quality

The streams and water bodies of the study area in West Virginia are identified in the *Title 46 Legislative Rule, Environmental Quality Board, Series 1, Requirements Governing Water Quality Standards (46 CSR 1)* (West Virginia Secretary of State [WVSOS] 2007), along with their designated use. In West Virginia, a stream can support one or multiple designated uses, depending upon its quality and its users (as delineated by the category listed below). The



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

NWI WETLANDS

FIGURE - 3-8

following are the designated uses of study area streams and waterbodies by county identified in this document:

- Category A (Public Water Supply) – Hampshire County (Mill Creek) and Mineral County (North Fork Patterson Creek, New Creek, and New Creek Dam #14).
- Category B (Propagation and Maintenance of Fish and Other Aquatic Organisms [B1 – Warm Water Fisheries, B2 - Trout Waters, & B4 - Wetlands]) – Hardy County (South Branch Potomac River), Grant County (Mill Creek Impoundment), and Mineral County (New Creek).
- Category C (Water Contact Recreation) – Hampshire County (South Branch Potomac River), Hardy County (South Branch Potomac River), Grant County (North Fork Patterson Creek), and Mineral County (North Branch Potomac River).
- Category D (Agriculture and Wildlife Uses [D1 – Irrigation, D2 – Livestock Watering, & D3 – Wildlife]) – All stream segments (and wetlands) used for irrigation, and by livestock and wildlife.
- Category E (Industrial Water Supply [E1 - Transport, E2 – Cooling, E3 – Power Production, & E4 – Industrial]) - No streams listed within study area.

The West Virginia Department of Environmental Protection's (WVDEP's) Section 303(d) list (WVDEP-Division of Water and Waste Management 2006) was reviewed for the project. This report contains information related to WVDEP's 2006 Section 303(d) list and total maximum daily loads (TMDLs) (Supplemental Tables A through F) for the study area as described below.

- 2006 Section 303(d) List
  - South Branch Potomac Watershed – Notes South Branch Potomac River fecal coliform and polychlorinated biphenyls (PCB) criteria affected. Other tributaries listed include Anderson Run (conditions not allowable, or [CNA]-biological criteria affected), Mudlick Run (CNA-biological criteria affected), Dumpling Run (CNA-biological criteria affected), and Mill Creek (CNA-biological criteria affected).
  - North Branch Potomac Watershed – Notes tributaries to the North Branch Potomac River listed, which include Patterson Creek (CNA-biological criteria affected), Pargut Run (CNA-biological criteria affected), unnamed tributary (UNT) to Patterson Creek river mile (RM) 16.0 (CNA-biological criteria affected), Mill Creek (CNA-biological criteria affected), and UNT to UNT RM 0.5 to New Creek RM 4.3 (CNA-biological criteria affected).

- Supplemental Table A – Previously Listed Waters/No TMDL Developed
    - South Branch Potomac Watershed – Notes South Branch Potomac River (Mouth to RM 79.0 to HW) metals criteria affected (with aluminum being the impairing substance).
    - North Branch Potomac Watershed – No study area streams noted.
- Supplemental Table B – Waters with TMDLs Developed
    - South Branch Potomac Watershed – Notes South Branch Potomac River, Anderson Run, and Mill Creek (fecal coliform criteria affected – 1998 TMDL date).
    - North Branch Potomac Watershed – No study area streams noted.
- Supplemental Table B1 – 2005 TMDLs
    - South Branch Potomac Watershed – No study area streams noted.
    - North Branch Potomac Watershed – No study area streams noted.
- Supplemental Table C – Water Quality Improvements
    - South Branch Potomac Watershed – No study area streams noted.
    - North Branch Potomac Watershed – No study area streams noted.
- Supplemental Table D – Impaired Waters/No TMDL Development Needed
    - South Branch Potomac Watershed – No study area streams noted.
    - North Branch Potomac Watershed – No study area streams noted.
- Supplemental Table E – Total Aluminum TMDLs Developed
    - South Branch Potomac Watershed – No study area streams noted.
    - North Branch Potomac Watershed – No study area streams noted.
- Supplemental Table F – New Listings for 2006
    - South Branch Potomac Watershed – Notes South Branch Potomac River (PCB criteria affected).
    - North Branch Potomac Watershed – No study area streams noted.

No streams or rivers are designated within the West Virginia portion of the study area under the National Wild and Scenic Rivers System (NPS 2007).

Maryland – Water Quality

The streams of the study area in Maryland are identified in the Code of Maryland (COMAR), *Title 26 – Part 2, Subtitle 08, Chapter 2 Water Quality* (MDE 2007b), along with their designated use. The following are the designated uses of study area streams:

- Designated Use I-P (Water Contact Recreation, Protection of Aquatic Life, and Public Water Supply) - North Branch Potomac River mainstem and a UNT near Pinto.
- Designated Use III-P (Natural Trout Waters and Public Water Supply) - All Maryland tributaries to the North Branch Potomac River.
- Designated Use IV-P (Recreational Trout Waters and Public Water Supply) - The mainstem of Evitts Creek.

The MDE's *2006 Section 303(d) List and Integrated Assessment of Water Quality in Maryland* (MDE 2007c) was reviewed. This report contains information related to MDE's 2006 *Section 303(d)* list and TMDLs (Categories 1 through 5) as described below.

- Category 1 – Fully supporting all designated uses
    - Streams not listed in Maryland if in this category.
- Category 2 – Fully supporting some designated uses
    - Lower North Branch Potomac River (mainstem) – Notes metals impairment (with cadmium being the impairing substance) and pH impairment (with pH as the impairing substance).
    - Evitts Creek (mainstem) – Notes pH impairment (with pH as the impairing substance).
    - Wills Creek (mainstem) – Notes biological impairment (no impairing substance noted), pH impairment (with low pH/pH as the impairing substance), and toxics impairment (with cyanide as the impairing substance).
- Category 3 – Insufficient or no information exists to determine if uses are being met
    - Lower North Branch Potomac River (mainstem) – Notes biological impairment (with no impairing substance noted).
    - Evitts Creek (mainstem) – Notes biological impairment (with no impairing substance noted).

- Evitts Creek (tributaries) – Notes pH impairment to Elk Lick Run (with no impairing substance noted).

- Wills Creek (mainstem) – Notes biological impairment (no impairing substance noted), pH impairment (with low pH/pH as the impairing substance), and toxics impairment (with cyanide as the impairing substance).

➢ Category 4a – Waters with an existing approved TMDL, but not meeting standards

- Evitts Creek (mainstem) – Notes sediment impairment (sediments noted as impairing substance).

- Wills Creek (mainstem) – Notes sediment impairment (sediments noted as impairing substance).

- Wills Creek (tributaries) – Notes bacteria impairment to Braddock Run (with fecal coliform as the impairing substance).

➢ Category 4b – Waters with other control mechanisms in place, which are reasonably expected to return water to meeting designated use

- No Category 4b waters were listed within the corridors.

➢ Category 5 – Waters assessed as impaired and expected to need a TMDL

- Lower North Branch Potomac River (mainstem) – Notes bacteria impairment (with fecal coliform being the impairing substance), biological impairment (no impairing substance noted), metal impairment (methylmercury), nutrients (nutrients noted as impairing substance), and sediments (sediments noted as impairing substance).

- Lower North Branch Potomac River (tributaries) – Notes biological impairment to numerous unnamed tributaries and Warrior Run.

- Evitts Creek (mainstem) – Notes biological impairment (no impairing substance noted).

- Wills Creek (tributaries) – Notes biological impairment to Braddock Run (biological noted as impairing substance).

Numerous TMDLs have been developed by MDE for the study area streams, which include TMDLs for Evitts Creek (low pH [2005] and sediments [2006]) and the Lower North Branch Potomac River (sediments [2006], pH [2005], and cadmium [2006]). Also, as discussed in Chapter 4.0, Pinto Marsh, near Cresaptown, is designated by MDNR as non-tidal wetlands of special state concern. Finally, no streams or rivers are designated within the Maryland portion of the study area as scenic and/or wild under Maryland's state Scenic and Wild Rivers Program (MDNR 2005) or the federal National Wild and Scenic Rivers System (NPS 2007).

3.3.2 Floodplains

Within the study area, the Federal Emergency Management Agency (FEMA) has identified the 100-year floodplains for three major streams – North Branch Potomac River, South Branch Potomac River, and Patterson Creek – and many tributaries to these streams. In West Virginia, FEMA has delineated regulatory floodways for New Creek, Cabin Run, and sections of the North Branch Potomac River and Patterson Creek. No regulatory floodways have been defined within the study area in Maryland.

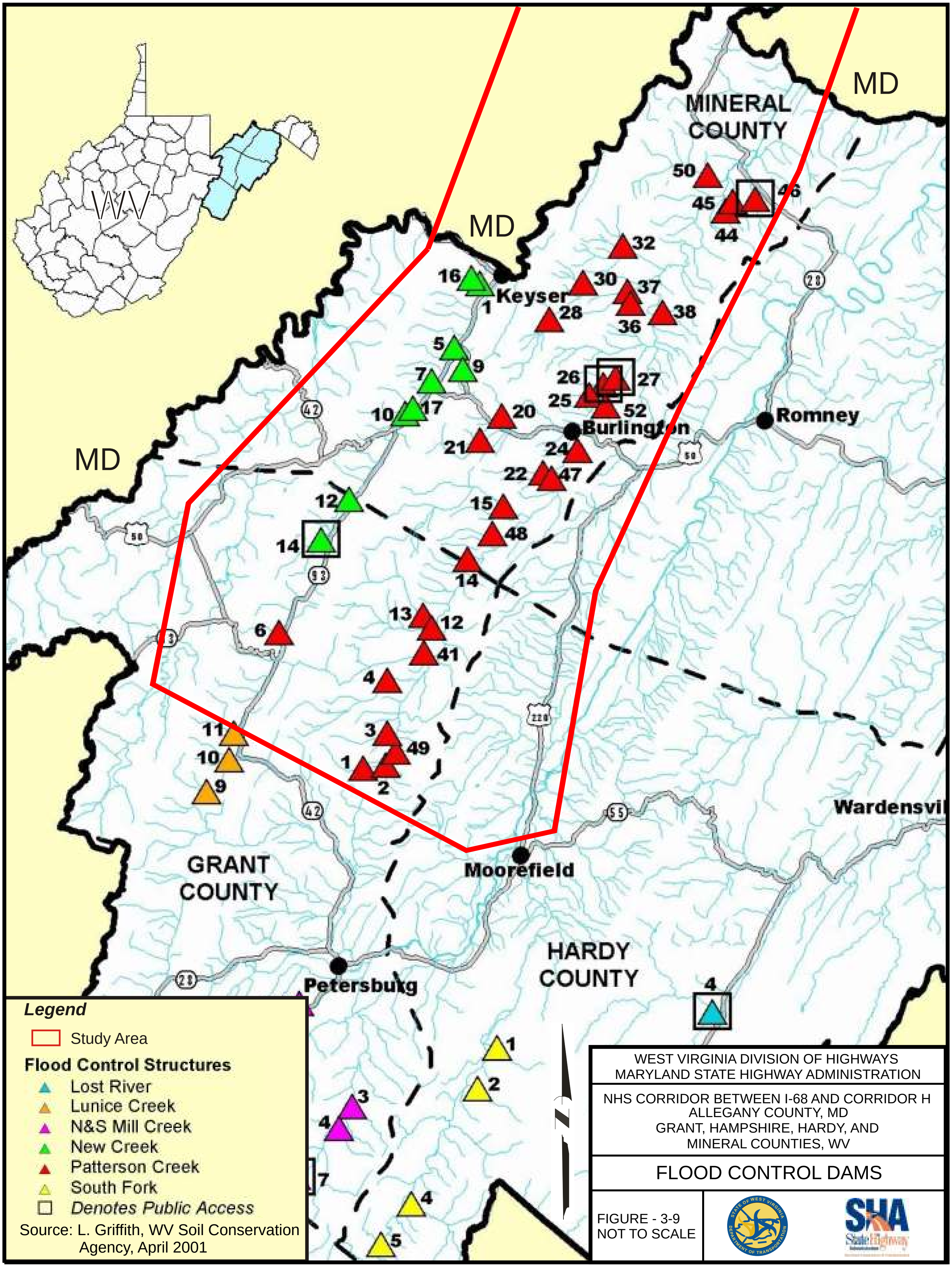
The Potomac Valley Soil Conservation District operates and maintains many dams throughout the area as part of a regional flood control project funded from federal, state, and local sources. The dams were constructed under authority of the *Flood Control Act of 1944* and provide protection in Grant, Hampshire, Hardy, Mineral, and Pendleton counties. The locations of the dams are shown on Figure 3-9.

3.3.3 Vegetation and Wildlife

3.3.3.1 Vegetation

Throughout the study area, approximately 30-40 percent of the area is generally suited for crop cultivation. The remaining area is utilized for grazing, tree production, wildlife habitat, and urban-suburban development (i.e., commercial, industrial, and residential) (USDA-NRCS 1977, 1978, 1989). The dominant land cover identified within the study area includes forests (46-78%), agricultural lands (8-40%), built-up land (5-25%), rangeland (1-8%), and mixed forests and rangelands (0-1%).

Study area forests consist of a mixture of second growth oaks, maples, shagbark hickory, tulip poplar, American beech, black locust, eastern red cedar, eastern white pine, red pine, red spruce, and Virginia pine. In the valleys, the primary tree species observed included American sycamore, slippery elm, ashes, quaking aspen, and black willow. On the ridge tops, the primary


WV
MD
MD
MD
MD
MINERAL COUNTY
GRANT COUNTY
HARDY COUNTY
Keyser
Burlington
Romney
Moorefield
Petersburg
Wardensvil
Legend
Study Area
Flood Control Structures
Lost River
Lunice Creek
N&S Mill Creek
New Creek
Patterson Creek
South Fork
Denotes Public Access
Source: L. Griffith, WV Soil Conservation Agency, April 2001
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
FLOOD CONTROL DAMS
FIGURE - 3-9
NOT TO SCALE
SHA

tree species include oak, maple, and pine species. Older growth timber may exist in steeper side ravines or valleys.

Although historically the study area was forested, rangeland (meadows/grasslands/fields) has become more dominant in many of the valley floors as agriculture expanded. The study area rangeland and wetlands in general consist of a variety of shrub and herbaceous plant species. The shrub species generally consist of dogwood, honeysuckle, autumn-olive, elderberry, arrowwood, and willow species. The herbaceous species generally consist of numerous types of grass, sedge, and rush species, along with cattail, lily, raspberry, jewelweed, and fern species.

Unique to portions of the study area is the existence of the eastern prickly-pear cactus. Its habitat is located in the more drought-prone areas of the Berks and Weikert soils (USDA-NRCS 1989) of the study area and is found on east-facing slopes within the Patterson Creek Valley.

3.3.3.2 Wildlife Habitat

Wildlife habitat within the study area comes in numerous forms and is available to both local as well as migratory species. The higher elevation ridges in the western portion of the study area located in the Allegheny Mountain Section of the Appalachian Plateau province receive more annual precipitation which allows for a mainly deciduous forest type, whereas the eastern portions of the study area in the Fold Appalachian Mountains Section of the Ridge and Valley province receive less annual precipitation which allows for a mainly mixed coniferous-deciduous forest habitat (MDNR 2007). The mountain ridges within the study area do not permit extensive agricultural or development activity; therefore, habitat for wildlife along the mountain ridges appears to have been mainly affected by timbering and mining operations. The lower slopes of the mountain ridges and valley floors are where most development activities occur and, thus, most habitat modifications have taken place in these locations.

Most of the development/habitat modification activities in the study area involve agriculture, silvaculture, mining, and commercial/residential development. The wildlife species inhabiting the various habitats are adapted to these areas whether they are generalists or specialists. The wildlife species inhabiting the more developed areas that incorporate edge environments tend to be more widespread (e.g., whitetail deer), whereas wildlife species that are specifically adapted to special sets of conditions will be found in localized habitats (e.g., beaver). The MDNR, however, is especially concerned about potential impacts on the Dans Mountain Wildlife Management Area and its diversified wildlife habitat. It is the largest tract of contiguous state-owned forestland in Maryland and one of the most important natural resources in the region.

3.3.3.3 Wildlife

Wildlife communities are important ecologically, economically, and recreationally. A diverse array of wildlife is found in the area, including big and small game (black bear, whitetail deer, groundhogs, and squirrels), fur-bearing species (muskrat, mink), other small and large mammals, songbirds and raptors, and amphibians and reptiles. Forest-floor litter, such as decayed logs, flat rocks, fallen limbs, and leaf material, is an important habitat component, providing foraging cover and daytime refuge for many species. The use of agricultural land by wildlife is largely dependent on the crop, season, and agricultural practices. Crops such as ear corn, soybeans, and sunflowers provide cover and food for a number of birds and small mammals. After harvest, residual waste materials attract many migrating and wintering waterfowl species.

3.3.3.4 Rare, Threatened, and Endangered Species

Coordination with state and federal agencies concerning rare, threatened, and endangered (RTE) species revealed a number of records of known occurrences of RTE species within the region. The United States Fish and Wildlife Service (USFWS) noted that both the federally listed endangered Indiana bat (*Myotis sodalis*) and Virginia big-eared bat (*Corynorhinus townsendii virginianus*) may be present throughout the region. The federally protected bald eagle (*Haliaeetus leucocephalus*) may also be present. On October 2, 2013, the USFWS proposed to add the northern long-eared bat (*Myotis septentrionalis*) to the list of species protected by the ESA. While the species has not been formally added to the list of species protected by the ESA, it is likely to be listed by the time the project enters Tier Two. The project area is within the range of the northern long-eared bat, and, thus, may be present in the area. A copy of the *Federal Register* notice proposing federal-listing is found in Appendix D.

Additionally, the USFWS noted that federally listed endangered species found in the study area include sensitive mussel fauna. Both the MDNR and the West Virginia Division of Natural Resources (WVDNR) noted that several RTE animal and plant species may be present in the project area. Those findings are germane to specific corridors and are discussed in detail in Chapter 4.0 of this EIS.

3.3.4 Farmlands

The study area is overwhelmingly rural and agriculture is a central feature of the landscape, character, and, to a lesser extent, the economy. Due to the topographic and soil constraints of the area, agricultural land is largely situated in clusters concentrated in the major stream valleys of the study area (e.g., Patterson Creek Valley, New Creek Valley, Mill Creek, and the North Branch Potomac River).

A large portion of the study area falls within Allegany and Mineral counties. Beef cattle farming is the leading type of agricultural operation in these two counties (42% of the farms in Allegany County and 41% of the farms in Mineral County) followed by crop farming (26% of farms in both counties). Dairy farming is nearly nonexistent in the two counties (1.7% of all farms) and poultry farming is more prevalent in Mineral County (6.2% of all farms). There are more farms located in Mineral County than in Allegany County and the average farm size in Mineral County (174 acres) is greater than in Allegany County (142 acres). Of all the study area counties, Mineral County has the highest percentage of total area in agricultural use (35%). As would be expected for a predominately beef farming area, the major crops of the counties are corn and hay.

Of the other counties within the study area, Grant and Hampshire counties are comparable to Mineral and Allegany counties in terms of their agricultural characteristics. Grant County has the highest percentage of beef cattle farms (54% of all farms) of the study area counties. Hardy County is unique as compared to the other counties in terms of the distribution of various types of agricultural operations. Hardy County has a much greater percentage of farms in poultry and egg production than any of the other four counties. Hardy County accounts for 30 percent of the entire state of West Virginia's poultry production, selling 41.6 million broilers and other meat-type chickens in 2002.

Agriculture remains an important part of the local environment and economy. Farm income accounts for about 2 percent of the region's total, as compared to less than 1 percent nationally. Together with a few other counties, the region accounts for about 52 percent of the sales of agricultural products in West Virginia.

3.3.5 Soils

Soils in general form over a period of time as a result of climate and living organisms acting upon the parent material. In portions of the study area (Hampshire and Mineral counties), soils were formed in materials weathered from sedimentary rocks. Some of the soils were weathered in place (~79% – residual/upland soils) while others were transported by water (~9% – alluvial/terrace and floodplain soils) and gravity (~12% – colluvial soils). Soil associations in the study area include: Dekalb-Laidig-Opequo, Potomac-Tioga-Melvin, Berks-Lehew-Dekalb, Monongahela-Clarksburg-Ernest, Shouns-Belmont-Calvin High Base Substratum, Gilpin-Wharton-Ernest, Dekalb-Lehew-Calvin, Berks-Weikert, Elliber-Dekalb-Opequon, Pope-Monongahela-Tygart, Gilpin-Dekalb-Cookport, Stone land-Dekalb, Weikert-Calvin-Lehew, and Weikert-Gilpin associations (USDA-NRCS 1977, 1978, 1989). The stream drainage patterns in the study area are both dendritic (treelike) and trellis patterns. Table 3.3-1 describes each of the soil associations found in the Maryland half of the area.

TABLE 3.3-1
Soil Associations in the Study Area (Maryland)

Soil Associations	Description
Allegheny	The Allegheny series consists of very deep, well-drained, moderately permeable soils formed in alluvium on stream terraces, foot slopes, and alluvial fans. Slopes range from 0 to 25 percent.
Atkins	The Atkins series consists of very deep, poorly drained soils formed in acid alluvium washed from upland soils that formed in shale and sandstone. Permeability is slow to moderate. Slope ranges from 0 to 3 percent.
Berks	The Berks series consists of moderately deep, well drained soils formed in residuum weathered from shale, siltstone, and fine grained sandstone on rounded and dissected uplands. Slope ranges from 0 to 80 percent. Permeability is moderate or moderately rapid.
Buchanan	Soils of the Buchanan series are very deep, somewhat poorly and moderately well drained, and slowly permeable. They formed in colluvium on mountain footslopes, sideslopes, and in valleys that are derived from acid sandstone, quartzite, siltstone, and shale. Slope ranges from 0 to 45 percent.
Cookport	The Cookport series consists of deep and very deep, moderately well-drained soils formed in residuum weathered primarily from sandstone, but includes some materials from shale and siltstone. Permeability is moderate above the fragipan and slow in the fragipan. Slope ranges from 0 to 25 percent.

TABLE 3.3-1 (continued)
Soil Associations in the Study Area (Maryland)

Soil Associations	Description
Dekalb	The Dekalb series consists of moderately deep, excessively drained soils formed in material weathered from gray and brown acid sandstone in places interbedded with shale and graywacke. Slope ranges from 0 to 80 percent. Permeability is rapid.
Elliber	The Elliber series consists of very deep, well-drained soils formed in residuum weathered from calcareous shale, siliceous siltstone, silty chert, and cherty limestone. Slopes range from 3 to 50 percent. Permeability is moderate or moderately rapid.
Frankstown	The Frankstown series consists of deep and very deep, well drained soils formed in residual materials derived from siliceous limestone and interbedded limy shale and siltstone on uplands. Permeability is moderate. Slope ranges from 2 to 35 percent.
Gilpin	The Gilpin series consists of moderately deep, well-drained soils formed in residuum of nearly horizontal interbedded shale, siltstone, and some sandstone of the Allegheny Plateau. They are on gently sloping to steep, convex, dissected uplands. Slope ranges from 0 to 70 percent. Permeability is moderate.
Laidig	The Laidig series consists of very deep, well-drained soils formed in colluvium from sandstone, siltstone, and some shale. They are gently sloping to very steep soils on benches and foot slopes. Permeability is moderate or moderately rapid above the fragipan and moderately slow or slow in the fragipan. Slope ranges from 0 to 55 percent.
Lehew	The Lehew series consists of moderately deep, well drained to excessively drained soils formed in material weathered from reddish sandstone, siltstone, and shale. They are nearly level to very steep soils on uplands. Slopes range from 0 to 80 percent. Permeability is moderately rapid to rapid.
Opequon	The Opequon series consists of well drained soils on limestone uplands. Slopes range from 0 to 100 percent.
Philo	The Philo series consists of very deep, moderately well drained soils on floodplains. They formed in recent alluvium derived mainly from sandstone and shale. Permeability is moderate to moderately rapid. Slope ranges from 0 to 6 percent.
Pope	The Pope series consists of very deep, well-drained soils formed in alluvium on floodplains. Permeability is moderate or moderately rapid. Slopes range from 0 to 4 percent.
Weikert	The Weikert series consist of shallow, well drained soils formed in material that weathered from interbedded gray and brown acid shale, siltstone, and fine-grained sandstone on gently sloping to very steep areas on uplands. Slope ranges from 0 to 100 percent. Permeability is moderately rapid.

Sources: USDA-NRCS 1977, 1978, and 1989

Table 3.3-2 describes each of the soil associations found in the West Virginia half of the project area.

TABLE 3.3-2
Soil Associations in the Study Area (West Virginia)

Soil Associations	Description
Allegheny	The Allegheny series consists of very deep, well-drained, moderately permeable soils formed in alluvium on stream terraces, foot slopes, and alluvial fans. Slopes range from 0 to 25 percent.
Atkins	The Atkins series consists of very deep, poorly-drained soils formed in acid alluvium washed from upland soils that formed in shale and sandstone. Permeability is slow to moderate. Slope ranges from 0 to 3 percent.
Berks	The Berks series consists of moderately deep, well drained soils formed in residuum weathered from shale, siltstone, and fine grained sandstone on rounded and dissected uplands. Slope ranges from 0 to 80 percent. Permeability is moderate or moderately rapid.
Clarksburg	The Clarksburg series consists of very deep, moderately well-drained soils formed in colluvium, glacial till, or residuum from limestone, calcareous and noncalcareous shale, and sandstone. They are on uplands. Slope ranges from 0 to 25 percent. Saturated hydraulic conductivity is moderately low to moderately high.
Dekalb	The Dekalb series consists of moderately deep, excessively-drained soils formed in material weathered from gray and brown acid sandstone in places interbedded with shale and graywacke. Slope ranges from 0 to 80 percent. Permeability is rapid.
Ernest	The Ernest series consists of very deep, moderately well drained soils with moderately slow to slow permeability. These soils formed in colluvium from shale, siltstone, and sandstone. They are on foot slopes and colluvial fans. Slopes range from 0 to 50 percent.
Hazelton	No description.
Laidig	The Laidig series consists of very deep, well-drained soils formed in colluvium from sandstone, siltstone, and some shale. They are gently sloping to very steep soils on benches and foot slopes. Permeability is moderate or moderately rapid above the fragipan and moderately slow or slow in the fragipan. Slope ranges from 0 to 55 percent.
Lehew	The Lehew series consists of moderately deep, well-drained to excessively drained soils formed in material weathered from reddish sandstone, siltstone, and shale. They are nearly level to very steep soils on uplands. Slopes range from 0 to 80 percent. Permeability is moderately rapid to rapid.
Monongahela	The Monongahela series consists of very deep, moderately well-drained soils formed in old alluvium derived largely from acid sandstone and shale on terraces. Permeability in the fragipan is moderately slow or slow. Slope ranges from 0 to 25 percent.
Murrill	The Murrill series consists of very deep, well drained soils formed in colluvial materials derived from acid sandstones and shales and the underlying limestone residuum, on lower backslopes, footslopes, fans, and benches. Saturated hydraulic conductivity is moderately high to high in the colluvial material and in the residual material. Slopes range from 0 to 55 percent.
Opequon	The Opequon series consists of well drained soils on limestone uplands. Slopes range from 0 to 100 percent
Philo	The Philo series consists of very deep, moderately well-drained soils on floodplains. They formed in recent alluvium derived mainly from sandstone and shale. Permeability is moderate to moderately rapid. Slope ranges from 0 to 6 percent.

TABLE 3.3-2 (continued)
Soil Associations in the Study Area (West Virginia)

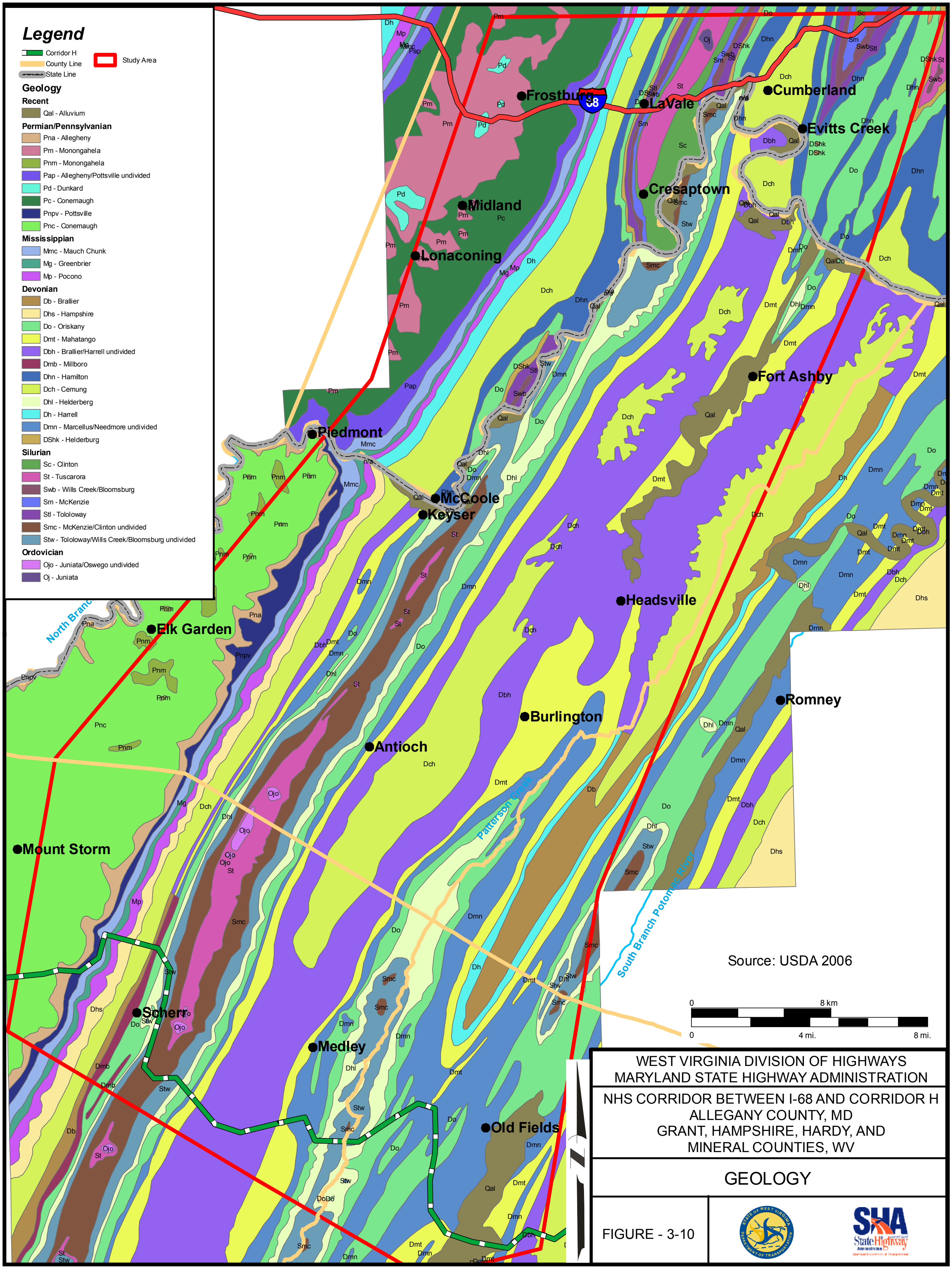
Soil Associations	Description
Pope	The Pope series consists of very deep, well-drained soils formed in alluvium on floodplains. Permeability is moderate or moderately rapid. Slopes range from 0 to 4 percent.
Potomac	The Potomac series consists of very deep, somewhat excessively drained soils formed in coarse-textured alluvial material on floodplains. Slopes range from 0 to 8 percent.
Tioga	The Tioga series consists of very deep, well-drained soils formed in alluvium on higher positions in floodplains. Permeability is moderate or moderately rapid in the solum and moderate to rapid in the underlying material. Slope ranges from 0 to 3 percent.
Tygart	The Tygart series consists of very deep, somewhat poorly-drained soils formed in slackwater alluvium washed from soils on uplands. These soils are found on stream terraces in the central Appalachian Highlands. Permeability is slow. Slope ranges from 0 to 8 percent.
Weikert	The Weikert series consist of shallow, well-drained soils formed in material that weathered from interbedded gray and brown acid shale, siltstone, and fine-grained sandstone on gently sloping to very steep areas on uplands. Slope ranges from 0 to 100 percent. Permeability is moderately rapid.

Sources: USDA-NRCS 1977, 1978, and 1989.

3.3.6 Geology

The ridges that form the western portion of the study area are the easternmost extent of the Allegheny Mountain section of the Appalachian Plateau physiographic province. The abrupt east-facing escarpment known as the Allegheny Front forms the western limit of the Valley and Ridge physiographic province. The lands west of the Allegheny Front are slightly to moderately deformed sedimentary rocks of Pennsylvanian and Mississippian age, 300 to 345 million years before present (MYBP). The Appalachian High Plateau province is characterized by rolling, hilly terrain that forms a broad upland area with surface elevations between 2,000 and 3,000 feet above mean sea level. The plateau is dissected by streams and rivers in a mature stage of erosion, with the majority of the land surface occurring as valley slope (Langdon 1974).

The strata of the Appalachian Plateau consist of cyclical sequences of limestone, silt- and clay-stone, shale, sandstone, and coal. The coal units within the study area are of minor economic significance and are exploited only locally, and at the extreme western limits of the study area, within the Pennsylvanian Allegheny Group. The geology of the area is shown on Figure 3-10.



Legend
Corridor H
County Line
State Line
Study Area
Geology
Recent
Qal - Alluvium
Permian/Pennsylvanian
Pna - Allegheny
Pm - Monongahela
Pnm - Monongahela
Pap - Allegheny/Pottsville undivided
Pd - Dunkard
Pc - Conemaugh
Pnpv - Pottsville
Pnc - Conemaugh
Mississippian
Mmc - Mauch Chunk
Mg - Greenbrier
Mp - Pocono
Devonian
Db - Brallier
Dhs - Hampshire
Do - Oriskany
Dmt - Mahatango
Dbh - Brallier/Harrell undivided
Dmb - Millboro
Dhn - Hamilton
Dch - Cemung
Dhl - Helderberg
Dh - Harrell
Dmn - Marcellus/Needmore undivided
DShk - Helderburg
Silurian
Sc - Clinton
St - Tuscarora
Swb - Wills Creek/Bloomsburg
Sm - McKenzie
Stl - Tololoway
Smc - McKenzie/Clinton undivided
Stw - Tololoway/Wills Creek/Bloomsburg undivided
Ordovician
Ojo - Juniata/Oswego undivided
Oj - Juniata
Frostburg
LaVale
Cumberland
Evitts Creek
Cresaptown
Midland
Lonaconing
Piedmont
McCoole
Keyser
Fort Ashby
Headsville
Elk Garden
Burlington
Romney
Antioch
Mount Storm
Scherr
Medley
Old Fields
North Branch
Patterson Creek
South Branch Potomac River
68
Source: USDA 2006
0
8 km
0
4 mi.
8 mi.
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
GEOLOGY
FIGURE - 3-10

The lands east of the Allegheny Front are within the Valley and Ridge physiographic province. The Valley and Ridge is characterized by highly deformed sedimentary strata folded and faulted into parallel north-northeast trending ridges and valleys. The rock strata within the study area limits are Mississippian to upper Silurian age (345 to 423 MYBP) that are exposed in a series of anticlines and synclines. The temperate climate resulted in the erosion of the less resistant shale and limestone formations into elongated valleys, with surface elevations between 900 and 1,400 feet above mean sea level. The more highly resistant sandstone and quartzite units stand up as ridges. The ridge top elevations occur at generally concordant heights, with elevations exceeding 3,000 feet mean sea level and local surface grades of over 28 percent. Surface drainage is highly controlled by the underlying geology, resulting in a high degree of stream linearity oriented parallel to the overall structure, with minor tributaries formed perpendicular to the structure conveying runoff down the slopes of the ridges. Precedent rivers, such as the Potomac, cut across the geologic structure. The ridges tend to be heavily forested due to their steep grades, rugged topography, and rocky slopes. The Silurian-aged Tuscarora Quartzite and the Mississippian-aged Pocono Sandstone are the principal ridge-formers in the area.

3.4 Potentially Contaminated Sites

Numerous sites with recognized environmental conditions (RECs) are located throughout the landscape, including operating and abandoned gasoline stations, industrial sites, utilities, landfills, and other waste areas. The MDE, WVDEP, and United States Environmental Protection Agency (USEPA) regulate these types of properties.

Table 3.4-1 provides information on the potentially contaminated sites identified during Tier One studies. During future Tier Two studies additional coordination will be conducted with these agencies and with municipal officials to determine any additional sites with potential for recognized environmental conditions.

TABLE 3.4-1
Potentially Contaminated Sites in the Area

Site Name	Street Address	County	Environmental Concerns
Wilson Oil Company West of Creek (Exxon Fuels)	Ali Ghan Rd	Allegany	Petroleum fuels stored in above ground storage tanks (ASTs), and underground storage tanks (USTs) (diesel, fuel oil, kerosene)
Wilson Oil Company East of Creek (Exxon Fuels)	Ali Ghan Rd	Allegany	Petroleum fuels stored in ASTs and USTs (diesel, fuel oil, kerosene)
CHP Truck Parts	12800 Nave's Cross Rd	Allegany	Truck parts sales and service
Trucking Co. Inc.	Eastman Rd.	Allegany	Truck service center, two unknown ASTs (1,500 and 3,000-gal), scrap metal storage, old tires, and scrap truck parts
Allegheny Power Sub-Station	Messick Rd	Allegany	Electric power substation, possible PCB transformer
Salvage Yard	Limestone Rd	Allegany	Salvage yard (vehicles, scrap metals, appliances, trailers)
Leonard's Transmissions	Ft. Cumberland Drive	Allegany	Automotive repair shop
Former Gasoline Station	14003 UHL Hwy	Allegany	Automotive repair shop/former gasoline station (concrete former pump island visible)
Standard Equipment Co.	14901 UHL Hwy	Allegany	Heavy equipment sales and service
Potomac Metal and Supply Inc.	Siebert Rd	Allegany	Design and custom metal fabrication
Industrial Site (FEMA distribution center)	Plant Rd	Allegany	Industrial chemicals
Patterson Creek Volunteer Fire Department (VFD)	28/3	Mineral	One 550-gal diesel AST and one 550-gal gasoline AST
Poland's Furniture and Carpet	RT 28	Mineral	Trailer storage, 20 tires, 1000-gal diesel AST, unknown UST adjacent to building
FNB Bank	RT 28	Mineral	Possible former gasoline station
Former Gasoline Station/Garage	RT 28	Mineral	Former gasoline station (former pump island present)

TABLE 3.4-1 (continued)
Potentially Contaminated Sites in the Area

Site Name	Street Address	County	Environmental Concerns
Citgo Seven Eleven Gasoline Station	RT 28	Mineral	Gasoline station with two unleaded gasoline USTs
Citgo Gasoline Station	RT 28	Mineral	Gasoline station with one unleaded UST and one diesel UST
Fort Ashby VFD	RT 28	Mineral	1,000-gal AST
Evans Sales and Service	RT 28	Mineral	Automobile service station
Allegheny Power Maintenance Facility	RT 46	Mineral	1,500 gallon unknown AST for fueling, two unknown drums
Former Gasoline Station/Automobile Repair Shop	Paterson Creek Rd	Mineral	Potential former gasoline station/automotive repair facility
WVDOH Facility No. 5	RT 50	Mineral	Gasoline and diesel UST, ASTs, drums, maintenance facility
Pearl's Towing Service	RT 50	Mineral	Drums, six garage bays, junked automobiles, automotive repair shop
Bright Cycle	RT 50	Mineral	Cycle, ATV sales and service/former automotive repair shop; batteries stored outside
Former Gasoline Station	RT 50	Mineral	Former gasoline station (former pump island present)
Burlington Elementary School	Paterson Creek Rd	Mineral	3,000-gal diesel AST
Mulch/Topsoil Yard	129E Paterson Creek Rd	Mineral	Mulch/top soil yard with maintenance building, USTs for fueling, scrap tires, trailers, very large property
Salvage Yard	Russeldale Rd	Mineral	Junked automobiles, appliances, scrap metal
Truck Repair Facility	RT 220	Mineral	One 550-gal diesel AST and one 550-gal gasoline AST, six unknown drums
Salvage Yard	RT 220 and Mtn. View Rd	Hardy	Junked vehicles, trailers, scrap metals
Former gasoline station	RT 220	Hardy	Potential former gasoline station (concrete filling area present in front of building)

TABLE 3.4-1 (continued)
Potentially Contaminated Sites in the Area

Site Name	Street Address	County	Environmental Concerns
D & C Towing and Recovery	RT 220	Hardy	Automotive repair shop, drum storage adjacent to trailer w/unknown contents
Old Fields Grocery Outfitters Gasoline Station	RT 220	Hardy	Gasoline station (unleaded and diesel USTs) (two 1,500-gal unleaded diesel fuel and diesel fuel ASTs)
JMJ Garage	RT 220	Hardy	Various types of mechanical work, six trailers of unknown contents, eight ASTs (500 to 1,500-gal) of unknown contents
Wal-Mart Fuel Center	RT 220	Hardy	Gasoline station with unleaded USTS
AAA Equipment Rental and Sales	RT 220	Hardy	Two 550-gal ASTs (gasoline and diesel)
Markwood Auto Sales	RT 220	Hardy	Automobile sales and service
Knobley Farm Convenience Store	RT 50	Mineral	Former gasoline station (former pump island present)
John Nesslerodt Trucking	Hersey Hollow Rd	Mineral	Truck and automobile repair shop
Sisler Lumber	RT 50	Mineral	Lumber company, 3,000-gal diesel AST, six unknown drums
Petroleum Storage Area	RT 50/220	Mineral	Twelve ASTs (10,000 to 30,000-gal), pump islands, three USTs
Wal-Mart Fuel Center	RT 50/220	Mineral	Gasoline station with unleaded USTS
Fountain Primary School	Knobley Rd and Fountain Rd	Mineral	1,500-gal diesel UST
Whetzell Automotive	Knobley Rd	Mineral	Automotive repair shop, drums and scrap metal, junked automobile parts
Hilltop Sports Shop	RT 46	Mineral	Former gasoline station (former pump island present)
Amtowers Hilltop Automotive	RT 46	Mineral	Automotive repair shop
J & J Truck Service Center	RT 46	Mineral	Truck service center with six trailers with unknown contents, junk parts, 30+ tires, five monitoring wells

TABLE 3.4-1 (continued)
Potentially Contaminated Sites in the Area

Site Name	Street Address	County	Environmental Concerns
D J Spencer Sales and Truck Service	RT 46	Mineral	Truck sales and service center
Buster's Autobody Shop	RT 46	Mineral	Automotive repair shop with two used oil drums
East Coast Custom Cycles	Knobley Road	Mineral	Automobile and cycle repair shop, trailer with unknown contents, junk parts, several drums of unknown content
Ridgely Dist.	Inland and Dixie Lee Drive	Mineral	Commercial/industrial property, six bay garage building with pallets stacked outside
WVDOH Maintenance Facility/Short Gap	RT 28	Mineral	Maintenance yard, diesel and unleaded gasoline USTs
Former Matt's Motors	RT 28	Mineral	Former automotive repair shop and possible former gasoline station
Former Family Pantry and Lou's Pub	RT 28	Mineral	Former gasoline station (former pump island present)
Ace's Used Auto Sales and Service	RT 28	Mineral	Used automobile sales and service
Love's Country Store	RT 28	Mineral	Potential former gasoline station
Mountaineer Mart Gas Station	RT 28	Mineral	Gasoline station with unleaded and diesel USTs
Peers Automotive (salvage yard)	RT 28	Mineral	Automobile service station and salvage yard
Bradshaw's Auto Repair Shop	RT 28	Mineral	Automotive repair shop, former gasoline station (pump island present)
Turnaround Auto Sales	RT 28	Mineral	Former gasoline station (former pump island present) (former Texaco)
Judy's Radiator Repair	RT 28	Mineral	Automotive repair shop
Wertz Auto Repair	RT 28	Mineral	Automotive repair shop
Lambert's Auto Repair Shop	RT 28	Mineral	Automotive repair shop

TABLE 3.4-1 (continued)
Potentially Contaminated Sites in the Area

Site Name	Street Address	County	Environmental Concerns
Carp's Auto Repair	Rt. 28	Mineral	Automotive repair shop
Former Automobile Repair	Beirman Dr.	Allegany	Former automotive repair shop
Davis Automotive	14115 Rowley St	Allegany	Automobile repair shop, junked cars and parts
Howell Trucking and Knight Sanitation	Canal St.	Allegany	Trucking company, truck repairs, truck fueling at two 2,000-gal AST with diesel, several unknown drums
Pitt Ohio Express Inc.	--	Allegany	Several USTs for fueling trucks
Fibered Inc.	--	Allegany	Industrial chemicals
Bayliner, Inc.	--	Allegany	Industrial boat making, fiberglass, engine building
Brunswick Family Boat Company	--	Allegany	Industrial boat making, fiberglass, engine building
Hunter Douglas Fabrication	--	Allegany	Industrial, fabrication company
Superfos	--	Allegany	Industrial chemicals
Schroeder Industries	--	Allegany	Industrial facility, six flammable drums, dumpster with scrap metal
AES Warrior Run	11600 Mexico Farms Road	Allegany	Industrial facility (power generation)
S. Schwab Co. Distribution Center	11700 Mexico Farms Rd	Allegany	Industrial distribution center
Valley Medical Transport	11700 Mexico Farms Rd	Allegany	Former Kelly-Springfield Tire Company
Hawk Brothers Logging	--	Grant	Two 3000-gal diesel USTs
Former gasoline station	RT 50	Mineral	Potential former gasoline station (old Esso sign on building)

TABLE 3.4-1 (continued)
Potentially Contaminated Sites in the Area

Site Name	Street Address	County	Environmental Concerns
Former gasoline station	RT 50	Mineral	Former gasoline station (old pump island present)
WVDOH Mineral County Headquarters	RT 50	Mineral	Two USTs (diesel and unleaded gas), unknown AST, vehicle maintenance
Junkin's Auto Shop	RT 50	Mineral	Automobile repair shop/former gasoline station

3.5 Air Quality

Attainment status of the study area with respect to the National Ambient Air Quality Standards (NAAQS) and parallel state ambient standards as of December 2012 is as follows: Grant, Hardy, Hampshire, and Mineral counties in attainment; Allegany County in attainment or cannot be classified.

3.6 Noise

Numerous noise receptors exist throughout the study area. The preservation of those qualities is essential if the area is to continue to serve its intended purpose. Specific noise receptors within the area include historic resources, picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, places of worship, libraries, hospitals, public meeting rooms, and auditoriums.

CHAPTER 4.0

ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

The information provided in Chapter 3.0, *Affected Environment,* describes the affected socioeconomic, cultural, and natural environment of the study area at a regional level. This chapter builds on that information and provides more detail on the resources found within each of the corridors carried forward. Thus, the information in this chapter provides the analytical basis for a comparison of the alternatives carried into detailed study at a Tier One level. Those alternatives are the No-Build Alternative and three build alternatives. The No-Build Alternative is carried into detailed study as a baseline for establishing the environmental consequences of the build alternatives. Through the screening process discussed in Chapter 2.0, *Alternatives Development*, the build alternatives were narrowed from five to three. The build alternatives carried into detailed study were Corridors B, C, and D.

Once corridors were developed for this study, the predominant social, cultural, and natural resources were identified within each corridor based on a best-fit alignment and a buffer of 2,000 feet to each side of the centerline. This allowed for a "worst-case" identification of possible impacts within each proposed corridor. Although the entire corridor was used for the analysis, an actual build alternative would have a much smaller footprint and therefore less potential for impacts. The corridor was also analyzed for how well a transportation project would support Smart Growth and priority funding initiatives. Information used for screening the original five transportation corridors was refined and supplemented, where possible, to conduct additional analyses of the three corridors advanced to this stage. Based on the results of the environmental and engineering studies completed during development of the Draft EIS, Corridor B with a northern spur of Corridor D that connects to I-68 in Maryland was identified as the preferred corridor.

As the project advances to Tier Two, actual alternatives will be developed within one or more of the corridors, and more detailed studies will occur. When those actual alternatives are developed in Tier Two as the project progresses, they will be analyzed to determine the level of potential impact and gauge how well Smart Growth will be supported. Future and possible mitigation efforts are presented here for the most critical resources, but other options for avoidance, minimization, and mitigation will also be developed during Tier Two. With the development of actual highway alignments or other types of transportation improvements in Tier Two, the appropriate resource agencies, local planners, and citizens of the area will assist in determining the appropriate avoidance, minimization, and mitigation strategies for each proposed alternative. Avoidance and minimization efforts can take many forms and may include compressed medians, reduced safety grading widths, bridging of resources, and other similar design features.

4.1 Socioeconomics and Land Use

4.1.1 Socioeconomics

The socioeconomic environment was identified through a coordinated effort between local planning officials and team members. Socioeconomic data were collected from a variety of sources and analyzed to determine the potential impacts of the project on man's built environment. Information analyzed included settlement patterns, census data, aerial photography, county comprehensive plans, capital improvements programs, and other locally developed regional and study area plans.

4.1.1.1 Regional and Local Economy

4.1.1.1.1 Methodology

Information on the regional and local economy was collected from a variety of sources, including windshield surveys, Dun & Bradstreet, WVURC, county comprehensive plans, state and local agencies, and local government and agency websites. Economic activity was analyzed throughout the project region, using GIS data and a gravity model of the economy's trade centers. The gravity model measured the proportional size of the study area's trade centers and compared them to one another. The size of each trade center was based on each trade center's the number of jobs in each trade center (Kulkarni 1976).

The gravity model was used to identify the relative size of adjacent trade centers potentially impacted by each corridor. By comparing the number of jobs in each trade center and the distance between the trade centers, it was possible to determine the relative economic influence each corridor would have on local employment. The limits of each trade center were determined by dividing the distance between two centers by a ratio based on the number of jobs in each center. The trade centers analyzed in this section are consistent with growth-related infrastructure found in the study area. Specifically, in Allegany County, the trade centers are consistent with Maryland's PFAs. The boundaries for the PFAs are shown in Figure 1-7.

4.1.1.1.2 Effects Analysis – Regional and Local Economy

No-Build Alternative

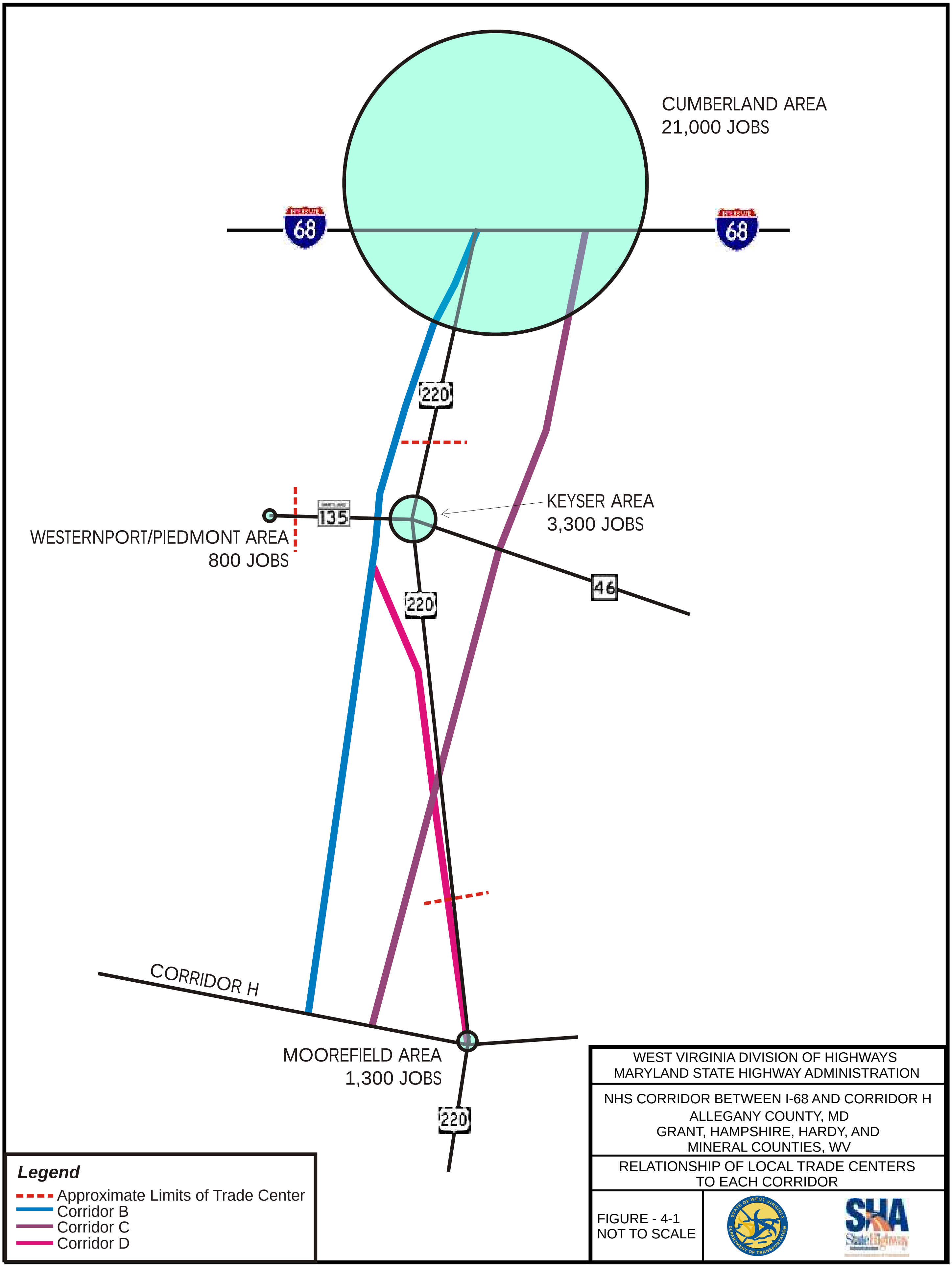
The No-Build Alternative would have a direct impact on the existing regional and local economy. Although existing transportation patterns would continue to influence the economy, ongoing congestion and roadway deficiencies are unlikely to encourage increased job development and business growth in the area.

Build Alternatives

Construction of a new highway within any of the corridors would have a positive effect on the regional and local economy. Access to existing jobs would be improved and would offer opportunities for job growth.

The relationship of the trade centers to one another and to the three corridors is shown in Figure 4-1. Based on the economic gravity model, which uses the number of existing jobs in each trade center as the basis for calculating the relative size of each trade center, the Cumberland trade center extends about 14 miles along US 220 toward Keyser. The Keyser trade center extends about 20 miles toward Moorefield along US 220 and about five miles toward Westernport/Piedmont. Although drivers' travel habits always demonstrate a wide variation, the trade center boundaries approximate the distance most people travel on a regular basis to reach their places of employment and to purchase goods and services within the study area.

Construction of the proposed project would result in short-term economic benefits in the study area, through the creation of a large number of construction jobs. A portion of those wages would be spent on goods and services provided by local businesses. Other local businesses could also provide construction-related services, such as surveying and drilling, and materials such as gravel, concrete, and steel.



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RELATIONSHIP OF LOCAL TRADE CENTERS
TO EACH CORRIDOR

FIGURE - 4-1
NOT TO SCALE

Detours and road closures during construction would create temporary inconvenience for residents, business owners, and the traveling public. Maintenance and protection of traffic plans would be developed during final design to mitigate access impacts and minimize delays throughout the project. These plans would include appropriate signs, pavement markings, and media announcements. Access to all businesses and residences would be maintained through construction scheduling.

Emergency services providers and school transportation could be impacted by temporary road closures and reduced speeds in work zones during construction. Temporary road closures or detours could impact access within localized areas as a result of construction activities.

Corridor B

Corridor B would provide additional transportation service to three of the four trade centers. All but the Moorefield trade center would be serviced by Corridor B. Approximately 25,100 jobs are located within the three trade centers: 21,000 in Cumberland, 3,300 in Keyser, and 800 in Westernport/Piedmont.

Corridor C

Corridor C would provide additional transportation service to two of the four trade centers, Cumberland and Keyser. Approximately 24,300 jobs are located within the two trade centers: 21,000 in Cumberland and 3,300 in Keyser. If a four-lane highway facility were built within Corridor C, it would also serve the Moorefield area *via* a connection with Corridor H. If both facilities were open, Corridor C would provide relatively easy access to another 1,300 jobs in Moorefield. It would also provide better access to and from jobs in Hampshire County than Corridor B and the same access to Hampshire County as Corridor D.

Corridor D

Corridor D, which would provide additional transportation service to all four trade centers, offers the best opportunities for economic development of all three corridors. Approximately 26,400 jobs are located within the four trade centers: 21,000 in Cumberland, 3,300 in Keyser, 800 in

Westernport/Piedmont, and 1,300 in Moorefield. As in the case of Corridor C, Corridor D would also provide improved access to and from jobs in Hampshire County.

4.1.1.2 Community Cohesion

Although every community is part of a larger region, each community has a special characteristic or group of characteristics that makes it different from the surrounding area. By its simplest definition, a community is a group of individuals who share common ties and a common identity. Communities can have clear boundaries delineated by existing municipal or physical limits, or less distinct boundaries defined by socioeconomic factors, demographic characteristics, or social and psychological attitudes. For the transportation development process, a community is generally considered a geographic area in which local residents have made a commitment to the physical environment where they live or work and to the accompanying social system that functions within that environment.

Community cohesion is commonly defined as the interaction among individuals, groups, and institutions. Community cohesion manifests as the perception of belonging to a group or having a close bond to a particular area. This perception of a strong community bond is commonly referred to as a “sense of place,” which allows cohesion to be expressed through the patterns of “daily social interaction, the use of local facilities, participation in local organizations, and involvement in activities that satisfy the population’s economic and social needs” (FHWA 1996).

4.1.1.2.1 Methodology

To determine whether the proposed project would impact community cohesion, several socioeconomic research activities were undertaken, including analysis of U.S. Census reports, analysis of potential residential and commercial displacements, completion of windshield surveys, examination of maps and aerial photography for the study area, identification of community facilities, interviews with local planning officials, reviews of comprehensive plans, and collection of public meeting information. All of this information was consolidated to identify potential disruptions to local communities, including residential and commercial displacements, the disruption of existing transportation patterns, and the creation of physical barriers. This consolidated information was analyzed to determine the impacts on community cohesion.

4.1.1.2.2 Effects Analysis – Community Cohesion

Although no direct measurement of community cohesion is possible, any impacts caused by a transportation project could interfere with or diminish the social cohesion of the surrounding community, including community access to facilities and services. Impacts that cause the displacement of residents and businesses could also result in the permanent disruption of community cohesion.

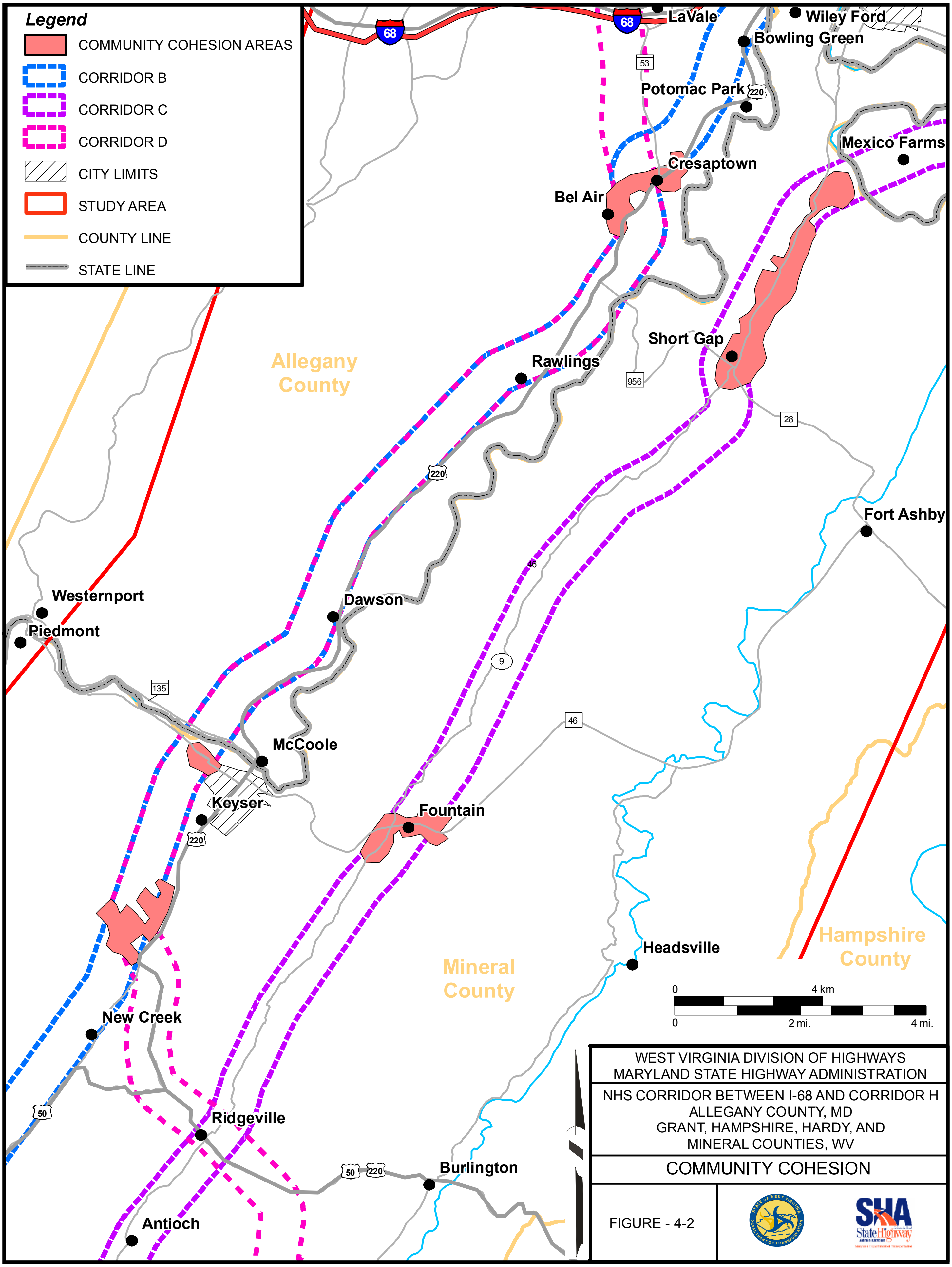
No-Build Alternative

The No-Build Alternative would have no impact on community cohesion. Although local patterns of travel and human interaction would continue as they currently exist, future transportation projects would be needed to help alleviate the existing and future traffic congestion on area roads. Those projects could impact community cohesion.

Build Alternatives

Impacts on community cohesion would likely occur around new interchanges and major side road connections if those interchanges and side roads are located too close to the residential areas. Although the interchanges would make the communities in which they are located regional travel destinations, which could attract additional attention to the area and provide an enhanced sense of place for residents, they could also diminish the quality of life by introducing elevated ramps and lighting adjacent to residential areas. However, the transportation access provided by the project could strengthen community cohesion in rural areas, where residents often experience a sense of isolation caused by an inability to travel easily, a lack of public and community services, and great distance between homes and services.

Depending on the eventual design of any transportation improvements, community cohesion could be negatively impacted. Those impacts are discussed individually as impacts within each corridor. The locations of areas in which impacts on community cohesion could occur are shown in Figure 4-2.


Legend
COMMUNITY COHESION AREAS
CORRIDOR B
CORRIDOR C
CORRIDOR D
CITY LIMITS
STUDY AREA
COUNTY LINE
STATE LINE
68
68
LaVale
Wiley Ford
Bowling Green
53
Potomac Park
220
Mexico Farms
Cresaptown
Bel Air
Short Gap
Rawlings
956
Allegany County
28
220
Fort Ashby
46
Westernport
Dawson
Piedmont
9
135
46
McCoole
Keyser
Fountain
220
Headsville
Hampshire County
Mineral County
0
4 km
0
2 mi.
4 mi.
New Creek
50
Ridgeville
50
220
Burlington
Antioch
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ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
COMMUNITY COHESION
FIGURE - 4-2
SHA

Corridor B

Impacts on community cohesion could occur in three locations within Corridor B. The first impacts would occur as the corridor traverses Cresaptown and Bel Air shortly after originating at I-68. Cresaptown and Bel Air are densely developed communities with thriving businesses, strong residential neighborhoods, local schools, and many places of worship. Home ownership is high, approximately 94 percent of residences are owner-occupied, and many residents have lived in the communities most of their lives. Although both communities are unincorporated, residents of Cresaptown and Bel Air identify strongly with their specific "home" communities. Future highway alignments that fall within Corridor B could cause major displacements in these two neighboring communities.

Similar impacts could occur in Keyser on the west end of town, where Corridor B enters Mineral County. The west end is a compact mixed-use neighborhood in which older, single-family homes predominate. Although the percentage of owner-occupied homes is less in Keyser (about 70%) than in Cresaptown and Bel Air, residents of Keyser still share a strong sense of community cohesion. Half the width of the corridor falls within the built-up sections of Keyser, and future highway alignments could create residential or business displacements and sever the west end from other parts of the community.

Impacts on community cohesion could also occur just south of Keyser, in an area beginning approximately at the Polish Pines Golf Club and ending to the vicinity of Keyser High School. Primarily a residential community along Trenum Drive, this area is a mix of newer single-family homes and manufactured housing bounded by a growing strip commercial district to the east along US 220. If impacts on community cohesion occurred here, they would likely be less than at the other two locations in Corridor B.

Corridor C

Impacts on community cohesion could occur in two locations within Corridor C. The first impacts could occur in a line along WV 28, from the Maryland state line to Short Gap. Moderately dense suburban residential development (approximately 200-300 residences) has been occurring in this area for the past 40 years. Although the residential development has been mostly single-family homes, several small, low-rise, garden-type apartments and manufactured homes are also located within the area. In addition to the homes located directly on WV 28, residential development is also clustered adjacent to the thoroughfare. The many businesses and places of worship scattered throughout the area create the sense of a longstanding suburban neighborhood. Frankfort Middle School and High School are located nearby on a large campus.

Impacts on community cohesion could also occur in the vicinity of Fountain, a small rural community located along WV 46 and CR 9. Fountain is a hamlet of about 200 homes, an elementary school, a post office, and several businesses and places of worship. Those who live in this rural hamlet share the sense of belonging to a unique group.

Corridor D

Impacts on community cohesion could occur within Corridor D at the same three locations as Corridor B. Those locations are the Cresaptown and Bel Air area, the west end of Keyser, and south of Keyser between the Polish Pines Golf Club and Keyser High School. Impacts south of Keyser could be greater with Corridor D than Corridor B, however.

4.1.1.3 Displacements

Regardless of which corridor is recommended as the preferred transportation corridor, future construction would likely cause residential and commercial displacements. As a first step in identifying displacements that could occur later in the process, potential residential and commercial impacts were identified as part of the land cover analysis.

4.1.1.3.1 Methodology

Land cover in the study area was categorized according to the *Anderson Level II Classification System* (Anderson *et al.* 1976), digitized (in GIS format), and mapped using aerial photography. Once the mapping was completed, field crews conducted a windshield survey for the entire study area to verify actual land use. After field investigations were completed, all appropriate changes were made to the project mapping and land use was analyzed.

Since each of the corridors is over 35 miles long and 4,000 feet wide, an analysis of built-up land was judged as the most efficient method to identify the magnitude of potential displacements. Built-up land is characterized as being intensively developed, with much of the land covered with buildings. Included in this land cover category are cities, towns, villages, highway strip development, and industrial and commercial complexes. Residential land development within built-up areas can range from high density, multiple-unit apartment buildings to single-family houses on one-acre lots. Commercial areas within built-up land primarily include businesses selling products or services. Industrial uses within built-up land range from light to heavy manufacturing, mining, and warehouse operations.

The land cover analysis was supplemented by a review of the area's countywide comprehensive plans, an evaluation of data on business locations (Dun & Bradstreet, Inc. 2006), and a broad property analysis of each corridor. Included in the property analysis was a review of current real estate activity, average value of housing, and discussions with local realtors.

Although the entire corridor was used for the analysis, an actual build alternative would have a much smaller footprint and therefore less potential for displacements. During Tier Two, actual commercial and residential displacements of alternatives will be analyzed. Potential displacements will be mapped and presented to the public.

4.1.1.3.2 Effects Analysis – Displacements

No-Build Alternative

The No-Build Alternative would result in no displacements of commercial or residential properties. In an effort to address growing congestion and other transportation problems in the area, however, future projects could result in the loss of commercial and residential properties.

Build Alternatives

Corridor B would impact 4,060 acres of built-up land (residential, commercial, industrial, and mixed-use of a similar nature); Corridor C would impact 2,940 acres of built-up land; and Corridor D would impact 3,820 acres of built-up land. Of the three corridors advanced for further analysis, Corridor C would have the least impact on built-up land, and future alternatives developed within Corridor C would likely have fewer displacements than alternatives developed within Corridor B or Corridor D.

4.1.1.3.3 Future Mitigation Efforts

Any property to be acquired after the Tier Two studies are completed will be purchased in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, *Title VI of the Civil Rights Act*, and the appropriate WVDOH or MDSHA real property acquisition procedures. Specifically, the following Title VI statement is offered:

> It is the policy of the WVDOH and MDSHA to ensure compliance with the provisions of Title VI of the Civil Rights Act of 1964 and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, sex, national origin, age, or physical or mental handicap in all of their program projects funded in whole or in part by the FHWA. The WVDOH and the MDSHA will not discriminate in highway planning, highway design, highway construction, right-of-way acquisitions, or the provision of relocation advisory assistance. This policy has been incorporated in all levels of the highway planning process to ensure that proper consideration may be given to the social, economic, and environmental effects of all highway projects. Alleged discriminatory actions should be addressed to the appropriate state Title VI Program Coordinators. In West Virginia the address is EEO Division, 1900 Kanawha Boulevard East, Building 5, Room 948A, Charleston, WV 25305; and in Maryland the address is Chief, Office of Equal Opportunity, 707 North Calvert Street, Baltimore, MD 21202.

As such, individuals and families displaced by the project will be offered the full extent of benefits and payments provided by these laws and regulations. Additionally, provisions will be made to assure that any person with a disability who is displaced is offered replacement housing that has been fitted to meet any special needs.

A review of real estate multi-lists for the project area indicated that the number of properties available in the vicinity of the proposed project is adequate. There are no known factors influencing market trends that would adversely affect the availability of replacement housing. While it is likely that current listings would not be available at the time of acquisition for this project, there is a reasonable expectation that a sufficient number of units would continue to be available at the time property acquisitions occur. In the event that housing is insufficient for the needs of the persons displaced, *Housing of Last Resort* (FHWA 2001) will be used.

During most transportation projects, there is adequate replacement housing available. However, when a housing shortage does occur, the *Housing of Last Resort* provides several options to create a suitable replacement property, including:

- Purchasing an existing comparable residential property and making it available to the displaced person in exchange for the displacement property;
- The relocation and rehabilitation (if necessary) of a dwelling purchased from the project area by the Agency (i.e., WVDOH or MDSHA) and making it available to the displaced person in exchange for the displacement property;
- The purchase, rehabilitation, and/or construction of additions to an existing dwelling to make it comparable to a particular displacement property;
- The purchase of land for the construction of a new replacement dwelling comparable to a particular displacement property when comparables are not available;
- The purchase of an existing dwelling, removal of barriers, and/or rehabilitation of the structure to accommodate a handicapped displaced person when suitable comparable replacement dwellings are not available;
- A replacement housing payment in excess of the maximum payment limits; and
- A direct loan which will enable the displaced person to construct or contract for the construction of a decent, safe, and sanitary replacement dwelling (FHWA 2001).

Each business being displaced will be offered the relocation benefits provided by the *Uniform Relocation and Real Property Acquisition Policies Act*. There appears to be ample commercial land and buildings in the project area to accommodate the relocation of businesses. Assistance will be provided to the businesses to reestablish within the vicinity of the project area.

4.1.2 Land Use

Land use was evaluated to determine the potential effects on the socioeconomic landscape. The emphasis of the land use analysis was on the potential effects on more intensively developed land. As noted in the discussion on possible displacements, each corridor is over 35 miles long and 4,000 feet wide. Therefore, an analysis of built-up land was judged as the most efficient method to identify the magnitude of potential impacts related to land use.

4.1.2.1 Methodology

Land use data were gathered from several different sources. GIS data were downloaded from the state GIS clearinghouse and state agency websites. After the GIS data were collected, windshield surveys were performed throughout the study area to verify actual land use. Existing aerial maps were analyzed in order to research and understand the basic land utilization. Any necessary updates were adapted to the project mapping. All of this information was combined and used to identify potential impacts to existing land use, including the identification of acreages of each type of land use within the corridors.

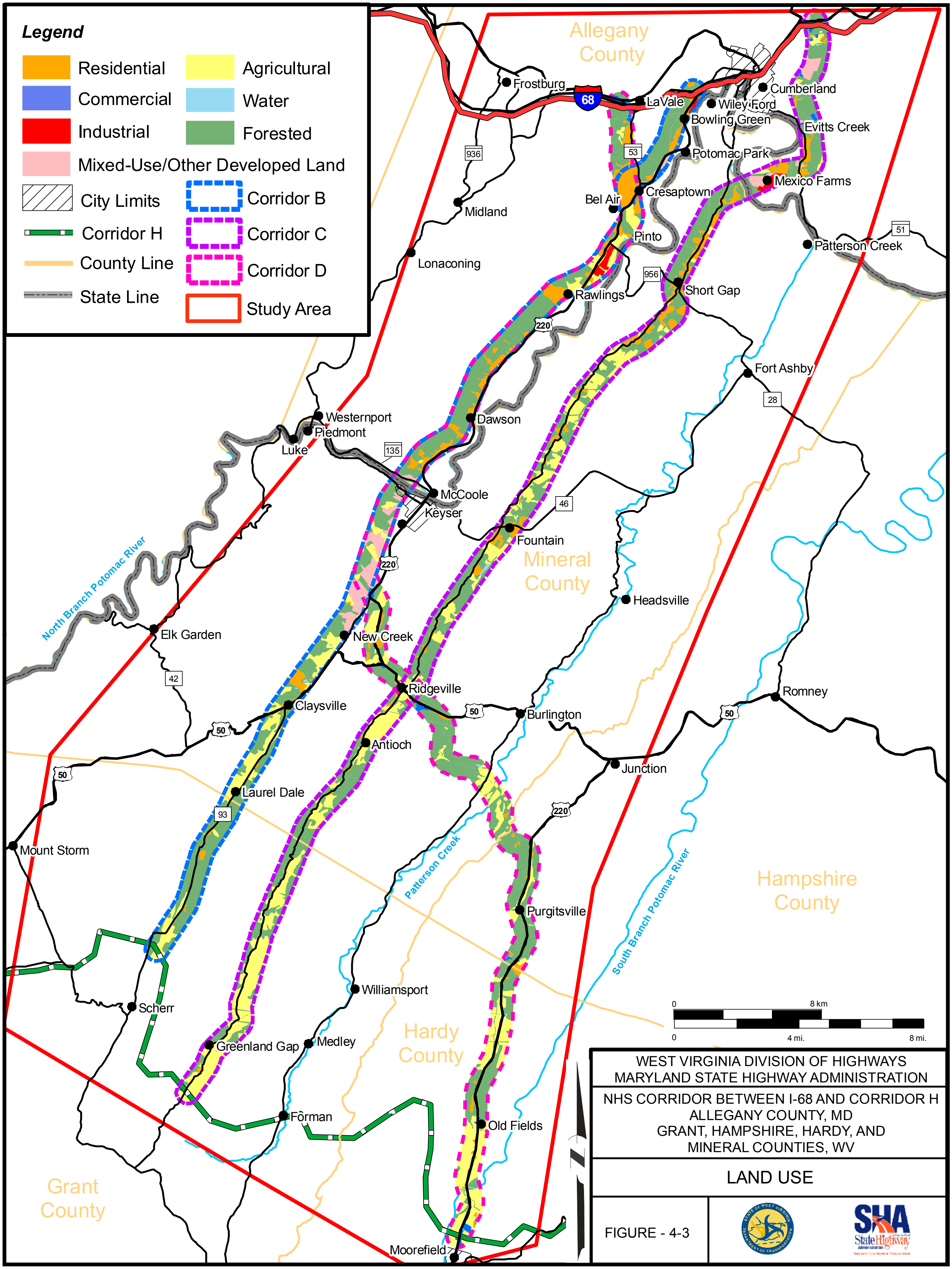
4.1.2.2 Effects Analysis – Land Use

No-Build Alternative

The No-Build Alternative would not have a direct impact on land use as it currently exists. Patterns of land utilization would continue to be influenced as they are. The No-Build Alternative would not encourage development in the areas of commercial, industrial, and residential land utilization. Commercial development would likely continue on a small scale within the clusters of Moorefield, Keyser, and Cumberland. Any future development that might affect land use would occur along existing transportation systems.

Build Alternatives

Land utilization could be affected negatively by the build alternatives through the conversion of farmland and forestland or by adjacent development. Positive impacts could occur, however, if commercial and industrial areas expand and spur economic development after better access to a transportation system is made possible. Commercial areas that are isolated could be made easier to access *via* a new transportation system. This would further encourage economic development through increasing the attractiveness of sites to developers by allowing for efficient access to certain areas. Land use within each corridor is shown on Figure 4-3.



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LAND USE

FIGURE - 4-3

Corridor B

Corridor B encompasses approximately 2,590 acres of residential land use and traverses some of the most populated settlements in the study area. Most of the residential land use is occurring at the northern end of Corridor B between Rawlings and I-68 along US 220. More residential land use exists through the west side of Keyser and along WV 972 through New Creek. Throughout the remainder of Corridor B, residential land use is rural and scattered.

Corridor B encompasses approximately 1,300 acres of mixed use, built-up land. This would include institutional land use and mixed use residential and commercial. Much of this type of land use is occurring along US 220 from Keyser to New Creek. Another concentrated area of institutional land use is along US 220 from Cresaptown to I-68.

Corridor B encompasses approximately 170 acres of commercial and industrial land. This occurs primarily through Keyser and Cresaptown along US 220. Little to no commercial land use can be found south of Keyser within Corridor B and between McCoole and Bel Air. There are two industrial parks within Corridor B, both near Cresaptown.

Corridor B encompasses approximately 9,890 acres of forested land. This is the least amount of forested land in any of the three corridors but, as noted earlier, any proposed alternative has the potential to impact a considerable amount of forested land. Potential impacts to forested land occur primarily from Rawlings south to Keyser and in Grant County.

Corridor C

Corridor C encompasses approximately 2,400 acres of residential land use and traverses some of the lesser populated areas of the project region. Most of the residential land use in Corridor C is occurring through Fountain along WV 46 and from Short Gap along WV 28 northward through Mexico Farms and South Cumberland. Throughout the remainder of Corridor C, the residential land use is rural and scattered.

Corridor C encompasses approximately 90 acres of mixed use, built-up land. This would include institutional land use and mixed use residential and commercial. This type of land use is isolated in Corridor C and is mostly constrained to the northern end between Mexico Farms and through the Willowbrook Road corridor to I-68.

Corridor C encompasses approximately 450 acres of commercial and industrial land use. Again, this occurs mostly at the northern end with a small concentration around Short Gap and more widespread commercial and industrial use from the North Branch Industrial Park at Mexico Farms to I-68.

Corridor D

Corridor D encompasses approximately 2,620 acres of residential land and also traverses some of the most populated areas of the project region. Most of the residential land use is occurring at the northern end of Corridor D between Rawlings and LaVale along US 220. More residential land use exists through the west side of Keyser and southward along US 220. Throughout the remainder of the corridor, the residential land use is sparse and rural.

Corridor D encompasses approximately 860 acres of mixed use, built-up land. This would include institutional land use and mixed use residential and commercial. This type of land use is isolated in Corridor D and is mostly constrained to the Keyser area, along US 220. More mixed-use exists along US 220 from Bel Air to Cresaptown and northward to LaVale and I-68.

Corridor D encompasses approximately 340 acres of commercial and industrial land use. Again, this occurs mostly along the US 220 corridor through Keyser and from Bel Air to Cresaptown and northward to LaVale and I-68. There are only two industrial parks within Corridor D, both near Cresaptown along US 220.

Table 4.1-1 shows the generalized potential land use impacts for all three corridors. Additional discussions of land use impacts are found later in this chapter in the *Cumulative and Indirect Impacts* section.

TABLE 4.1-1
Generalized Potential Land Use Impacts

Land Use	Corridor B	Corridor C	Corridor D
Residential	2,590 acres	2,400 acres	2,620 acres
Mixed Use/Built-up	1,300 acres	90 acres	860 acres
Commercial/Industrial	170 acres	450 acres	340 acres
Agricultural	2,953 acres	6,489 acres	7,709 acres
Rangeland	127 acres	644 acres	720 acres
Forested	9,890 acres	11,130 acres	11,409 acres
Mixed Forest/Rangeland	0 acres	53 acres	91 acres

4.1.3 Environmental Justice

Title VI of the Civil Rights Act of 1964 requires that no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. In addition, Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (Office of the President of the United States of America 1994), requires that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations" (59 Fed. Reg. 7629).

Three fundamental principles make up the core of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in, the receipt of benefits by minority and low-income populations.

Following the guidelines of Executive Order 12898, an assessment was made concerning potential project impacts on minority and/or low-income populations. The objective of the assessment was to determine whether a high percentage of minority and/or low-income persons would be disproportionately affected by the project.

4.1.3.1 Methodology

An environmental justice disproportionate effects analysis was conducted for the No-Build Alternative and the three corridors under detailed study. Demographic information used for this study was obtained from the 2000 U.S. Census.

The methodology employs a "quick-technique" comparative screening analysis that measures the potentially impacted populations of each corridor to determine whether an environmental justice population would experience a disproportionate impact when compared to the impact on non-environmental justice populations. In theory, this methodology identifies a threshold for each county in the study area and compares block group data to that threshold. Additional thresholds were established for the cities of Cumberland and Keyser, which are the largest densely populated communities in the study area that could be directly impacted by the three corridors carried forward. If block group data exceed the threshold, the potential for disproportionate effects on that block group is judged to be present.

It is important to note that block groups outside Cumberland and Keyser are still geographically quite large, and it is difficult to identify specific clusters of environmental justice populations using this screening method. In addition, the intent of this analysis was not to determine whether the effects would be positive or negative, but rather to determine whether a disproportionately high percentage of minority and/or low-income persons could be impacted by the corridors under study. The results will determine whether further actions are necessary to address environmental justice issues for the project. Those actions would include closer analysis of the 2010 Census data, coordination with local organizations and places of worship serving minority populations, coordination with local planners and public officials familiar with specific neighborhood composition, and community outreach. A broader analysis will be conducted during Tier Two to ensure that, in addition to communities directly impacted by the project, surrounding communities are also included in outreach efforts. This method of screening and subsequent analysis has been used successfully on many other West Virginia projects for the initial determination of potential impacts on environmental justice populations.

Individual municipalities potentially affected by Corridors B, C, or D include Cumberland and Keyser. Although Moorefield is a potential southern terminus for the project, its municipal boundary is south of Corridor H. Moorefield was not considered separately in the environmental justice analysis because it will not be physically impacted as a result of future construction activities. Demographic information has been gathered for each of these communities and for the five counties that are part of the study area. The following information has been collected for each county and municipality:

- Total population;
- Black (having origins in any of the black racial groups of Africa);
- Hispanic or Latino (Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent);
- American Indian, Eskimo, or Aleut population (having origins in any of the original people of North America, South America, and who maintains cultural identification through tribal affiliation or community recognition);
- Native Hawaiian and Other Pacific Islander (having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands); and
- Low-income population (any readily identifiable group of low-income persons; for this analysis, household income below the Department of Health and Human Services poverty guidelines, as defined by the Office of Management and Budget).

Minority percentages were calculated for each population to determine its representation within the five counties and within the cities of Cumberland and Keyser. The resultant percentages signify the threshold value for the minority populations and were used to determine whether the corridors would have a disproportionate effect on any minority population and/or low-income population within the study area. If a local area has an average occurrence above the threshold, future disproportionate effects could result and additional analysis is warranted. If, instead, the local occurrence is less than the threshold, no further analysis is necessary. Table 4.1-2 shows the thresholds that were calculated for minority populations.

TABLE 4.1-2
Minority Thresholds as a Percentage of Total Population

County or Municipality	Total Population	Black		Hispanic or Latino		Asian American, Native Hawaiian and Other Pacific Islander		American Indian and Alaskan Native	
Allegany	75,087	6,232	8.3%	1,126	1.5%	601	0.8%	150	0.2%
Grant	11,937	107	0.9%	143	1.2%	24	0.2%	24	0.2%
Hampshire	23,964	288	1.2%	264	1.1%	72	0.3%	48	0.2%
Hardy	14,024	379	2.7%	505	3.6%	140	1.0%	28	0.2%
Mineral	28,212	846	3.0%	226	0.8%	113	0.4%	28	0.1%
Cumberland	20,859	1,335	6.4%	250	1.2%	209	1.0%	42	0.2%
Keyser	5,425	467	8.6%	76	1.4%	22	0.4%	11	0.2%

Sources: USCB 2010

Thresholds for low-income populations are shown in Table 4.1-3.

TABLE 4.1-3
Low-Income Thresholds as a Percentage of Total Population

County or Municipality	Total Population	Persons with Incomes Below Poverty Level	
		Population	Percent
Allegany	75,087	11,424	15.2
Grant	11,937	1,522	12.8
Hampshire	23,964	3,867	16.1
Hardy	14,024	2,055	14.7
Mineral	28,212	3,730	13.2
Cumberland	20,859	3,880	18.6
Keyser	5,425	1,264	23.3

Sources: USCB 2010

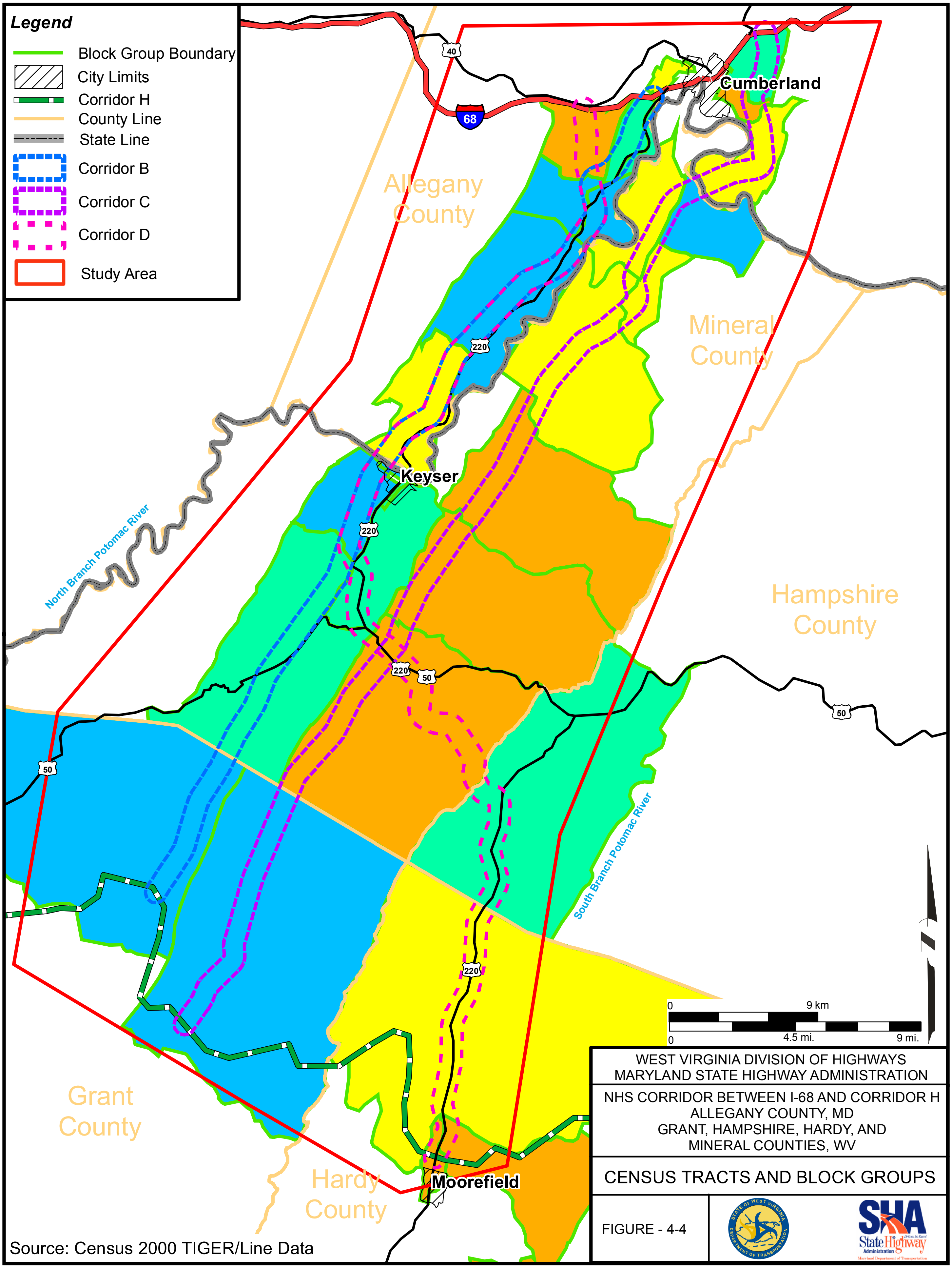
Once thresholds were set for each county and municipality under investigation, census tract and block group information was compiled for the study area. The study area can be described roughly as having a trapezoid-like shape bisected through its approximate center by US 220. The study area is shown on Figure 1-1.

Much of the study area is rural in nature. Consequently, census block groups were used as the best available analysis units to determine potential environmental justice communities and impacts. The block groups represented a sound geographical unit to characterize the rural, urban, and suburban communities within the study area. These units aided in establishing the locations of the populations affected by the corridors. The demographic characteristics of the block groups were compared against the threshold values to determine whether the corridors would have a disproportionate effect on minority or low-income populations. Figure 4-4 shows the block groups used in this analysis.

Each block group within the study area was aggregated in a municipal cluster and compared to its respective county or municipal threshold. Clusters are aggregate block groups that have a spatial relationship. Table 4.1-4 provides a list of those clusters and their composite block groups.

TABLE 4.1-4
Block Group Clusters Used in Environmental Justice Screening

County or Municipality	Analysis Clusters	
	Census Tracts Impacted	Block Groups within Study Area
Allegany	2	3
	5	1
	6	1
	7	1 & 2
	8	2
	12	1
	13	1 & 2
	14.01	2
	20	1, 2 & 3
	22	1
Grant	9694	1 & 2
Hampshire	9684	1
Hardy	9701	3
	9702	1 & 4
Mineral	102	1, 2 & 3
	103	1
	104	1, 2 & 3
	105	2, 3 & 4
	106	1 & 3
Cumberland	5	1
	6	1
	7	1 & 2
	8	2
	12	1
Keyser	106	1 & 3



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

CENSUS TRACTS AND BLOCK GROUPS

FIGURE - 4-4

4.1.3.2 Effects Analysis – Environmental Justice

The results of the aggregate cluster analysis for minority populations indicated that thresholds were exceeded in several areas, which could indicate potentially disproportionate effects on minority communities. Additional confirmation of potentially disproportionate effects will require a complete public outreach program in Tier Two. The results of the initial screening for the five counties and the two largest municipalities that could be directly impacted by the corridors, as well as those areas that exceeded the thresholds, are shown in bold italics in Table 4.1-5.

TABLE 4.1-5
Screenings of Minority Thresholds

County or Municipality	Population within Cluster	Black		Hispanic or Latino		Asian American, Native Hawaiian and Other Pacific Islander		American Indian and Alaskan Native	
		Pop.	Per.	Pop.	Per.	Pop.	Per.	Pop.	Per.
Allegany	21,177	1,415	6.7	538	2.5	177	0.8	29	0.1
Grant	2,042	10	0.5	15	0.7	4	0.2	1	<0.1
Hampshire	1,084	6	0.6	9	0.8	2	0.2	4	0.4
Hardy	2,921	39	1.3	68	2.3	6	0.2	4	0.1
Mineral	18,485	519	2.8	128	0.7	65	0.4	23	0.1
Cumberland	9,577	500	5.2	121	1.3	94	1.0	13	0.1
Keyser	3,568	342	9.6	32	0.9	22	0.6	4	0.1

Sources: USCB 2010

The thresholds for Black populations were exceeded within the study area in Keyser. The thresholds for Hispanic or Latino populations were exceeded in Allegany and Hampshire counties and Cumberland. The thresholds for Asian American, Native Hawaiian and Other Pacific Islander populations were not exceeded in any of the clusters. The thresholds for American Indian and Alaskan Native populations were exceeded in Hampshire County. Allegany County and Cumberland would be impacted by Corridors B, C, and D. Keyser would be impacted by Corridors B and D. Hampshire County would be impacted by Corridor D.

The results of the analysis for low-income populations indicated that thresholds were exceeded in 5 areas: Hampshire, Hardy, and Mineral counties, Cumberland, and Keyser. Hampshire and Hardy counties would be impacted by Corridor D. Mineral County would be impacted by Corridors B and D. Cumberland would be impacted by Corridors B, C, and D. Keyser would be impacted by Corridors B and D. The results of the screening for potential impacts on low-income thresholds are shown in Table 4.1-6.

TABLE 4.1-6
Screenings of Low-Income Thresholds

County or Municipality	Population within Cluster	Persons with Incomes Below Poverty Level	
		Population	Percentage
Allegany	21,177	3,049	14.4
Grant	2,042	249	12.2
Hampshire	1,084	297	27.4
Hardy	2,921	497	17.0
Mineral	18,485	2,569	13.9
Cumberland	9,577	1,647	17.2
Keyser	3,568	874	24.5

Sources: USCB 2010

As part of the environmental justice screening, limited-English-proficient (LEP) populations were also examined. Although few such populations were identified in the project area, they do exist and additional analysis will be conducted during Tier Two.

No-Build Alternative

Although the No-Build Alternative would have no immediate impacts on environmental justice populations, it might not accommodate future travel needs and could allow traffic congestion and transportation deficiencies to continue. Those conditions could have a negative impact on environmental justice populations by limiting travel opportunities to and from their communities.

Build Alternatives

At this level of analysis, any of the corridors could have a disproportionate effect on minority or low-income populations. Additional analysis and consultation with community leaders, churches, and nonprofit organizations will be necessary to determine the exact locations of environmental justice populations and the extent of impacts on those populations as the project advances to Tier Two and alternatives are developed. Specific areas that could be identified as housing environmental justice populations include Cresaptown, Bel Air, Barton, Rawlings, Dawson, and McCoole in Allegany County; the Knobley Road area in Grant County; Purgitsville in Hampshire County; and Old Fields in Hardy County. Although positive benefits, including new employment opportunities and improved transportation and connectivity, could offset impacts on minority and low-income populations, additional environmental justice analyses will be undertaken during Tier Two. Because the Tier One effort has shown the potential for disproportionate impacts on environmental justice populations within any of the corridors, an extensive outreach program will be developed early in the Tier Two process.

4.1.4 Community Facilities/Parks and Recreation

4.1.4.1 Community Facilities

4.1.4.1.1 Methodology

Information on community facilities was collected from a variety of sources, including windshield surveys, comprehensive plans, state and local agencies, and local government and agency websites. GIS data were utilized to create the boundaries of the community facilities on project mapping.

Most of the West Virginia data were downloaded from the West Virginia GIS Technical Center website, a clearinghouse for government agencies such as the WV Office of Emergency Medical Services, WV Development Office, WVDNR, WVDEP, NPS, USACE, and the United States Geological Survey (USGS). Information retrieved from this website and its agencies was then field verified. Aerial base mapping and topographical maps were used as a supplement to the GIS data and for verification purposes.

Maryland data were derived from the Maryland Spatial Data Infrastructure, NPS, USACE, USGS, the Allegany County Planning Department's GIS service, the MDP, the MDNR, and the MDSHA Highway Information Services GIS Download Center. The Nature Conservancy also provided specific GIS data for the project. Aerial base mapping and topographical maps were used as a supplement to the GIS data and for verification purposes.

4.1.4.1.2 Effects Analysis – Community Facilities

No-Build Alternative

The No-Build Alternative would have no direct impact on any community facilities. Those facilities would continue to be influenced by existing patterns of development and existing transportation systems.

Build Alternatives

Positive effects on community facilities could occur around a new transportation route. A new transportation system would allow the public easier and quicker access to community facilities and allow emergency services providers better access to the communities they serve, especially to rural communities. The transportation access provided by the project would enhance the community connectivity in rural areas, where residents often experience a sense of isolation caused by an inability to travel easily because of the great distance between homes and community facilities. Negative impacts on community facilities could also occur, especially if community facilities that are displaced are not replaced. Negative impacts could also occur if replacements disrupt the use of those facilities, make it difficult for people to use them, or alter community cohesion.

Community facilities in all three corridors are shown on the plates.

Corridor B

Ten of the community facilities within Corridor B are cemeteries, and more than half are family cemeteries. At least 17 places of worship are located within Corridor B. Three volunteer fire departments with rescue ambulance service are located within the corridor: Bowling Green VFD, Cresaptown VFD, and New Creek VFD.

At least two government buildings are located within Corridor B: the WVDOH Mineral County office in New Creek and a United States Army Reserve Center in Cresaptown, which includes the Allegany County Soldier's Memorial.

One privately owned healthcare clinic is found within Corridor B, the Progressive Physical Therapy and Sports Medicine Clinic, which is located in the Upper Potomac Industrial Park adjacent to US 220. The Potomac Valley Hospital in Keyser is also near Corridor B, adjacent to US 220, but not within the corridor boundary.

Two industrial/business parks lie within Corridor B. The Barton Business Park is located seven miles south of Cumberland along US 220 and is owned by the Maryland Economic Development Corporation. Its targeted uses are industrial and manufacturing. Seven parcels make up the Barton Business Park. American Woodmark operates the only parcel that is currently occupied. The business park comprises approximately 140 acres, 43 acres of which are occupied by American Woodmark. The park has its own sewage treatment plant, located within Corridor B. Water service is provided by the Allegany County Department of Public Works. The Upper Potomac Industrial Park is also located within Corridor B, adjacent to US 220 in Bowling Green, just south of I-68. The City of Cumberland provides water and sewer service to the Park.

One post office is located within Corridor B at Pinto. Two correctional facilities are located with Corridor B: the Western Correctional Institute located on the east side of and adjacent to US 220 near Potomac Park; and the Allegany County Juvenile Detention Center located on US 220 near Cresaptown.

Eight schools lie within Corridor B. Two are public schools: Keyser High School and New Creek Elementary School. One is a vocational-technical school, the Center for Career and Technical Education, located in Cresaptown. One is an alternative school, the Mineral County Alternative School in Keyser, and three are private schools in Cresaptown: Calvary Christian Academy, Wesleyan Christian Academy, and Christian Fellowship Academy. The remaining school is West Virginia University's Potomac State College, which also includes an agricultural center.

Four water/sewer facilities are located within Corridor B. The Barton Industrial Park Sewer Treatment Plant and the McCoole Water Storage Tower are operated by the Allegany County Department of Public Works. The Bel Air Sewer Treatment Plant is operated by the Maryland-American Water Company and provides most of its services to Bel Air and Pinto. The Rawlings

Heights Water Treatment Plant, which is privately owned, provides services to Rawlings and Rawlings Heights.

Two publicly owned parks and recreation areas and six privately owned recreation areas lie within Corridor B. Those areas will be discussed in the following section. Other community facilities include the Mineral County Dog Pound in Keyser and a park-and-ride lot along US 220, just south of I-68.

There are no airports or libraries within Corridor B.

Corridor C

Nineteen of the identified community facilities within Corridor C are cemeteries, and more than half are family cemeteries. At least 20 places of worship are located within Corridor C.

Two VFDs with rescue ambulance service are located within Corridor C: the Fountain VFD and the Short Gap VFD.

Two healthcare-related facilities are found in Corridor C. The Allegany County Health Department is located along Willowbrook Road south of I-68. Opposite the health department is the Western Maryland Regional Medical Center, which was created by consolidating Sacred Heart Hospital and Cumberland Memorial Hospital. A private nursing center, Devlin Manor Health Care Center, is also located near I-68.

One industrial park, the North Branch Industrial Park, is located within Corridor C at Mexico Farms along PPG Road, approximately five miles south of Cumberland and just off MD 51. The park has its own sewage treatment plant, and water service is maintained by the Allegany County Department of Public Works.

One correctional facility, the Federal Correctional Institute, is located within Corridor C at Mexico Farms, adjacent to the North Branch Industrial Park. The property is owned by the federal government.

Four schools are located within Corridor C. Three are public schools: Fountain Primary School, Frankfort Middle School, and Frankfort High School. The fourth is the Allegany College of Maryland, a community college, which contains a large regional park that is open to the public during specified hours.

Seven water/sewer facilities are found throughout Corridor C. Six are privately owned but provide service to public subdivisions. Only the Fountain PSD, which includes the Fountain Sewerage Treatment Plant along WV 46, is publicly funded.

Four publicly owned parks and recreation areas and four privately owned recreation areas lie within Corridor C. Two recreation trails (one publicly funded and one privately funded) are also located within Corridor C. Those areas will be discussed in the following section. Other community facilities include two park-and-ride lots owned by the MDSHA and a WVDOH maintenance shed located along WV 28 in Short Gap.

There are no airports or libraries within Corridor C.

Corridor D

Eighteen of the community facilities within Corridor D are cemeteries, and more than half are family cemeteries. At least 22 places of worship are located within Corridor D.

No emergency services facilities or major healthcare facilities are found within Corridor D. The Potomac Valley Hospital in Keyser is near Corridor D, adjacent to US 220, but not within its boundary.

One industrial park lies within Corridor D. The Barton Business Park is located seven miles south of Cumberland along US 220 and is owned by the Maryland Economic Development Corporation. Its targeted uses are industrial and manufacturing. Seven parcels make up the Barton Business Park. American Woodmark operates the only parcel that is currently occupied. The Barton Business Park comprises approximately 140 acres, 43 acres of which are occupied by American Woodmark. The park has its own sewage treatment plant, located within Corridor D. Water service is provided by the Allegany County Department of Public Works.

There are no major correctional facilities located within Corridor D.

Four schools are located within Corridor D. The Wesleyan Christian Academy, a private school, is located along US 220 in Cresaptown. The Moorefield Head Start Center is located in Old Fields. The Mineral County Alternative School and the West Virginia University's Potomac State College are located in Keyser. Potomac State College includes an agricultural education center.

Four water/sewer facilities are found throughout Corridor D. The Barton Industrial Park Sewer Treatment Plant and the McCoole Water Storage Tower are operated by the Allegany County Department of Public Works. The Bel Air Sewer Treatment Plant is operated by the Maryland-American Water Company and provides most of its services to Bel Air and Pinto. The privately owned Rawlings Heights Water Treatment Plant provides services to Rawlings and Rawlings Heights. The Mineral County Dog Pound is located in Keyser.

There are no airports or libraries within Corridor D.

Two publicly owned parks and recreation areas and five privately owned recreation areas lie within Corridor D. The corridor also includes the Fort Hill Nature Preserve and the American Discovery Trail, a nationally designated public trail. Those areas will be discussed in the following section.

4.1.4.2 Parks and Recreation

4.1.4.2.1 Methodology

Parks and recreation areas were identified using a multi-phased approach. In the initial phase, windshield surveys were performed to identify potential park and recreation areas; boundaries of these resources were also estimated at that time on field maps. In the second phase, letters were sent to local and county officials and parks and recreation department representatives requesting the locations of any parks and recreation areas located within the study corridors, their property boundaries, and a brief description of each. In addition, county parks and recreation plans and municipal comprehensive plans were consulted during this phase. Any verified park and recreation resources were then mapped in GIS. The final phase of this study consisted of utilizing several existing GIS databases to verify the property boundaries of all remaining parks and recreation areas located within the study corridors. These databases consisted of the West Virginia GIS Technical Center database; MDNR's database; the Allegany County Planning Department's GIS database; and the Nature Conservancy's database.

Because privately owned recreational facilities are prevalent throughout West Virginia and serve important community and public health functions, especially where publicly owned facilities are limited, privately owned recreation facilities were included in the analysis. Also, publicly owned recreation facilities are afforded an additional level of protection through *Section 4(f)* of the *U.S. Department of Transportation Act of 1966*. The publicly owned recreation facilities in the study area are further analyzed as potential Section 4(f) resources in Chapter 5.0, *Potential Section 4(f) Resources*.

4.1.4.2.2 Effects Analysis – Parks and Recreation

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to parks and recreation areas. Any future transportation projects necessary to address the transportation needs of the region would consider/minimize impacts to parklands.

Build Alternatives

Corridor B

Polish Pines Golf Club is located within Corridor B just south of Keyser to the west of US 220 (see Plate B, Sheet 4). It is a nine-hole golf course that is open to the public and owned by a non-profit organization. A driving range, pro shop, and snack bar are also located on this property.

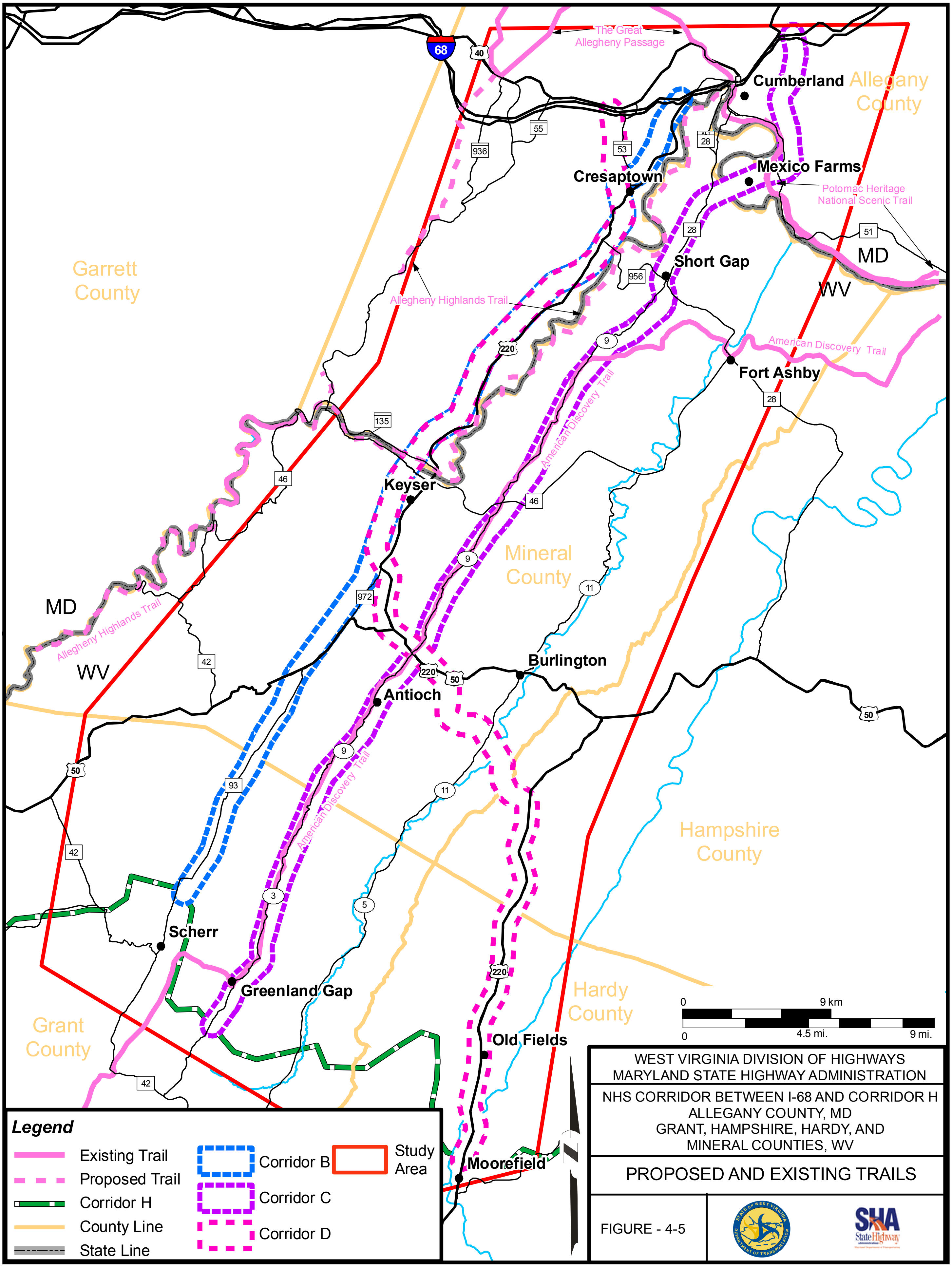
Traveling northeast through the corridor, portions of the Dans Mountain WMA would be impacted (see Plate B, Sheets 6 and 7). This area is the largest contiguous state-owned forest in Maryland, occupying approximately 9,600 acres in western Allegany County. Recreational activities that take place in the Dans Mountain WMA include: hiking; bird watching; turkey, white-tailed deer, ruffed grouse, and gray squirrel hunting; trapping; camping; and mountain biking. Similar activities and swimming also take place at the nearby Dans Mountain State Park.

Encompassing approximately 175 acres, the Fort Hill Nature Preserve is located to the east of the Dans Mountain WMA, along the southern boundary of Corridor B (see Plate B, Sheet 6). The preserve is one of Maryland's best remaining examples of limestone forest and is home to several rare plant and animal species. This property is owned and managed by The Nature Conservancy.

After entering Rawlings, Corridor B would impact Fore Sisters Golf Course (see Plate B, Sheet 7). Fore Sisters is an 18-hole public golf course located on over 300 acres of hardwood and evergreen forests. The property also contains a driving range and a clubhouse.

Continuing northeast, the Barton Golf Driving Range is located in the center of Corridor B, just to the south of the community of Bel Air. In Cresaptown, the Christian Fellowship Academy camp and recreation fields are situated at the southern boundary of Corridor B. The Potomac Park Ballfield is located in the center of Corridor B and consists of approximately seven acres. The property is owned by a non-profit organization and contains a baseball field, basketball court, tennis court, and concession stand. To the northeast of the Potomac Park Ballfield lies the Bowling Green Community Park. Encompassing approximately 18 acres, this park is owned by Allegany County and is used for passive recreation. See Plate B, Sheet 8 for the locations of these resources.

Additionally, there is a proposed rail-trail from Thomas, WV to Cumberland that would cross through Corridor B just west of Keyser. A group of West Virginia and Maryland trail enthusiasts formed a coalition in 2005 to work on joining trails of both states. The coalition is called the Allegheny Highlands Trail Partners, which is a non-profit organization with section 501c(3) status. If constructed, this segment would be a part of the approximately 100-mile long Allegheny Highlands Trail. Since this trail would result in a perpendicular crossing of Corridor B, any alternative built within the corridor would impact it. See Figure 4-5 for all proposed and existing trails.



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MINERAL COUNTIES, WV

PROPOSED AND EXISTING TRAILS

FIGURE - 4-5

Corridor C

A portion of the American Discovery Trail falls within Corridor C. The trail enters the corridor in the Greenland Gap area of West Virginia and follows CR 3 in Grant County and CR 9 through Mineral County before exiting in the vicinity of Short Gap (see Figure 4-5 and Plate C, Sheets 1 through 7). The ADT is the nation's first coast-to-coast, non-motorized recreation trail, stretching more than 6,800 miles from Delaware to California. In West Virginia, the trail is approximately 263 miles long, with four segments: Maryland State Line to Streby, Streby to Nestorville, Nestorville to Wilsonburg, and Wilsonburg to Ohio State Line. The Maryland State Line to Streby segment is within Corridor C. The ADT is a multi-use trail, providing for hiking, bicycle, and equestrian use. It is managed and administered by the ADT Society, a nationwide non-profit organization. Funding for the development of the trail was provided by the ADT Society, the American Hiking Society, and corporate financial and promotional support.

Just to the south of the US 50 and Antioch Road intersection at Ridgeville lies Dam Site #21. A wooded portion of the dam site is located within the southern boundary of Corridor C (see Plate C, Sheet 4). The property consists of approximately 174 acres of woodland and flood control structures, and is used for fishing and passive recreation. The Mineral County Commission owns the property, but the Potomac Valley Conservation District operates and maintains the dam.

The Fountain Ruritan Club facility is located in the center of Corridor C (see Plate C, Sheet 6). It contains baseball fields and a picnic pavilion. The Ruritan National Foundation has non-profit, section 501c(3) status.

Just southeast of Cumberland, the Potomac Heritage National Scenic Trail, one of eleven national scenic trails within the National Trails System, crosses through Corridor C (see Figure 4-5 and Plate C, Sheets 9 through 11). This section of the trail is known as the Chesapeake and Ohio Canal Towpath and is part of the Chesapeake and Ohio Canal National Historical Park. It extends approximately 185 miles along the Potomac River to Georgetown in Washington, D.C. Recreational opportunities along the trail include hiking, biking, boating, fishing, camping, and bird watching. Since this facility would result in a perpendicular crossing of Corridor C, any alternative built within the corridor would impact it. The Chesapeake and Ohio Canal National Historical Park receives three million visitors annually. Designated as a

National Historical Park in 1971, the NPS operates six different visitor centers along the canal including one at Cumberland. The visitor centers have displays and interpretive exhibits on the history of the Chesapeake and Ohio Canal. Two mule-powered canal boats also operate during the summer months out of Great Falls and Georgetown, allowing visitors to experience the canal.

To the east of the park lies the VFW Ballfield (see Plate C, Sheet 11). The VFW Foundation was established in 1996 as a 501c(3) nonprofit organization. Continuing north along Corridor C, the Allegany College of Maryland's athletic fields are situated in the western portion of the corridor (see Plate C, Sheet 11). Encompassing approximately 50 acres, there are five basketball courts, seven tennis courts, five baseball fields, an archery range, and a multi-purpose field. An indoor recreation area, restrooms, and parking lot are also located in this portion of the property. This facility is owned by Allegany County.

Directly to the north of the college is the Cumberland Country Club. A privately owned facility, the country club property is approximately 95 acres and contains an 18-hole golf course, a clubhouse, two tennis courts, and a pool. East of the country club, in the center of Corridor C, is the Evitts Creek Greenway. This seven-acre property consists of fishing ponds and open space, and is owned by Allegany County. To the north of the greenway is the Ali Ghan Country Club. Encompassing approximately 12 acres, the country club is privately owned and includes a multi-purpose field, three picnic pavilions, restrooms, and parking lot. See Plate C, Sheet 11 for the locations of these resources.

Corridor D

There is a public stream access point near the US 220 bridge over the South Branch Potomac River between Moorefield and Old Fields (see Plate D, Sheet 1). Fishing and boating opportunities are provided at this stream access point.

The Mill Creek Ruritan Club ball fields are situated between US 220 and Mill Creek (see Plate D, Sheet 4). The Ruritan National Foundation has non-profit, section 501c(3) status. The Mill Creek Country Club is located off of US 50 in Burlington (see Plate D, Sheet 5) within Corridor D. A privately owned facility, the country club includes a nine-hole regulation golf course that is open to the public.

Where Corridor D crosses over Corridor C, it would impact the ADT (see Plate D, Sheet 5). Just south of Keyser, after Corridor D joins Corridor B, the Polish Pines Golf Club is situated to the west of US 220 (see Plate D, Sheet 7). Continuing to the northeast, the Dans Mountain WMA (see Plate D, Sheets 8 and 9) and the Fort Hill Nature Preserve (see Plate D, Sheet 8) are located within Corridor D. After entering Rawlings, the Fore Sisters Golf Course would be impacted by this corridor (see Plate D, Sheet 9). Moving northeast, the Barton Golf Driving Range is located in the center of the Corridor D corridor, just to the south of the community of Bel Air (see Plate D, Sheet 10). Descriptions of these resources can be found under Corridors B and C.

As shown in Table 4.1-7, eight parks and recreation areas are located within Corridor B, 10 are located within Corridor C, and nine are located within Corridor D.

TABLE 4.1-7
Potential Parks and Recreation Impacts

Corridor	Park or Recreation Area	Recreation Type	Ownership	Public Access?
B	Polish Pines Golf Club	Active	Private, Non-Profit	Yes
B	Dans Mountain WMA	Passive	Public, State	Yes
B	Fort Hill Nature Preserve	Passive	Private, Non-Profit	Yes
B	Fore Sisters Golf Course	Active	Private, For Profit	No
B	Barton Golf Driving Range	Active	Private, For Profit	Yes
B	Christian Fellowship Academy Camp and Recreation Fields	Passive/Active	Private, Non-Profit	Yes
B	Potomac Park Ballfield	Active	Private, Non-Profit	Yes
B	Bowling Green Community Park	Active	Public, County	Yes
C	American Discovery Trail	Passive	Private, Non-Profit	Yes
C	Dam Site #21	Passive	Public, County	Yes
C	Fountain Ruritan Club Ball Fields	Active	Private, Non-Profit	Yes
C	Potomac Heritage National Scenic Trail	Passive	Public, Federal	Yes
C	Chesapeake and Ohio Canal National Historical Park	Passive	Public, Federal	Yes
C	VFW Ballfield	Active	Private, Non-Profit	Yes
C	Allegany College of Maryland Athletic Fields	Active	Public, County	Yes
C	Cumberland Country Club	Active	Private, For-Profit	No
C	Evitts Creek Greenway	Passive	Public, County	Yes
C	Ali Ghan Country Club	Active	Private, Non-Profit	No
D	Old Fields Bridge Public Stream Access	Passive	Public, State	Yes

TABLE 4.1-7 (continued)
Potential Parks and Recreation Impacts

Corridor	Park or Recreation Area	Recreation Type	Ownership	Public Access?
D	Mill Creek Ruritan Club Ball Fields	Active	Private, Non-Profit	Yes
D	Mill Creek Country Club	Active	Private, For Profit	No
D	American Discovery Trail	Passive	Private, Non-Profit	Yes
D	Polish Pines Golf Club	Active	Private, Non-Profit	Yes
D	Dans Mountain WMA	Passive	Public, State	Yes
D	Fort Hill Nature Preserve	Passive	Private, Non-Profit	Yes
D	Fore Sisters Golf Course	Active	Private, For Profit	No
D	Barton Golf Driving Range	Active	Private, For Profit	Yes

There are also several schools that own parks and other recreation areas within the corridors (see 4.1.4.1.2). Additional coordination with these schools will take place during Tier Two. Impacts to parks and recreation areas will be analyzed during Tier Two when actual alternatives are developed. Avoidance and minimization measures to avoid/minimize impacts to parks and recreation areas will also be considered at that time. See Chapter 5.0 for additional information regarding public parks and recreation areas.

4.1.4.2.3 Possible Mitigation Efforts

Additional parks and recreation coordination will need to take place during Tier Two. The owner of each park and recreation area that would be impacted by any of the alternatives developed during Tier Two will be consulted to determine appropriate mitigation. This could involve identifying and purchasing replacement park property; improving other parts of the park facility; trail relocation, if necessary; or financial compensation.

4.2 Cultural Resources

Cultural resources include pre-contact and historic period archaeological sites and above-ground historic structures and locations. Potential above-ground historic resources are considered to be any standing structure, object, or above-ground cultural feature that is 50 years of age or older.

4.2.1 Archaeological Resources

Pre-contact archaeological sites consist of areas where culturally modified objects or features can be found dating from the Paleoindian period (12,000-18,000 BC) to approximately the Contact period (*ca.* 1550-1750). Historic period archaeological sites consist of subsurface historic period structures or artifacts that date from approximately the Contact period up to 1962.

4.2.1.1 Methodology

Archaeological research undertaken during Tier One of the project included the development of pre-contact and historic period archaeological resource sensitivity maps within a GIS (Gundy *et al.* 2007). The basis for the construction of these predictive surfaces is that people preferentially choose habitation and use locations from the array of choices made available by the natural environment (e.g., Paleoindian site locations associated with locations of high quality cryptocrystalline lithic raw materials; historic period mill locations associated with stream locations that provide sufficient fall for water power). If these environmental variables are considered in concert with what is known about previously identified archaeological resources and historic period features within a particular geographic area, mapping representative of the potential for the geographic area to contain additional archaeological resources can be constructed.

The US 220 predictive surfaces were constructed using easily available or created digital layers within the GIS. The GIS is a computer-based set of tools developed to acquire, compile, manage, analyze, manipulate, retrieve, and present geo-referenced spatial data sets traditionally represented on maps. Employing the GIS, these data sets can be compared, analyzed, and integrated in order to produce new information. The coded and digitized GIS data sets were utilized to assess the potential for the occurrence and preservation of pre-contact and historic period archaeological resources within the US 220 predictive surfaces study area.

<u>Pre-contact Period Archaeological Resources</u>

The US 220 predictive surface construction process utilized both intuitive and empirical approaches within the selection and weighting of the environmental variables incorporated into the predictive surface. The defined study area for the US 220 project was gridded, within the GIS, into 98 x 98 foot cells. The size of the cells was limited by the resolution of the digital elevational data available. Cells of this size are sufficiently small for a predictive surface of above-average resolution.

The process used to construct the pre-contact period predictive archaeological surface included multiple steps. The first step was the collection and digitization of primary data sets, including the environmental background data and archaeological site data for the study area. The environmental background data were collected from multiple sources. Due to the geographically large size of the US 220 predictive surfaces study area and its relative heterogeneity with regard to environmental and topographic settings, many of the environmental factors demonstrated direct as well as cost distance effects on the predictive surface results. The following variables were those used in the pre-contact period predictive surface process: slope, aspect, landform, geology, soil, water, wetlands, land cover, and surface mines.

Information about archaeological site distributions and settlement patterns in the region was collected from a number of sources. These included pertinent regional cultural resources reports; the West Virginia Division of Culture and History (WVDCH) and Maryland Historical Trust (MHT) archaeological site databases; and previously completed archaeological modeling. The previously recorded archaeological site information was converted into a database file and GIS layers, and analyzed in order to determine the general types and location patterns of pre-contact period archaeological sites previously discovered within the predictive surfaces study area. Approximately 470 previously recorded pre-contact period archaeological sites are located within the boundaries of the US 220 predictive surfaces study area. In addition to the site locations, the cultural affiliation and temporal components of the previously recorded sites were considered; however, due to the limited number of sites with specific assigned cultural affiliation/temporal components, no predictive value was assigned based on cultural affiliation or temporal period (i.e., an Archaic site ranks equally with an unassigned pre-contact period site).

The second step in the construction of the pre-contact period predictive surface was the syntheses of and incorporation into the GIS of all of the relevant primary archaeological site data and environmental variables so that secondary data sets, comprised of more complex determinations, could be derived. Multiple secondary data sets were calculated using various combinations of variables. Secondary data sets used in the predictive surface process included chert cost distance, major stream cost distance, perennial stream cost distance, intermittent stream cost distance, major/perennial stream confluence cost distance, major/perennial or intermittent stream confluence cost distance, and perennial stream confluence cost distance. The derivation of these more complex and potentially more relevant secondary variables contributes to the power of a GIS-created predictive surface. The power of the GIS also allows changes to the derived secondary data on a variable-by-variable basis to determine if and how much individual variables are affecting the secondary data and ultimately the predictive surface values.

The site data were explored for possible site/environmental correlations and trends in order to determine the general types and location patterns of pre-contact period sites discovered within the predictive surfaces study area. Key variables were then identified. The combination of these variables, as well as general archaeological knowledge; the pattern of site distribution indicated by the previously recorded pre-contact period archaeological site locations within the predictive surfaces study area; the results of other pertinent regional site distribution studies; and information gained from informant interviews, were used to identify probable locations of pre-contact period archaeological resources.

Also included in the assessment of resource potential within the predictive surfaces study area were disturbance factors (e.g., development, paved areas, utilities, mines, and quarries). These factors relate more to the potential for preservation of archaeological deposits within a given location, rather than to the original attractiveness of the locale for pre-contact period occupation or use. The lack of preservation is an important consideration for assessing the resource potential, as areas where the deposits have been substantially disturbed have much less promise of containing *in situ* archaeological remains. These disturbance factors were used to create a layer through which the predictive surface values could be filtered.

The potential for the presence of pre-contact period archaeological site locations is represented in the GIS predictive surface by a cumulative score, produced from the weighted sum of all attractiveness factors (i.e., primary and secondary environmental and archaeological data), and modified by the relative potential for preservation of the deposits (i.e., disturbances). In this way, each 98 x 98 foot cell within the study area was assigned a resource potential score. This range of scores was then divided into five ranks of archaeological site potential, including very low, low, moderate, high, and very high. The resulting mapping of ranked cells constitutes the GIS pre-contact period predictive archaeological surface (Gundy *et al.* 2007).

Historic Period Archaeological Resources

In order to assess the potential for encountering historic period archaeological resources within the study area, a historic period archaeological predictive surface was produced *via* GIS. This predictive surface incorporates the results of background research, including available local histories, historic records and mapping, previously recorded historic sites, and the results of a historic structures windshield survey. The historic archaeological sensitivities were related to historically mapped or documented features and assessed within the historic context of the area. Features incorporated into the GIS historic period archaeological predictive surface included historic districts; eligible or contributing historic properties; extant residential, commercial, and industrial structures (greater than 50 years old); cemeteries; Civil War-related resources; schools; churches; mills; railroads; roads; bridges; and intersections of linear features (i.e., crossroads).

The construction of the historic period archaeological predictive surface incorporated the results of a US 220 historic structures windshield survey and evaluation of the above-ground historic period resources with other archival and historic documentary research. In order to identify extant historic structures (greater than 50 years old), and previously surveyed historic period resources and historic districts, the historic structures survey commenced with a review of the NRHP files, and the West Virginia State Historic Preservation Office (SHPO) and MHT archaeological site databases. Following this background research, a windshield survey was conducted. This level of study was implemented as part of the preparatory data gathering in order to expediently identify notable above-ground historic resources with archaeological potential located within the study area. The identified historic period resource locations were then used within the GIS as sets of variables for the development of the historic period predictive surface. Cemeteries; Civil War-related resources; schools; churches; residential, commercial, and industrial structures; the routes of railroads and roads; and bridges were identified through the review of historic and current mapping, the windshield survey, and informant interviews.

Subsequent to the identification of the historic feature locations, but prior to their inclusion in the predictive surface, each identified feature was assigned a resource sensitivity rank (ranging from one [very low] to five [very high]) and a buffer distance (around each of the individual historic features) based on the type and age of the feature. The resource sensitivity ranks assigned to the identified features reflect the probable occurrence and research potential of the anticipated historic period resources. In this way, a historic period roadway appearing repeatedly on historic mapping beginning in the early nineteenth century would have a greater potential for significant historic remains than a later roadway appearing in the early twentieth century. Conversely, both roadway features would generally have less potential than the immediate surface area surrounding a historically mapped or extant historic structure because the research potential of roads is typically less than that of a historic site with longer term use or habitation (i.e., numbers and types of associated artifacts, numbers and types of associated features). The historic features used in the compilation of the historic period archaeological predictive surface included: historic districts; eligible or contributing properties; cemeteries; Civil War-related features; schools; churches; mills; mapped residential, commercial, or industrial structures; railroads; roads; intersections of linear features; and bridges.

The distances assigned to the buffers around various historic features were derived from visual analysis of the historic period mapping and the apparent relevant distances based on the type of resource to various mapped roadways, railroads, or water. Buffering was also applied judgmentally, given general archaeological knowledge of the typical distribution patterns for archaeological remains found in association with various types of historic period features. The overlay of the ranked and buffered layers of historic features within the GIS resulted in a cumulative but relational potential for encountering historic period archaeological resources within the study area.

4.2.1.2 Effects Analysis – Archaeological Resources

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to archaeological resources; however, it would not meet the purpose and need of the project.

Build Alternatives

Corridors B, C, and D were assessed for impacts to both existing pre-contact and historic period archaeological resources, as well as potential archaeological resources, using the existing archaeological record and predictive archaeological surfaces. Based on this research, it is apparent that when considering pre-contact period archaeological resources, Corridor B would have the least overall potential to impact these types of archaeological resources with Corridors C and D following with increasing potential. When considering historic period archaeological resources Corridor D would have the least overall potential to impact these types of archaeological resources with Corridors C and B following with increasing potential. Table 4.2-1 and Table 4.2-2 provide a summary of the potential impacts to predicted pre-contact and historic period archaeological resources within each corridor.

TABLE 4.2-1
Predicted Pre-contact Period Archaeological Impacts

Type of Impact	Corridor B		Corridor C		Corridor D	
Number of Recorded Archaeological Sites with Pre-contact Component	26		11		47	
Very Low	7,000 acres	40.1%	7,194 acres	32.9%	8,727 acres	39.3%
Low	1,368 acres	7.8%	6,767 acres	31.0%	5,168 acres	23.3%
Moderate	3,969 acres	22.7%	1,353 acres	6.2%	1,230 acres	5.5%
High	4,210 acres	24.1%	5,490 acres	25.1%	4,785 acres	21.5%
Very High	915 acres	5.3%	1,043 acres	4.8%	2,306 acres	10.4%
Total	17,462 acres	100.0%	21,847 acres	100.0%	22,216 acres	100.0%

Note: The previously identified site totals in this table do not include sites of unknown temporal affiliation or sites that exhibit both pre-contact and historic period components.

TABLE 4.2-2
Predicted Historic Period Archaeological Impacts

Type of Impact	Corridor B		Corridor C		Corridor D	
Number of Recorded Archaeological Sites with Historic Component	10		6		12	
Very Low	1,799 acres	10.3%	2,675 acres	12.2%	2,486 acres	11.2%
Low	2,013 acres	11.5%	2,116 acres	9.7%	2,956 acres	13.3%
Moderate	679 acres	3.9%	1,114 acres	5.1%	1,029 acres	4.6%
High	115 acres	0.7%	141 acres	0.6%	302 acres	1.4%
Very High	98 acres	0.6%	300 acres	1.4%	316 acres	1.4%
No Historic Data	12,757 acres	73.0%	15,500 acres	71.0%	15,133 acres	68.1%
Total	17,461 acres	100.0%	21,846 acres	100.0%	22,222 acres	100.0%

Note: The previously identified site totals in this table do not include sites of unknown temporal affiliation or sites that exhibit both pre-contact and historic period components.

Corridor B

Corridor B would potentially impact the locations of approximately 38 previously recorded archaeological sites including pre-contact period lithic scatters; an Archaic and Woodland rockshelter; Early and Late Archaic, and Early and Late Woodland short-term resource procurement camps; Late Archaic and Middle Archaic short-term camps; and pre-contact period sites of unknown type as well as historic period artifact scatters; a nineteenth- and twentieth-century town; a late nineteenth- and twentieth-century church building debris, a nineteenth-century canal towage company; a nineteenth- and early twentieth-century canal tunnel and canal lockhouse; a mid-nineteenth- and early twentieth-century foundry, housing, lumberyard, millrace, and canal boat building and repair yard; a nineteenth- and twentieth-century cemetery; late nineteenth- and early twentieth-century field scatters; and an early twentieth century quarry/mine. (The previously identified site total for this corridor includes all site types dating to the pre-contact period, the historic period, the pre-contact and historic periods, and those of unknown temporal affiliation.)

The pre-contact period archaeological predictive surface indicates that Corridor B, as currently designed, contains 7,000 acres of very low; 1,368 acres of low; 3,969 acres of moderate; 4,210 acres of high; and 915 acres of very high pre-contact period archaeological potential. Approximately 47.9 percent of Corridor B is designated as very low and low potential for pre-contact period archaeological resources, while only 29.4 percent is designated as high or very high. The higher pre-contact period archaeological potential areas cluster near the northern end of Corridor B south of Cresaptown, and along the central portion of the corridor.

The historic period archaeological predictive surface indicates that Corridor B, as currently designed, contains 1,799 acres of very low; 2,013 acres of low; 679 acres of moderate; 115 acres of high; and 98 acres of very high historic period archaeological potential. No historic information was found for approximately 12,757 acres of Corridor B. This occurred within all three corridors when historic maps, narratives, photographs, or reports did not identify any features within broad tracts of the landscape. Therefore, these areas were not included in an overall potential category. Despite the inability of the predictive surface process to place these 12,757 acres of land into a historic period archaeological predictive potential category, these areas should not be excluded from future archaeological research. Approximately 21.8 percent of Corridor B is designated as very low and low potential for historic period archaeological resources, while 1.3 percent is designated as high or very high. With the exception of a few isolated high potential areas along the length of Corridor B, the lone high historic period archaeological potential area within Corridor B is located just south of Cresaptown.

<u>Corridor C</u>

Corridor C would potentially impact the locations of approximately 21 previously recorded archaeological sites including pre-contact period lithic isolates; pre-contact period lithic scatters; a pre-contact period camp; a pre-contact period quarry; pre-contact period short-term resource procurement sites; a Late Woodland lithic scatter; a Late Woodland base camp; and pre-contact period sites of unknown type as well as historic period artifact scatters; an eighteenth century military road; an early nineteenth and twentieth century farmstead and cemetery; a nineteenth century gristmill with related buildings and ruins; an early twentieth century family cemetery; and nineteenth and early twentieth century brick kilns. (The previously identified site total for this corridor includes all site types dating to the pre-contact period, the historic period, the pre-contact and historic periods, and those of unknown temporal affiliation.)

The pre-contact period archaeological predictive surface indicates that Corridor C, as currently designed, contains 7,194 acres of very low; 6,767 acres of low; 1,353 acres of moderate; 5,490 acres of high; and 1,043 acres of very high pre-contact period archaeological potential. Approximately 63.9 percent of Corridor C is designated as very low and low potential for pre-contact period archaeological resources, while 29.9 percent is designated as high or very high. The higher pre-contact period archaeological potential areas cluster near the northern end of Corridor C both north and south of Evitts Creek, within the north-central portion of the corridor surrounding the North Branch Potomac River, and near the southern terminus.

The historic period archaeological predictive surface indicates that Corridor C, as currently designed, contains 2,675 acres of very low; 2,116 acres of low; 1,114 acres of moderate; 141 acres of high; and 300 acres of very high historic period archaeological potential. No historic information was found for approximately 15,500 acres of Corridor C; therefore, these areas were not included in an overall potential category. Despite the inability of the predictive surface process to place these 15,500 acres of land into a historic period archaeological predictive potential category, these areas should not be excluded from future archaeological research. Approximately 21.9 percent of the Corridor C area is designated as very low and low potential for historic period archaeological resources, while 2.0 percent is designated as high or very high. With the exception of a few isolated high potential areas along the length of Corridor C, the lone high historic period archaeological potential area within Corridor C is located just south of Evitts Creek in a meander of the North Branch Potomac River.

Corridor D

Corridor D would potentially impact the locations of approximately 79 previously recorded pre-contact and historic period archaeological sites including pre-contact period lithic isolates; pre-contact period lithic scatters; pre-contact period short-term camps; pre-contact period rockshelters; pre-contact period villages and mounds; a pre-contact lithic workshop; an Early Archaic camp; an Early and Late Archaic and Early and Late Woodland short-term resource procurement camp; a Middle Archaic short-term camp; a Late Archaic base camp; a Late Archaic short-term camp; a Late/Terminal Archaic tool manufacturing site; a Late Archaic short-term camp; a Woodland rockshelter; pre-contact period sites of unknown type as well as historic period artifact scatters; a Civil War isolate; mid nineteenth and early twentieth century foundry, housing, lumberyard, and millrace; a nineteenth- and twentieth-century town; late nineteenth- and twentieth-century building debris; late nineteenth- and early-twentieth century field scatter; and an early twentieth century quarry/mine. (The previously identified site total for this corridor includes all site types dating to the pre-contact period, the historic period, the pre-contact and historic periods, and those of unknown temporal affiliation.)

The pre-contact period archaeological predictive surface indicates that Corridor D, as currently designed, contains 8,727 acres of very low; 5,168 acres of low; 1,230 acres of moderate; 4,785 acres of high; and 2,306 acres of very high pre-contact period archaeological potential. Approximately 62.6 percent of Corridor D is designated as very low and low potential for pre-contact period archaeological resources, while 31.9 percent is designated as high or very high. Higher pre-contact period archaeological potential areas cluster near the northern end of Corridor C just to the south of Cresaptown, and at the southern terminus.

The historic period archaeological predictive surface indicates that Corridor D, as currently designed, contains 2,486 acres of very low; 2,956 acres of low; 1,029 acres of moderate; 302 acres of high; and 316 acres of very high historic period archaeological potential. No historic information was found for approximately 15,133 acres of Corridor D; therefore, these areas were not included in an overall potential category. Despite the inability of the predictive surface process to place these 15,133 acres of land into a historic period archaeological predictive potential category, these areas should not be excluded from future archaeological research. Approximately 24.5 percent of the Corridor D area is designated as very low and low potential for historic period archaeological resources, while 2.8 percent is designated as high or very high. With the exception of a few isolated high potential areas along the length of Corridor D, two higher historic period archaeological potential areas within Corridor D are located just south of Cresaptown and just south of Burlington.

Based on the archaeological evidence and predictive surface, it is recommended that once one or more corridors are advanced to Tier Two, a complete Phase I archaeological survey for pre-contact and historic period archaeological resources be performed on the preferred corridor in order to identify archaeological sites and their potential eligibility for listing in the NRHP. The US 220 predictive surface should help guide the Phase I survey field methodologies, and the results of that survey should be used to critically assess the effectiveness of the predictive surface.

4.2.2 Historic Resources

Historic resource studies were performed using a tiered approach, in accordance with Section 106 of the *National Historic Preservation Act*. The tiered approach was developed in consultation with the WVDOH, MDSHA, WVDCH, and MHT. The WVDCH and MHT are the SHPOs for West Virginia and Maryland, respectively.

Section 106 of 36 CFR 800.4(b)(2) states that phased identification and evaluation can be used "where alternatives under consideration consist of corridors or large land areas." That is the case with the US 220 project. The regulations further state that, "The agency official may also defer final identification and evaluation of historic properties if it is specifically provided for in… the documents used by an agency official to comply with the *National Environmental Policy Act* pursuant to Section 800.8." Section 800.8 encourages federal agencies to "consider their Section 106 responsibilities as early as possible in the NEPA process, and plan their public participation, analysis, and review in such a way that they can meet the purposes and requirements of both statutes in a timely and efficient manner" (36 CFR 800.8(a)(1)).

4.2.2.1 Methodology

The Tier One investigations for historic resources identified historic properties in the built environment of the study area that are listed in, eligible for, or potentially eligible for listing in the NRHP. There are no National Historic Landmarks within the study area. Analysis based on information gathered from secondary sources and field investigations was used to assist in determining which corridor or corridors should be advanced to more detailed study.

The study area, known as the historic resource survey buffer, extends 0.5 mile from the centerline of each corridor. This 1.0-mile wide area was larger than the study area used in related natural resources investigations to account for possible visual impacts and large properties such as farms where the land may lie within the boundary but the structures are outside. The project mapping was based on aerial photographs of the study area that have been overlaid with feature indicators.

The first step in the analysis of historic structures was to collect information on previously surveyed resources. The WVDCH and the MHT provided GIS databases of previously surveyed resources. These were then located on aerial base mapping. The historic resource survey files and Section 106 files at MVDCH and MHT were reviewed, checked for errors against the GIS database, and photocopied for reference in the field. Previously surveyed resources were rated in four possible categories by the state agencies: NRHP-listed, NRHP-eligible, not eligible, or undetermined.

Additional background research was carried out at several institutions including the West Virginia and Maryland State Archives, the West Virginia Regional History Collection at West Virginia University, the library at Frostburg State University, and county historical societies. Several histories, reference books, and historic maps and atlases were reviewed. The purpose of gathering the material was to assist in identifying historic resources within the corridors and to gather background for a historic context covering the study area. Information gathered at public meetings was also incorporated into the historic structures survey.

The second step in the process was to conduct a windshield survey of every structure within the expanded 1.0-mile wide study area of each corridor. Each corridor was surveyed by a team that met the Secretary of the Interior's Standards for Professional Qualifications (36 CFR 61) for historian and/or architectural historian. During the windshield survey, every accessible structure was visually assessed for age and eligibility (integrity and possible significance). Structures which were deemed potentially eligible or worthy of further consideration were documented with digital photographs, Universal Transverse Mercator (UTM) coordinates, and notes. For newly surveyed resources assessed as potentially eligible under the NRHP Criteria for Evaluation, basic characteristics were noted, such as historic and present function, style, approximate age, structural system, and exterior materials. The initial assessment of the study area was purposefully conservative and included some resources that were later considered not eligible. Previously surveyed resources were also assessed in the field. If the resource was eligible or listed with no significant changes, it was photographed. If its eligibility was undetermined, notes and a recommendation were added to the photographs. Resources that were already determined not eligible were simply photographed, and resources that had been demolished were marked as such. The locations of previously surveyed resources which were mapped immediately outside the study area were confirmed. When a property was inaccessible because of a gated or aggressively posted private property sign, the omission was marked on the aerial map.

The collected information was sorted, mapped, analyzed, and evaluated. Two large databases were created to organize the findings. One database updated information for all previously surveyed resources including undetermined resources with new eligibility recommendations. The other database detailed the newly identified potentially eligible resources. The resulting databases and a historic context covering the entire study area were sent to WVDOH, MDSHA, WVDCH, and MHT in advance of agency field views.

The third step was to conduct field views of the corridors with representatives from WVDOH, MDSHA, WVDCH, MHT, and FHWA. The field views enabled the project team to present preliminary findings and recommendations of the historic resource survey, to solicit agency comments on resources with questionable eligibility, to invite agency feedback, and to seek consensus for the Tier One phase of the project.

The Maryland agency field view was held on February 26, 2007, and the West Virginia agency field view was held on March 22 and 23, 2007. Field view participants were provided with aerial maps showing the historic resources and photograph information sheets for reference. A driving tour provided a review of the resources and facilitated discussion of the properties. Changes were made to the resource list based on agency comments. At the end of the field views, all participants were in agreement with the findings of the survey. The representatives of WVDCH and MHT also asserted that with the further investigation required during Tier Two it may be determined that some of the resources originally identified as potentially eligible would be considered not eligible; however, they agreed that those resources should remain identified as potentially eligible until further research is completed.

Following the field views, the databases and mapping were updated to provide clearer indication of resource boundaries and a *Historic Resources Abbreviated Report* (Ricketts *et al.* 2008) was prepared. Properties of less than one acre were indicated by a point on the project mapping. Large resources, like the farms prevalent in the study area, needed a preliminary indication of a NRHP boundary to aid designers in understanding where potential impacts to historic properties might occur. The current tax parcels for larger properties were identified and, where deemed necessary, that information was modified by reliance on historic mapping, landscape features, and oral interviews with the property owners. Although these boundaries will be reconsidered in Tier Two investigations, for this phase they offer a reasonable indication of the potential limits of the eligible properties.

4.2.2.2 Effects Analysis – Historic Resources

<u>No-Build Alternative</u>

Under the No-Build Alternative, projects in the region's long-range transportation plans would be advanced to address existing and future conditions of congestion and traffic safety. These future transportation improvements and the development they encourage could have an impact on historic resources.

Build Alternatives

Each of the three build alternatives would have the potential to impact historic resources. Corridor D contains the most historic resources and Corridor B contains the least. Corridor B would potentially impact 24 historic resources; Corridor C would potentially impact 40 historic resources; and Corridor D would potentially impact 42 historic resources.

Corridor B

In total, 24 NRHP-eligible or potentially eligible resources could be impacted by Corridor B. There are no NRHP-listed resources within Corridor B or its extended study buffer. Four resources within Corridor B, however, have already been determined eligible for listing in the NRHP and could be impacted. Table 4.2-3 shows the NRHP-eligible properties within Corridor B and its study buffer.

TABLE 4.2-3
NRHP-Eligible Resources in Corridor B

Resource	NRHP Status	Year Built	Location	Resource Description
Log House with Stone Chimneys	eligible	c. 1800	WV 93 south of Laurel Dale, Mineral County	Double pen enclosed dog trot log house
Luten Bridge/Boseley Bridge	eligible	c. 1915	Pancake Road and WV 93, Mineral County	Abandoned reinforced concrete arch bridge with parapets
Log House	eligible	c. 1850	Pancake Road south of Claysville, Mineral County	Two-story log house and former stagecoach stop with log outbuildings
Claysville United Methodist Church	eligible	c. 1850	US 50, Mineral County	Vernacular front gable church, school, and community building

In addition to the previously surveyed resources, 20 historic resources that have been identified as potentially eligible for listing in the NRHP could be impacted by Corridor B. Of the 20 potentially eligible historic resources that could be impacted by Corridor B, four are potential historic districts, including the large US 220 Maryland Rural Historic District, which spans the entire width of the corridor. Table 4.2-4 shows the potentially eligible properties within Corridor B and its associated study buffer.

TABLE 4.2-4
Potentially NRHP-Eligible Resources in Corridor B

Resource	Year Built	Location	Resource Description
Laurel Dale Gristmill and House	c. 1867	Burgess Hollow Road near WV 93 at Laurel Dale, Mineral County	Two and a half-story frame mill with stone foundation, extant wheel and millstone
Quality Dairy Farm	c. 1910	US 50 south of New Creek, Mineral County	Dutch Colonial Revival farmhouse, large barn, and outbuildings
House with Elongated Windows	c. 1880	US 50 north of Claysville, Mineral County	Double pile frame house with hipped roof
Farm	c. 1910	US 50 south of New Creek, Mineral County	Brick foursquare farmhouse with wrap-around porch and farm outbuildings
Colonial Revival House	c. 1910	WV 972 between US Routes 220 and 50, Mineral County	Large Colonial Revival House with wrap-around porch
Italianate Farm	c. 1870	US 220 south of Keyser, Mineral County	Brick farmhouse with decorative wood trim and outbuildings
Stone Farm	c. 1820	US 220 south of Keyser, Mineral County	Old stone farmhouse with large frame barn
Potomac State College Farm	1919	Parkview Drive southwest of Keyser, Mineral County	129-acre experimental farm with specialized barns and outbuildings
Baltimore & Ohio (B&O) Railroad Mainline	c. 1840- c. 1850	South of the North Branch Potomac River at Keyser, Mineral County and west of river in Allegany County	First American Trunk Line railroad
Purinton Log House	1864	US 220 at Danville, Allegany County	Double pen two-story log house
18329 Machin Lane	c. 1880	US 220 near Danville, Allegany County	Vernacular two-story house with stone foundation
US 220 Maryland Rural Historic District	c. 1800- c. 1950	US 220 at Rawlings, Allegany County	Large district with multiple cattle and dairy farms
Pinto Historic District	c. 1880- c. 1920	Pinto Road SW, Allegany County	Small community with workers' housing, farm, and furnace ruins
Gunning's Delight Farm	c. 1850	Winchester Road SW south of Cresaptown, Allegany County	Altered house once part of an experimental farm, a distillery, and a saloon
Bowling Green 1920s Historic District	c. 1920	US 220 and April Avenue, Allegany County	Bungalows, foursquares, and a Tudor Revival store complex
Bowling Green Veterans Addition Historic District	c. 1947	East of US 220 between Robinette and Olive avenues, Allegany County	Post war planned subdivision with modest brick houses
Dorsey Log House	early 19thc	US 220 at Roberts, Allegany County	Two-story gable and wing log mansion with frame additions
Hammond Log House	early 19thc	US 220 at Roberts, Allegany County	Modest two-story log house

TABLE 4.2-4 (continued)
Potentially NRHP-Eligible Resources in Corridor B

Resource	Year Built	Location	Resource Description
Brick House	c. 1940	Longwood Avenue southwest of Cumberland, Allegany County	Georgian Revival house in a suburban development
Stone House	c. 1940	Longwood Avenue southwest of Cumberland, Allegany County	Colonial Revival house in a suburban development

Corridor C

In total, 40 NRHP-listed, NRHP-eligible, or potentially-eligible resources could be impacted by Corridor C. There are four NRHP-listed resources and five NHRP-eligible resources within Corridor C and its associated study buffer. Additionally, the NRHP-listed Chesapeake and Ohio Canal spans the full width of the corridor. The listed and eligible historic resources are shown on Table 4.2-5.

TABLE 4.2-5
NRHP-Listed and -Eligible Resources in Corridor C

Resource	NRHP Status	Year Built	Location	Resource Description
Vandiver-Trout-Clausen House (tavern)	listed	c. 1830	US 220 at Ridgeville, Mineral County	Former tavern on the Winchester to Parkersburg Turnpike
Frame House with Brick Chimney	eligible	c. 1870	US 220 at Ridgeville, Mineral County	Vernacular I-House with L-shaped plan
Stewart's Tavern	listed	c. 1790	Short Gap, Mineral County	Two-story log tavern building
Chesapeake and Ohio Canal	listed	1850-1924	South of Cumberland along North Branch Potomac River, Allegany County	Former 184-mile canal with two surviving locks and lockhouses
Colonial Manor National Road Inn	listed	c. 1840	Ali Ghan Road NE Cumberland, Allegany County	Federal Style building part of Inns of the National Road thematic listing
Concrete Block House	eligible	c. 1915	Ali Ghan Road NE Cumberland, Allegany County	Two and a half-story rock-faced concrete block foursquare house
Carleton Farm	eligible	c. 1890	Ali Ghan Road NE Cumberland, Allegany County	Altered gable and wing farmhouse
Hillcrest Memorial Park Funeral Chapel	eligible	c. 1885	Naves Road NE Cumberland, Allegany County	Three-story Gothic Revival style octagonal brick "singing tower"

TABLE 4.2-5 (continued)
NRHP-Listed and -Eligible Resources in Corridor C

Resource	NRHP Status	Year Built	Location	Resource Description
Hillcrest Memorial Park	eligible	c. 1885	Naves Road NE Cumberland, Allegany County	Large cemetery with curvilinear roads

In addition to the previously surveyed resources, 31 historic resources have been identified as potentially eligible for listing in the NRHP. Potentially eligible resources within Corridor C include two Civil War sites, a historic air field, and an abandoned railroad tunnel. Table 4.2-6 shows the potentially eligible historic resources that could be impacted by Corridor C.

TABLE 4.2-6
Potentially NRHP-Eligible Resources in Corridor C

Resource	Year Built	Location	Resource Description
Keplinger Farm	c. 1890	Knobley Road, Grant County	Free Classic Queen Anne farmhouse with decorative wood trim and outbuildings
Greenland Gap Civil War Trenches	c. 1863	Greenland Gap Road west of Knobley Road, Grant County	Historic trench fortifications and earthworks
Farm	c. 1880	Knobley Road, Grant County	Old barns and former slave quarters with newer houses
Thorn Run Inn Farm	c. 1871	Knobley Road, Grant County	Greek Revival brick farmhouse with outbuildings
Knobley Road Farm	c. 1830	Knobley Road, Grant County	Old log farmhouse with broad stone chimneys and outbuildings
Former Knobley School	c. 1890	Knobley Road, Grant County	Front gable one-room schoolhouse
Farm	c. 1890	Knobley Road at Penneroil Road, Mineral County	Queen Anne Style farmhouse with outbuildings
Antioch Woolen Mill and Miller's House	c. 1787	County Route 9 at Grayson Gap Road, Mineral County	Two and a half-story grist/woolen mill with miller's house
Frame House with Outbuildings (farm)	c. 1840	North of US 220 at Ridgeville, Mineral County	Side gable frame house with broad stone chimney and outbuildings
Rexrode Rocky Acres Farm	c. 1900	Knobley Road, Mineral County	Vernacular I-House with barn and chicken coops
House	c. 1860	Fountain-Headsville Road, Mineral County	Vernacular I-House with historic additions and small outbuildings
Former Mead Chapel M.E.	1921	Knobley Road south of Reeves Road, Mineral County	Front gable Carpenter Gothic church with stone foundation and cupola
Farm	c. 1840	Knobley Road, Mineral County	Log farmhouse with broad stone chimney and log barn
Fairview Valley Farm	c. 1890	Georges Run Road, Mineral County	Queen Anne farmhouse with large ensemble of farm buildings

TABLE 4.2-6 (continued)
Potentially NRHP-Eligible Resources in Corridor C

Resource	Year Built	Location	Resource Description
Patterson Creek Cut-Off of the B&O Main Line	c. 1903	McKenzie, MD to Patterson Creek, WV, Mineral County	Abandoned B&O rail line with Knobley Mountain Tunnel, which allowed coal trains to bypass Cumberland, MD
Old Vulcan Furnace	c. 1840	Old Furnace Road east of WV 28, Mineral County	Truncated iron furnace made of roughly coursed stone
Mexico Farm Landing Field	c. 1923- c. 1940	Mexico Farm Road SE Cumberland, Allegany County	Army Air Corps installation then community airport
Baltimore & Ohio Railroad Main Line	c. 1840- c. 1850	South of MD 51, Allegany County	First American Trunk Line railroad
Taschenberger Farmhouse	c. 1875	Uhl Highway SE Cumberland, Allegany County	Gable and wing frame farmhouse with barn and outbuildings
Davis Memorial United Methodist Church and Cemetery	1929	14300 Uhl Highway, Allegany County	Gothic Revival brick front gable church with square plan bell tower at front left
Bungalow Farm	1929	12615 Knippenberg Road, Allegany County	Craftsman Bungalow farmhouse with late 19th century barn
Stick Style Bungalow	c. 1920	Uhl Highway, Allegany County	Stick Style Bungalow with decorative porch gable and columns
Log Cabin	c. 1870	Williams Road between Brashier Hollow and Christie roads, Allegany County	Log cabin with dovetail corner notching and fieldstone chimney
Farm	1928	12220 Williams Road, Allegany County	Brick foursquare farmhouse with matching garage and frame barn
Log Barn and Outbuildings (farm)	c. 1850	Christie Road NE at Jeffries Road NE Cumberland, Allegany County	Large log barn with stone foundation and early 20th century bungalow farmhouse
Lakewood Farm	c. 1900	10205 Christie Road, Cumberland, Allegany County	Colonial Revival farmhouse with outbuildings
Cabin Camp	c. 1950	Christie Road and Woodbridge Lane, Allegany County	Four vernacular vacation cabins with screened porches
Ali Ghan Shrine Club	1938	13100 Ali Ghan Road, Cumberland, Allegany County	Tudor Revival clubhouse with 29-acre property and multiple outbuildings
Cumberland Motel	c. 1955	10900 Mason Road NE, Cumberland, Allegany County	Mid-20th century motel and office near the National Road (US 40)
Foursquare House	c. 1915	12700 Ali Ghan Road NE, Cumberland, Allegany County	Stucco-covered foursquare with decorative trim

TABLE 4.2-6 (continued)
Potentially NRHP-Eligible Resources in Corridor C

Resource	Year Built	Location	Resource Description
Folck's Mill (foundation ruins)	c. 1820-c. 1864	North of I-68 Cumberland, Allegany County	Stone gristmill damaged in August 1864 in daylong Civil War skirmish

It is important to note here that the Western Maryland Railway or Railroad (WMRR) lies just outside Corridor C. On July 23, 1981, the 34-mile long section of the WMRR Right-of-Way (milepost 126 to milepost 160) was listed on the NRHP. The rail line was abandoned after the railroad was purchased by the newly-formed Chessie System in 1972 because of redundancies with other system routes and in 1975 the tracks were removed. The close proximity of this section of the railway to the Chesapeake and Ohio Canal National Historical Park has raised concerns about possible adverse future development of the former rail land, and the historic significance of the rail line itself. The NPS acquired the property in 1980. The resource is significant as a "remnant of one of the last major phases of trans-Allegheny railroad expansion in the early 20th century" and for its engineering sophistication (Mackintosh 1981).

This section of the railroad was constructed from 1903 to 1906 in an attempt to compete with the B&O Railroad and to provide a route for hauling freight, primarily coal, to Baltimore. The NRHP boundary for the resource is described as the railway right-of-way between milepost 126 at the intersection of the Chesapeake and Ohio Canal and Long Ridge Road, Woodmont, and milepost 160 just west of MD 51, North Branch. Its path roughly follows the Potomac River and the Chesapeake and Ohio Canal on the Maryland side with the exception of six river crossings downstream from Paw Paw, resulting in about seven miles of the rail line located in West Virginia and three tunnels in Maryland.

The NRHP boundary seems to have been determined by the NPS purchase of this section of the abandoned rail line and its proximity to the Chesapeake and Ohio Canal National Historical Park. West of milepost 160, the abandoned former railroad bed continues to the northwest through a recently-developed industrial park that has encroached on the former railroad right-of-way, crosses the North Branch Potomac River, runs through a tunnel by the Mexico Farm Landing Field, crosses the river a second time, passes under the Cumberland Municipal Airport through the Welton Tunnel, and crosses the North Branch Potomac River a third time. The former railroad is barely discernable as it runs through the southern edge of Cumberland, where development has occurred within the right-of-way since the abandonment of the line. As it heads west, the former railroad bed crosses the river again and enters the Knobly Tunnel before splitting into the Connellsville Branch (to the northwest, 1910-1912) and the Elkins (Bloomington) Branch (to the southwest, 1905) at the rail yard in Carpendale.

Corridor D

Corridor D has the greatest number of historic resources of the three corridors. In total, 42 NRHP-listed, NRHP-eligible, or potentially eligible resources could be impacted by Corridor D. The WVDCH also singled out Corridor D as having the highest quality of historic resources. Nine NRHP-listed resources fall within Corridor D and its associated study buffer. They include five early nineteenth century mansions within the NRHP-eligible Middle South Branch Valley Rural Historic District, two large farms near Burlington, a historic tavern, and a former toll house on the National Road. Additionally, 11 Corridor D resources have already been determined eligible for listing in the NRHP including the Middle South Branch Valley Rural Historic District. Table 4.2-7 shows the NRHP-listed and -eligible historic resources that could be impacted by Corridor D.

TABLE 4.2-7
NRHP-Listed and –Eligible Resources in Corridor D

Resource	NRHP Status	Year Built	Location	Resource Description
Middle South Branch Valley Rural Historic District	eligible	c. 1800-c. 1870	US 220 between Old Fields and Moorefield, Hardy County	Rural Historic District with large farms, brick mansions, and historic frame barns
The Meadows	listed	c. 1830	US 220 north of Moorefield, Hardy County	Greek Revival brick mansion in Middle South Branch Valley Rural Historic District
Moorefield Battlefield	eligible	1864	US 220 between Old Fields and Moorefield, Hardy County	Battle site of Civil War victory for Union forces against McCausland's Confederate troops
Willow Wall House and Farm	listed	c. 1810	US 220 south of Old Fields, Hardy County	Georgian Style brick mansion in Middle South Branch Valley Rural Historic District
Buena Vista Farms	listed	c. 1836	US 220 south of Old Fields, Hardy County	Brick mansion and large multi-gabled barn in Middle South Branch Valley Rural Historic District
Fort Pleasant Farm	listed	c. 1832	US 220 at Old Fields, Hardy County	Greek Revival brick mansion in Middle South Branch Valley Rural Historic District

TABLE 4.2-7 (continued)
NRHP-Listed and –Eligible Resources in Corridor D

Resource	NRHP Status	Year Built	Location	Resource Description
Old Fields Church and Cemetery	eligible	c. 1812	US 220 at Old Fields, Hardy County	Vernacular front gable brick church and meetinghouse
I-House (farm)	eligible	c. 1900	US 220 south of Purgitsville, Hampshire County	Vernacular I-House with farm
I-House (George Purgitt's house and farm)	eligible	c. 1880	US 220, Hampshire County	Vernacular I-House with farm buildings in potentially eligible Purgitsville Historic District
Former Commercial Structure	eligible	c. 1910	US 220, Hampshire County	Two-story frame building in potentially eligible Purgitsville Historic District
Former Commercial Structure	eligible	c. 1890	US 220, Hampshire County	Altered store/tavern building in potentially eligible Purgitsville Historic District
Fairview/Peerce Home Place	listed	c. 1860	Russeldale Road east of Patterson Creek Road, Mineral County	Classical Revival brick house by builder John T. Peerce with square cupola and outbuildings
Fort Hill Farm	listed	c. 1853	Shirley Lane and Patterson Creek roads, Mineral County	Cattle farm with brick farmhouse, c. 1875 barn, and many specialized outbuildings
Stone House Inn	eligible	c. 1810	US 220 east of Ridgeville, Mineral County	Two-story 8-bay stone inn formerly on the Winchester to Parkersburg Turnpike
Vandiver-Trout-Clausen House (tavern)	listed	c. 1830	US 220 at Ridgeville, Mineral County	Former tavern on the Winchester to Parkersburg Turnpike
Frame House with Brick Chimney	eligible	c. 1870	US 220 at Ridgeville, Mineral County	Vernacular I-House with L-shaped plan
Julius Grabenstein Farmhouse	eligible	c. 1915	Spealman Road at LaVale, Allegany County	Foursquare farmhouse with Doric porch columns
Grabenstein Bungalow	eligible	c. 1920	Spealman Road at LaVale, Allegany County	Craftsman style brick bungalow farmhouse and barn
LaVale Toll Gate House	listed	1836	US 40 National Highway SW, Allegany County	First toll gate completed on Maryland portion of National Road

In addition to the previously surveyed resources, 23 historic resources have been identified as potentially eligible for listing in the NRHP and could be impacted by Corridor D. Three potential historic districts are located within Corridor D, including the large US 220 Maryland Rural Historic District, which spans the entire width of the corridor. The potentially eligible resources include 11 other farms as well as houses, churches, and a historic railroad line. Table 4.2-8 shows the potentially eligible historic resources that could be impacted by Corridor D.

TABLE 4.2-8
Potentially NRHP-Eligible Resources in Corridor D

Resource Name	Year Built	Location/ County	Resource Description
Taylor Farm	c. 1890	US 220 north of Old Fields, Hardy County	Vernacular I-House with more than a dozen farm buildings
Former Otterdin Church	c. 1870	Church Road south of Purgitsville, Hampshire County	Vernacular front gable church with pointed arch gable window
Farm	c. 1860	US 220 opposite Church Road, Hampshire County	Vernacular I-House with stone and brick chimneys and barn
Old Pine Church	c. 1830	Old Pine Church Road south of Purgitsville, Hampshire County	Front gable church with churchyard graves dating back to 1792
Old Pine Church Road Farm	c. 1860	Old Pine Church Road south of Purgitsville, Hampshire County	Vernacular I-House with several farm outbuildings
Huffman Road Farmstead	c. 1870	Huffman Road west of Purgitsville, Hampshire County	Vernacular frame farmhouse with stone and brick chimneys
Purgitsville Historic District	c. 1880-c. 1910	US 220, Hampshire County	Several farms, houses, a former post office and a church
Stringtown Road Farmstead	c. 1900	Stringtown Road east of US 220 north of Purgitsville, Hampshire County	Vernacular I-House with decorative cross gable and four outbuildings
Former Markwood School	c. 1890	US 220 west of Shirley Lane Road, Mineral County	Front gable one-room schoolhouse with stone foundation
Markwood United Methodist Church	c. 1890	US 220 west of Shirley Lane Road, Mineral County	Front gable frame church with square cupola
L-shaped Frame House	c. 1863	South of US 220 at Markwood, Mineral County	Side gable frame house with rear wing
Frame House with Outbuildings (farm)	c. 1840	North of US 220 at Ridgeville, Mineral County	Side gable frame house with broad stone chimney and outbuildings
Colonial Revival House	c. 1910	WV 972 between US Routes 220 and 50, Mineral County	Large Colonial Revival House with wrap-around porch
Italianate Farm	c. 1870	US 220 south of Keyser, Mineral County	Brick farmhouse with decorative wood trim and outbuildings
Stone Farm	c. 1820	US 220 south of Keyser, Mineral County	Old stone farmhouse with large frame barn
Potomac State College Farm	1919	Parkview Drive southwest of Keyser, Mineral County	129-acre experimental farm with specialized barns and outbuildings

TABLE 4.2-8 (continued)
Potentially NRHP-Eligible Resources in Corridor D

Resource Name	Year Built	Location/ County	Resource Description
Baltimore & Ohio Railroad Main Line	c. 1840- c. 1850	South of the North Branch Potomac River at Keyser, Mineral County and west of river in Allegany County	First American Trunk Line railroad
Purinton Log House	1864	US 220 at Danville, Allegany County	Double pen two-story log house
18329 Machin Lane	c. 1880	US 220 near Danville, Allegany County	Vernacular two-story house with stone foundation
US 220 Maryland Rural Historic District	c. 1800- c. 1950	US 220 at Rawlings, Allegany County	Large district with multiple cattle and dairy farms
Pinto Historic District	c. 1880- c. 1920	Pinto Road SW, Allegany County	Small community with workers housing, farm, and furnace ruins
Gunning's Delight Farm	c. 1850	Winchester Road SW south of Cresaptown, Allegany County	Altered house once part of an experimental farm, a distillery, and a saloon
McKenzie Log Farmhouse	c. 1830	Marshall Porter Road SW at LaVale, Allegany County	Two and a half-story double pile log and frame house with two-level porch and outbuildings

4.2.3 Future Mitigation Efforts

Given the results of the preliminary archaeological research at the Tier One level, the pre-contact and historic period archaeological resources predictive surfaces will be utilized as a relative method of assessing the potential impacts to archaeological resources. Based on the archaeological evidence and predictive surfaces, once one corridor has been selected as the preferred corridor, a complete Phase I archaeological survey for pre-contact and historic period archaeological resources will be performed to identify archaeological sites and their potential eligibility for listing in the NRHP. The predictive surfaces should help guide the Phase I survey field methodologies, and the results of that survey will be used to assess the effectiveness of the predictive surfaces.

Additional cultural resource investigations will also be necessary during Tier Two. The investigations will follow the procedures for Section 106 as outlined in 36 CFR 800.3 through 36 CFR 800.6 and the procedures of each SHPO. The investigations will include the identification and analysis of cultural resources, establishment of boundaries for NRHP-eligible resources, preliminary analysis of effects at the draft environmental document stage, full analysis of the effects of a preferred corridor, and complete resolution of adverse effects, if any. The resources that have been identified as potentially eligible will be researched further and eligibility forms will be prepared to evaluate them.

Early in the Tier Two process, a Programmatic Agreement (PA) or procedural outline will be developed in consultation with the WVDOH, MDSHA, the SHPOs, and the Advisory Council on Historic Preservation, detailing the steps to be used for complying with Section 106 as part of the Tier Two approach. Prior to FHWA approval of the Tier Two NEPA document(s), a Memorandum of Agreement (MOA) will be developed addressing adverse effects to historic structures and detailing the necessary avoidance/mitigation measures required.

4.3 Natural Resources

The natural resources analyzed for the project included wetlands, streams, floodplains, vegetation/habitat, threatened and endangered species, farmlands, and soils and geological features. Secondary source information on all resources was collected through research and by contacting local and state agencies with jurisdiction over, or interest in, the various landscape features. All information was incorporated into the project's GIS and field verified. Updated data, based on the field verifications, were subsequently incorporated into the GIS.

4.3.1 Aquatic Resources

Aquatic resources include wetlands and streams. The potential impacts to these resources were evaluated to determine how they could be affected by the proposed corridors.

4.3.1.1 Wetlands

Each of the three corridors would require the crossing of wetlands, resulting in potential impacts to wetland resources.

4.3.1.1.1 Methodology

Potential wetlands within the three corridors were identified through the use of existing information and preliminary field investigations. Field investigations were conducted during

August 2006 and September 2007. The natural resource agencies did not field view potential wetland resources but will do so during Tier Two.

The sources for the information used in the investigation included the USDA's Allegany County soil survey (1977); Hampshire, Mineral, and Morgan counties soil survey (1978); Grant and Hardy counties soil survey (1989); and the USFWS NWI mapping (WVU GIS Technical Center 2000 and USFWS 2007b). Potential wetland habitats were identified based on visual changes in vegetation and signs of hydrology. All potential wetlands within the study area were classified in accordance with the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al*. 1979).

Palustrine scrub-shrub (PSS), PSS/Palustrine Emergent (PEM), Palustrine Forested (PFO), and PFO/PSS were considered higher quality wetland types because they all contain woody plants as a component. It takes more time for these wetland types to develop and become established. Generally, they provide a greater number of beneficial values and functions than other wetland types. These wetland types are often located in unique positions within the landscape, which aid in their ability to provide enhanced benefits through flood flow alteration, sediment trapping, nutrient filtering, and wildlife or aquatic habitat. They also provide a structural diversity (e.g., herbs to shrubs to trees to snags/deadfalls) not provided by emergent or open water wetlands. Usually, the regulatory replacement mitigation ratios are weighted heavier for these wetland types because of their higher quality.

None of the wetlands identified were delineated. Field delineations will occur during Tier Two.

4.3.1.1.2 Effects Analysis – Wetlands

No Build Alternative

The No-Build Alternative would not result in any immediate impacts to wetlands; however, it would not meet the purpose and need of the project.

Build Alternatives

Potential impacts to wetlands with all three corridors are illustrated on the Plates. The information in Table 4.3-1 summarizes the potential impacts to wetlands.

TABLE 4.3-1
Potential Wetland Impacts

Wetland Type	Corridor B		Corridor C		Corridor D	
	Number	Acres	Number	Acres	Number	Acres
PEM	34	41.9	113	65.6	73	52.6
PEM/POW	0	0.0	0	0.0	1	0.2
PSS	2	1.5	0	0.0	2	0.4
PSS/PEM	2	1.7	2	4.4	1	0.2
PFO	8	11.6	5	14.4	9	15.8
PFO/PSS	2	0.1	0	0.0	2	0.2
POW	65	56.5	86	34.8	39	31.6
POW/PEM	1	0.3	0	0.0	0	0.0
PUS	3	4.5	49	32.5	84	42.0
Total	117	118.1	255	151.7	211	143.0

Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), Palustrine Forested (PFO), Palustrine Open Water (POW), and Palustrine Unconsolidated Shore (PUS)

Corridor B

Corridor B would impact the least amount of wetlands of all three corridors. Up to 117 wetlands and 118.1 acres could be impacted. This is both the fewest number of wetlands and least amount of wetland acreage that could be impacted. Potential impacts to wetlands within this corridor would be considerably less in both number and acreage than any of the other corridors. Additionally, Corridor B would impact the least acreage (14.9 acres) of any Build Alternative when comparing the higher quality wetland types. Corridor B may also allow for the most avoidance possibilities of wetland systems during Tier Two due to its greater potential for utilizing portions of existing roadways.

MDNR indicated, however, that Pinto Marsh, a two- to three-acre marshy pond south of Cresaptown, is designated as a non-tidal wetland of special state concern and falls within Corridor B. Wetlands like Pinto Marsh receive special state attention because of their value as known habitat for rare, threatened, or endangered species. A breeding record of the state-listed rare sora (*Porzana Carolina*) was previously observed in Pinto Marsh. (The sora is a marsh bird, six to eight inches in length with a wingspan of 12 inches. It is sometimes called the

Carolina crake or the sora rail.) Wetlands of special state concern are regulated by the COMAR and afforded certain protections, including a 100-foot buffer from development. As potential habitat for rare, threatened, or endangered species, Pinto Marsh is also one of Allegany County's Sensitive Areas Elements and is afforded a level of local protection in the county's land development regulations.

Corridor C

Corridor C could result in impacts to 255 wetlands, or 151.7 acres of wetlands. Corridor C contains the highest number of wetlands and the largest amount of wetland acreage that could be impacted by any of the corridors. Although Corridor C has fewer number of higher quality wetlands (seven), the acreage is higher (18.8 acres), which indicates that individual high quality wetlands are larger and possibly part of more established systems. Often these larger, high quality systems also have more wetland values and functions such as flood water storage or nutrient retention.

Corridor D

Corridor D could result in 211 wetlands, or 143.0 acres of wetlands, being impacted. Corridor D contains the second largest number of wetlands and the second largest amount of wetland acreage that could be impacted of the three corridors. This corridor contains the second highest number of high quality wetland systems, including Pinto Marsh, a designated/regulated non-tidal wetland of special state concern, and an associated 100-foot upland buffer.

4.3.1.1.3 Future Mitigation Efforts

During Tier Two, measures will be identified that will minimize any temporary and permanent impacts to wetland resources due to construction. Additionally, a jurisdictional determination of wetland boundaries will be completed with the USACE prior to construction and a USACE Section 404 permit(s) will be obtained.

4.3.1.2 Streams and Water Quality

Each of the three corridors would require the crossing of streams, resulting in potential impacts to stream (and water quality) resources. Streams were identified through the use of existing information and limited field investigations.

4.3.1.2.1 Methodology

The MDNR and the West Virginia Surface Mining Rules define streams as follows:

- *Perennial Stream* – A stream that flows continuously throughout the year.
- *Intermittent Stream* – A stream that does not have a continuous flow throughout the year.
- *Ephemeral (or Wet Weather) Stream* – A stream that flows only in direct response to precipitation or whose channels are at all times above the water table.

Existing information utilized in the investigation included the USDA's Allegany County soil survey (1977); Hampshire, Mineral, and Morgan counties soil survey (1978); Grant and Hardy counties soil survey (1989); and study area mapping. In August 2006 and September 2007, field investigations revealed numerous perennial and intermittent streams and a few ephemeral streams within the three corridors. During the September 2007 field investigation, samples along randomly selected points were collected to gain background data on study area streams and water quality. Data collected included information on each stream's physical parameters, adjacent land use, watershed characteristics, macroinvertebrates observed, pH, temperature, sample site location (latitude/longitude), and photograph(s). Corridor B had 20 sample sites, Corridor C had 22 sample sites, and Corridor D had 25 sample sites. On average, the stream sample locations were approximately 1.8 miles apart for Corridor B, approximately 2.0 miles apart for Corridor C, and approximately 1.8 miles apart for Corridor D.

<u>West Virginia Regulations and Permitting</u>

West Virginia *Title 46 Legislative Rule, Environmental Quality Board, Series 1, Requirements Governing Water Quality Standards (46* CSR *1)* were reviewed concerning potential impacts to

West Virginia waters (WVSOS 2007). The North Branch Potomac River is a jurisdictional waterbody of Maryland; MDE regulates all discharges that occur directly to it except for tributaries coming from West Virginia.

WVDEP will have Clean Water Act (CWA), Section 401 Water Quality Certification jurisdiction concerning this project within West Virginia. Additionally, the WVDEP Division of Water Resources will be responsible for reviewing the General WV/ National Pollutant Discharge Elimination System (NPDES) Water Pollution Control Permit associated with construction activities. This general permit is for any proposed construction activity with three acres or greater of land disturbance. For projects that will disturb between one acre and less than three acres of land, the responsible party must submit a Notice of Intent (NOI) at least 10 days prior to starting earth-disturbing activities (WVDEP 2007).

Maryland Regulations and Permitting

Maryland has jurisdiction over the North Branch Potomac River. Thus, the primary permitting activities for any major crossings of the river for this project would occur through the MDE (MDE 2007a). The MDE requires authorization for the construction of bridge projects in a waterway or a 100-year floodplain (*Environment Article Title 5, Subtitle 5-501 through 5-514; Annotated COMAR; COMAR 26.17.04)*. Prior to construction, a Joint Federal/State Application (*Environment Article Title 5, Subtitle 5-901 through 5-911; COMAR 26.23 and* CWA Section 404 Permit) for the alteration of the floodplain and non-tidal wetlands through the MDE and the USACE will be prepared. The permit application will also entail MDE's State Water Quality Certification (CWA Section 401). Finally, the MDE requires the approval of an Erosion and Sedimentation Control Plan and Stormwater Management Plan before construction that disturbs 5,000 square feet or more of land can occur (*Environment Article Title 4, Subtitle 1 [Erosion and Sediment Control] and Subtitle 2 [Stormwater Management]; COMAR 26.17.01 and 26.17.02)*.

4.3.1.2.2 Effects Analysis – Streams and Water Quality

The following potential stream impacts are preliminary and provide a liberal estimate of potential impacts. However, the generated impact estimates indicate that Corridor B would have the least amount of impacts on streams and water quality. There could also be temporary impacts to streams and water quality during construction of any build alternative. Earthwork and removal of vegetation for construction would increase the potential for soil erosion and sedimentation to streams within the construction area.

No Build Alternative

The No-Build Alternative would not result in any immediate impacts to streams or water quality; however, it would not meet the purpose and need of the project.

Build Alternatives

Potential impacts to the study area's perennial and intermittent streams are summarized in Table 4.3-2.

TABLE 4.3-2
Potential Stream Impacts

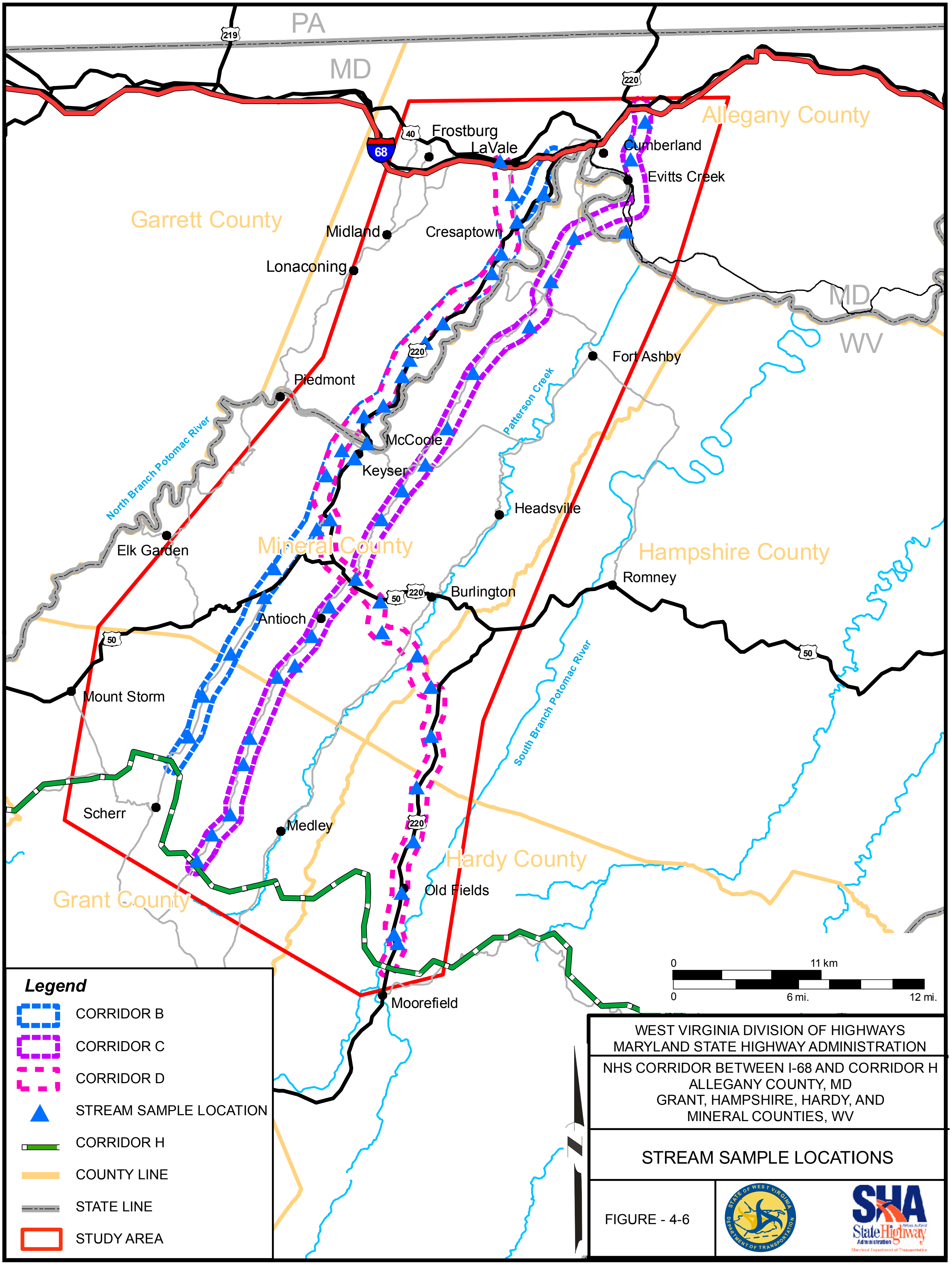
Stream Type	Corridor B		Corridor C		Corridor D	
	Number	Feet	Number	Feet	Number	Feet
Perennial	150	246,322	199	269,902	198	326,380
Intermittent	33	53,917	55	60,932	84	122,423
Total	183	300,239	254	330,834	282	448,803

Corridor B

Corridor B may result in an impact to 150 perennial streams and 33 intermittent streams. The approximate length of stream impact associated with this corridor to perennial and intermittent watercourses is 246,322 feet and 53,917 feet, respectively. Of the potential streams that could be impacted by Corridor B, 19 streams (16 perennial and 3 intermittent) were sampled during field investigations (Figure 4-6). The results of the sampling can be found on Table 4.3-3.

Corridor C

Corridor C may result in an impact to 199 perennial streams and 55 intermittent streams. The approximate length of stream impact associated with this corridor to perennial and intermittent watercourses is 269,902 feet and 60,932 feet, respectively. Of the potential streams that could be impacted by Corridor C, 21 streams (18 perennial and 4 intermittent) were sampled during



PA
MD
WV
219
220
40
68
50
Frostburg
LaVale
Cumberland
Evitts Creek
Allegany County
Garrett County
Midland
Cresaptown
Lonaconing
Fort Ashby
Piedmont
McCoole
Keyser
Patterson Creek
North Branch Potomac River
Headsville
Elk Garden
Mineral County
Hampshire County
Romney
Burlington
Antioch
Mount Storm
South Branch Potomac River
Scherr
Medley
Hardy County
Old Fields
Grant County
Moorefield
0
11 km
0
6 mi.
12 mi.
Legend
CORRIDOR B
CORRIDOR C
CORRIDOR D
STREAM SAMPLE LOCATION
CORRIDOR H
COUNTY LINE
STATE LINE
STUDY AREA
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
STREAM SAMPLE LOCATIONS
FIGURE - 4-6

TABLE 4.3-3
Summary of Stream Surveys for Corridor B

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
UNT to North Branch Potomac River	Perennial	Normal	3	3	Mountains Wooded Open	Snail – Common Isopod – Present Midge – Present Caddisfly – Present Mayfly - Present	6.5	65
UNT to North Branch Potomac River	Perennial	Low	4	5	Rolling Wooded Open	Waterpenny - Abundant Snail – Abundant	N/A	N/A
UNT to North Branch Potomac River	Perennial	Normal	3	10	Mountains Wooded	Caddisfly – Present Isopod - Present	6	65
UNT to North Branch Potomac River	Perennial	Normal	2	3	Mountains Wooded Open	Caddisfly – Present Snail - Present	6.5	66
UNT to North Branch Potomac River	Perennial	Normal	2	3	Mountains Wooded Open	Snail – Common Mayfly – Present Water Penny - Present	6.5	66
UNT to North Branch Potomac River	Perennial	Normal	3	6	Mountains Wooded Open	Mayfly – Common Water Penny – Common Caddisfly - Present	6.5	65
UNT to North Branch Potomac River	Perennial	Low	2	2	Mountains Wooded Open	Flatworm – Common Snail - Present	6.5	66
UNT to North Branch Potomac River	Intermittent	Low	1	3	Mountains Wooded	None observed.	N/A	67
North Branch Potomac River at Keyser	Perennial	Normal	24	100	Mountains Wooded Open	Crayfish – Abundant Mayfly – Abundant Caddisfly - Present	6.5	67
Thunderhill Run	Perennial	Normal	2	4	Mountains Wooded Pasture	Flatworm - Abundant Water Penny – Common Caddisfly – Abundant Mayfly - Present	6.5	71

TABLE 4.3-3 (continued)
Summary of Stream Surveys for Corridor B

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
Stony Run	Perennial	Normal	4	3	Mountians Wooded	Stonefly – Present Water Penny - Abundant Caddisfly - Abundant Isopod - Present	6.5	68
Newcreek	Perennial	Normal	4	25	Mountains Wooded Open Pasture	Midge – Abundant Mayfly – Common Caddisfly – Common Aquatic beatle - Present	6.5	71
Ash Spring Run	Perennial	Low	3	3	Mountains Wooded	Caddisfly – Common Water Penny - Common	6.5	66
Newcreek at Route 93 Bridge/Pancake Road	Perennial	Normal	8	15	Mountains Wooded Open	Mayfly – Abundant Caddisfly – Abundant Midge – Abundant Water Penny – Present Cranefly - Present	6.5	69
UNT to New Creek at Mineral/Grant	Perennial	Normal	2	3	Mountains Wooded Pasture	Caddisfly – Abundant Stonefly – Present Crayfish – Present Water Strider – Present Scud - Abundant	6.5	54
Newcreek at Fishing Access Road	Intermittent	None	Dry	6	Mountains Wooded Cultivated	None observed.	NA	NA
UNT to Newcreek	Perennial	Low	1/2	3	Mountains Wooded	Caddisfly - Abundant Mayfly - Abundant Crayfish - Present	6.5	67
Warrior Run in Cresaptown, MD	Perennial	Normal	4	6	Mountains Wooded Open	Caddisfly - Abundant Mayfly - Present	6.5	69
UNT to North Branch Potomac River	Intermittent	Low	1/2	1	Mountains Wooded	Isopod - Present	6.5	68

NA: Not able to take measurement.

field investigations (see Figure 4-6). The results of the sampling can be found on Table 4.3-4. This corridor may result in an impact to the greatest number of perennial streams, but not the greatest impact length.

Corridor D

Corridor D may result in an impact to 198 perennial streams and 84 intermittent streams. The approximate length of stream impact associated with this corridor to perennial and intermittent watercourses is 326,380 feet and 122,423 feet, respectively. Of the potential streams that could be impacted by Corridor D, another 13 streams (12 perennial and 1 intermittent) were sampled beyond the area where Corridors B and D are coterminous (see Figure 4-6). The results of the sampling can be found on Table 4.3-5. Corridor D may result in an impact to the greatest linear feet of intermittent streams as well as the greatest number of linear feet impact of intermittent streams of all three corridors.

4.3.1.2.3 Future Mitigation Efforts

Both temporary and permanent stream impacts are anticipated as a result of the project. The specific nature of the impacts is not known due to the preliminary nature of the Tier One study. During final design, impacts to streams will be determined for construction activities. Measures to minimize temporary impacts to streams during construction and demolition activities will be identified at that time. Prior to construction, a USACE Section 404 permit, along with the associated state permits and certifications from MDE and WVDEP, will be acquired.

In order to avoid and/or minimize potential impacts to water quality/streams, the following best management practices (BMPs) and recommendations will be considered and undertaken, where appropriate, during final design and construction:

- Reduce the amount of aquatic habitat (and riparian vegetation) that would be disturbed by minimizing the linear distance of stream being impacted.
- Design and construct culvert structures that promote the reestablishment of benthic habitat within the culvert.
- Design and implement an approved Erosion and Sedimentation Control Plan to prevent sediment deposition to aquatic habitats.

TABLE 4.3-4
Summary of Stream Surveys for Corridor C

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
UNT to Middle Fork	Perennial	Normal	2	8	Mountains Wooded Pasture	Water Penny – Common Caddisfly – Common Mayfly – Common Stonefly - Present Helgermite - Present	6.5	67
North Fork near Greenland Gap	Perennial	Normal	6	12	Mountains Wooded Open Pasture	Crayfish – Present Caddisfly – Abundant Mayfly – Present Stonefly – Present Water Penny - Common	6.5	69
UNT to North Fork	Intermittent	Low	3	3	Rolling Open Pasture	Midge – Abundant Limited habitat features.	N/A	75
Thorn Run at Martin, WV	Perennial	Normal	3	6	Rolling Wooded Open Cultivated	Mayfly – Abundant Caddisfly - Abundant	6.5	68
Rosser Run on WV 5	Perennial	Normal	2	4	Rolling Wooded Open Pasture	Caddisfly – Abundant Mayfly – Common Stonefly – Present Water Penny - Present	6.5	65
UNT to Whip Gap Run	Perennial	Normal	5	4	Mountains Wooded Pasture	Stonefly – Common Mayfly – Common Caddisfly – Common Water Penny – Present Crayfish - Present	6.5	57
Hilkey Run	Perennial	Normal	2	6	Mountains Wooded Pasture	Mayfly – Common Water Penny – Present Caddisfly - Present	6.5	66

TABLE 4.3-4 (continued)
Summary of Stream Surveys for Corridor C

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
Mill Run/Creek along WV 6 in Antioch, WV	Perennial	Normal	2	10	Rolling Open Pasture	Caddisfly – Abundant Stonefly – Common Mayfly – Common Scud – Present Aquatic beatle - Present	6.5	57
UNT to Mill Run/Creek along WV 9, Ridgeville, WV	Perennial	Low	1	1	Rolling Open Pasture	None observed.	6.5	67
UNT to Litter Run adjacent to WV 9	Intermittent	None	Dry	1	Hilly Wooded Pasture	None observed.	NA	NA
UNT to Cabin Run	Perennial	Normal	2	2	Hilly Wooded Pasture	N/A - Poor substrate for habitat.	6.5	64
Cabin Run on Cabin Run Road	Perennial	Normal	8	7	Rolling Pasture	Access to stream unavailable.	N/A	N/A
UNT to Ouhre Run	Perennial	Normal	2	2	Hilly Wooded Pasture	Stonefly – Abundant Mayfly – Common Caddisfly – Present Aquatic Beetle - Present	6.5	66
UNT to Ouhre Run	Perennial	Normal	2	3	Hilly Open Pasture	Stonefly – Common Sowbug – Present Aquatic beetle - Present	6.5	71
UNT to Horseshoe Creek	Intermittent	Low	Less than 1/2	1	Hilly Wooded Pasture	Caddisfly - Present	6.5	74
UNT to Rocky Run-south/adjacent to Graceland Baptist Church	Intermittent	Normal	Less than 1/2	1	Mountains Open	Isopod - Present	6.5	77

TABLE 4.3-4 (continued)
Summary of Stream Surveys for Corridor C

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
UNT to North Branch Potomac River	Perennial	Normal	2	4	Mountains Wooded Open	Isopod – Present Caddisfly - Present	6.5	70
North Branch Potomac River	Perennial	Normal	Unknown	110	Hilly Wooded Open Cultivated	Isopod – Present Amphipod – Abundant Aquatic beetles - Present	6.5	76
UNT to Evitts Creek	Perennial	Normal	2	4	Hilly Wooded	Mayfly – Present Water Penny – Present Amphipods – Present Flatworm - Present	6.5	69
Willow Brook	Perennial	Normal	3	1	Hilly Open	Flatworm – Present Mayfly – Present Caddisfly - Abundant	6.5	74
Evitts Creek at MDNR Fissing Access	Perennial	Normal	24	30	Hilly Wooded Pasture	Mayfly – Abundant Stonefly – Present Caddisfly - Present	6.5	73

NA: Not able to take measurement.

TABLES 4.3-5
Summary of Stream Surveys for Corridor D

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
UNT to Fort Run	Perennial	Normal	8	10	Flat Wooded Open Cultivated	None observed, most likey due to poor habitat. Mussel relics present.	6.5	73
South Branch Potomac River	Perennial	Normal	48	200	Flat Wooded Open Cultivated	Mayfly – Abundant Caddisfly – Present Crayfish – Present Snail – Abundant Mussel relics.	6.5	75

TABLES 4.3-5 (continued)
Summary of Stream Surveys for Corridor D

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
Anderson Run	Perennial	Normal	6	10	Flat Wooded Open Cultivated Pasture	Unable to sample due to agricultural fencing.	N/A	N/A
Mud Lick or Anderson Run	Perennial	Normal	12	15	Rolling Wooded Open Cultivated	None observed, most likey due to limited habitat features.	N/A	73
Mud Lick Run	Intermittent	Dry	Dry	5	Rolling Wooded Open Cultivated	None - dry stream.	N/A	N/A
Elmlick Run	Perennial	Normal	3	10	Rolling Wooded Open Cultivated	Mayfly – Abundant Caddisfly - Abundant	6.5	70
UNT to Mill Creek	Perennial	Low	1-2	3	Hilly Wooded Open	None observed - limited habitat features.	6.5	77
Patterson Creek	Perennial	Normal	36	60	Hilly Wooded Open Cultivated	Depth prohibited macroinvertebrate search.	N/A	71
Wild Meadow Run	Perennial	Normal	6	4	Hilly Wooded Open	Mayfly – Abundant Water Strider - Present	N/A	70
Mill Run	Perennial	Normal	2	20	Hilly Wooded Open	Mayfly – Abundant Snail – Abundant Water Penny – Present Caddisfly - Abundant	6.5	72

TABLES 4.3-5 (continued)
Summary of Stream Surveys for Corridor D

Stream Name	Perennial or Intermittent	Flow Condition	Average Depth (in)	Average Width (ft)	Watershed Characteristics	Macroinvertebrates	pH	Temperature (°F)
UNT to New Creek	Perennial	Normal	2	5	Hilly Wooded Open	Stonefly – Abundant Mayfly – Abundant Snail – Abundant Sowbug - Abundant	6.5	62
Braddock Run	Perennial	Normal	8	20	Mountains Wooded Open	None observed - most likely due to acid mine drainage pollution.	6	55
UNT to Warrior Run	Perennial	Normal	4	12	Mountains Wooded Open	Flatworm – Abundant Caddisfly – Abundant Scud – Present Aquatic Spider - Present	6.5	58

NA: Not able to take measurement.

- Promptly revegetate all disturbed areas to prevent accelerated erosion.
- Construct all cofferdams, causeways, and temporary crossings with large, clean, rock fill material and filter fabric on the downstream side to trap sediments.
- Minimize the need for in-stream work by heavy equipment.
- Develop project sequencing to facilitate in-stream work during periods of seasonal low flow.
- Designate any equipment fueling and service areas away from aquatic habitats to minimize the potential for accidental spillage of petrochemicals.
- Designate and construct all stormwater management facilities to prevent or minimize runoff resulting in erosion and sedimentation.
- Minimize the amount of vegetative clearing and impervious surface within the right-of-way to reduce volume and thermal increases.
- Consider the use of vegetated stormwater management basins and wide, flat drainage ditches to reduce sediment and toxicant loading in highway runoff.
- Minimize the diversion of surface water flow within the cleared portion of the right-of-way to reduce thermal increase.
- Coordinate stream mitigation activities with the natural resource agencies.
- If required, develop bridge demolition sequencing that avoids and/or minimizes impacts to stream resources prior to any bridge demolition activities.

4.3.2 Floodplains

The floodplain analysis was conducted in accordance with the requirements of Executive Order 11988, *Floodplain Management*; FHPM 6-7-3-2, *Location and Hydraulic Design of Encroachments on Floodplains;* and U.S. Department of Transportation 5650.2, *Floodplain Management and Protection*.

4.3.2.1 Methodology

Federal guidelines require the use of available National Flood Insurance Program (NFIP) maps to determine and evaluate the effect the proposed action may have on 100-year floodplains and the risk of flooding.

Three sets of data developed by FEMA for the NFIP were utilized to determine the project's potential impacts to 100-year floodplains and floodways: Flood Insurance Rate Maps (FIRMs), digital Q3 Flood Data, and the Digital Flood Insurance Rate Map (DFIRM) database. Depending on the level of study conducted for a stream, the FIRMs may include limits of 100-year floodplains, floodways, and elevations of the base (100-year) flood. The digital Q3 Flood database, which FEMA developed by electronically scanning the paper FIRMs and vectorizing an overlay of the flood risks, includes special flood hazard areas; no floodways or elevations of the base flood are defined. The digital Q3 Flood database was utilized to determine potential impacts to special flood hazard areas within Allegany County. The DFIRM database includes the GIS information used to create new FIRMs. This database was utilized to determine potential impacts to 100-year floodplains and floodways for the four counties in West Virginia.

4.3.2.2 Effects Analysis – Floodplains

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to floodplains; however, it would not meet the purpose and need of the project.

Build Alternatives

Floodplains were identified in each corridor and worst-case impacts evaluated. The actual extent of floodplain impacts will be considerably less than identified in Tier One.

Corridor B

Corridor B would require transverse crossings of New Creek in Mineral County, the North Branch Potomac River, and Warrior Run in Allegany County. In addition, Corridor B could potentially result in longitudinal encroachments on New Creek and the North Branch Potomac River. Corridor B could result in up to 775 acres of floodplain encroachment. Additionally, flood control dams operated and maintained by the Potomac Valley Soil Conservation District within Corridor B include New Creek Dam Sites 1, 5, 7, 10, 12, 14, 16, and 17 (see Figure 3-9).

Corridor C

Corridor C would require transverse crossings of Mikes Run in Mineral County, the North Branch Potomac River, and Evitts Creek in Allegany County. In addition, Corridor C could potentially result in transverse crossings of several streams at the upper reaches of their identified floodplains and in a longitudinal encroachment of the North Branch Potomac River. Corridor C could result in up to 719 acres of floodplain encroachment. Additionally, flood control dams operated and maintained by the Potomac Valley Soil Conservation District within Corridor C include Patterson Creek Dam Sites 20, 21, 28, and 30 (see Figure 3-9).

Corridor D

Corridor D would require nine transverse crossings, including the South Branch Potomac River in Hardy County, Patterson Creek in Mineral County, and the North Branch Potomac River. In addition, Corridor D could potentially result in a longitudinal encroachment on the North Branch Potomac River. Corridor D could result in up to 2,244 acres of floodplain encroachment. Additionally, flood control dams operated and maintained by the Potomac Valley Soil Conservation District within Corridor D include New Creek Dam Sites 1, 9, and 16, and Patterson Creek Dam Sites 20, 22, and 47 (see Figure 3-9).

4.3.2.3 Future Mitigation Efforts

If encroachment cannot be practicably avoided and would result in an increase of the 100-year flood elevation, an appropriate corrective measure should be provided. Detailed hydrologic and hydraulic analyses will be conducted during final design to further analyze the magnitude of floodplain encroachments. This information will be used to finalize the design in accordance with 23 CFR, Parts 115, 117, and 650, to ensure that design features will be of sufficient capacity to accommodate the design year storm.

All construction within floodplains will be in compliance with Executive Order 11988, *Floodplain Management*, dated May 24, 1977; FEMA regulations; and all federal, state, and local regulations. Additionally, hydraulic calculations will be conducted during final design and if any changes to the 100-year floodplain result, coordination with FEMA will be conducted to revise the floodplain maps in accordance with their requirements.

All regulatory floodplain encroachments would be in accordance with *Sections 60.3(c), 65.3, 65.6, and 65.12* of FEMA's NFIP and related regulations, revised October 1, 1993, which state, for streams with 100-year floodplain delineations, but with no regulatory floodways, the cumulative effect of the proposed development, when combined with all other existing and anticipated development in the area, will not increase the water surface elevation of the base flood (100-year) more than one foot at any point within the community.

During Tier One, locations of the flood control dams operated and maintained by the Potomac Valley Soil Conservation District were identified. Coordination with the conservation district will continue during Tier Two to determine if avoidance of the dams is possible.

4.3.3 Vegetation and Wildlife

Each of the corridors would require the crossing of varied vegetation and habitat types, resulting in potential impacts to these resources. Although all components of vegetative land cover were evaluated, early coordination efforts with state resource agencies and the public indicated that impacts to forests and agricultural land could generate the most public controversy. As the project progresses, potential impacts to residential land are likely to rise to equal, if not greater, importance.

4.3.3.1 Vegetation/Habitat

4.3.3.1.1 Methodology

Vegetative land cover and habitat types within the study area were identified by reviewing USGS topographic maps and through field investigation. The field investigation was performed in July 2006. Upland habitat types as well as land use/cover types were classified to Level II in accordance with the *Anderson Land Use/Land Cover Classification System* (Anderson *et al.* 1976). Wetlands within the habitats were classified in accordance with the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.* 1979). Habitat for forest interior dwelling species (FIDS) is especially important in Allegany County, where much of the land is forested. The reproduction and survival of FIDS require interior forest space. For this level of the EIS, all forestland was considered as potentially providing habitat for FIDS.

Field observations of wildlife included actual observations and evidence indicating the presence of an animal (i.e., scat, tracks, etc.). Vegetation and wildlife observed included various species from numerous habitat types. Most of the unobserved species would be expected to be either native species tolerant of manmade changes in the environment or non-native invasive species.

4.3.3.1.2 Effects Analysis – Vegetation/Habitat

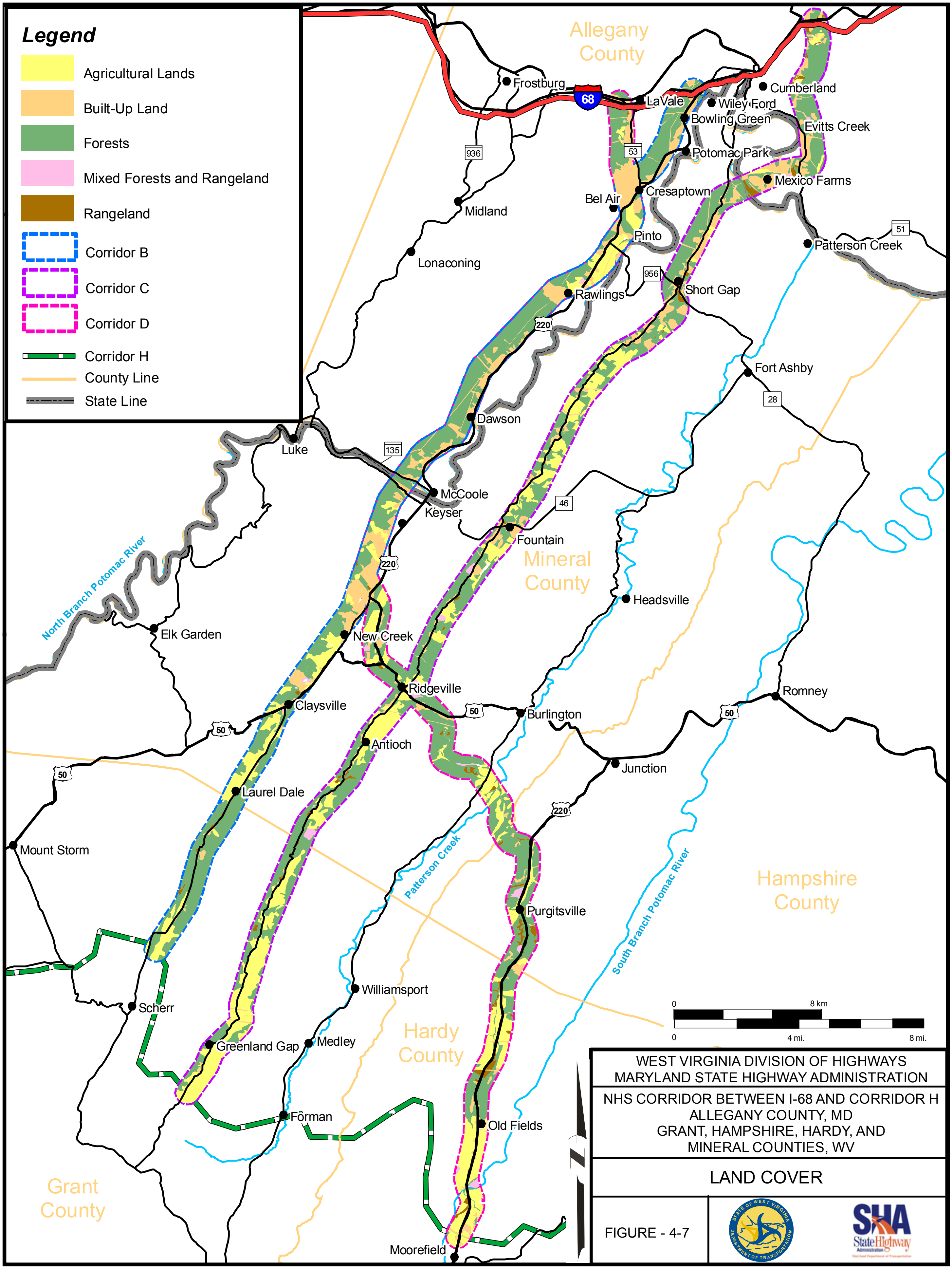
Vegetative impacts in the study area could range from being substantial in some locations (where large forested tracts and agricultural areas are present) to being minimal in other locations (primarily herbaceous vegetation [lawns] and shrubs and trees [roadside vegetation]). Land cover types are tabulated in Table 4.3-6 and shown on Figure 4-7. The percentages for each land cover category in the corridors are provided in subsequent tables.

TABLE 4.3-6
Land Cover in Study Area

Anderson Level II Land Cover Category	Corridor B	Corridor C	Corridor D
Built-Up Land (11-17)	4,427 acres	3,483 acres	4,439 acres
Agricultural Lands (21-24)	2,953 acres	6,489 acres	5,487 acres
Rangeland (31-33)	127 acres	644 acres	720 acres
Forests (41-43)	9,890 acres	11,130 acres	11,409 acres
Mixed Forests and Rangeland (Mixed Level II Components)	0 acre	53 acres	91 acres
Total	17,397 acres	21,799 acres	22,146 acres

Corridor B

Corridor B could result in the lowest amount of land disturbance of any corridor. Corridor B could impact 2,953 acres of agricultural land and 9,890 acres of forestland (including potential impacts to Dans Mountain), the lowest amount of impact to these land cover types. However, Corridor B has approximately the same impact to built-up land as Corridor D. Table 4.3-7 shows the potential impacts to each land cover category as a percentage of the total impact for Corridor B.



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

LAND COVER

FIGURE - 4-7

TABLE 4.3-7
Potential Land Cover Impacts in Corridor B

Anderson Level II Land Cover Category	Acres	Percentage
Built-Up Land (11-17)	4,427	25%
Agricultural Lands (21-24)	2,953	17%
Rangeland (31-33)	127	<1%
Forests (41-43)	9,890	57%
Mixed Forests and Rangeland (Mixed Level II Components)	0	0%
Total	17,397	100%

Corridor C

Corridor C could result in the second highest amount of land disturbance of any corridor. This amount is considerably higher than Corridor B, but relatively close to Corridor D. Corridor C could impact 6,489 acres of agricultural land and 11,130 acres of forestland. The impact to agricultural land with Corridor C is the highest impact to this land cover type, but the impact to forestland is comparable to Corridor D. Table 4.3-8 shows the potential impacts to each land cover category as a percentage of the total impact for Corridor C.

TABLE 4.3-8
Potential Land Cover Impacts in Corridor C

Anderson Level II Land Cover Category	Acres	Percentage
Built-Up Land (11-17)	3,483	16%
Agricultural Lands (21-24)	6,489	30%
Rangeland (31-33)	644	3%
Forests (41-43)	11,130	51%
Mixed Forests and Rangeland (Mixed Level II Components)	53	<1%
Total	21,799	100%

Corridor D

Overall, Corridor D could result in the largest amount of land disturbance of any corridor. Corridor D could impact 5,487 acres of agricultural land and 11,409 acres of forestland (including potential impacts to Dans Mountain). However, the impact to agricultural land is 5.0 percent lower when compared to Corridor C, and the impact to forestland is comparable to Corridor C. Table 4.3-9 shows the potential impacts to each land cover category as a percentage of the total impact for Corridor D.

TABLE 4.3-9
Potential Land Cover Impacts in Corridor D

Anderson Level II Land Cover Category	Acres	Percentage
Built-Up Land (11-17)	4,439	20%
Agricultural Lands (21-24)	5,487	25%
Rangeland (31-33)	720	3%
Forests (41-43)	11,409	52%
Mixed Forests and Rangeland (Mixed Level II Components)	91	<1%
Total	22,146	100%

4.3.3.2 Rare, Threatened, and Endangered Species

Coordination with state and federal agencies concerning RTE species revealed a number of records of known occurrences of RTE species within each corridor. Threatened and endangered wildlife and plant species are protected under *Section 7* of the federal *Endangered Species Act of 1973* (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq*.). In Maryland, the primary state law that governs the listing of endangered species is the *Nongame and Endangered Species Conservation Act* (Annotated COMAR 10-2A-01). This act is supported by the Code of Maryland Regulations 08.03.08. In West Virginia, there is no state threatened and endangered species legislation. Therefore, the species listed as either threatened or endangered in West Virginia are those listed by the USFWS as federally threatened and endangered species.

4.3.3.2.1 Methodology

Initial public announcement of the project was in published in the *Federal Register* on April 14, 2006 in the form of a NOI for the preparation of a Tier One EIS for transportation improvements between I-68 in western Maryland and Appalachian Corridor H in West Virginia. Responses to the NOI were made in the form of a comment letter from the USFWS (2006).

In May 2006, an interagency field view of the study area was performed to allow the state and federal agencies from both states an opportunity to review the project’s five preliminary corridors and to discuss their concerns (among other issues) as related to RTE species issues. Formal requests for information concerning RTE species within the study area were made to the WVDNR, MDNR, and the USFWS a year later in May 2007. (Comment letters from the cooperating and participating agencies are included in the Appendix.)

Separate interagency meetings were also held in Maryland and West Virginia on February 15, 2006; January 17, 2007; February 27, 2007; June 20, 2007; May 19, 2010; April 18, 2012; and November 28, 2012, to allow the agencies additional opportunities to review and comment as the project evolved. During the June 2007 meeting, two reports, *Purpose and Need Statement* (Skelly and Loy, Inc. 2007b) and *Corridors Retained for Further Analysis* (Skelly and Loy, Inc. 2007a), were presented.

To date, no formal field activities, investigations, and/or studies have been completed for this project pursuant to Section 7 of the ESA. As the environmental studies progress, formal biological assessments may be necessary if RTE species may be potentially encountered.

4.3.3.2.2 Effects Analysis – Rare, Threatened, and Endangered Species

Project correspondence (containing comments and background information) regarding RTE species was received from the USFWS after the public announcement involving the NOI. In a letter from the USFWS (2006), it was noted the federally listed endangered Indiana bat (*Myotis sodalis*) and Virginia big-eared bat (*Corynorhinus townsendii virginianus*) and the federally protected bald eagle (*Haliaeetus leucocephalus*) may be present throughout the study area. On July 9, 2007, the bald eagle was removed from the federal list of threatened and endangered species. The bald eagle remains protected, however, under the federal *Bald and Golden Eagle Protection Act* and the *Migratory Bird Treaty Act* and related state laws in Maryland. Also, subsequent to receiving correspondence from the USFWS in 2006, the NPS reported that the Indiana bat has been confirmed as utilizing the Chesapeake and Ohio Canal National Historical Park as habitat. On October 2, 2013, the USFWS proposed adding the northern long-eared bat (*Myotis septentrionalis*) to the list of species protected by the ESA. The species is likely to be listed by the time the project enters Tier Two. The project area is within the range of the northern long-eared bat.

Additionally, where Corridor D crosses Patterson Creek, habitats suitable for the federally listed endangered shale barrens rock cress (*Arabis serotina*) and sensitive mussel fauna may be present. The USFWS noted that these organisms would need to be considered for any proposed alternatives. This letter also discussed wetlands, riparian areas, streams, and the Dans Mountain WMA.

Coordination in May 2007 with state and federal agencies concerning RTE species revealed a number of records of known occurrences of RTE species within the study area. In a letter from the WVDNR (2007), the following organisms were documented as RTE species within the corridors. The list of RTE species found in each corridor in West Virginia is as follows:

Corridor B

Nuttall waterweed (*Elodea nuttallii*), glaucous willow (*Salix discolor*), canby's mountain-lover (*Paxistima canbyi*), Allegheny woodrat (*Neotoma magister*), American harebell (*Campanula rotundifolia*), troublesome sedge (*Carex molesta*), Kates Mountain clover (*Trifolium virginicum*), jefferson salamander (*Ambystona jeffersonianum*), Franz's Cave amphipod (*Stygobromus franzi*), and Franz's Cave isopod (*Caecidotea franzi*).

Corridor C

Allegheny plum (*Prunus alleghaniensis var. alleghaniensis*), canby's mountain-lover, white cedar (*Thuja occidentalis*), shale barren bindweed (*Calystegia spithamaea ssp. purshiana*), mountain pimpernel (*Taenidia montana*), Allegheny woodrat, American harebell, side-oats grama (*Bouteloua curtipendula var. curtipendula*), loggerhead shrike (*Lanius ludovicianus migrans*), bent milkvetch (*Astragalus distortus var. distortus*), snow trillium (*Trillium nivale*), balsam squaw-weed (*Packera paupercula*), and shale barren evening primrose (*Oenothera argillicola*).

Additionally, the NPS noted in a letter on September 24, 2010, that the Maryland Natural Heritage Program considers the Chesapeake and Ohio Canal National Historical Park to have the most significant biodiversity resources of the Mid-Atlantic states and that the park represents one of the largest acreage holdings of unfragmented floodplain (riverine) forests within the east. The NPS went on to note that land within the WMRR right-of-way is part of the management plan to protect the biodiversity of the area.

Corridor D

Shale barren bindweed, wood turtle (*Glyptemys insculpta*), Allegheny plum, brook floater (*Alasmidonta varicose*), bald eagle, triangle floater (*Alasmidonta undulata*), yellow lampmussel

(*Lampsilis cariosa*), grizzled skipper (*Pyrgus wyandot*), olympia marble (*Euchloe olympia*), upland chorus frog (*Pseudacris feriarum feriarum*), false pimpernel (*Lindernia dubia var. anagallidea*), marsh speedwell (*Veronica scutellata*), mountain pimpernel, downy arrow-wood (*Viburnum rafinesquianum*), downy milkpea (*Galactia volubilis*), bent milkvetch, narrow-leaved blue curls (*Trichostema setaceum*), Northern metalmark (*Calephelis borealis*), Kates Mountain clover, meadow jumping mouse (*Zapus hudsonius*), a noctuid moth (*Zale calycanthata*), American harebell, shale barren evening primrose, shale barren goldenrod (*Solidago arguta var. harrisii*), loggerhead shrike, and lesser snakeroot (*Ageratina aromatica var. aromatica*).

In a letter from the MDNR (2007), state RTE species were documented within each corridor. The list of RTE species found in each corridor in Maryland is as follows:

Corridor B

American harebell.

Corridor C

Kates Mountain clover, three-flowered melicgrass (*Melica nitens*), olympia marble, and side-oats grama.

Corridor B/D

MDNR indicated that a two- to three-acre marshy pond (Pinto Marsh) is designated/regulated as a nontidal wetland of special state concern along with a 100-foot upland buffer. The sora (*Porzana Carolina*), a state rare listed bird, is known to have bred in Pinto Marsh. Also in this area, Pinto Mine supports the state-listed endangered Franz's Cave amphipod, Franz's Cave isopod, and the Eastern small-footed myotis (*Myotis leibii*). Impacts caused by the degradation of water quality or changes to hydrology could affect the groundwater of the Pinto Mine cave system. Finally, the cliffs on the north side of the railroad tracks in the Pinto area are known to support a population of the state-listed endangered cliff stonecrop (*Sedium glaucophyllum*).

Overall Study Area

The MDNR is also concerned about potential impacts to the state and federally listed endangered Indiana bat as well as many FIDS. The conservation of FIDS habitat is strongly encouraged by MDNR. Although no analysis of FIDS was completed during Tier One, land cover studies show considerable forest habitat throughout the project area. Additional analysis of potential impacts on forestland will be undertaken during Tier Two.

In a letter from the USFWS (2007a), the USFWS indicated that the Indiana bat and shale barrens rock cress may be present in one or more of the corridors. Additionally, the bald eagle may be present throughout the area. Effective August 8, 2007, the bald eagle is no longer protected by the ESA. However, the bald eagle is still protected by the *Bald and Golden Eagle Protection Act* (16 U.S.C. 668-668c, as amended) and the *Migratory Bird Treaty Act* (16 U.S.C. 703-712).

In a letter of October 31, 2011, the USFWS provided updated information on federally-listed RTE species in the project area. The USFWS reiterated its concern regarding potential impacts on the Indiana bat, especially because white nose syndrome has been documented as occurring in important cave hibernacula within West Virginia. The USFWS also indicated that based on new information, it is unlikely that shale barren rock cress occurs within the study area. The USFWS also listed 15 species of migratory birds that may occur within the study area, including the following: Perigrine falcon (*Falco peregrinus*), Upland Sandpiper (*Bartramia longicauda*), N. saw-whet owl (*Aegolius acadius*), E. whip-poor-will (*Caprimulgus vociferous*), Loggerhead shrike (*Lanius ludovicianus*), Black-capped chickadee (*Poecileatricapillus*), Wood thrush (*Hylocichla mustelina*), Golden-winger warbler (*Vermivora chysoptera*), Prairie warbler (*Setophaga discolor*), Cerulean warbler (*septophaga ceruleaum*), Worm-eating warbler (*Helmintheros verivorum*), Lousiana waterthrush (*Parkesia motacilla*), Kentucky warbler (*Geothlypis formosus*), Canada warbler (*Cardellina Canadensis*), and Henslow's sparrow (*Ammoodramus henslowii*).

In that same letter from 2011, the USFWS encouraged MDSHA and WVDOH to work with state and federal agencies to identify all brook trout streams that may be impacted by the project. To avoid and minimize impacts to important habitat, and to mitigate for any unavoidable wetlands impacts.

4.3.3.2.3 Future Mitigation Efforts

As project planning activities continue and interagency meetings are held to assist in providing further direction for the project, the appropriate level of Section 7 (of the ESA) consultation with USFWS will be determined. Actions that if required could occur during Tier Two include: conducting studies to gain a better understanding of the species, their habitat distribution, and seasonal migratory patterns/needs; or construction methods that would minimize impacts to either resource. Coordination with USFWS and MDNR will continue during Tier Two to ensure that all proposed actions are taken to prevent negative impacts to federal and state rare and endangered species (mammal, mollusk, amphipod, and plant), their critical habitat, or protected bird species habitats. Forest fragmentation, and its associated negative impacts on FIDS, may be minimized by preserving the largest core area through routing the transportation improvement near the edge of the forest or by minimizing the length and width of the highway right-of-way in the forest. Additionally, the USGS Breeding Bird Survey and the USGS representative list of birds in the study area will be used to analyze the effects of the project on all avian species.

4.3.4 Farmlands

The federal *Farmland Protection Policy Act of 1981* (FPPA) requires an analysis of farmlands for any project receiving federal funding. The purpose of the FPPA is to “minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural use.”

4.3.4.1 Methodology

FPPA farmland is determined by the NRCS based upon the underlying soil types as represented in each county’s soil survey. The NRCS defines FPPA farmland as the soil types determined to be prime farmland, statewide important farmland, unique farmland, or locally important farmland. The definitions of these categories are as follows:

- Prime Farmland – Land which has the best physical and chemical characteristics for the cultivation of agricultural products with a minimum of labor, fertilizer, and pesticides. It does not include land in urban development or land used for water storage.

- Unique Farmland – Land other than prime farmland that is used for the production of a specific high-value food or fiber crop.

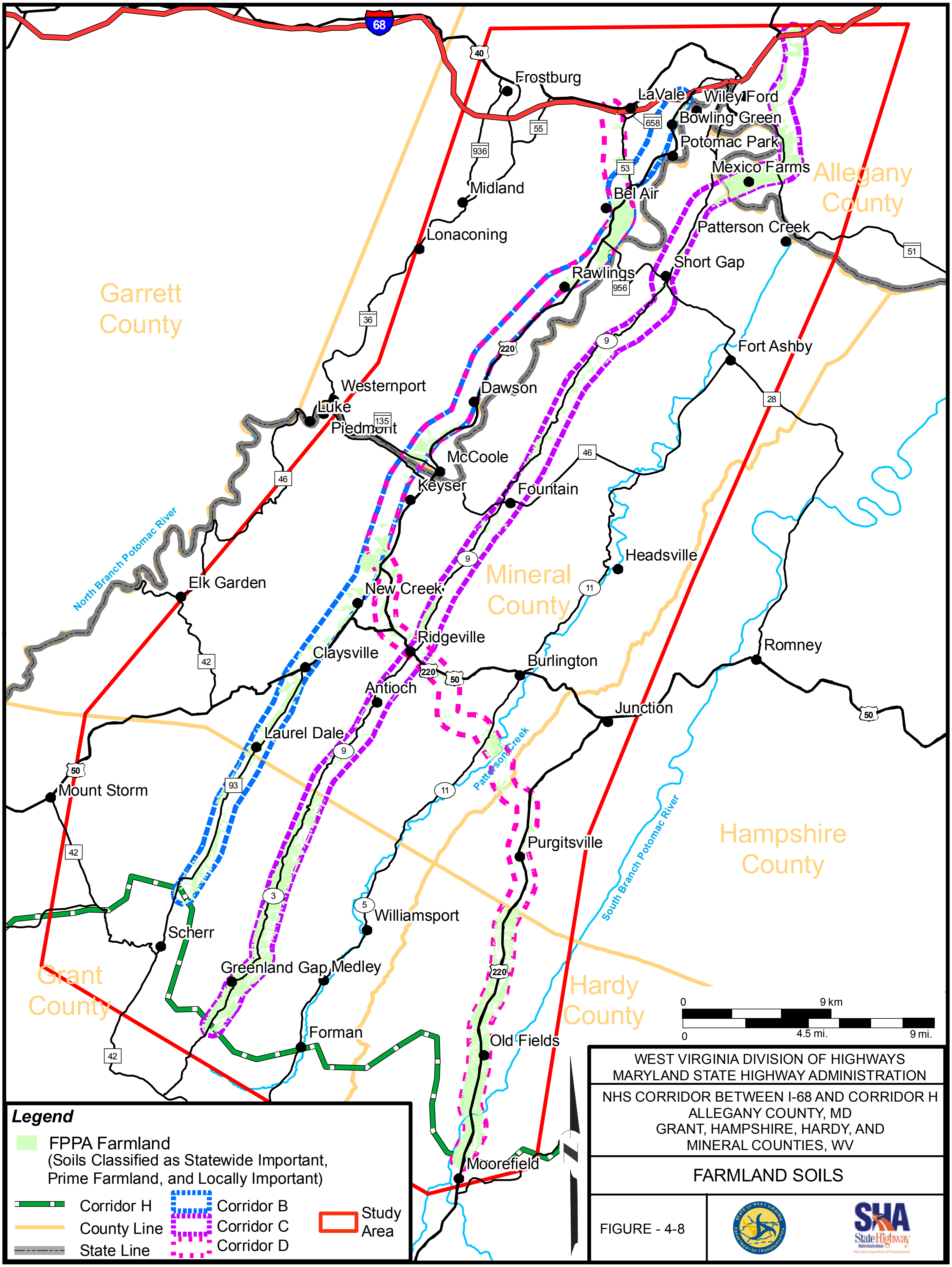
- Farmland of Statewide Importance – Land other than prime or unique farmland, which has been designated as being of importance for the production of agricultural crops.

- Farmland of Local Importance – Land other than prime, unique, or of statewide importance, which has been designated by local agencies as containing the best characteristics for the production of agricultural crops.

If FPPA soils are determined to be impacted by a federally funded project, the Farmland Conversion Impact Rating Form (NRCS Form CPA-106) is to be completed in order to comply with the FPPA. The rating form is designed by the USDA to evaluate different options for a project, assessing points for various site characteristics that pertain to agriculture. The option that is evaluated with the fewest points is considered to be the option that best minimizes the negative impacts of the project on agricultural lands. This form will be completed during Tier Two.

To determine if FPPA soils would be impacted, the soil types in each of the study area counties that are listed as prime, unique, statewide important, and locally important were obtained from the NRCS Soil Data Mart website (USDA-National Agricultural Statistics Service 2007). The soil coverage for each of the study area counties were obtained in GIS format, and data in which soil types are designated as prime, unique, statewide important, and locally important were entered into the database. This allowed for the ability to query the soil database for the FPPA farmland and calculate the impacts of each corridor. Figure 4-8 shows the locations of the FPPA farmland in relation to the corridors. In addition to FPPA farmland, data were collected on the agricultural land within the corridors based on existing land cover. In order to classify the existing agricultural land cover, the *Anderson Land Use/Land Cover Classification System* (Anderson *et al.* 1976) was utilized. There are three hierarchical levels of classifying land cover and land use. Level I provides the most general characterization of land cover and land use while Level III provides the most detailed (representing over 100 land use types). Level II provides the most useful middle ground, offering sufficient detail without overburdening data collection and analysis. Level II was used in order to delineate agricultural land cover.

Land cover classification was completed through site reconnaissance of all three corridors conducted in the summer of 2006. Existing information, such as aerial photographs, study area


68
40
Frostburg
LaVale
Wiley Ford
Bowling Green
Potomac Park
Mexico Farms
658
55
936
53
Midland
Bel Air
Allegany County
Lonaconing
Patterson Creek
51
Short Gap
Rawlings
956
Garrett County
36
220
9
Fort Ashby
Westernport
Luke
Dawson
135
Piedmont
28
McCoole
46
Keyser
Fountain
46
North Branch Potomac River
Headsville
9
Mineral County
11
Elk Garden
New Creek
Ridgeville
Romney
42
Claysville
Burlington
220
50
Antioch
Junction
50
Laurel Dale
Patterson Creek
9
50
Mount Storm
93
11
Purgitsville
Hampshire County
South Branch Potomac River
42
3
5
Williamsport
Scherr
Greenland Gap
Medley
220
Grant County
Hardy County
0
9 km
0
4.5 mi.
9 mi.
Forman
Old Fields
42
Moorefield
Legend
FPPA Farmland
(Soils Classified as Statewide Important, Prime Farmland, and Locally Important)
Corridor H
County Line
State Line
Corridor B
Corridor C
Corridor D
Study Area
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
FARMLAND SOILS
FIGURE - 4-8
SHA
State Highway

mapping, and USGS topographic quadrangle maps, was incorporated into field mapping and utilized during the site reconnaissance. During the site reconnaissance, all land was identified and classified with a land cover code on the field mapping. The information contained on the field mapping was then digitized and integrated into the GIS for the project. This information was the basis for determining the impacts on farmlands.

Information was also collected on farmland preservation areas to supplement the information on FPPA farmland and the existing agricultural land cover. With the continued encroachment of suburban areas into long-established rural areas throughout the nation, many states, including Maryland and West Virginia, have enacted legislation and programs that provide the opportunity to preserve farmland.

The *Maryland Agricultural Land Preservation Program* was enacted in 1977 and has established farmland preservation areas throughout the state. The program consists of two types of preservation areas: agricultural preservation districts and agricultural conservation easements. Allegany County contains both types of preservation areas. Property owners within an agricultural district commit to keeping the land in agricultural use for at least five years, restricting subdivision of the land and preventing commercial, industrial, or residential development during the term. In exchange, farm and forestry production is recognized as the preferred use of the property. A conservation easement is used to protect prime productive farmland from development by selling its development rights and restricting the use of the land to agricultural use now and in the future. The locations of these preservation areas were obtained from MDNR and confirmed by the county administrator.

In West Virginia, the *Voluntary Farmland Protection Act* was passed in 2000. The act authorized the creation of county farmland protection boards and detailed the criteria for the acquisition of conservation easements. In 2002, the *Voluntary Farmland Protection Act* was modified to allow each county with a farmland protection board to provide funding to the farmland protection program through a real estate transfer tax. Each of the study area counties in West Virginia has established county boards; however, the acquisition of conservation easements is only in its infancy. Information regarding the presence or absence of conservation easements enrolled in this program was obtained through correspondence with county administrators.

Farmland conservation easements that may be held by non-profit conservation groups or land trusts were also identified. In Maryland, locations of known easements held by conservation groups were obtained from MDNR. In West Virginia, the locations of known conservation easements were obtained through contact with the county farmland preservation administrators in January and February of 2007. Additional statistics and information about agricultural land in the study area and within the corridors were obtained from the *Census of Agriculture* (USDA-NRCS 2002) and from correspondence with county NRCS personnel.

4.3.4.2 Effects Analysis – Farmlands

Productive farmland is scattered throughout the area and there are many small and large farming operations. Though more prevalent south of the region where the land transitions to gradual slopes and open valleys, large tracts of farmland are also found in central Allegany County near Rawlings, in Mineral County on the east face of Knobley Ridge and up and down the entire length of the Patterson Creek Valley, in the valley areas of Grant County, and north of Moorefield in Hardy County.

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to farmlands; however, it would not meet the purpose and need of the project.

Build Alternatives

Table 4.3-10 summarizes the impacts to each type of FPPA farmland.

TABLE 4.3-10
Potential FPPA Impacts

FPPA Farmland Category	Corridor B	Corridor C	Corridor D
Prime Farmland	2,146 acres	1,491 acres	3,335 acres
Unique Farmland Soils	0 acre	0 acre	0 acre
Farmland of Statewide Importance	1,580 acres	2,465 acres	2,566 acres
Farmland of Local Importance	696 acres	2,991 acres	1,162 acres

Each of the three corridors contains agricultural land based on the land cover identified during the study area reconnaissance. Table 4.3-11 shows the potential agricultural land impacts. Figure 4-9 shows the areas identified as agricultural within each corridor based on the land cover as well as the areas of farmland preservation.

TABLE 4.3-11
Potential Agricultural Land Impacts

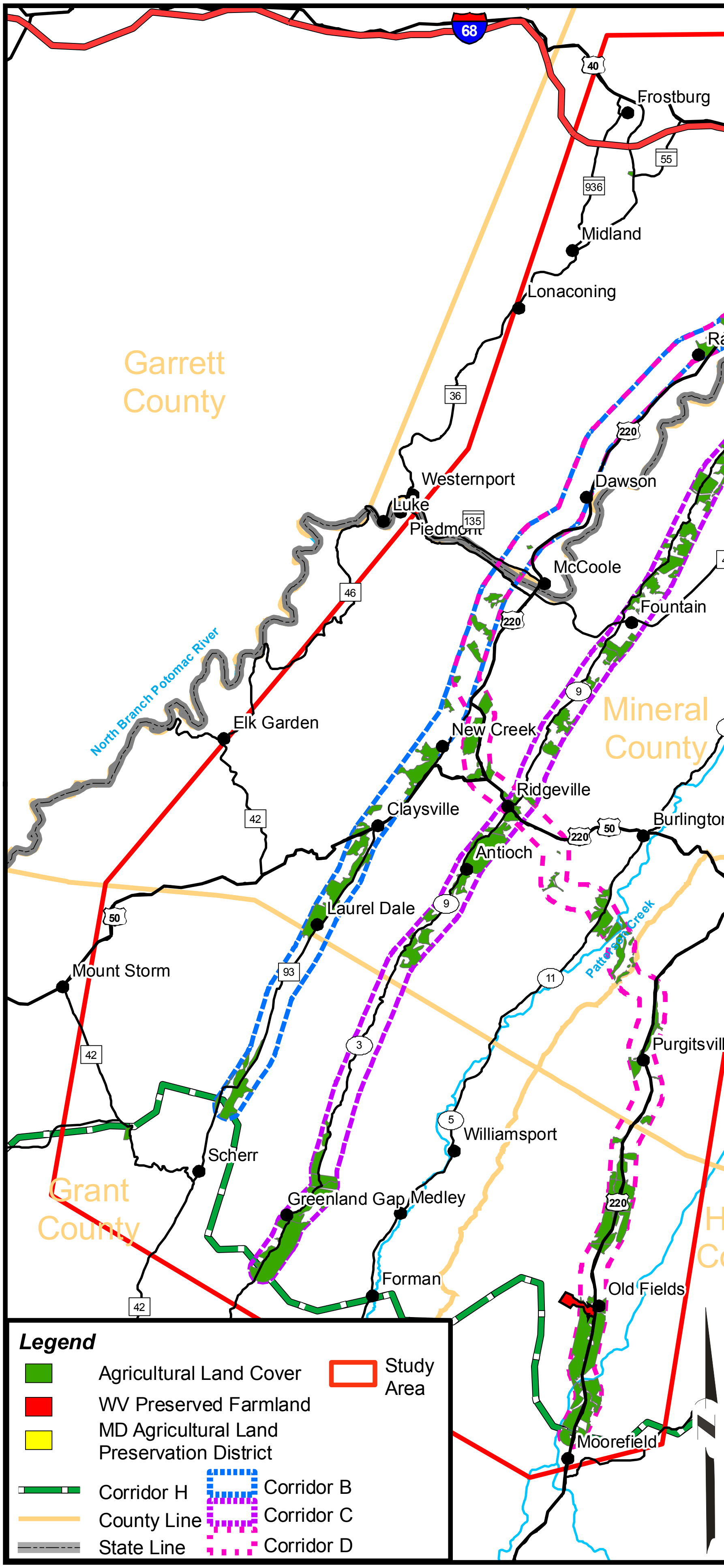
Category	Corridor B	Corridor C	Corridor D
Agricultural land based on land cover	2,953 acres	6,489 acres	5,487 acres
MD Agricultural Land Preservation Districts	0 acre	1 acre	0 acre
MD Agricultural Land Preservation Easements	0 acre	0 acre	0 acre
WV Preserved Farmland Easements	0 acre	0 acre	67 acres
Known Private Farmland Conservation Easements	0 acre	0 acre	0 acre

Corridor B

Corridor B contains the fewest acres of agricultural land (2,953 acres) compared to the other corridors. Corridor B also contains the fewest acres of statewide important farmland (1,580 acres) and locally important farmland (696 acres).

A cluster of farmland soils and agricultural land exists within Corridor B along US 220 between Cresaptown and Rawlings. This area includes hay fields and pasture on both sides of Winchester Road just north of the village of Pinto. Farther south, between Pinto and Rawlings, several large crop and hay fields exist; they are especially concentrated between the railroad tracks and the North Branch Potomac River. The presence of agricultural areas through the remainder of the Allegany County portion of the corridor is minimized due to the fact that it traverses the wooded eastern slopes of Dans Mountain.

In Mineral County, just west of Keyser, Corridor B includes agricultural land that is part of the Potomac State College Farm. Referred to as the “Upper Farm,” it contains 386 acres, a large portion of which is located within Corridor B. The Upper Farm is located approximately 0.5 mile from the main campus of Potomac State College and includes a 20,000 square foot livestock education center.



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NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

AGRICULTURAL LAND COVER
AND PRESERVED FARMLAND

FIGURE - 4-9

Also within Corridor B, scattered farmland exists between Keyser and the WV 93/US 50 junction. Pasture land and hay fields exist west of US 220 along Linden Drive and Great Oak Valley Farm Road. In the vicinity of the intersection of US 50 and WV 972, a patch of agricultural land includes a sheep farm.

A cluster of agricultural land exists between the WV 93/US 50 junction and the county line. This area, predominately west of WV 93, is situated in New Creek Valley and contains numerous beef cattle farms with large crop fields. The agricultural land in this area constitutes approximately 800 acres.

Agricultural land is scarcer within Corridor B in Grant County due to the fact that the topography becomes much steeper with Walker's Ridge to the west and New Creek Mountain to the east. A cluster of agricultural land near the proposed terminus with Corridor H contains several chicken houses, beef cattle pastures, and hay fields.

Compared with the other corridors, Corridor B offers the best opportunity for minimizing agricultural land impacts. Agricultural resources of note are the agricultural land between Cresaptown and Rawlings in Allegany County, the Potomac State College Farm outside of Keyser, and the agricultural land within New Creek Valley.

Corridor C

Compared with the other corridors, Corridor C contains the greatest amount of agricultural land (6,489 acres). Corridor C also has the greatest potential impact to the soils of local importance (2,991 acres). In addition, Corridor C contains 1,491 acres of prime farmland soils and 2,465 acres of statewide important farmland soils.

In Maryland, along the western shore of the North Branch Potomac River, Corridor C includes the southern tip of a 47-acre property that is part of a 98-acre Maryland Agricultural Land Preservation District. Only one acre of that property falls within Corridor C. In northern West Virginia, Corridor C follows existing WV 28. In this area, the WV 28 corridor is well developed and only a few isolated agricultural fields exist.

Approximately two miles south of Short Gap, Corridor C includes a concentrated area of farmland that extends to WV 46. Through this area there are several poultry houses and beef cattle farms. The agricultural land includes predominately hay fields and beef cattle pasture.

South of WV 46, a large farmland tract consisting of mostly hay fields and pasture land surrounds the Mineral CR 9 and Staggs Run Road intersection. From this point south to the intersection of Mineral CR 9 and US 220 in Ridgeville, scattered pasture land and hay fields exist east of Mineral CR 9. South of US 220 to the village of Antioch, the area within Corridor C is nearly all agricultural land. This area includes a large farm with pasture, hay fields, orchards, and several poultry houses.

Agricultural land dominates the landscape of Corridor C within Grant County. Approximately 42 percent of the agricultural land within the entire corridor is located in Grant County, a distance of only nine miles. This is an area of very intensive agricultural activity including several 200- to 300-acre beef farms and several poultry houses where the predominant use of farmland is for pasture and hay fields.

Compared with the other corridors, Corridor C contains the greatest area of agricultural land based on land cover. Corridor C also has the greatest potential impact to farmland of local importance soils. Additionally, Corridor C includes an area of very intensive agricultural activity in northern Grant County.

Corridor D

Corridor D contains the greatest area of soil types classified as prime farmland (3,335 acres) and farmland of statewide importance (2,566 acres). Corridor D also contains 67 acres of a 115-acre preserved farm. The farm is enrolled in a farmland preservation easement with the Hardy County Farmland Protection Board in cooperation with USDA-NRCS. Conservation or preservation easements are legitimate land use tools for protecting high-quality farmland from development pressure. The easement stipulates that the land under agreement cannot be used for any purpose other than agriculture.

Approximately one mile south of its northern terminus with I-68, Corridor D includes a small, isolated patch of farmland that is mainly horse pasture and hay fields. Just west of Cresaptown to approximately three miles south of Keyser, Corridors D and B are identical. Most notable within this area are farmlands (several large crop and hay fields) between Pinto and Rawlings, agricultural land that is part of the Potomac State College Farm, and scattered pasture land southwest of Keyser.

Where US 220 diverges from WV 972, Corridor D follows US 220 east through New Creek Mountain. Farmland, consisting predominately of pasture land, exists in this area at the base of the eastern slopes of New Creek Mountain west of US 220. Corridor D includes a large farm complex of approximately 200 acres surrounding the intersection of US 220 and US 50. As Corridor D swings eastward, it includes farmland consisting of pasture land surrounding the town of Ridgeville.

South of US 220, Corridor D crosses Patterson Creek Road near its intersection with Russeldale Road. Within the corridor, a large cluster of farmland is prevalent from the Patterson Creek Valley to the point where Corridor D reconnects with US 220 heading south. This area includes large tracts of hay fields and pasture land. The land within Corridor D between US 220 and Patterson Creek (approximately 360 acres) is almost entirely comprised of soils classified as prime farmland or farmland of statewide importance.

Corridor D crosses into Hampshire County and generally follows the path of US 220. Through this area hay and crop fields occupy the plain areas surrounding Mill Creek and Elmlick Run.

Agricultural land also dominates the landscape of Corridor D within Hardy County; approximately 50 percent of the agricultural land within the corridor is located in Hardy County, in a distance of approximately 10 miles. From the county line to Reynolds Gap, the concentration of farmland is centered on Mudlick Run and includes numerous large crop fields. Corridor D includes several large crop and hay fields surrounding Old Fields. Just southwest of Old Fields, west of US 220, is a 115-acre preserved farm, 67 acres of which fall within Corridor D as mentioned previously.

The land area within Corridor D from Old Fields south to the Corridor H terminus is primarily in agricultural use. Agriculture dominates the landscape with nearly 90 percent of the land committed to active agricultural production. The flat topography and alluvial soils found here create the largest cluster of prime farmland and farmland of statewide importance in the entire corridor.

Compared with the other corridors, Corridor D is only slightly better in terms of agricultural land cover. Agricultural resources of note include clusters of high-quality farmland between Pinto and Rawlings, the productive Patterson Creek Valley, and the large area of farmland in Hardy County north of Moorefield. Corridor D contains the greatest area of soil types classified as prime farmland and farmland of statewide importance. In addition, Corridor D contains 67 acres of a 115-acre preserved farm.

4.3.5 Soils

4.3.5.1 Methodology

The soil types found within the study area were identified through a review of the Allegany County soil survey (1977); the Hampshire, Mineral, and Morgan counties soil survey (USDA 1978); the Grant and Hardy counties soil survey (USDA 1989); USDA-NRCS digital soil data (2007); and USGS topographic maps. Each corridor would require the crossing of various soil types, resulting in potential impacts to these soils.

Although all soils are an important part of the landscape, and all components of soils were evaluated, early coordination efforts with state resource agencies and the public indicated that impacts to forests and agricultural land (along with the impacts to the associated soils) could generate the most public controversy.

4.3.5.2 Effects Analysis – Soils

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to soils; however, it would not meet the purpose and need of the project.

Build Alternatives

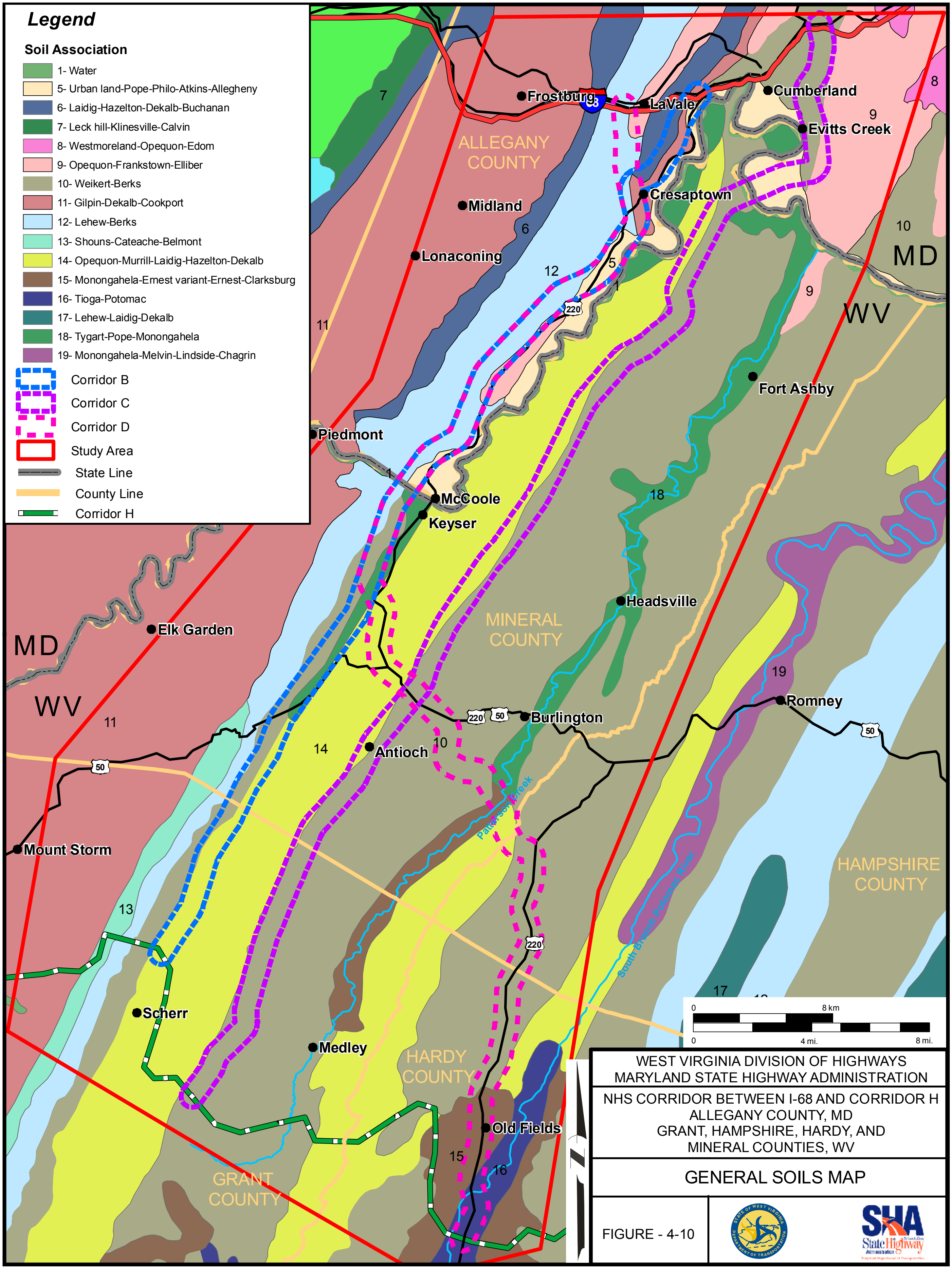
Soils have been evaluated for potential impacts at the soil association level. Potential soil impacts were calculated based on the area of each corridor. Corridor B could result in the lowest amount of soil disturbance of any of the corridors; Corridor C could result in the second highest amount of soil disturbance; and Corridor D could result in the largest amount of soil disturbance. The soil associations are summarized in Table 4.3-12 and shown on Figure 4-10.

TABLE 4.3-12
Potential Soil Impacts

Soil Association (ID#)	Corridor B	Corridor C	Corridor D
West Virginia			
Urban land-Pope-Philo-Atkins-Allegheny Association (5)	52 acres	1 acre	39 acres
Weikert-Berks Association (10)	3,539 acres	13,493 acres	7,877 acres
Lehew-Berks Association (12)	497 acres	0 acre	438 acres
Opequon-Murrill-Laidig-Dekalb Association (14)	3,391 acres	4,499 acres	2,331 acres
Monongahela-Ernest variant-Ernest-Clarksburg Association (15)	0 acre	0 acre	1,772 acres
Tioga-Potomac Association (16)	0 acre	0 acre	1,201 acres
Tygart-Pope-Monongahela Association (18)	1,422 acres	12 acres	591 acres
Maryland			
Urban land-Pope-Philo-Atkins-Allegheny Association (5)	1,728 acres	948 acres	1,443 acres
Laidig-Hazelton-Dekalb-Buchanan Association (6)	766 acres	0 acre	38 acres
Opequon-Frankstown-Elliber Association (9)	358 acres	510 acres	530 acres
Weikert-Berks Association (10)	118 acres	2,336 acres	0 acre
Gilpin-Dekalb-Cookport Association (11)	1,257 acres	0 acre	504 acres
Lehew-Berks Association (12)	4,270 acres	0 acre	5,382 acres
Total	17,389 acres	21,799 acres	22,144 acres

4.3.6 Geology

The proposed corridors are located within the Ridge and Valley physiographic province. The region consists of a series of long folded mountains and valleys of Devonian- and Silurian-aged bedrock. From east to west, the major folded mountains and valleys in the study area are the Clearville syncline, Patterson Creek Mountain anticline, Bedford syncline, and Wills Mountain anticline. The Devonian-aged bedrock is comprised of layered red beds, shale, sandstone, limestone, and chert. Minerals associated with Devonian-aged bedrock include gas, silica sand, and limestone. The Silurian-aged bedrock is comprised of layered sandstone, shale, limestone,



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NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

GENERAL SOILS MAP

FIGURE - 4-10

rock salt, and ferruginous beds. Minerals associated with Silurian-aged bedrock include gas, limestone, and artificial brine.

4.3.6.1 Methodology

A literature review of available geologic information was performed to evaluate the impacts of the project on the geologic formations of the area. Impacts on geology were defined primarily through a literature review of information sources from the USGS, the Maryland Geological Survey, and the West Virginia Geological and Economic Survey and subsequent analysis. Information regarding the engineering characteristics and properties affected by the project, specifically for drilling and excavating, was also examined.

4.3.6.2 Effects Analysis – Geology

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to geological resources; however, it would not meet the purpose and need of the project.

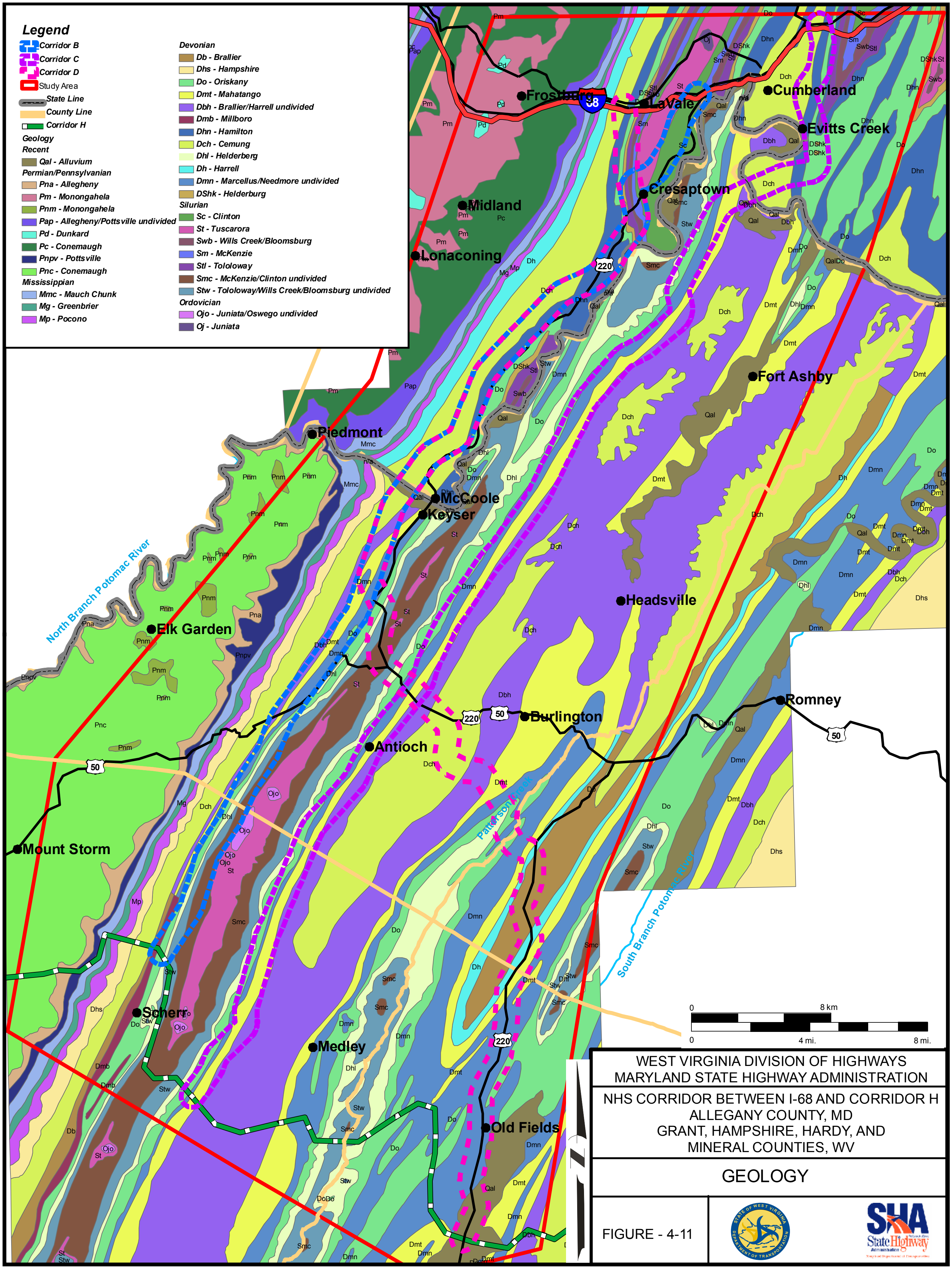
Build Alternatives

The build alternatives would impact the geology of the study area. Figure 4-11 shows the three corridors in relationship to the geology of the study area.

Corridor B

A variety of different types of Devonian- and Silurian-aged geologic formations occur within Corridor B. The Devonian- and Silurian-aged geologic formations located within the corridor are identified and described in Table 4.3-13.

The Clinton Group and Tuscarora formations are located in the northernmost portion of Corridor B between I-68 and Cresaptown. These rock types are moderately to highly resistant to weathering, with naturally steep but stable slopes. Both cut-slope stability and foundation


Legend
Corridor B
Corridor C
Corridor D
Study Area
State Line
County Line
Corridor H
Geology
Recent
Qal - Alluvium
Permian/Pennsylvanian
Pna - Allegheny
Pm - Monongahela
Pnm - Monongahela
Pap - Allegheny/Pottsville undivided
Pd - Dunkard
Pc - Conemaugh
Pnpv - Pottsville
Pnc - Conemaugh
Mississippian
Mmc - Mauch Chunk
Mg - Greenbrier
Mp - Pocono
Devonian
Db - Brallier
Dhs - Hampshire
Do - Oriskany
Dmt - Mahatango
Dbh - Brallier/Harrell undivided
Dmb - Millboro
Dhn - Hamilton
Dch - Cemung
Dhl - Helderberg
Dh - Harrell
Dmn - Marcellus/Needmore undivided
DShk - Helderburg
Silurian
Sc - Clinton
St - Tuscarora
Swb - Wills Creek/Bloomsburg
Sm - McKenzie
Stl - Tololoway
Smc - McKenzie/Clinton undivided
Stw - Tololoway/Wills Creek/Bloomsburg undivided
Ordovician
Ojo - Juniata/Oswego undivided
Oj - Juniata
Frostburg
LaVale
Cumberland
Evitts Creek
Cresaptown
Midland
Lonaconing
Fort Ashby
Piedmont
McCoole
Keyser
Headsville
Elk Garden
Romney
Burlington
Antioch
Mount Storm
Scherr
Medley
Old Fields
North Branch Potomac River
South Branch Potomac River
Patterson Creek
68
220
50
0
8 km
4 mi.
8 mi.
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
GEOLOGY
FIGURE - 4-11

stability are good. Excavation activities are moderately difficult to difficult, with moderate to slow drilling rates. These rock types are good sources of roadway material and fill.

TABLE 4.3-13
Geologic Formations in Corridor B

Map Symbol	Formation Name	Description
Dmt	Mahantango Formation	Medium gray, olive-weathering, fine to course grained sandstone and numerous dark-gray to brown shale interbeds
Dmn	Marcellus/Needmore Formation	Black carbonaceous shale; limestone occurs locally; may contain abundant pyrite and siderite concretions and nodules
Do	Oriskany Sandstone Formation	Light gray, fossiliferous, fine to very course grained sandstone
Dshk	Helderburg Formation	Mostly cherty limestone, with some sandstone and shale. Contains several named stratigraphic units, including the Keyser formation, which is partly Silurian and includes the Clifton Forge Sandstone and Big Mountain Shale members.
Stl	Tonoloway Formation	Medium gray laminated limestone containing interbedded zones of medium-dark-gray to light-olive-gray shale and siltstone
Swb	Wills Creek/Bloomsburg Formation	Greenish-gray shale containing local limestone and sandstone zones; red shale and siltstone occur in lower part of formation
Sm	McKenzie Formation	Greenish-gray shale interbedded with medium-gray, fossiliferous limestone; shale is predominant at base
Qal	Alluvium	Alluvial deposits of sand, gravel, silt, and clay
Dbh	Brallier/Harrell Formation	Interbedded light-gray siliceous siltstone and light-gray hard silty shale; contains fossiliferous lenses
Dhl	Helderburg Formation	Mostly cherty limestone, with some sandstone and shale. Contains several named stratigraphic units, including the Keyser formation, which is partly Silurian and includes the Clifton Forge Sandstone and Big Mountain Shale members.
Stw	Tonoloway/Wills Creek/Bloomsburg Formation	Includes the thin-bedded platy argillaceous limestone of the Tonoloway, the thin-bedded shale with fossiliferous limestones of the Willis Creek, the Bloomsburg red clastic facies, and the greenish-brown to white Williamsport Sandstone. The Willis Creek contains anhydrite and rock salt, the latter supplying brine from deep wells along the Ohio River.
Dmb	Millboro Formation	Dark gray to black shale facies of eastern West Virginia.
Smc	McKenzie/Clinton Formation	Greenish-gray shale interbedded with medium-gray, fossiliferous limestone; shale is predominant at base

TABLE 4.3-13 (continued)
Geologic Formations in Corridor B

Map Symbol	Formation Name	Description
St	Tuscarora Formation	Sandstone and quartzite; fine to course grained; white sometimes red and green; tough; firmly cemented; cross bedded; conglomeratic in part
Dch	Chemung Formation	Medium-gray shale, light-gray to brownish siltstone, fine-grained sandstone, and conglomerate; marine fossils are common
Dhn	Hamilton Group	Uppermost part consists of olive-gray to medium-olive-gray fossiliferous siltstone and shale interbedded with fine-grained medium-dark-gray sandstone; middle part consists of light to medium-gray medium to coarse grained sandstone and several thin conglomerate beds; the base is characterized by medium to dark-gray fine-grained sandstone and dark-gray to black fissile shale
Sc	Clinton Group	Light to dark-gray fossiliferous sandstone; hematitic, oolitic sandstone and shale; light-olive-gray to brownish-gray fossiliferous shale with some limestone and iron sandstone

Sources: USDA 1977, 1978, and 1989

The McKenzie, Wills Creek/Bloomsburg, Tonoloway, and Helderburg formations stretch for approximately two miles south of Cresaptown. These rock types are slightly resistant to weathering, with gentle to steep sloping naturally stable slopes. Cut-slope stability is fair to good and foundation stability is good. Excavation activities are moderately easy to difficult with fast drilling rates. These rock types are good sources of roadway material, riprap, and fill.

South of the McKenzie, Wills Creek/Bloomsburg, Tonoloway, and Helderburg formations to the Maryland/West Virginia state line, Corridor B consists of the Chemung and Hamilton formations. These rock types are moderately to poorly resistant to weathering, with shale that disintegrates rapidly when exposed to moisture. Sandstones and siltstones are moderately resistant to weathering. Cut-slope stability is fair to good and foundation stability is good. The rocks of the Chemung formation are moderately difficult to excavate and drilling rates are medium. The rock types of the Hamilton formation are moderately easy to excavate and have a moderate to fast drilling rate. These rock types are good sources of roadway material and fill.

South of the state line, Corridor B consists of the Brallier/Harrell, Mahantango, and the Marcellus/Needmore formations. The rock types of these formations are poorly to moderately resistant to weathering, with naturally fairly steep to stable slopes. Cut-slope stability is fair to good and foundation stability is good. The Mahantango formation is moderately easy to moderately difficult to excavate with fast to moderate drilling rates. The Marcellus/Needmore and Brallier/Harrell formations are easy to moderately easy to excavate with fast drilling rates. These rock types are good sources of roadway material and fill.

The remaining portion of Corridor B consists of the Oriskany Sandstone, Helderburg, Tonoloway/Wills Creek/Bloomsburg, McKenzie/Clinton, and Millboro formations. These rock types are slightly to moderately resistant to weathering with naturally stable slopes. Cut-slope stability is fair to good and foundation stability is good. Excavation is difficult in the Tonoloway formation but easy in the others. All formations have fast drilling rates. These rock types are good sources of roadway material and fill.

Corridor C

Corridor C would impact a variety of different types of Devonian- and Silurian-aged geologic formations. The Devonian- and Silurian-aged geologic formations located within Corridor C are identified and described in Table 4.3-14.

TABLE 4.3-14
Geologic Formations in Corridor C

Map Symbol	Formation Name	Description
Do	Oriskany Sandstone	Light gray, fossiliferous, fine to very course grained sandstone
Dshk	Helderburg Formation	Mostly cherty limestone, with some sandstone and shale. Contains several named stratigraphic units, including the Keyser formation, which is partly Silurian, and includes the Clifton Forge Sandstone and Big Mountain Shale members.
Stl	Tonoloway Formation	Medium gray laminated limestone containing interbedded zones of medium-dark-gray to light-olive-gray shale and siltstone
Qal	Alluvium	Alluvial deposits of sand, gravel, silt, and clay
Dbh	Brallier/Harrell Formation	Interbedded light-gray siliceous siltstone and light-gray hard silty shale, contains fossiliferous lenses
Dhl	Helderburg Formation	Mostly cherty limestone, with some sandstone and shale. Contains several named stratigraphic units, including the Keyser formation, which is partly Silurian, and includes the Clifton Forge Sandstone and Big Mountain Shale members.
Dch	Chemung Formation	Medium-gray shale, light-gray to brownish siltstone, fine-grained sandstone, and conglomerate; marine fossils are common
Dhs	Hampshire Formation	Non-marine shales and fine micaceous sandstones, mostly red to brownish gray, including siltstone, sandstone, and conglomerate. Generally distinguishable from the underlying Chemung by non-marine character and red color.

TABLE 4.3-14 (continued)
Geologic Formations in Corridor C

Map Symbol	Formation Name	Description
Dhn	Hamilton Group	Uppermost part consists of olive-gray to medium-olive-gray fossiliferous siltstone and shale interbedded with fine-grained medium-dark-gray sandstone; middle part consists of light to medium-gray medium to coarse grained sandstone and several thin conglomerate beds; the base is characterized by medium to dark-gray fine-grained sandstone and dark-gray to black fissile shale
Dmt	Mahantango Formation	Medium gray, olive-weathering, fine to course grained sandstone and numerous dark-gray to brown shale interbeds
Dmn	Marcellus/Needmore Formation	Black carbonaceous shale; limestone occurs locally; may contain abundant pyrite and siderite concretions and nodules

Sources: USDA 1977, 1978, and 1989

The Hamilton Group, Chemung formation, and Oriskany Sandstone are located in the northernmost portion of Corridor C between I-68 and the Maryland/West Virginia boundary. Weathering of the Oriskany Sandstone is highly variable depending on the presence of siliceous cement; the Chemung formation is moderately resistant to weathering with shale that disintegrates rapidly when exposed to moisture; and the Hamilton Group is moderately to poorly resistant to weathering. All formations have steep to fairly steep, stable natural slopes. Cut-slope stability is fair to good and foundation stability is good, with the exception of weathered rock from the Oriskany formation having poor stability. The Chemung formation and Oriskany Sandstone are both moderately difficult to excavate with slow to medium drilling rates. The Hamilton Group is moderately easy to excavate with fast to moderate drilling rates. These rock types are good sources of roadway material and fill.

The remainder of Corridor C south of the Maryland/West Virginia state line consists of the Oriskany Sandstone, Mahantango, Brallier/Harrell, and Marcellus/Needmore formations. Weathering of the Oriskany Sandstone is highly variable depending on the presence of siliceous cement; the others are moderately to poorly resistant to weathering. All formations have steep to fairly steep stable natural slopes. Cut-slope stability is fair to good and foundation stability is good, with the exception of weathered rock from the Oriskany Sandstone having poor stability. The Oriskany Sandstone is moderately difficult to excavate with slow to medium drilling rates. The Mahantango, Brallier/Harrell, and Marcellus/Needmore formations are moderately easy to excavate with fast to moderate drilling rates. These rock types are good sources of roadway material and fill.

Corridor D

Corridor D would impact a variety of different types of Devonian- and Silurian-aged geologic formations. The Devonian- and Silurian-aged geologic formations located within Corridor D are identified and described in Table 4.3-15.

TABLE 4.3-15
Geologic Formations in Corridor D

Map Symbol	Formation Name	Description
Dmt	Mahantango Formation	Medium gray, olive-weathering, fine to course grained sandstone and numerous dark-gray to brown shale interbeds
Dmn	Marcellus/Needmore Formation	Black carbonaceous shale; limestone occurs locally; may contain abundant pyrite and siderite concretions and nodules
Do	Oriskany Sandstone	Light gray, fossiliferous, fine to very course grained sandstone
Dshk	Helderburg Formation	Mostly cherty limestone, with some sandstone and shale. Contains several named stratigraphic units, including the Keyser formation, which is partly Silurian, and includes the Clifton Forge Sandstone and Big Mountain Shale members.
Stl	Tonoloway Formation	Medium gray laminated limestone containing interbedded zones of medium-dark-gray to light-olive-gray shale and siltstone
Swb	Wills Creek/Bloomsburg Formation	Greenish-gray shale containing local limestone and sandstone zones; red shale and siltstone occur in lower part of formation
Sm	McKenzie Formation	Greenish-gray shale interbedded with medium-gray, fossiliferous limestone; shale is predominant at base
Qal	Alluvium	Alluvial deposits of sand, gravel, silt, and clay
Dbh	Brallier/Harrell Formation	Interbedded light-gray siliceous siltstone and light-gray hard silty shale; contains fossiliferous lenses
Dhl	Helderburg Formation	Mostly cherty limestone, with some sandstone and shale. Contains several named stratigraphic units, including the Keyser formation, which is partly Silurian and includes the Clifton Forge Sandstone and Big Mountain Shale members.
Stw	Tonoloway/Wills Creek/Bloomsburg Formation	Includes the thin-bedded platy argillaceous limestone of the Tonoloway, the thin-bedded shale with fossiliferous limestones of the Willis Creek, the Bloomsburg red clastic facies, and the greenish-brown to white Williamsport Sandstone. The Willis Creek contains anhydrite and rock salt, the latter supplying brine from deep wells along the Ohio River.
Smc	McKenzie/Clinton Formation	Greenish-gray shale interbedded with medium-gray, fossiliferous limestone; shale is predominant at base
Dch	Chemung Formation	Medium-gray shale, light-gray to brownish siltstone, fine-grained sandstone, and conglomerate; marine fossils are common

TABLE 4.3-15 (continued)
Geologic Formations in Corridor D

Map Symbol	Formation Name	Description
Dh	Harrell Formation	Gray to black silty shale with thin argillaceous limestone, calcareous shale, and limestone nodules at base
Db	Brallier Formation	Interbedded light-gray siliceous siltstone and light-gray hard silty shales; contains fossiliferous lenses

Sources: USDA 1977, 1978, and 1989

The Chemung, McKenzie, Wills Creek/Bloomsburg, Tonoloway, and Helderberg formations are located in the northernmost portion of Corridor D from I-68 to approximately two miles south of Cresaptown. These rock types are slightly resistant to weathering with gentle to steep sloping naturally stable slopes, with exception of the shale of the Chemung formations, which disintegrate rapidly when exposed to moisture. Cut-slope stability is fair to good and foundation stability is good. Excavation activities are moderately easy to difficult with fast drilling rates. These rock types are good sources of roadway material, riprap, and fill.

South of the McKenzie, Wills Creek/Bloomsburg, Tonoloway, and Helderberg formations to the Maryland/West Virginia state line, Corridor D consists of the Chemung and Hamilton formations. These rock types are moderately to poorly resistant to weathering with shale that disintegrates rapidly when exposed to moisture. Sandstones and siltstones are moderately resistant to weathering. Cut-slope stability is fair to good and foundation stability is good. The rocks of the Chemung formation are moderately difficult to excavate and drilling rates are medium. The rock types of the Hamilton formation are moderately easy to excavate and have a moderate to fast drilling rate. These rock types are good sources of roadway material and fill.

For the next eight miles south of the Maryland/West Virginia state line, Corridor D consists of the Brallier/Harrell, Mahantango, and the Marcellus/Needmore formations. The rock types of these formations are poorly to moderately resistant to weathering, with naturally fairly steep to stable slopes. Cut-slope stability is fair to good and foundation stability is good. The Mahantango formation is moderately easy to moderately difficult to excavate with fast to moderate drilling rates. The Marcellus/Needmore and Brallier/Harrell formations are easy to moderately easy to excavate with fast drilling rates. These rock types are good sources of roadway material and fill.

The next two miles of Corridor D to the Mineral-Hampshire county line consists of the Oriskany Sandstone, Mahantango, Brallier/Harrell, and Marcellus/Needmore formations. Weathering of the Oriskany Sandstone is highly variable depending on the presence of siliceous cement; the others are moderately to poorly resistant to weathering. All formations have steep to fairly steep, stable natural slopes. Cut-slope stability is fair to good and foundation stability is good, with the exception of weathered rock from the Oriskany Sandstone having poor stability. The Chemung formation is moderately difficult to excavate with slow to medium drilling rates. The Mahantango, Brallier/Harrell, and Marcellus/Needmore formations are moderately easy to excavate with fast to moderate drilling rates. These rock types are good sources of roadway material and fill.

The next two to three miles consist of the Oriskany Sandstone, Marcellus/Needmore, and Helderburg formations. Weathering of the Oriskany Sandstone is highly variable depending on the presence of siliceous cement; the others are moderately to poorly resistant to weathering. All formations have steep to fairly steep, stable natural slopes. Cut-slope stability is fair to good and foundation stability is good, with the exception of weathered rock from the Oriskany Sandstone having poor stability. The Oriskany Sandstone is moderately difficult to excavate with slow to medium drilling rates. The Helderburg and Marcellus/Needmore formations are moderately easy to excavate with fast to moderate drilling rates. These rock types are good sources of roadway material and fill.

The remainder of Corridor D to the south consists of the Oriskany Sandstone, Mahantango, Harrell, Brallier, Marcellus/Needmore formations. Weathering of the Oriskany Sandstone is highly variable depending on the presence of siliceous cement; the others are moderately to poorly resistant to weathering. All formations have steep to fairly steep stable natural slopes. Cut-slope stability is fair to good and foundation stability is good, with the exception of weathered rock from the Oriskany Sandstone having poor stability. Excavation is moderately easy to moderately difficult with fast to moderately slow drilling rates. These rock types are good sources of roadway material and fill.

4.4 Potentially Contaminated Sites

A preliminary assessment of potentially contaminated waste sites was completed in the study area in August 2006. The assessment identified numerous sites with recognized environmental conditions. Additionally, various federal and state environmental databases were reviewed in December 2009 to identify other potentially contaminated waste sites.

4.4.1 Methodology

A windshield reconnaissance of each corridor to assess the possibility of future project involvement with potentially contaminated sites was conducted. Potentially contaminated locations were mapped and input into a project database. The database included assignment of a site identification number, corridor within which it was located, name, photograph(s), and list of environmental concerns. Sites with REC were identified and categorized into one of the three following levels of concern:

- Level One REC – These sites are classified as low risk. These sites include, but are not limited to, automotive and truck repair facilities, small quantity *Resource Conservation and Recovery Act* (RCRA) generator facilities, facilities with ASTs containing less than 10,000 gallons of product with no visible signs of contamination, electric power substations, and automobile sales and service facilities.

- Level Two REC – These sites are classified as moderate risk and have potential to become high risk based on more detailed examination. These sites include, but are not limited to, facilities with ASTs containing greater than 10,000 gallons of product or ASTs with visible contamination, gasoline fueling facilities, potential former gasoline fueling facilities, metal fabrication facilities, facilities with USTs, facilities with junk automotive and truck parts storage, and storage trailers with unknown contents.

- Level Three REC – These sites are classified as high risk, with the likelihood of soil and/or groundwater contamination. These sites include, but are not limited to, bulk petroleum storage facilities, properties with groundwater monitoring wells, properties with visible soil staining, industrial properties, surface mining facilities, landfills, and salvage yards.

The hazardous waste investigations were primarily completed through windshield surveys with limited records review. Some preliminary research on superfund sites and underground storage tanks was conducted to supplement the windshield surveys, however. That research revealed two superfund sites in Mineral County (Allegany Ballistics Lab and Kessel Lumber Supply), one superfund site in Hampshire County (Tordon Herbicide Chemicals), and one superfund site in Allegany County (Limestone Road).

Interviews with agencies or knowledgeable persons were deferred until Tier Two due to the size of the corridors. Additional sites may exist within each corridor, but due to the modified nature of this investigation, they were not identified. Some sites with REC may exist on private property that was inaccessible to the investigators. A more detailed review of databases and subsequent research will also be conducted during Tier Two studies.

4.4.2 Effects Analysis – Potentially Contaminated Sites

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to potentially contaminated sites; however, it would not meet the purpose and need of the project.

Build Alternatives

Former surface mined areas, slag dumps, razed industrial sites, and permitted landfills are numerous and located throughout the study area. In addition to existing conditions, the build alternatives could generate waste from construction.

Corridor B

As shown in Table 4.4-1, Corridor B could potentially impact 43 sites with REC. Ten sites with Level One REC, 30 sites with Level Two REC, and three sites with Level Three REC were identified. Corridor B would have the second highest amount of impacts to sites with REC, but the least amount of impacts to sites with Level Three REC.

TABLE 4.4-1
Potentially Contaminated Sites

REC Level	Corridor B	Corridor C	Corridor D
Level One	10	13	14
Level Two	30	18	36
Level Three	3	11	5
Total	43	42	55

Corridor C

As shown in Table 4.4-1, Corridor C could potentially impact 42 sites with REC. Thirteen sites with Level One REC, 18 sites with Level Two REC, and 11 sites with Level Three REC were identified. Corridor C would have the least amount of impacts to sites with REC, but the most impacts to sites with Level Three REC.

Corridor D

As shown in Table 4.4-1, Corridor D could potentially impact 55 sites with REC. Fourteen sites with Level One REC, 36 sites with Level Two REC, and five sites with Level Three REC were identified. Corridor D would have the most impacts to sites with REC, and the second most impacts to sites with Level Three REC. There would be numerous cuts along the proposed project, which would generate excavation waste. Excavation waste is material that cannot be utilized within the proposed project right-of-way and must be transported away from the construction site to an area identified for disposal.

4.5 Traffic

Concurrent with the refinement of the corridors, potential issues with traffic were evaluated.

4.5.1 Methodology

Potential future traffic for each corridor was projected using a traffic assignment model and estimates of long-distance, through traffic from intercity locations east and west of Cumberland on I-68. The sources of average annual daily traffic information for the regional highway network were the 2005 statewide traffic flow map in West Virginia (WVDOH 2005a) and the Allegany County 2004 traffic volume map in Maryland (MDSHA 2004). Other traffic data and traffic growth rates were provided by WVDOH and MDSHA. Generally, all roadway segments under study had one lane in each direction for through traffic, with left-turn lanes and center left-turn lanes in some instances. While there were some locations in Maryland with more than two lanes in each direction, these tended to be short relative to the two-lane highway sections. To represent the average condition of all of these highways, these roads were assumed to have free flow speeds of 45 mph, 90 percent no-passing zones, rolling terrain, and 10 percent truck traffic.

The traffic assignment model consisted of the following components:

- Trip Generation Productions – The number of households in the area was queried from the available census data at the block group level. Based on 2000 U.S. Census data, there were 31,583 households in the immediate area. It was estimated that each household produced 0.77 daily trips on the highway network.
- Trip Generation Attractions – Attractions were estimated using employment data queried at the place of work from the available census data. Data were queried and assigned to one of the eight major employment centers in the region: Cumberland, LaVale, Cresaptown, Frostburg, Westernport, Moorefield, Keyser, and Romney. Employment was grouped into retail and non-retail. Trip attraction rates were applied to each type of employment and the total number of attractions was balanced to match the trip productions.
- Trip Distribution – A gravity model was developed to perform the trip distribution. All of the attractions converged to within eight percent.
- Traffic Assignment – For each of the segments, a matrix was prepared to estimate the percentage of trips between each origin and destination pair that would use each available route.

Some long-distance traffic flows through Cumberland on I-68 from I-79 and I-81. In the future, some of those trips could use the combination of Corridor H and an improved US 220 corridor, if it provides a shorter and quicker route. After a detailed analysis of alternate travel paths through the area, a thousand vehicles per day (VPD) were added to the forecasts, representing travelers that would shift from other long-distance through routes in the area to a new facility if ultimately constructed.

Once the traffic model was completed, corridor level traffic was projected and a preliminary capacity analysis conducted. Existing and future levels of service were projected for roadway segments along US 220; MD 36, 53, and 135; and WV 28, 46, 93, and 956.

In addition to the traffic and LOS projections, the amount of regional residual traffic expected on US 220 was calculated. Residual traffic would be those trips remaining on existing US 220 if a new highway corridor were developed and traffic shifted to it. In effect, the less residual traffic on US 220, the more successful the corridor would be.

4.5.2 Effects Analysis – Traffic

No-Build Alternative

The No-Build Alternative does not adequately address traffic congestion in the area. As traffic increases, high rates of congestion would continue and level of service would worsen.

Build Alternatives

Although traffic would increase annually, traffic conditions on the area roadways would improve with construction within any of the three corridors. The rationale for that determination is discussed in the next four subsections.

4.5.2.1 Long Distance Traffic Projections

Traffic volumes to the east and west of Cumberland that are not near population centers were queried in order to arrive at an order of magnitude estimate of traffic that might be diverted to the new route. Currently, many motorists use US 522 through Berkeley Springs to shorten their trip between I-81 to the south and I-68 to the west. The lowest volumes on US 522 in West Virginia were approximately 6,000 vehicles per day. For traffic between I-79 and I-68, the lowest volumes on I-68 (near the WV/MD state line) were approximately 11,000 VPD. The through traffic that might be attracted to this new route should only be a fraction of these volumes. As an estimate, a through volume of 1,000 vehicles per day was applied for each movement (I-79 south to I-68 east and I-81 south to I-68 west) in which the new route was found to be more attractive than the existing route. If the existing route was found to be more attractive, then nothing was to be added for through traffic.

It is approximately 120 miles from the LaVale interchange on I-68 to the Weston interchange on I-79. Although a new route could shorten the trip by 10 miles, it is likely to still take about the same time. If there is no real times-savings, a new route may not attract significant traffic since driver/trucker services are located along I-68 and I-79.

Similarly, it is approximately 112 miles from the LaVale interchange on I-68 to the Middletown, Virginia, interchange on I-81 (which is near where the Corridor H traffic will access I-81). This trip is approximately 95 miles long using US 522 from Winchester to Hancock and is a relatively attractive alternate route to driving on the interstates. Thus, the route to the southeast between Cumberland and Middletown is likely to be more attractive because trucks and through traffic already divert from I-70/I-81. As such, a through-traffic volume of 1,000 VPD (2005 volumes) was added to the regional traffic forecast to formulate the final traffic forecast.

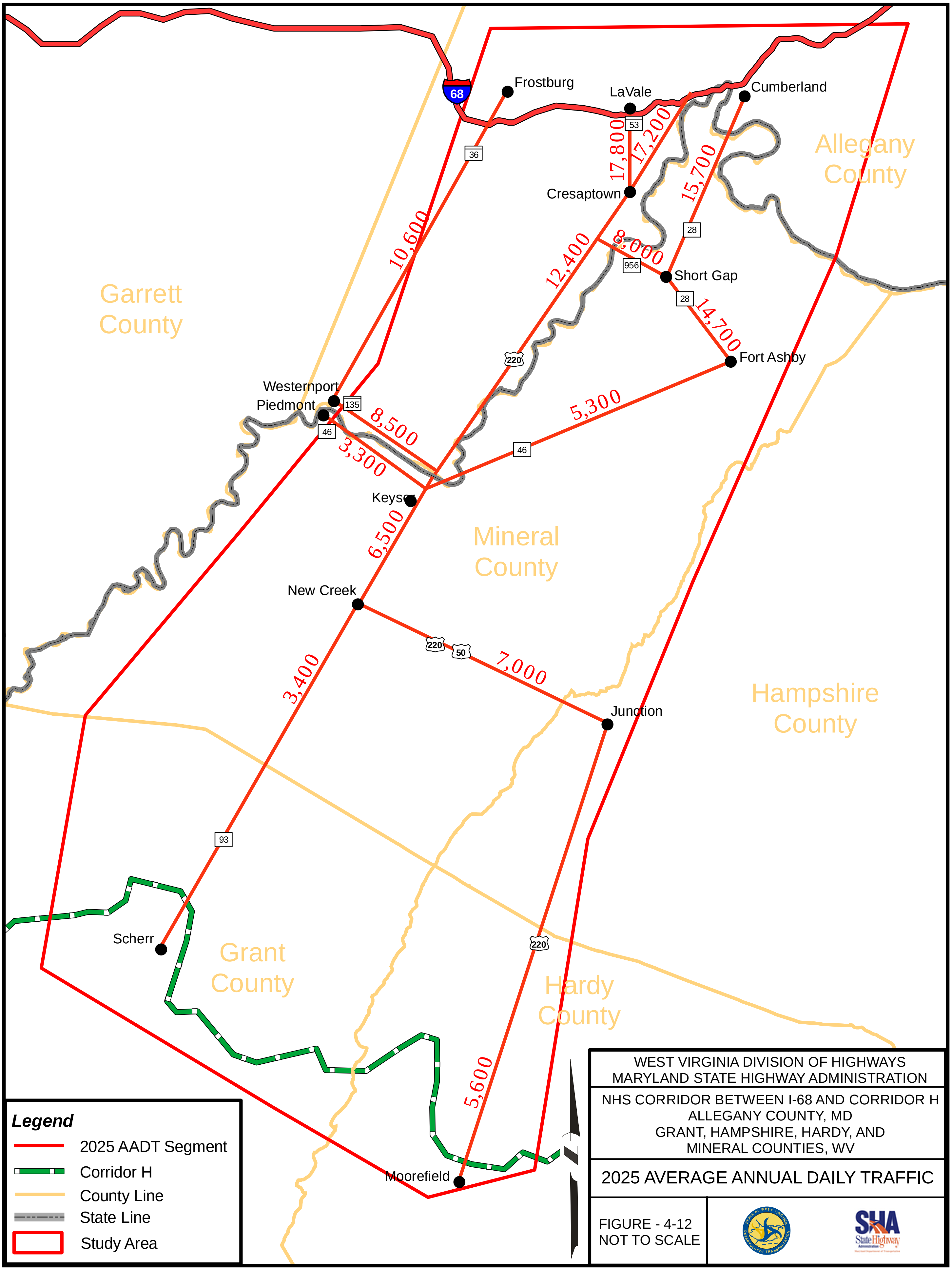
4.5.2.2 Design Year Forecast

Traffic volume projections for area roadways and for the residual traffic on US 220 were factored forward 20 years consistent with the growth rates provided by WVDOH and MDSHA. The results are shown on Table 4.5-1.

TABLE 4.5-1
Current and Projected Traffic for the Highway Network

Roadway	Segment	Current AADT	20-year Growth Rate	Approximate 2025 AADT
US 220	Moorefield to Junction	3,800	1.4844	5,600
	Junction to New Creek	4,700	1.4844	7,000
	New Creek to MD/WV	4,400	1.4844	6,500
	MD/WV to MD 53	10,125	1.2202	12,400
US 220	MD 53 to I-68	14,125	1.2202	17,200
MD 36	Westernport to Frostburg	8,150	1.3052	10,600
MD 135	Westernport to Keyser	6,975	1.2202	8,500
WV 46	Westernport to Keyser	2,000	1.6447	3,300
	Keyser to Fort Ashby	3,200	1.6447	5,300
WV 93	Scherr to New Creek	2,200	1.5405	3,400
WV 28	Fort Ashby to WV 956	9,300	1.5813	14,700
	WV 956 to Cumberland	9,900	1.5813	15,700
WV 956	WV 28 to US 220	5,200	1.5405	8,000
MD 53	US 220 to I-68	14,575	1.2202	17,800

Roadways with the highest future traffic include MD 53, WV 28, and US 220. Future traffic is also shown on Figure 4-12. As expected, future traffic would be highest in the more populated communities around Cumberland and generally drops toward the south.



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

2025 AVERAGE ANNUAL DAILY TRAFFIC

FIGURE - 4-12
NOT TO SCALE

4.5.2.3 Residual Traffic

Residual traffic defines how many vehicles will use the proposed corridor and how much residual regional and long distance traffic will remain on existing US 220. Regional and long distance drivers will have a choice of using the Build Alternative or continuing to use US 220. The decision will be based on the trip origin-destination (O-D), travel time and distance, and economics. All local trips are assumed to remain on existing US 220 because of their shorter length and local origin and destination. In effect, the less residual traffic on US 220, the more successful the Build Alternative would be.

Residual traffic on US 220 was estimated for each of the corridors. Because of its potential alignment as a true replacement for US 220 between Cumberland and Moorefield, Corridor D was assumed to draw all of the regional traffic off of US 220, leaving only local access traffic. Therefore, for each segment of the other proposed corridors, each origin-destination pair was compared to the respective entry for the US 220 corridor. If the new transportation corridor was found not to attract the traffic between an O-D pair that US 220 carried, that was considered residual traffic. These results were summed over all O-D pairs for each segment to develop the total residual traffic volume on US 220 for each of the corridors. The amount of traffic each corridor would carry, together with the maximum residual traffic on US 220, is shown in Table 4.5-2.

TABLE 4.5-2
Projected Residual Traffic on US 220

Corridor/Highway Segment		Traffic Projection for Each Corridor		Maximum Residual Traffic on US 220	
		Year 2005	Year 2025	Year 2005	Year 2025
Corridor B	Corridor H to Keyser	8,000	11,900	Primarily Local	Primarily Local
	Keyser to Rawlings	11,800	16,100		
	Rawlings to LaVale	15,500	21,100		
Corridor C	Corridor H to US 50	5,600	8,300	4,500 AADT	6,100 AADT
	US 50 to WV 956	9,500	14,500		
	WV 956 to Cumberland	12,000	18,500		
Corridor D	Corridor H to Keyser	9,200	13,700	Primarily Local	Primarily Local
	Keyser to Rawlings	11,800	16,100		
	Rawlings to LaVale	15,500	21,100		

Across all three corridors, the lower range of traffic would occur between Corridor H and either Keyser or US 50. Future traffic volumes would range from a low of 8,300 on the more rural parts of Corridor C to a high of 21,100 on Corridors B and D in the vicinity of Cumberland.

Of the three proposed corridors carried into more detailed analysis, Corridors B and D would divert the most traffic from existing US 220, leaving primarily local traffic on the roadway. Though faring slightly better, Corridor C would leave about a third of the traffic on US 220 that is expected there in the year 2025.

In terms of meeting future traffic demand, Corridors B and D offer the greatest promise. Table 4.5-3 shows the upper limits of the three corridors ranked in order of their ability to divert future US 220 traffic.

TABLE 4.5-3
Future Traffic on US 220

Corridor	Maximum US 220/MD 53 Traffic (No-Build)	Traffic on Each Corridor Year 2025	Residual Traffic on US 220 Year 2025
B	17,800 AADT	21,100 AADT	Primarily Local
D	17,800 AADT	21,100 AADT	Primarily Local
C	17,800 AADT	18,500 AADT	6,100 AADT

Besides being diverted to the new corridor (if built), some of the growth in US 220 traffic would shift to other roadways, compounding congestion and safety problems in the area. This shifting to other through routes would be greatest for the corridors that divert lesser amounts of future US 220 traffic and lowest for Corridors B and D. All of the other north-south routes, however, have less capacity than US 220 for bearing increases in traffic.

4.5.2.4 Capacity Analysis

Current and future level of service was calculated for the principal highway network in the area. LOS describes the operation of a given highway by establishing a range of values from “A” to “F.” LOS “A” represents the best operation of a roadway and LOS “F” represents the worst. The concept of LOS is illustrated on Figure 4-13.

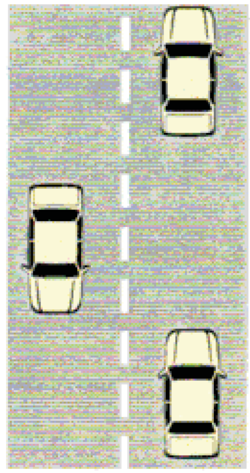
LOS “A”

LOS “A” is defined as free flowing. Individual users are virtually unaffected by the presence of others in the traffic stream.

LOS “B”

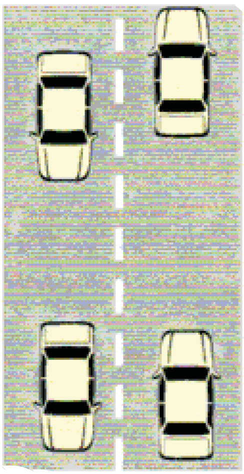
LOS “B” is in the range of stable flow, but the presence of others in the traffic stream begins to be noticeable.

LOS “C”



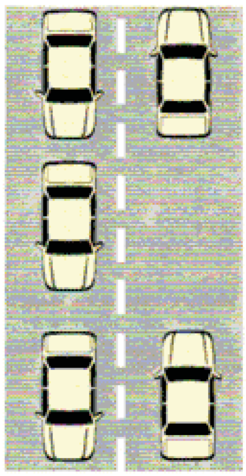
LOS “C” is in the range of stable flow, but marks the beginning of the range of flow in which the operations of individual users becomes significantly affected by the interactions of others in the traffic stream.

LOS “D”



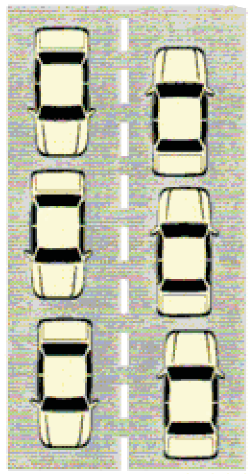
LOS “D” represents high density but stable flow. Speed and freedom to maneuver are severely restricted and the driver experiences a poor level of comfort and convenience.

LOS “E”



LOS “E” represents operating conditions at or near capacity level. Comfort and convenience levels are extremely poor and driver frustration is generally high.

LOS “F”



LOS “F” is used to define forced or breakdown flow. This condition exists whenever the amount of traffic approaching a point exceeds the amount which can travel through a point.

Based on actual photographs from the *Highway Capacity Manual, Special Report 209* (Transportation Research Board, 1994).

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

LEVEL OF SERVICE

FIGURE - 4-13
NOT TO SCALE

Peak-hour levels of service for the area's roadways are shown in Table 4.5-4. As shown in the table, none of the highway network roadways operate at a good level of service now. This is typical of what is generally predicted for similar roadways because even at volumes that are far from the capacity of the roadway, lower speeds prevail and the time spent following another vehicle tends to be high.

TABLE 4.5-4
Current and Projected Level of Service for the Highway Network

Roadway	Highway Segment	Current LOS	20-year Traffic Growth Rate	2025 LOS (No-Build Alternative)
US 220	Moorefield to Junction	E	1.4844	E
	Junction to New Creek	E	1.4844	E
	New Creek to MD/WV	E	1.4844	E
	MD/WV to MD 53	E	1.2202	F
	MD 53 to I-68	E	1.2202	F
MD 36	Westernport to Frostburg	E	1.3052	F
MD 135	Westernport to Keyser	E	1.2202	E
WV 46	Westernport to Keyser	E	1.6447	E
	Keyser to Fort Ashby	E	1.6447	E
WV 93	Scherr to New Creek	E	1.5405	E
WV 28	Fort Ashby to WV 956	E	1.5813	E
	WV 956 to Cumberland	E	1.5813	E
WV 956	WV 28 to US 220	E	1.5405	E
MD 53	US 220 to I-68	E	1.2202	E

Subsequent to the calculation of LOS, a capacity analysis was performed for the typical section of the proposed corridor using the Multi-Lane Highway Module HCS. The following assumptions were used for the analysis:

- Two 12-foot lanes in each direction
- Lateral clearance > 6 feet each side
- Free flow speed = 60 mph

- Percent trucks = 12 percent
- Rolling terrain/passenger car equivalents (Et) = 2.5
- K (AADT occurring during the design hour volume) = 0.10
- D (directional split) = 0.55
- Peak hour factor (PHF) = 0.9
- Driver population factor = 0.9

This analysis yielded a maximum peak hour volume that can be serviced at each LOS on a new transportation facility. The results of the capacity analysis are provided in Table 4.5-5.

TABLE 4.5-5
Maximum AADT at Each Level of Service

LOS	Maximum Density (pc/mi/ln)	Maximum Hourly Volume (pc/hr)	Maximum Hourly Volume (veh/hr)	Maximum AADT (veh/day)
A	11	1,069	906	16,470
B	18	1,750	1,482	26,940
C	26	2,527	2,141	38,920
D	35	3,402	2,881	52,390
E	40	3,888	3,293	59,880
F	---	---	---	---

pc/mi/ln = passenger cars per mile per lane
pc/hr = passenger cars per hour
veh/hr = vehicles per hour
veh/day = vehicles per day

As traffic increases, high rates of congestion would continue and level of service would worsen. Although traffic would increase annually, traffic conditions on the area roadways would improve with construction within any of the three corridors. All of the corridors would function well below capacity and are projected to operate at a high level of service. With the anticipated traffic volumes, the proposed roadway should function at LOS B regardless of which corridor is advanced to Tier Two. If signalization is added in the northern areas of the corridors, however, capacity would be dictated by the traffic signals and may change. Also, additional lanes may be warranted in this area depending on the access.

4.6 Air Quality

4.6.1 Methodology

Transportation air quality evaluation requirements as stipulated in the *National Environmental Policy Act of 1969* and the federal *Clean Air Act* (CAA) involve micro-scale computer modeling on the project level to determine localized air quality impacts related to the National Ambient Air Quality Standards, as well as regional modeling to determine conformity. Regional emissions, namely O_3, for this project were analyzed through an evaluation of State Implementation Plans (SIPs). At this stage in the project, the air quality analysis relates to general attainment designation and future requirements. When this project enters Tier Two, a localized, micro-scale evaluation at worst-case locations throughout the study area will be conducted.

Carbon monoxide concentrations are often thought to be a good indicator of vehicular-induced pollution on the micro-scale (PennDOT 2008). If no CO impacts to the NAAQS are evident using the "worst-case" model inputs, then further analysis of other pollutants is not necessary. The methodology described in EPA-454/R-92-005 suggests conducting modeling at the top three signalized intersections based upon LOS and total volumes. The proposed transportation corridors will connect to I-68 with unsignalized interchanges. The analysis of the existing and future roadway segments along US 220 determined that all roadway segments currently operate at a LOS E will operate at a LOS E or F with the 2025 No-Build Alternative. For the three corridors under consideration, a lower range of traffic would occur between Corridor H and US 50, resulting in an anticipated improvement to the LOS. The proposed roadway should function at LOS B and traffic conditions on the area roadways would improve.

The final rule for $PM_{2.5}$ and PM_{10} by the USEPA, effective April 5, 2006, and published in 40 CFR Part 93, defines $PM_{2.5}$ and PM_{10} as particles with an aerodynamic diameter less than or equal to a nominal 2.5 and 10 micrometers, respectively. The final rule does not require any $PM_{2.5}$ hot-spot analysis (qualitative or quantitative) for projects that are not listed as an air quality concern in Sec. 93.123(b)(1). The USEPA specifies in Sec. 93.123(b)(1) that projects of air quality concern are new highway, expressway, and transit projects that serve a significant level of diesel vehicle traffic, or any other project that is identified in the $PM_{2.5}$ SIP as a localized concern. This project would not require a project level hot-spot analysis since Allegany County in Maryland and Mineral County, Grant County, Hampshire County, and Hardy County in West Virginia are not in non- attainment for $PM_{2.5}$.

4.6.2 Effects Analysis – Air Quality

No-Build Alternative

Air quality degradation would likely occur with the No-Build Alternative unless other transportation projects are developed to reduce existing and projected increases in traffic congestion.

Build Alternatives

In West Virginia, Mineral County, Grant County, Hampshire County, and Hardy County are in an air quality attainment status for O_3, CO, $PM_{2.5}$ and PM_{10} (the principal vehicular-related pollutants) and other pollutants, such as sulfur dioxide (SO_2), lead, and air toxics (WVDEP 2008). Allegany County, in Maryland, is also in an air quality attainment status for O_3, CO, $PM_{2.5}$ and $PM_{10,}$ and other pollutants (USEPA 2010). Therefore, this project is exempt from project level hot-spot analysis for CO and $PM_{2.5}$.

Mobile source air toxics (MSATs) are also emitted from highway vehicles. MSATs are a subset of air toxics defined by the CAA. Some MSATs are present in fuel and emitted when the fuel evaporates or passes through engines unburned. Others are emitted from the incomplete combustion of fuel, as secondary combustion, or from impurities in oil and gasoline. Additional MSATs could be emitted in the area as a result of traffic increases. The FHWA has indicated that a significant reduction in MSATs will occur by the year of 2020 (FHWA 2006) as a result of national mobile source control programs, reformulated gasoline, low emission vehicle standards, and revised sulfur control standards. Additional analysis will be necessary during Tier Two, however, to determine if this is actually the case locally. Currently, the effect of the proposed project on MSAT reduction is unclear, but the level of potential MSAT emissions will be assessed qualitatively in Tier Two along with complete micro and regional scale analyses.

Air quality within the construction area may be temporarily impacted by construction activities. Fugitive dust from earth-moving equipment is the activity that most likely could impact the surrounding environment.

4.7. Noise

4.7.1 Methodology

During the planning phase of a transportation improvement project, consideration should be given to potential highway traffic noise impacts for the entire project limits. A general noise impact assessment has been conducted for the study area. Field reconnaissance and a review of the study area mapping were conducted to identify potential noise sensitive areas (NSAs) that could be impacted by any of the proposed corridors. For Tier One, NSAs included residences, schools, places of worship, parks, picnic areas, recreation areas, playgrounds, active sports areas, motels, hotels, libraries, hospitals, and Section 4(f) properties were also included in the noise impact assessment.

4.7.2 Effects Analysis – Noise

No-Build Alternative

Capacity improvements warranted with the No-Build Alternative could cause site-specific noise impacts. Noise impacts could also occur with normal traffic growth in some areas.

Build Alternatives

Table 4.7-1 identifies the potential for traffic related noise impacts in each corridor. Based on land use, Corridor D would have the potential to have the highest amount of noise impacts and Corridor C the lowest potential.

TABLE 4.7-1
Potential Noise Sensitive Areas

Noise Sensitive Feature	Corridor B	Corridor C	Corridor D
Residential Land Use	2,590 acres	2,400 acres	2,620 acres
Schools	7	4	4
Churches	17	20	22
Major Health Care Facilities	1	2	0
Parks & Recreation Areas	8	10	9
NRHP-Listed Sites	0	4	9
NRHP-Eligible Sites	4	5	12
Total	37	45	56

With any build alternative, temporary noise impacts would occur in construction areas generated by excavators, scrapers, graders, tractors, dozers, cranes, trucks, and compressors.

4.8 Indirect and Cumulative Impacts

Guidelines prepared by the CEQ for carrying out NEPA studies or requirements broadly define indirect impacts as those that are "caused by an action and are later in time or farther removed in distance, but are still foreseeable" (40 CFR 1508.8). Additional guidance from the MDSHA (*Secondary and Cumulative Effects Analysis Guidelines*, 2007) has also been prepared.

Indirect impacts may be associated with development that may result from the construction of a facility, such as a transportation improvement project, but differ from those impacts directly associated with the construction and operation of the facility itself. Generally, these impacts are stimulated by an initial action and comprise a wide variety of indirect effects, such as changes in land use, development patterns, economic activity, population density, and related impacts on air, water, and other natural systems, including ecosystems. Indirect impacts may result in increased development pressure on open space, farmlands, and other natural resources.

Cumulative impacts, on the other hand, "result from the incremental consequences of an action when added to other past, present, and reasonably foreseeable future actions" (40 CFR 1508.7), regardless of what agency (federal or non-federal) or person or organization undertakes such actions. Thus, cumulative impacts are past, present, and future impacts which, when considered as a whole and in concert with other foreseeable developments and projects, result in a combined effect greater than considering these separate elements independently.

4.8.1 Indirect Impacts

Factors that typically induce indirect development are new access to potential development areas, increased roadway capacity, existing development plans, suitable terrain, and economic incentives. In effect, the potential for indirect development to occur in any particular area is determined in great part by individual municipal planning objectives.

Three factors were considered in the identification of potential indirect impacts. First, known development trends and redevelopment efforts in the study area were examined. Second, it was assumed that areas that have been developing or are subject to redevelopment are more likely to experience induced effects as a result of the improved access provided by the project. This qualitative assessment included field views; interviews with planning, development, and other public representatives; and a review of other secondary sources. Finally, representative interchanges were established for each corridor under detailed consideration and impacts calculated for the areas near the interchanges.

4.8.1.1 Methodology

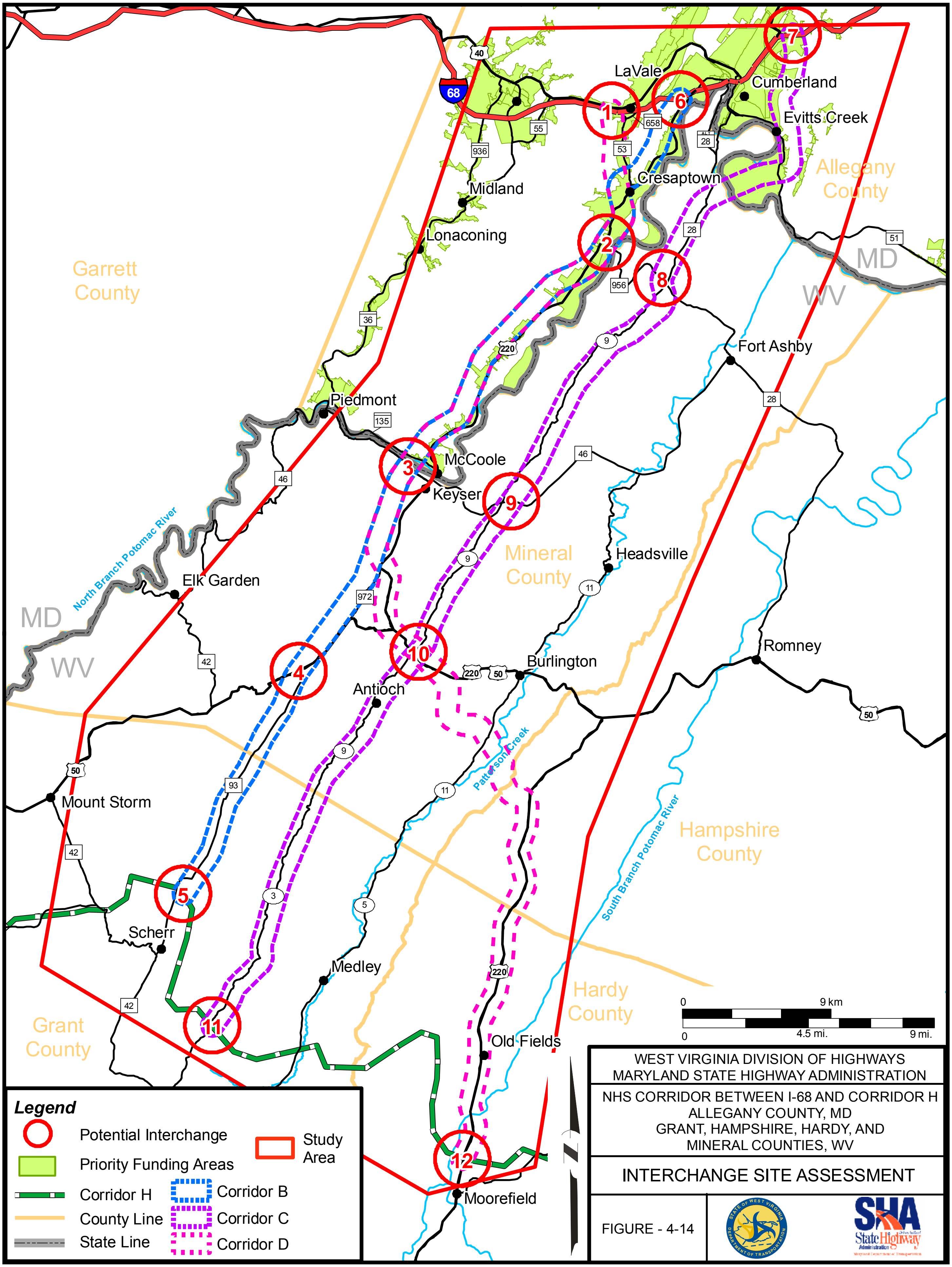
Each county planner in the study area was contacted to discuss the project and gather information on other projects or trends in the area. Planning directors in Allegany, Mineral, Hampshire, and Hardy counties were interviewed individually. In Grant County, where there is no planning department, the director of the county economic development authority and the coordinator for the county commission were interviewed. Additionally, the executive director of the Region 8 Planning and Development Council was interviewed. Region 8 is a multi-county planning and economic development agency that encompasses all four of the West Virginia counties in the study area. Specific questions directed to these individuals during the interviews included the status of comprehensive plans, consistency of the project with county plans and programs for economic growth, the extent of public water and sewer systems, proposed development in the area, and other relevant planning and economic development information. During subsequent interviews and follow-up conversations, information was gathered on other major projects in the area.

As the project progressed and the five initial corridors were narrowed to three, representative interchange locations were identified. As determined from existing trends, commercial or industrial growth was most likely to occur in clusters around future interchanges, as infill in existing economic centers, or as the redevelopment of older brownfields sites. On the other hand, local planners suggested that residential growth could occur almost anywhere, but it would be constrained by the limits of existing public water and sewer systems.

Line and grade engineering studies have been completed for the three corridors carried forward. Because the proposed roadway facility is likely to have access controls, sprawl would be limited and development may concentrate closer to the interchanges. Interchanges and future development are likely where the proposed project bisects existing and future transportation facilities that serve major traffic movements. Consequently, for Corridor B, the representative interchanges are at I-68, US 220 west of WV 956, WV 46 west of Keyser, US 50/WV 93, and Corridor H near Scherr. For Corridor C, the representative interchanges are at I-68, WV 956 near Mineral CR 9, WV 46 east of Keyser, US 220/US 50 between Burlington and Keyser, and Corridor H west of Scherr. For Corridor D, the representative interchanges are at I-68, US 220 west of WV 956, WV 46 west of Keyser, US 220/US 50 between Burlington and Keyser, and Corridor H north of Moorefield.

After the representative interchanges were identified, indirect impact analysis zones were established around each one. The area of indirect impact was identified as all land falling within a one-mile radius of the interchanges. Figure 4-14 shows the locations of the representative interchanges and the potential areas of indirect impacts. The area around Interchange 7 (I-68 at Cumberland) falls within a PFA while the other locations within Maryland fall partially inside a PFA.

Using the existence of public and water service as a major predictor of growth, along with improved transportation access, 20-year build-out scenarios were developed for each interchange location. Approximately 2,010 acres surround each interchange; however, some of this land is in steep slope. Because widespread failure is highly probable on slopes over 25 percent when disturbed by construction or with forest removal (Marsh 1978), land with this characteristic is likely to remain undeveloped. Very little land within the interchange locations actually fell into this category (approximately 600 acres, or 3.0%, total in all 12 interchange



LaVale
Cumberland
Evitts Creek
Cresaptown
Allegany County
Midland
Lonaconing
Garrett County
MD
WV
Fort Ashby
Piedmont
McCoole
Keyser
Mineral County
Headsville
North Branch Potomac River
Elk Garden
Romney
Burlington
Antioch
Patterson Creek
Mount Storm
Hampshire County
South Branch Potomac River
Scherr
Medley
Hardy County
Grant County
Old Fields
Moorefield
0 9 km
0 4.5 mi. 9 mi.
Legend
Potential Interchange
Priority Funding Areas
Corridor H
County Line
State Line
Corridor B
Corridor C
Corridor D
Study Area
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
INTERCHANGE SITE ASSESSMENT
FIGURE - 4-14

locations). Consequently, it was assumed that steepness of slope would have minimal impact to development.

Additionally, it was assumed if the location had both public and water service available (currently or with the assurance from local planners in the near future) that there would be a 100 percent build-out through the year 2026. If only one of these public services were available, then a 75 percent build-out was assumed through 2026. If neither of these public services were available, but the interchange was within a reasonable distance (one where you could expect sewer and water extensions to occur within the next 20 years), a 50 percent build-out was assumed. Of the 12 interchange locations, half of them are expected to see a 100 percent build-out; five will see a 75 percent build-out; and only one will see a 50 percent build-out. Table 4.8-1 shows the build-out rates for each of the interchange locations.

TABLE 4.8-1
Build-out Scenarios for the Representative Interchange Locations

Inter-change	Location	Public Services Available	County	Priority Funding Area	Build-Out Rate
1	I-68 at LaVale	Water and Sewer	Allegany	Partially	100%
2	US 220 west of WV 956	Water and Sewer	Allegany	Partially	100%
3	WV 46 west of Keyser	Water and Sewer	Mineral	Partially	100%
4	US 50/WV 93	Water	Mineral	N/A	75%
5	Corridor H near Scherr	Water	Grant	N/A	75%
6	I-68 at Cumberland	Water and Sewer	Allegany	Partially	100%
7	I-68 at Cumberland	Water and Sewer	Allegany	Yes	100%
8	WV 956 near County Route 9	Water	Mineral	N/A	75%
9	WV 46 east of Keyser	Water	Mineral	N/A	75%
10	US 220/US 50 between Burlington and Keyser	None	Mineral	N/A	50%
11	Corridor H	Water	Grant	N/A	75%
12	Corridor H at Moorefield	Water and Sewer	Hardy	N/A	100%

Following identification of build-out rates for each interchange location, the extent of possible impacts on wetlands, streams, floodplains, forests, farmlands, and historic resources were calculated. The build-out rates were then applied to each resource to determine the potential for indirect impacts at each location. In terms of historic resources, NRHP-listed and -eligible resources were identified. Additional potentially eligible resources may exist within the interchange areas, but these resources have not been reviewed by SHPO.

4.8.1.2 Effects Analysis – Indirect Impacts

The interchange site assessments are quantitative analyses of existing resources at each of the proposed interchange locations. Actual impacts would be dependent on the manner in which each site is developed, if such development actually occurs. Table 4.8-2 summarizes the resources examined at each location, as well as identifying which corridor the interchange would serve (all impact numbers were rounded). Although other resources could be included in the evaluation (e.g., parks and wildlife, among others), these environmental features seemed to provide sufficient information for a Tier One analysis to make a reasonable decision on potential indirect effects. Also, some of the interchanges would potentially serve more than one corridor. At this level of the analysis, those interchanges would have similar impacts and no effort was made to separate them here.

TABLE 4.8-2
Resources Located Near Interchanges

Inter-change	Corridor	Wetlands (acres)	Streams (feet)	Flood-plains (acres)	Forests (acres)	Farm-lands (acres)	Historic Resources (sites)
1	B and/or D	0	21,190	50	1,422	20	3
2	B and D	22	84,584	239	868	595	0
3	B and D	30	51,075	225	1,226	126	7
4	B	15	70,875	93	1,505	309	3
5	B	8	66,025	0	1,202	794	0
6	B and/or D	0	24,726	151	1,156	0	0
7	C	3	88,812	218	180	123	6
8	C	2	54,552	0	1,352	11	1
9	C	12	96,613	60	1,208	343	0
10	C and D	14	115,622	0	1,426	294	3
11	C	15	104,477	0	959	1,028	0
12	D	22	112,256	882	290	1,015	5

Once the resources within the interchange locations were known, the build-out rates were applied to each one. This enabled an estimate of likely indirect impacts to be developed for the area surrounding each potential interchange location.

No-Build Alternative

The No-Build Alternative would not result in any indirect impacts. In an effort to address other transportation problems in the area, however, future projects could induce development and create indirect impacts. Economic pressures on the local community coupled with national trends are also likely to induce development throughout the region. Additional analysis of the potential indirect impacts of the No-Build Alternative will be necessary as the project proceeds to Tier Two.

Build Alternatives

As shown in Table 4.8-3, indirect impacts could occur at any of the interchanges. Locations showing the highest level for potential indirect impacts to wetlands include Interchanges 2, 3, and 12. Locations showing the highest level for potential indirect impacts to streams include Interchanges 2, 7, and 12. Locations showing the highest level for potential indirect impacts to floodplains include Interchanges 2, 3, and 12. Locations showing the highest level for potential indirect impacts to forestland include Interchanges 1, 3, and 6. Locations showing the highest level for potential indirect impacts to farmland include Interchanges 5, 11, and 12. Locations showing the highest level for potential indirect impacts to historic resources include Interchanges 3, 7, and 12.

TABLE 4.8-3
Potential Indirect Impacts for Interchange Locations

Inter-change	Corridor	Build-Out Rate	Wetlands (acres)	Streams (feet)	Flood-plains (acres)	Forests (acres)	Farm-lands (acres)	Historic Resources (sites)
1	B and/or D	100%	0	21,190	50	1,422	20	3
2	B and D	100%	22	84,584	239	868	595	0
3	B and D	100%	30	51,075	225	1,226	126	7
4	B	75%	11	53,156	70	1,129	232	2
5	B	75%	6	49,519	0	902	596	0
6	B and/or D	100%	0	24,726	151	1,156	0	0
7	C	100%	3	88,812	218	180	123	6
8	C	75%	2	40,914	0	1,014	8	1
9	C	75%	9	72,460	45	906	257	0
10	C and D	50%	7	57,811	0	713	147	2
11	C	75%	11	78,358	0	719	771	0
12	D	100%	22	112,256	882	290	1015	5

Potential indirect impacts in each corridor are shown in Table 4.8-4. The impacts are based on the build-out scenarios expected at each interchange.

TABLE 4.8-4
Indirect Impacts for Each Corridor

Corridor	Wetlands (acres)	Streams (feet)	Flood-plains (acres)	Forests (acres)	Farm-lands (acres)	Historic Resources (sites)
B	69	284,250	735	6,703	1,569	12
C	32	338,355	263	3,532	1,306	9
D	81	351,642	1,547	4,699	1,903	17

The comparison of each corridor shows that indirect impacts would be greatest for Corridor D, followed generally by Corridor B and then Corridor C. Although the impacts to all individual resources do not fall in this order, most do.

4.8.1.3 Non-Growth Areas

During Tier One, the analysis of indirect impacts was limited to potential growth areas around possible new highway interchanges. Although these areas are likely to be the first areas where induced development will occur if a new transportation facility were built, resources in other areas could also be impacted. As time passes and new travel patterns are created, development will move farther away from the interchange areas. If no land use controls are in place currently, development could occur farther away from the interchanges almost immediately.

Developmental pressures are expected to remain lower in non-growth areas. This in turn is likely to allow population densities and economic activity in rural areas to remain relatively constant with the present. Thus, the likelihood of indirect impacts farther away from future interchanges will remain stable. Nonetheless, as the project moves into Tier Two, additional analysis will be necessary to qualify potential indirect impacts in non-growth areas.

4.8.1.4 Future Mitigation Efforts

Overall, additional development would be an economic benefit to the community and support some of the project's needs. Avoidance and minimization of the adverse impacts related to induced development could be accomplished through comprehensive planning. In the Maryland communities, mitigation efforts will be enhanced through the use of other available land use controls and guidelines established in the *Priority Funding Act*, including existing regulations and protective measures already in place. As the project moves into Tier Two, the MDSHA will implement mitigation for direct impacts and identify possible mitigation strategies for indirect impacts to be considered by other agencies and local governments. Strict land use controls are not currently present in the West Virginia communities that may be impacted by secondary development, but with the adoption of a new comprehensive plan in Mineral County and more awareness of the value of land use planning in Hardy County, they are likely to be instituted in the future as developmental pressures grow.

Mitigation strategies or future developmental controls in any of the communities (in Maryland or West Virginia) could include access management, additional comprehensive planning, zoning, transfer of development rights, growth management regulations, resource management, resource preservation, conservation easements, and incentives for infill development, among others.

4.8.2 Cumulative Impacts

Taken individually, the impacts from an action may have little effect on the environment. When viewed as a sequence of events, however, different actions may add up to, or cause, additional effects over time. Thus, the cumulative impact may be of more consequence than isolated, individual impacts.

4.8.2.1 Methodology

Past projects since 1970 and planned actions through the year 2025 (the project's design year) were reviewed to complete a qualitative assessment of cumulative impacts. Impact areas for each of the representative interchange locations were also used in evaluating cumulative impacts. Primary data sources included a review of comprehensive plans and related programming documents, interviews with local planners and economic development officials, study area field views, and secondary data sources. Consequently, a qualitative analysis rather than a quantitative trends analysis emerged.

As already noted, direct impacts are caused by an action and occur at the same time and place as that action. Indirect impacts are induced by the action and generally occur later in time or are farther removed in distance. Cumulative impacts, or effects, however, are a result of the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions (RFFAs). Thus, the analysis of RFFAs is crucial in determining cumulative effects. Cumulative effects can be difficult to understand because they are not clear cut. They can accrue from similar impacts, from multiple actions, or be the product of unrelated impacts from a variety of actions. In addition, some actions may offset the effects of other actions, lessening the overall impact. Cumulative effects can also arise from actions which may only be connected by their common impacts on similar resources, ecosystems, or human communities.

The identification and analysis of RFFAs present many challenges. Proponents of future actions may be reluctant to reveal information for a number of reasons. Plans may be uncertain and project sponsors, both private and public, may not see a benefit in disclosing them. Furthermore, project sponsors may not completely understand the importance of their plans on other projects, or understand the potential impact inherent in those plans on others. Detailed design and operational information is generally not available for proposed projects. At the preliminary stage of project development, locations may not be set. Project size and magnitude may not have been determined. Usage estimates or projections may not be sufficiently rigorous. Many factors also affect the timing, location, and design of future actions. If programming and funding requirements have not been finalized, future actions may be delayed, downsized, or modified significantly over time. If definitions of future actions are too liberal, future impacts may be predicted as being too high. If definitions are too conservative, future impacts may be underestimated.

4.8.2.2 Effects Analysis – Cumulative Impacts

No-Build Alternative

The No-Build Alternative would consist of taking no action toward the development of an improved north-south corridor through the area. As a consequence, existing highway deficiencies, limited new employment opportunities, and a lack of system continuity would remain. Additional analysis of the potential cumulative impact of the No-Build Alternative, however, will be necessary as the project proceeds to Tier Two.

Build Alternatives

A concerted effort by government and the private sector has occurred over the past 20-30 years to bring about economic redevelopment in the area. Several initiatives have contributed in this effort to revitalize the area, including improvements to the transportation system, extensions of public water and sewer systems, construction of new commercial centers, enhancement of tourist-related and outdoor recreational facilities, and new residential development. In total, these efforts have achieved a high quality of life for the area's citizens and businesses without imposing an inordinate cumulative impact on the natural, cultural, or socioeconomic environment. The other major actions that have occurred over the past 20 years and are likely to occur in the near future in the study area are shown in Table 4.8-5. None of them have been, or are, dependent on construction of the US 220 project. During Tier One, broad brush techniques were applied to identify major RFFAs and their locations, identify potential cumulative environmental issues, and associate the RFFAs with a specific corridor. Table 4.8-5 offers an initial screening of potential cumulative effects based on that effort. Included in the table are major transportation projects currently listed on the *Cumberland Area Long Range Transportation Plan* (Cumberland Metropolitan Planning Organization 2005), the *Draft Cumberland Area Long-Range Transportation Plan Addendum* (Cumberland Metropolitan Planning Organization 2007), *Cumberland Urbanized Area Transportation Improvement Program FY 2006-FY 2008* (Cumberland Metropolitan Planning Organization 2006), the *West Virginia Statewide Transportation Improvement Plan for 2010-2015* (WVDOH 2010), and other Maryland and West Virginia state highway programming plans.

TABLE 4.8-5
Major Actions in the Study Area

County	Activity	Approximate Location	Environmental Issues that Could be Cumulative
Allegany	Public water service improvements	Along the existing US 220 corridor between Cresaptown and McCoole	Land use, terrestrial habitat, water quality, wetlands
	Increased employment at ATK Tactical Systems Company, LLC (an additional 950 jobs)	Vicinity of US 220 and WV 956	Land use, terrestrial habitat, traffic, air quality
	Increased employment by the U.S. Navy at the Hilltop Office Complex adjacent to ATK Tactical Systems Company, LLC (an additional 550 jobs)	Vicinity of US 220 and WV 956	Land use, terrestrial habitat, traffic, air quality

TABLE 4.8-5 (continued)
Major Actions in the Study Area

County	Activity	Approximate Location	Environmental Issues that Could be Cumulative
	Construction of new housing	US 220 near Bel Air and Rawlings	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality
	I-68 freeway reconstruction	From MD 53 to US 220	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality
	US 40 Alternate reconstruction	From Vocke Road to Cumberland	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
	MD 53 reconstruction with access control improvements	From I-68 to US Route 220	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
	Transportation improvements to US 220	From Cumberland to Pinto	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
Grant	Completion of Corridor H	Along the northern tier of the county	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
Hampshire	Transportation improvements to US 220	West of Romney	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
	Transportation improvements to US 50	Along the width of the county	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
Hardy	Completion of Corridor H	Vicinity of Moorefield	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
	Public water and sewer service improvements	Moorefield	Land use, terrestrial habitat, water quality, wetlands
	Increased commercial development	Moorefield	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality
	Transportation improvements to US 220	From Mineral County line to Moorefield	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources

TABLE 4.8-5 (continued)
Major Actions in the Study Area

County	Activity	Approximate Location	Environmental Issues that Could be Cumulative
Mineral	Increased commercial development	US 220 between Keyser and WV 972	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality
	Increased employment at ATK Tactical Systems Company, LLC (an additional 950 jobs)	Vicinity of US 220 and WV 956	Land use, terrestrial habitat, traffic, air quality
	Increased employment by the U.S. Navy at the Hilltop Office Complex adjacent to ATK Tactical Systems Company, LLC (550 jobs)	Vicinity of US 220 and WV 956	Land use, terrestrial habitat, traffic, air quality
	Completion of Corridor H	Across southern tier of county	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
	WV 28 roadway renovation	Vicinity of Ft. Ashby	Land use, wetlands
	Transportation improvements to US 50	Along the width of the county	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources
	Transportation improvements to US 220	From Keyser to Purgitsville	Land use, terrestrial habitat, water quality, wetlands, traffic, air quality, cultural resources

Specific impacts due to past transportation projects are shown in Table 4.8-6. The impacts include environmental, cultural, and socioeconomic.

TABLE 4.8.6
Specific Impacts Due to Major Transportation Projects

County	Project	Document	Date	Impacts
Alleghany	Canal Parkway	FEIS/Section 4(f) Evaluation	1995	7 residential displacements, 4.8 acres woodland, 1.3 acres wetlands, 1,900 feet of streams, 1.9 acres of floodplains
	MD 36	FEIS	1987	22 residential displacements, 1 business displacement, adverse effect to 4 historic resources, 90.2 acres woodland, 114.3 acres wetlands, 1,900 feet of streams, 5.1 acres of floodplains
	MD 51	FEIS	1977	Information not available
	US 220	FONSI	1994	13 residential displacements, 58 acres forested land, 2.9 acres of wetlands, 6.8 acres of wetlands, 525 feet of streams, 6.8 acres of floodplains

TABLE 4.8.6 (continued)
Specific Impacts Due to Major Transportation Projects

County	Project	Document	Date	Impacts
	US 48	FEIS/Section 4(f) Evaluation	1986	37 residential displacements, 5 business displacements, adverse effect to 1 historic district, 1 Section 4(f) impact, 407 acres of woodland, 67 acres of farmland, 0.6 acres of wetlands, 37.5 acres of floodplains
Grant Hardy	Corridor H	FEIS	1996	52 residential displacements, 4 business displacements, effects on 122 historic resources, 2,598 acres of forested land, 37 acres of wetlands, 37,175 feet of streams
Mineral	Keyser-McCoole Bridge	FONSI	2007	15 residential displacements, 11 business displacements, adverse effect to 1 historic resource, 2 Section 4(f) impacts, 280 feet of streams

During Tier Two, this information will be updated and a complete Cumulative Effects Assessment (CEA) undertaken per CEQ guidelines. That assessment will analyze the magnitude and extent of potential cumulative effects within the context of the appropriate resource, ecosystem, and human community thresholds capable of maintaining environmental sustainability.

Table 4.8-7 lists the RFFAs and identifies how the corridors may be associated with them. Expansions of the public water systems and construction of new housing in conjunction with these highway improvements will likely stimulate additional economic growth. Transportation improvements would help alleviate the future congestion that could slow the positive aspects of development (2006b). Consequently, the projects most likely to have a cumulative effect with US 220 improvements are a combination of public and private efforts.

TABLE 4.8-7
Reasonable Foreseeable Future Actions in the Corridors

County	Activity	Approximate Location	Associated Corridor
Allegany	Public water service improvements	Along the existing US 220 corridor between Cresaptown and McCoole	B, D
	Increased employment at ATK Tactical Systems Company, LLC (an additional 950 jobs)	Vicinity of US 220 and WV 956	B, C

TABLE 4.8-7 (continued)
Reasonable Foreseeable Future Actions in the Corridors

County	Activity	Approximate Location	Associated Corridor
	Increased employment by the U.S. Navy at the Hilltop Office Complex adjacent to ATK Tactical Systems Company, LLC (an additional 550 jobs)	Vicinity of US 220 and WV 956	B, C
	Construction of new housing	US 220 near Bel Air and Rawlings	B, C, D
	I-68 freeway reconstruction	From MD 53 to US 220	B, C, D
	US 40 Alternate reconstruction	From Vocke Road to Cumberland	B
	MD 53 reconstruction with access control improvements	From I-68 to US Route 220	B, D
	Transportation improvements to US 220	From Cumberland to Pinto	B, D
Grant	Completion of Corridor H	Along the northern tier of the county	B, C, D
Hampshire	Transportation improvements to US 220	West of Romney	D
	Transportation improvements to US 50	Along the width of the county	B, C, D
	Completion of Corridor H	Vicinity of Moorefield	C, D
	Public water and sewer service improvements	Moorefield	D
	Increased commercial development	Moorefield	D
	Transportation improvements to US 220	From Mineral County line to Moorefield	D
Mineral	Increased commercial development	US 220 between Keyser and WV 972	B, C, D
	Increased employment at ATK Tactical Systems Company, LLC (an additional 950 jobs)	Vicinity of US 220 and WV 956	B, C
	Increased employment by the U.S. Navy at the Hilltop Office Complex adjacent to ATK Tactical Systems Company, LLC (550 jobs)	Vicinity of US 220 and WV 956	B, C
	Completion of Corridor H	Across southern tier of county	B, C, D
	WV 28 roadway renovation	Vicinity of Ft. Ashby	C
	Transportation improvements to US 50	Along the width of the county	B, C, D
	Transportation improvements to US 220	From Keyser to Purgitsville	B, C, D

Once RFFAs were identified, a matrix of probability and potential impact was developed. The matrix connects RFFAs and their anticipated effects on resources so that judgments can be made on the likelihood they will occur. This method was originally developed by the USACE for projects along the Ohio River, but it can serve as a method for analyzing any linear project, especially long projects. The use of matrices to analyze cumulative effects is one of the recognized techniques identified by the CEQ for measuring cumulative impacts (CEQ 1997). Matrices provide two-dimensional checklists that quantify interactions between human activities and resources and assess both magnitude and importance.

RFFAs for this project were divided into four primary categories: community development; infrastructure improvements; transportation improvements; and regulatory environment. Resources analyzed included water quality, wetlands, terrestrial habitat, RTE species, air quality, recreation resources, socioeconomics, and cultural resources.

Analysis of the matrix was based on several considerations, best illustrated by a series of questions. *During what time period will the action occur or how frequently will the RFFA take place?* Two time periods were used, including within 10 years, and between 10 and 20 years from now. *What is the importance, or impact, of the action on the resource?* Three rankings were used to determine importance, including high, medium, and low. *What is the probability of occurrence of the RFFA?* Three rankings were used for occurrence probability, including high, medium, and low. *And finally, what are the anticipated effects of the RFFA on the resource?* Four rankings were used, including positive, negative, mixed effects (whereby both positive and negative effects could occur), and none.

Although the analysis was qualitative in nature, the use of a matrix seemed appropriate for a Tier One study, such as this EIS, where broad corridors are being analyzed rather than specific alignments. The results of the analysis are shown in Table 4.8-8.

TABLE 4.8-8
Potential Impact of RFFAs on Resources

RFFA	County	Time Period	Importance	Occurrence Probability	Water Quality	Wetlands	Terrestrial Habitat	RTE Species	Air Quality	Recreation Resources	Socioeconomics	Cultural Resources
Community Development												
Employment at ATK Tactical Systems Company, LLC	Allegany, Mineral	1	H	M	0	0	0	0	-	0	+	0
Employment by U.S. Navy Hilltop Office Complex	Allegany, Mineral	1	H	M	0	0	0	0	-	0	+	0
Increased housing (Laurelhurst Blvd.)	Allegany	1	M	H	+/-	-	-	+/-	-	+	+	+/-
Commercial development	Hardy, Mineral	1	M	M	+/-	-	-	+/-	-	+	+	+/-

TABLE 4.8-8 (continued)
Potential Impact of RFFAs on Resources

RFFA	County	Time Period	Importance	Occurrence Probability	Water Quality	Wetlands	Terrestrial Habitat	RTE Species	Air Quality	Recreation Resources	Socioeconomics	Cultural Resources
Infrastructure Improvements												
Public water service improvements	Allegany, Hardy	1,2	H	H	+	+		+	+/-	+	+	+/-
Public sewer improvements	Hardy	1,2	H	H	+	+		+	+/-	+	+	+/-
Transportation Improvements												
I-68	Allegany	1	H	M	+/-	+/-	+/-	+/-	+	+	+	+/-
US 40 Alternate	Allegany	1	L	L	+/-	+/-	+/-	+/-	+	+	+	+/-
MD 53	Allegany	1	M	M	+/-	+/-	+/-	+/-	+	+	+	+/-
US 220	All but Grant	1,2	H	H	+/-	+/-	+/-	+/-	+	+	+	+/-
Corridor H	Grant, Hardy	1.2	H	H	+/-	+/-	+/-	+/-	+	+	+	+/-
US 50	Hamp., Mineral	1	L	M	+/-	+/-	+/-	+/-	+	+	+	+/-
WV 28	Mineral	1	M	+/-	+/-	+/-	+/-	+	+	+	+/-	+/-
Regulatory Environment												
Federal	All	1	H	+	+	+	+	+	+	+	+	+
State	All	1	M	+	+	+	+	+	+	+	+	+
Local	Allegany, Hardy, Mineral	1,2	L	+	+	+	+	+	+	+	+	+
Time period: 1 = within 10 years, 2 = between 10 and 20 years from now Importance/Occurrence probability: H = high, M = medium, L = low. Impacts: + = positive. - = negative, +/- = mixed effects, 0 = none.												

A general discussion of the impacts to the resources by category is provided as follows:

Community Development and Infrastructure Projects

Community development and infrastructure projects would have mixed impacts on most resources. Properly functioning water and waste water treatment systems, regardless of type, can encourage economic growth. When public water is available and a community has adequate sewer facilities in place, public health improves and the community becomes a more attractive place to live or work. When such systems are not in place, or are not functioning properly, pollution can result. If not replaced or improved, older systems may be unable to accommodate growth and can result in negative impacts on environmental resources.

Development can also affect wetlands, terrestrial habitat, and RTE species by consuming land and infringing on natural ecosystems. Properly designed development can offset negative impacts, however, and assist in preserving valued elements of the landscape.

Additional development could also increase traffic and subsequently add to existing air quality problems or require future transportation improvements. The potential effects could be mitigated by the design of future developments and by the regulatory environment. Positive effects on recreation and socioeconomic resources would be expected, primarily through improved facilities or better access.

Because many actions associated with community development are performed by the private sector, the potential for negative effects on cultural resources exists. Most actions likely to occur, however, will have some public sector involvement, and consideration of cultural resources will be an integral part of those projects.

Transportation Improvements

Increased safety, efficiency, and congestion management are the principal justification for surface transportation projects. Short-term local income and revenues would increase as a result of future transportation projects, including bridge renovations, highway rehabilitations and upgrades, and new roadways. Significant changes to population, property values, local taxes, and existing land use patterns could occur, however, if roadway locations are changed or shifted.

Mixed impacts on water quality, wetlands, terrestrial habitat, and RTE species could occur as a result of converting land to highway use. Effects would be mitigated in various ways, including avoidance, minimization, and replacement.

Effects on air quality, recreation resources, and socioeconomics would be expected to be generally positive. Although the effects of transportation projects on cultural resources are mixed, these projects are tied to federal funding or permitting and, therefore, are subject to

Section 106 and Section 4(f) compliance. These regulatory processes ensure that the significance of individual cultural resources is considered during project development.

Regulatory Environment

Long-term positive impacts would be associated with improved environmental conditions guaranteed through the regulatory environment. These regulations are especially important where there are numerous development opportunities and the potential for threats to the natural environment occur. All three levels of government (federal, state, and local) have created laws or programs to address negative effects.

4.8.2.3 Future Mitigation Efforts

Existing trends and growth projections associated with other planned projects in the area indicate that cumulative impacts associated with the further development of transportation improvements in any one of the corridors are possible. While these improvements, when taken as a whole, would be absorbed through the normal course of development, they could create unforeseen impacts. Laws, regulations, and programs are in place at the local, state, and federal level, however, to help mitigate the effects of these actions. With the development of more environmentally sensitive projects and programs, conditions could also improve. Although changing socioeconomic conditions, both positive and negative, would also have an effect on the environment, cumulative effects cannot be ignored.

Further analysis will be undertaken during Tier Two. Concurrent with development of a Tier Two EIS, a complete CEA will be conducted. The CEA will identify issues associated with the proposed project; establish the geographic scope for investigations; establish the past and future timeframe; identify other actions affecting resources, ecosystems, and communities of human concern; identify the magnitude and significance of cumulative effects; and develop mitigation strategies.

4.9 Major Utilities

4.9.1 Methodology

Utility companies and municipal services were identified throughout the study area in an attempt to locate major utility facilities within each corridor. Major facilities include, but are not limited to:

- Electric generation power plants;
- High voltage electric transmission lines;
- Electric power substations;
- Natural gas transmission lines and pump stations;
- Sewer treatment plants and pump stations;
- Water treatment plants and pump stations;
- Reservoirs and water intakes; and
- Cellular telephone towers.

Local service lines, manholes, or other localized distribution and service facilities were not included with the major facilities.

Initial coordination efforts identified 22 utility companies and municipal agencies with facilities in the study area. USGS maps with the corridors drawn on them were sent to each of these organizations in October 2006 with a request to map the locations of their major facilities within each corridor. Twelve responded with marked plans indicating they had facilities that could potentially be affected or with information that they would not be affected. The utility companies and organizations that responded also provided information on their major facilities in the corridor areas.

4.9.2 Effects Analysis – Major Utilities

No Build Alternative

The No-Build Alternative would have no immediate impact on major utilities. Future projects included within the No-Build Alternative could have an impact, however.

Build Alternatives

There appears to be no stand-alone facilities that would indicate a fatal flaw in selection of a preferred transportation corridor. No major electric generation plants were identified in the utility responses or through supplemental field views. Three of the five electric companies contacted, however, did not respond. The Mt. Storm electric generation power plant owned by Dominion Resources is west of the western project alternatives. One high voltage electric transmission line was identified running west-to-east between Scherr to north of Moorefield. The transmission line crosses Corridors C and D.

No cellular telephone towers were identified by the utility responses, but field views identified a number of communication towers along the Dans Mountain summit. Additional communication towers are located throughout the study area mainly along the ridges and higher elevations.

A natural gas transmission line crosses Corridors B and D south of I-68 and north of Bowling Green running east to west. Another transmission line runs parallel to US 220 and the Potomac River in Maryland crossing in and out of Corridors B and D at several locations. The line crosses the Potomac River in Keyser before turning west over Dans Mountain and crossing into West Virginia.

Two water supply tanks, four sewer plants, and one water pump station were identified within Corridor C between the Potomac River and Short Gap.

A water supply source is located within Corridor B at the New Creek Dam Site #14 reservoir. This reservoir is Keyser’s primary water source. Another water supply source is located north of Fountain School and east of Limestone near WV 46. This water source falls within Corridor C. Two additional water facilities were identified between Ridgeville and Antioch within Corridor C. A water main is located between Keyser and the town of New Creek, running parallel to New Creek before turning to cross Abrams Ridge along US 220. The water main is located within Corridor D over Abrams Ridge. Two-foot and four-foot diameter water mains were identified in Hardy County within Corridor C between Falls Gap and Corridor H and within Corridor D between Williamsport and Corridor H.

A new sewer plant is proposed for construction in 2013 in the Old Fields area north of Moorefield. This plant may fall within Corridor D.

Coordination with the utility owners would continue through final design and any impacts associated with utility relocation would be accounted for through mitigation commitments.

4.10 Energy

Highway design and traffic conditions are directly associated with vehicular energy efficiency. Features that affect energy efficiency include profile, alignment, pavement surface, roadway width, traffic density, access points, at-grade intersections, and length. There would also be an energy expenditure to construct a new roadway.

There would be a decrease in energy usage, however, with the development of a new roadway, because the roadway would relieve existing traffic congestion and reduce travel delays. This would allow for free-flowing traffic conditions and subsequently reduce energy consumption.

4.11 Construction Impacts

Construction activities would have temporary impacts to resources, residents, and the traveling public within the immediate vicinity of the proposed project. Potential impacts may affect the economy and employment, access and traffic detours, air emissions and noise, water quality, utilities, and excavation waste.

4.11.1 Methodology

Based on past projects, construction activities were analyzed to determine the extent in which they may impact the environment.

4.11.2 Effects Analysis – Construction Impacts

The project will take at least two construction seasons to complete. With an expected length of approximately 34 to 45 miles, several construction contracts will be let. Design phase partnering will be conducted during final design and construction.

No-Build Alternative

The No-Build Alternative would have no immediate construction impacts. Future projects included as part of the No-Build Alternative could have impacts, however.

Build Alternatives

Construction of the proposed project would result in short-term economic benefits in the study area through the creation of a large number of construction jobs. A portion of these wages would be spent on goods and services provided by local businesses. Other local businesses may also provide construction-related services such as surveying and drilling, as well as materials such as gravel, concrete, and steel.

Detours and road closures during construction would create temporary inconveniences for residents, business owners, and the traveling public. Maintenance and protection of traffic plans would be developed during final design to mitigate access impacts and minimize delays throughout the project. These plans would include appropriate signs, pavement markings, and media announcements. Access to all businesses and residences would be maintained through construction scheduling.

Emergency service providers and school transportation may be impacted by temporary road closures and reduced speeds in work zones required during construction. Temporary road closures or detours may impact access within localized areas as a result of construction activities.

Air quality within the construction area may be temporarily impacted by construction activities. Fugitive dust from earth-moving equipment is the activity that most likely could impact the surrounding environment. Temporary noise impacts would occur in construction areas generated by excavators, scrapers, graders, tractors, dozers, cranes, trucks, and compressors.

Temporary impacts to water resources may occur due to construction activities. Earthwork and removal of vegetation for construction would increase the potential for soil erosion and sedimentation to streams within the construction area.

There would be numerous cuts along the proposed project, which would generate excavation waste. Excavation waste is material that cannot be utilized within the proposed project right-of-way and must be transported away from the construction site to an area identified for disposal.

4.11.3 Future Mitigation Efforts

Emergency service providers and schools that would be impacted by the construction would be informed of the proposed construction sequence and any required detours before construction begins. The emergency providers, schools, and general public could be informed of the schedule on a construction website or other media. Detours should be posted at least two weeks prior to putting them into effect.

Coordination with railroad companies would be conducted to minimize the effect of construction adjacent to or over rail facilities.

Air quality mitigation measures would include the use of approved dust palliatives, and emissions would be controlled in accordance with state and local ordinances. Any burning would be conducted, when permitted, in accordance with state and local ordinances.

Noise mitigation measures would include the use of proper mufflers and adjustments to construction equipment. Construction operation times would be coordinated with the local communities to minimize noise impacts, especially near noise-sensitive areas.

Prior to construction activities, all appropriate permits pertaining to waterway crossings and encroachments would be obtained. Mitigation for potential impacts to water quality would be addressed through the implementation of proper soil erosion and sedimentation control measures. Prior to the initiation of construction activities, an Erosion and Sedimentation Control Plan and a NPDES earth disturbance permit would be prepared in accordance with state guidelines.

Coordination with the utility owners would continue through final design and any impacts associated with utility relocation would be accounted for through mitigation commitments.

Disposal of the excavation waste material would be the responsibility of the contractors. The project sponsor will perform environmental due diligence for any excess soil/waste material leaving the project site. It will be important to reduce the amount of excavation waste material that must be removed off-site to limit the potential for impacts to other sites and reduce the costs for appropriate disposal of the material. Steepening cut slopes will reduce the overall width of the proposed cuts and reduce the volume of excavation waste material. Slope stability will be evaluated with regard to the proposed cut slope ratio and the appropriate use of walls, slope benches, and other geotechnical treatments. If possible, excavation waste material may be used in fill areas without encroaching on sensitive features or affecting the operating characteristics of the system.

Throughout the project area, there are several areas that provide the potential to dispose of the excavation waste material. Former surface mined areas, slag dumps, razed industrial sites, and permitted landfills are numerous and located throughout the study area. These sites would provide an accessible opportunity for the appropriate and beneficial re-use of excavation waste material. Other opportunities may exist for the beneficial re-use of this material where site developments are planned but the existing terrain is unsuitable.

4.12 Irreversible and Irretrievable Commitment of Resources

Irreversible commitments are those that cannot be reversed or are lost forever. Irretrievable commitments, on the other hand, are those that are lost for a period of time, usually for 20 years or longer, but are exchanged for the benefit of the community.

No-Build Alternative

There would be no irreversible or irretrievable commitment of resources associated with the No-Build Alternative. Resources could, however, be committed to other projects as a result of taking no action. Rather than investing resources to modify the transportation system, as described in this FEIS, federal, state, and local officials could seek other ways to meet the transportation needs of the area. Depending on their magnitude, these other projects could result in an irreversible or irretrievable commitment of resources beyond that required for improving conditions along US 220.

Build Alternatives

Construction of the proposed project would require a commitment of natural, human, and fiscal resources for planning, designing, constructing, and operating the system. The use of land for construction would be the most visible irretrievable commitment of resources. Construction of the project could involve the irretrievable use of wetlands, floodplains, sources of minerals, cultural resource areas, and other natural resource areas. While the commitment of these types of resources would be irretrievable, they are not unusual in the development of large-scale transportation projects that benefit many people. These types of losses would be minimized or mitigated in an appropriate manner to lessen the overall impact to the socioeconomic, cultural, and natural environment.

Considerable amounts of construction materials, including steel, concrete, and aggregate, would be expended to build the project. Upon initiating the project, these materials, as well as the labor and fossil fuels used in their fabrication and preparation, would be lost for future use. Although the use of these materials would not be retrievable, these materials are not in short supply. Consequently, there would not be an adverse effect on future projects because they were expended now instead of later.

The construction of the proposed project would also require a one time expenditure of federal and state funds as well as funds for future maintenance of the roadway. The use of these funds would be irreversible, but construction of the project could result in the short- and long-term stimulation of the economy.

On the other hand, some of the funds expended for the proposed project could be used for other projects if they are not used for this project. These other projects could also result in the short- and long-term stimulation of the economy, but to a different degree.

4.13 Relationship between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Construction of the proposed project would result in economic and environmental benefits consistent with regional strategic goals and local development programs. The project would create jobs in engineering design, fabrication, related manufacturing, and construction. Short-term gains to local economies would occur due to the creation of these jobs and the purchase of services and supplies associated with both the initial construction effort and the continuing operation of the roadway.

Construction of any project, however, would result in both short-term and long-term losses. Short-term losses would arise during construction as the result of temporary inconveniences caused by traffic detours, construction easements, and reduced speed zones near construction activities. Long-term losses would arise from the irreversible and irretrievable use of land, fossil fuels, construction materials, and funding needed for the proposed project.

CHAPTER 5.0

POTENTIAL SECTION 4(f) RESOURCES

5.0 POTENTIAL SECTION 4(f) RESOURCES

Section 4(f) of the *U.S. Department of Transportation (USDOT) Act of 1966* requires that special efforts be made to protect publicly owned parks, recreation areas, wildlife and waterfowl refuges, and significant historic sites. Section 4(f) applies to projects that require approval by the FHWA or any other USDOT agency. It requires that such projects avoid the acquisition, or "use," of any Section 4(f) resources unless there is no prudent and feasible alternative to that use. If a use must occur, all possible planning and measures must be included to minimize harm to that resource.

Pursuant to 23 CFR 774.7(e), "a Section 4(f) evaluation shall include sufficient supporting documentation to demonstrate why there is no feasible and prudent avoidance alternative and shall summarize the results of all possible planning to minimize harm to the Section 4(f) property." Guidance provided by FHWA in its most recent *Section 4(f) Policy Paper* notes that even though Tier one studies move from a "broad scale examination" of resources to more site-specific evaluation during Tier Two, feasible and prudent avoidance alternatives to the use of Section 4(f) resources should still be considered during Tier One. This section summarizes the Section 4(f) resources that are located within each corridor. In effect, it assumes that each of these resources could be potentially impacted by the alternatives developed during Tier Two of this project. As such, it assumes a worst-case scenario, even though a detailed Section 4(f) evaluation will be conducted during the continuing NEPA studies required under Tier Two. Although entire corridors were used for the analysis, an actual build alternative would have a much smaller footprint and, therefore, less potential for impacts to Section 4(f) resources. Additionally, logical avoidance alternatives could be more easily and legitimately evaluated for site-specific alternatives that may occur within the corridors.

5.1 Methodology

According to 23 CFR 774.7(e), even though detailed information necessary to complete Section 4(f) approval may not be available during a Tier One EIS, the documentation should still address the potential impacts that a proposed action will have on Section 4(f) properties. This is particularly difficult in corridor studies where little preliminary design has been completed because a highway alignment could fall anywhere within the corridor. Nonetheless, a qualitative analysis was undertaken to identify the probability of a Section 4(f) impact and opportunities for avoidance alternatives.

5.2 Effects Analysis – Potential Section 4(f) Resources

No-Build Alternative

The No-Build Alternative would not result in any immediate impacts to Section 4(f) resources. However, future projects would be advanced to address the transportation needs of the region. These future transportation improvements would likely have an impact on Section 4(f) resources.

Build Alternatives

The impacts of each corridor on Section 4(f) resources, including parks and recreation areas and significant historic sites, were previously described in Chapter 4.0 and are summarized in the following tables. As shown in Tables 5.2-1, 5.2-2, and 5.3-3, six Section 4(f) resources are located within Corridor B; 14 are located within Corridor C; and 21 are located within Corridor D. It is important to note that only publicly-owned parks and recreation areas are considered to be Section 4(f) resources in accordance with the *USDOT Act of 1966*. There are several public schools that include public recreation areas. Some of these recreation areas may be impacted by the future alternatives to be developed in Tier Two. Additional coordination with these schools will take place during Tier Two. In addition, only NRHP-eligible and NRHP-listed historic resources are considered to be Section 4(f) resources. No potentially eligible historic resources were considered to be Section 4(f) resources at this time; nor were resources in proximity to the analyzed corridors but located outside of them. Additional cultural resources investigations will be necessary during Tier Two to determine whether these resources are eligible for listing in the NRHP, which would, in turn, make them Section 4(f) resources.

TABLE 5.2-1
Potential Section 4(f) Resources Impacts in Corridor B

Resource	Resource Type	County
Log House with Stone Chimneys	Historic Resource	Mineral
Luten Bridge/Boseley Bridge	Historic Resource	Mineral
Log House	Historic Resource	Mineral
Claysville United Methodist Church	Historic Resource	Mineral
Dans Mountain WMA	Public Recreation Area	Allegany
Bowling Green Community Park	Public Park	Allegany

TABLE 5.2-2
Potential Section 4(f) Resources Impacts in Corridor C

Resource	Resource Type	County
Dam Site #21	Public Recreation Area	Mineral
Vandiver-Trout-Clause House	Historic Resource	Mineral
Stewart's Tavern	Historic Resource	Mineral
American Discovery Trail	Public Recreation Area	Mineral/Grant
Chesapeake and Ohio Canal	Historic Resource	Allegany
Potomac Heritage National Scenic Trail	Public Recreation Area	Allegany
Chesapeake and Ohio Canal National Historical Park (and the related park property of the Western Maryland RR)	Public Park	Allegany
Allegany College of Maryland Athletic Fields	Public Recreation Area	Allegany
Evitts Creek Greenway	Public Recreation Area	Allegany
Colonial Manor National Road Inn	Historic Resource	Allegany
Concrete Block House	Historic Resource	Allegany
Carleton Farm	Historic Resource	Allegany
Hillcrest Memorial Park	Historic Resource	Allegany
Hillcrest Memorial Park Funeral Chapel	Historic Resource	Allegany

TABLE 5.2-3
Potential Section 4(f) Resources Impacts in Corridor D

Resource	Resource Type	County
Middle South Branch Valley Rural Historic District	Historic Resource	Hardy
The Meadows	Historic Resource	Hardy
Old Fields Bridge Public Stream Access	Public Recreation Area	Hardy
Moorefield Battlefield	Historic Resource	Hardy
Willow Wall House and Farm	Historic Resource	Hardy
Buena Vista Farms	Historic Resource	Hardy
Fort Pleasant Farm	Historic Resource	Hardy
Old Fields Church and Cemetery	Historic Resource	Hardy
I-House (farm)	Historic Resource	Hampshire
I-House (George Purgitt's house and farm)	Historic Resource	Hampshire
Former Commercial Structure	Historic Resource	Hampshire
Former Commercial Structure	Historic Resource	Hampshire
Fort Hill Farm	Historic Resource	Mineral
Fairview/Peerce Home Place	Historic Resource	Mineral

TABLE 5.2-3 (continued)
Potential Section 4(f) Resources Impacts in Corridor D

Resource	Resource Type	County
Frame House with Brick Chimney	Historic Resource	Mineral
Vandiver-Trout-Clause House	Historic Resource	Mineral
Stone House Inn	Historic Resource	Mineral
Dans Mountain WMA	Public Recreation Area	Allegany
Julius Grabenstein Farmhouse	Historic Resource	Allegany
Grabenstein Bungalow	Historic Resource	Allegany
LaVale Toll Gate House	Historic Resource	Allegany

Within Corridor B, six potential Section 4(f) resources were identified. Of these, only one, the Bowling Green Community Park, has a high probability to be avoided. Four of the resources, an unnamed log house with stone chimneys, the Luten Bridge/Bosley Bridge, a second unnamed log house, and the Claysville United Methodist Church, have a moderate probability for avoidance opportunities. One resource, Dans Mountain, spans the entire width of the corridor in two locations south of Rawlings, and offers no opportunity for avoidance unless the corridor is widened.

Within Corridor C, 14 potential Section 4(f) resources were identified. Three of these resources have a high probability for avoidance alternatives, Dam Site #21, Hillcrest Memorial Park, and Hillcrest Memorial Park Funeral Chapel. Four of these resources have a moderate probability for avoidance opportunities, the Vandiver-Trout-Clause House, Stewart's Tavern, the American Discovery Trail, and the Allegany College of Maryland Athletic Fields. Four of these resources have a low probability for avoidance alternatives, Evitts Creek Greenway, Colonial Manor National Road Inn, a concrete block house, and Carleton Farm. Three resources, the Chesapeake and Ohio Canal, the Potomac Heritage National Scenic Trail, and the Chesapeake and Ohio Canal National Historical Park, span the entire width of the corridor and offer no opportunities for avoidance.

Within Corridor D, there are 21 potential Section 4(f) resources. Two of these resources have a high probability for avoidance alternatives, the Meadows and the LaValle Toll Gate House. Thirteen of these resources have a moderate probability for avoidance opportunities, the Old Fields Bridge Public Stream Access, Willow Wall House and Farm, Buena Vista Farms, Fort Pleasant Farm, Old Fields Church and Cemetery, I-House, Fairview/Peerce Home Place, Fort Hill Farm, an unnamed frame house with brick chimney, Vandiver-Trout-Clause House, Stone House Inn, the Julius Grabenstein Farmhouse, and the Grabenstein Bungalow. Three resources have a low probability for avoidance alternatives, George Purgitts's House and Farm and two former commercial structures. Three resources, the Middle South Branch Valley Rural Historic District, Moorefield Battlefield, and Dans Mountain, span the entire width of the corridor and offer no opportunities for avoidance.

Because no Section 4(f) resource can be taken for transportation purposes until the FHWA has determined, after rigorous exploration and objective evaluation, that alternative actions avoid the use of those properties, or that there is no feasible or prudent alternative to the use of those properties, and that all possible planning has been done to minimize harm to Section 4(f) properties, a considerable amount of work remains to be done in Tier Two.

CHAPTER 6.0

FINDINGS AND CONCLUSIONS

6.0 FINDINGS AND CONCLUSIONS

This EIS evaluated the proposed NHS Corridor between I-68 and Corridor H. As a result of the alternatives evaluation process, five preliminary corridors in the study area were narrowed to three. Each of the three corridors was carried into detailed analysis and evaluated. That information, coupled with comments from the public and public resource and regulatory agencies, formed the basis for future project recommendations. Over the course of the project, many presentations were made to the agencies, and seven public meetings and a public hearing were held.

Once a Record of Decision (ROD) is issued for Tier One by the FHWA, the preferred corridor will be carried into Tier Two, the next stage of the project. During Tier Two, specific transportation alternatives, including a system upgrade and potential new roadway alignments, will be developed and evaluated. A ROD will also be required at the close of the Tier Two process.

Environmental analyses will also be undertaken in the future if breakout projects that have logical termini and independent operational utility are identified. Breakout projects would be separate from the larger Tier Two effort and would require their own detailed engineering studies and environmental documents. Through the normal environmental planning and project development process, breakout projects would evaluate project alternatives, identify a preferred alternative, and be submitted for federal and state approval. Future environmental documentation could result in the development of EISs, EAs, or CEEs. The appropriate environmental permits will also be developed.

Breakout projects in the Maryland portion of the corridor will be coordinated with the resource agencies and in accordance with the *Maryland Streamlined Environmental and Regulatory Process* and/or any subsequent revisions to this process. In West Virginia, breakout projects will also be coordinated with the resource agencies, but follow WVDOH policies and processes currently in place and previously approved by FHWA. If those policies or processes are revised, as well, future studies and environmental documentation will be consistent with the revised regulations.

6.1 Recommended Preferred Corridor

Based on the results of the environmental and engineering studies completed during Tier One, Corridor B, with the possibility of using the northern spur of Corridor D that connects to I-68 in Maryland, is being recommended as the preferred corridor to be carried into Tier Two. Advancing the northern spur of Corridor D as part of the preferred corridor's possible connection to I-68 will allow flexibility in developing a new I-68 interchange while providing additional opportunities for avoiding socioeconomic, natural, and cultural resources and minimizing the potential impacts of future alignments. If advanced to construction, an alignment within the preferred corridor would utilize (either) the Corridor B terminus with I-68 or the Corridor D terminus with I-68, not both termini. It is recommended that both these termini be carried into Tier Two to determine which would best meet the project's purpose and need, be the least environmentally damaging, and operate most efficiently.

WVDOH further recommends, as related separate future projects, that improvements within Corridor D to the Hardy County connector with Appalachian Corridor H be evaluated, utilizing a system upgrade of existing roadways and avoiding the historic Old Fields area. Future upgrades and improvements to existing US 220 may occur in West Virginia from Keyser to the Hardy County connector with Appalachian Corridor H. Any of those upgrades and improvements will be advanced as separate projects with their own NEPA documentation.

Corridor B, with an appropriate northern terminus on I-68 using either a direct connection from Corridor B or a Corridor D spur, would best meet the project's purpose and need and generally have the least impact on the environment. The following support keeping Corridor D spur as part of the preferred corridor:

- Three preliminary interchange concepts were developed along I-68 in combination with Corridors B and D.
- Challenging terrain along I-68 may require a split interchange alternative or options be developed.
- Existing Interchange ramps along I-68 are closely spaced and may limit future interchange designs at a single location.
- Traffic study findings may influence the interchange location. Land use changes may influence the interchange location.

- Potential impacts to environmental features may influence the interchange location.

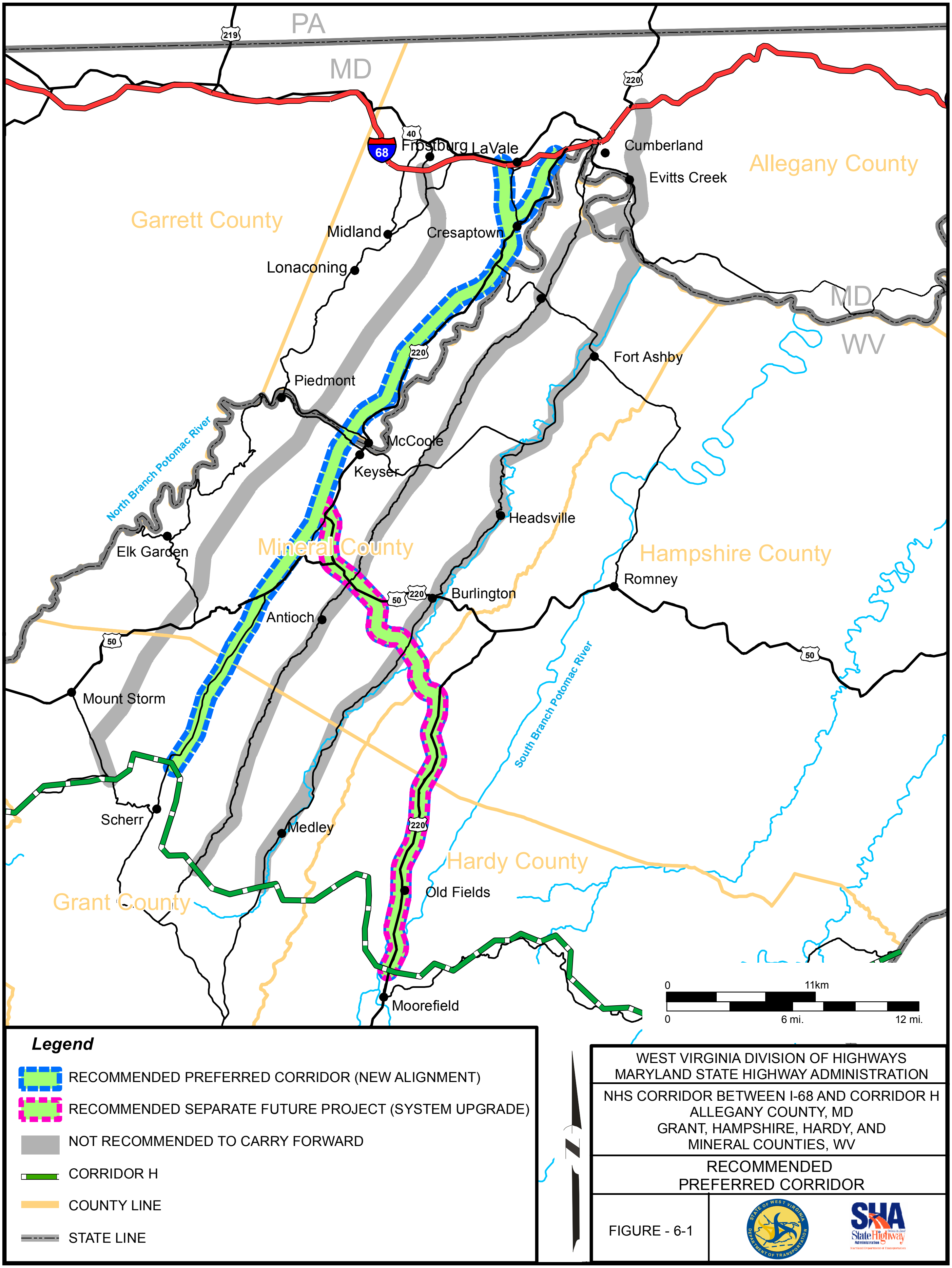
The recommended preferred corridor is shown on Figure 6-1.

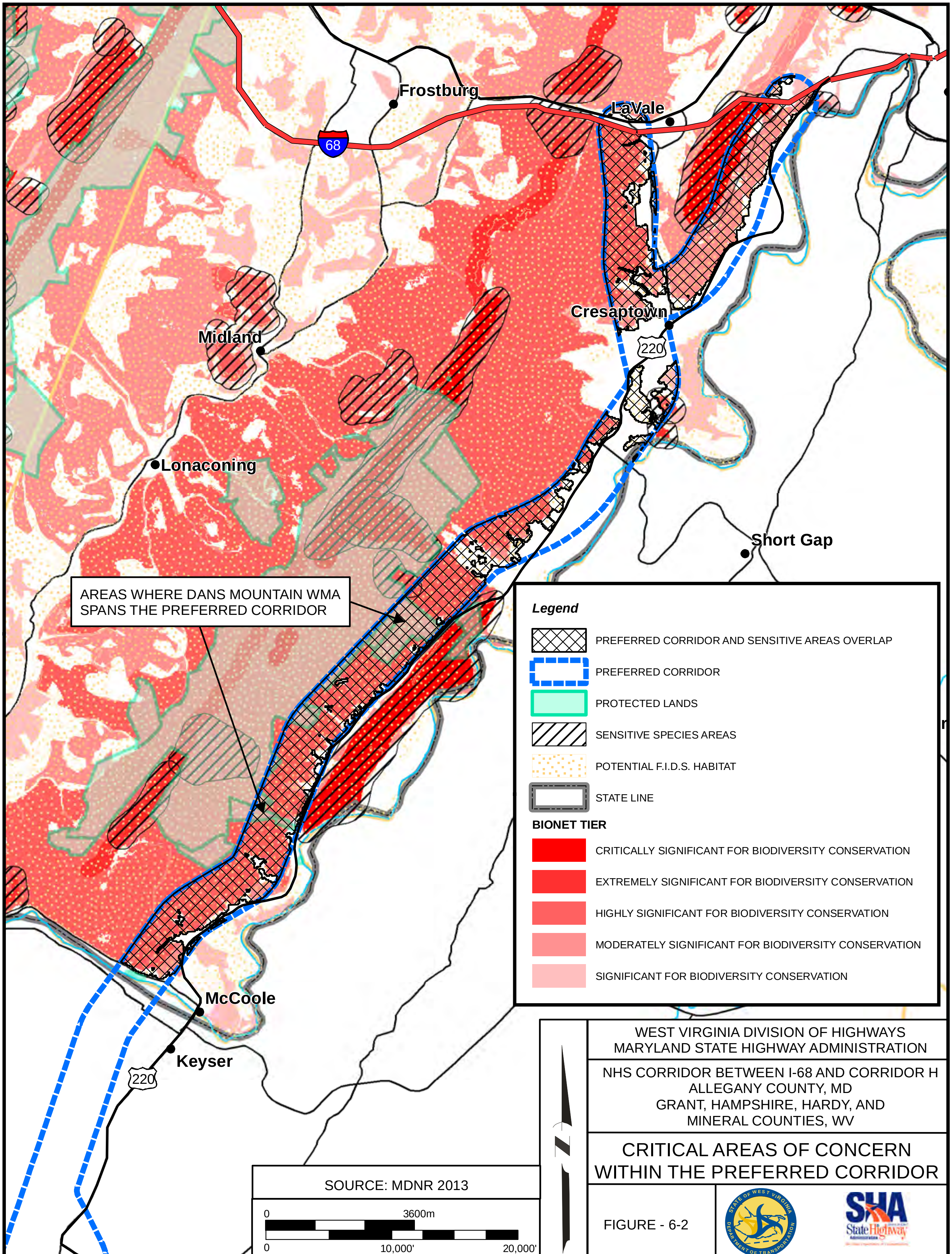
Section 2.5, Potential Interchange Configurations, of this FEIS, and Section 2.5.1 Potential I-68 Interchange Configurations, explain the three interchange options. Current cost estimates indicate that alignments within the preferred corridor could also cost the least to construct as a continuous highway facility, depending on which spur is used as its northern terminus.

As a final test of the preferred corridor, it was superimposed over data from the MDNR Biodiversity Conservation Network. The network, commonly referred to as BioNet, is a digital map and database that prioritizes areas for terrestrial and freshwater biodiversity conservation into five levels of significance for biodiversity conservation. As shown on Figure 6-2, there are several areas of environmental concern within the preferred corridor (MDNR 2012), and two areas where the Dans Mountain WMA spans the entire corridor.

It is thoroughly understood that there are significant environmental resources within the preferred corridor, resources that will require considerable stewardship, enhancement measures, and mitigation as the project progresses to Tier Two. The FHWA and both state transportation agencies have made a strong commitment to assure that the project will be developed in an environmentally sensitive manner and protect the regions environmental sources. This commitment is fully stated and documented in the Preface of this FEIS and will be reiterated any subsequent ROD issued as a result of the information in this FEIS.

Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources.


PA
MD
219
220
40
68
Frostburg
LaVale
Cumberland
Evitts Creek
Allegany County
Garrett County
Midland
Cresaptown
Lonaconing
220
Piedmont
Fort Ashby
MD
WV
North Branch Potomac River
McCoole
Keyser
Headsville
Elk Garden
Mineral County
Hampshire County
Romney
50
220
Burlington
Antioch
50
50
Mount Storm
South Branch Potomac River
Scherr
Medley
220
Hardy County
Old Fields
Grant County
Moorefield
0
11km
0
6 mi.
12 mi.
Legend
RECOMMENDED PREFERRED CORRIDOR (NEW ALIGNMENT)
RECOMMENDED SEPARATE FUTURE PROJECT (SYSTEM UPGRADE)
NOT RECOMMENDED TO CARRY FORWARD
CORRIDOR H
COUNTY LINE
STATE LINE
N
WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION
NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV
RECOMMENDED
PREFERRED CORRIDOR
FIGURE - 6-1
SHA
State Highway



WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND MINERAL COUNTIES, WV

CRITICAL AREAS OF CONCERN WITHIN THE PREFERRED CORRIDOR

FIGURE - 6-2

6.2 Summary of Effects

Throughout the project, information was gathered and analyzed to assist with the development of a preferred alternative. The potential effects of each corridor are summarized on Table 6.2-1.

TABLE 6.2-1
Summary of Potential Effects

Resource/Element	Corridor B	Corridor C	Corridor D	Recommended Preferred Corridor
Residential Land Use	2,590 acres	2,400 acres	2,620 acres	2,482 or 2,590 acres
Mixed Use, Built-up Land Use	1,300 acres	90 acres	860 acres	1,300 or 1,621 acres
Commercial and Industrial Land Use	170 acres	450 acres	340 acres	167 or 170 acres
Economic Development (trade centers served)	3	2	4	3
Impacts on Community Cohesion	3	2	3	3
Environmental Justice Impacts	Yes	Yes	Yes	Yes
Community Facilities	58	70	58	43 or 58
Parks and Recreation Areas	8	10	9	5 or 8
Very High/High Archaeological Potential	5,338 acres	6,974 acres	7,709 acres	5,061 or 5,338 acres
NRHP-Listed & NRHP-Eligible Resources	4	9	19	4 or 7
Wetlands	118 acres	152 acres	143 acres	118 acres
Streams	300,239 feet	330,834 feet	448,803 feet	300,239 or 301,886 feet
Floodplains	775 acres	719 acres	2,244 acres	734 or 775 acres
Flood Control Dams	8	4	6	8
Rangeland	127 acres	644 acres	720 acres	84 or 127 acres
Forests	9,890 acres	11,130 acres	11,409 acres	9,890 or 11,481 acres
Mixed Forests/Rangeland	0 acre	53 acres	91 acres	0 or 46 acres
Prime Farmland Soil	2,146 acres	1,491 acres	3,335 acres	2,146 or 2,161 acres
Farm Soils of State or Local Importance	2,276 acres	5,456 acres	3,728 acres	2,224 or 2,276 acres
Agricultural Land Cover	2,953 acres	6,489 acres	5,487 acres	2,953 or 2,999 acres
Preservation Districts/Easements	0 acre	1 acre	67 acres	0 acre
RTE Species	13	16	30	13
Potentially Contaminated Sites	43	42	55	34 or 43
Noise Sensitive Areas (residential)	2,590 acres	2,400 acres	2,620 acres	2,482 or 2,590 acres
Potential Section 4(f) Resources	6	13	21	6 or 12
Residual US 220 Traffic (2025)	Local	6,100 AADT	Local	Local
Estimated Cost of New Highway Facility	$482-$500 million	$651 million	$630-$648 million	$482-$500 million

During Tier Two, project planners will have considerable opportunity to develop avoidance, minimization, and mitigation strategies that address potential impacts on cultural, environmental, and socioeconomic resources. With the development of actual highway alignments or other types of transportation improvements in Tier Two, the appropriate resource agencies, local planners, and residents of the area can more easily assist in determining the appropriate avoidance, minimization, and mitigation strategies for each proposed alternative.

6.3 Corridor B

Of the three corridors, Corridor B would impact the second-most residential land (and noise sensitive areas); the most mixed-use, built up land; and the least commercial and industrial land. Impacts on community cohesion and environmental justice populations would also be expected. As in the case of Corridor D, Corridor B would impact 58 community facilities, significantly fewer than the 70 community facilities that would be impacted by Corridor C. Corridor B would also impact eight parks and recreation areas, the fewest such impacts among the three corridors.

In terms of the built-environment, Corridor B could have a considerable impact on residential neighborhoods in Cresaptown and Keyser. It would provide a new highway facility within the heavily traveled US 220 corridor through LaVale and Cresaptown and in Keyser farther south. Corridor B’s effect on reducing traffic congestion and improving safety would be greater than the effect of Corridor C and equal to the effect of Corridor D. Because it is located in the study area’s most densely developed commercial area, Corridor B supports existing economic development efforts better than they would be supported by Corridor C and as well as they would be supported by Corridor D. The area that Corridor B traverses in Allegany County is within a PFA, and the area it traverses near Keyser has all municipal infrastructure in place. Therefore, Corridor B would support Smart Growth initiatives and related comprehensive planning efforts better than they would be supported by Corridor C, and as well as they would be supported by Corridor D.

In terms of cultural resources, Corridor B has the least land with very high and high archaeological potential and the fewest NRHP-listed and NRHP-eligible resources. A potentially NRHP-eligible historic district, the US 220 Maryland Rural Historic District, spans the entire width of Corridor B. Two large, potentially eligible historic farmsteads are found in Corridor B:

the Potomac State College Farm east of Keyser and the Quality Dairy Farm south of Keyser. Additional studies in Tier Two may reduce the farmsteads' boundaries or determine that the farmsteads are not eligible for the NRHP. Corridor B also has the fewest potential Section 4(f) resources (public parks and recreation facilities and NHRP-listed or -eligible properties/sites).

In terms of the natural environment, Corridor B has the least amount of wetland acreage, the fewest linear feet of streams, the least amount of terrestrial habitat, and the lowest potential to encounter RTE species. Although it also has less agricultural-related land than either Corridor C or Corridor D, Corridor B contains eight flood control dams and the second-highest amount of floodplain acreage. Of primary concern in terms of the natural environment, Corridor B would impact the eastern edge of Dans Mountain (a major ecosystem and recreational resource in the area) and the Pinto Marsh (a non-tidal wetland of special state concern). Additional engineering studies and the development of actual alternatives in Tier Two may be able to minimize the extent of these potential impacts. Dans Mountain is one of the largest contiguous tracts of forestland in the state of Maryland; a considerable amount of coordination with the USFWS, MDNR, and MDE will be necessary during Tier Two to analyze actual alternatives that could impact it. The best options in this area are those that may avoid Dans Mountain altogether, but if Dans Mountain cannot be avoided, alternatives that minimize impacts and restrict them to edge areas of the resource may be advanced. Of course, mitigation will be proposed for any loss of forestland or function.

Preliminary cost estimates indicate that alternatives developed within Corridor B could have lower costs than alternatives developed for Corridor C or Corridor D. Cost estimates could increase, however, within any corridor as the project progresses.

Three possible interchange locations exist for Corridor B at I-68. Option 1 parallels MD 53 between Cresaptown and LaVale and ties into I-68 west of Exit 39. The full interchange between Corridor B and I-68 would provide access between the two roadways in all directions. Option 2 parallels US 220 between Cresaptown and Cumberland and provides a partial interchange with I-68 between Exits 41 and 42. The partial interchange provides access from Corridor B to I-68 eastbound and from I-68 westbound. Construction of a full interchange will have substantial impacts and displacements, given the existing grades and terrain at this location. This option may also present weaving problems and signing overlaps. Option 3 requires the construction of both Option 1 and Option 2, with partial interchanges at each connection to I-68. The western interchange west of Exit 39 connects eastbound I-68 to Option 1 and Option 1 to westbound I-68 *via* ramps from Option 1.

Depending on future studies, the termini with Corridor H and any of the corridors currently under study for the US 220 project could be signalized or unsignalized. Although Corridor H is access-controlled, the WVDOH has made allowances for intersection construction and traffic signalization at specific locations, where necessary. More study will be required during Tier Two to determine whether the potential US 220/Corridor H terminus would be a candidate for the construction of a signalized intersection.

6.4 Corridor C

Of the three corridors, Corridor C would impact the least residential land (and noise sensitive areas); the least mixed-use, built up land; and the most commercial and industrial land. It would also impact the greatest number of community facilities (70) and parks and recreation areas (10). Impacts on community cohesion and environmental justice populations would also be expected.

Although construction of a new transportation facility within Corridor C would help alleviate traffic congestion on US 220, Corridors B and D would divert more traffic from US 220. Corridor C would provide new access to the WV 28/WV Alternate 28 corridor and the WV 46 corridor east of Keyser. The *Mineral County Comprehensive Plan* (Mineral County Planning Commission 2011) has identified the WV 28/WV Alternate 28 corridor as a high- growth corridor for residential and business development. East of Keyser, the WV 46 corridor is the setting for older industrial development adjacent to the city limits and considerable residential development as the corridor extends toward Fort Ashby. Corridor C would also provide more access to businesses and residential areas east of Cumberland than would be provided by Corridor B or Corridor D.

In terms of cultural resources, Corridor C has the second-greatest amount of land with very high and high archaeological potential and the second-greatest number of NRHP-listed and NRHP-eligible resources. The Chesapeake and Ohio Canal National Historical Park, an NRHP-listed site, spans the entire width of Corridor C in the vicinity of its northern terminus. No environmentally sensitive manner to cross the park, which is also a Section 4(f) resource, has been identified through early coordination efforts with the NPS. In fact, the NPS has indicated that future alignments within Corridor C are incompatible with the park's general plan. Thus, it may be impossible to construct a new transportation facility of this nature within the park.

Property of the Chesapeake and Ohio Canal Company was placed under federal jurisdiction as early as 1938. Later, in 1953, Public Law 184 created a parkway between Cumberland and Washington, D.C., from land originally used for the canal, with the stipulation that none of the rights-of-way granted by the Secretary of the Interior would sever the landscape continuity from Great Falls (at Potomac, VA) to Cumberland. Subsequently, in 1971, *Public Law 91-664* created the Chesapeake and Ohio Canal National Historical Park.

Several large, potentially NRHP-eligible farmsteads are located within Corridor C. Future highway designs could find these potential historic resources difficult to avoid. Additional cultural resource studies in Tier Two could determine that the farmsteads are not NRHP-eligible or that their boundaries are smaller than currently identified. Corridor C also has the second-greatest number of potential Section 4(f) resources (public parks and recreation facilities and NHRP-listed or -eligible properties/sites).

In terms of the natural environment, Corridor C has the greatest amount of wetland acreage, the second-greatest number of linear feet of streams, the second-greatest amount of terrestrial habitat, and the second-highest potential to encounter RTE species. Corridor C would also impact the Knobley Mountain aquifer, a principal source of current and future drinking water in the area. Corridor C contains four flood control dams (the fewest of the three corridors) and the least amount of floodplain acreage. It has the greatest amount of agricultural land among the corridors. Although the amount of agricultural land cover found in Corridor C is greater than the land cover in Corridor D, the amount of farmland soil is less than in Corridor D.

Preliminary cost estimates indicate that alternatives developed within Corridor C could have higher costs than alternatives developed for Corridor B or Corridor D. Cost estimates could increase, however, within any corridor as the project progresses.

Corridor C ties into I-68 at the interchange with US 220 (North), MD 144, and Naves Cross Road (Exits 46 and 47) east of Cumberland. A complex full interchange between Corridor C and I-68 could be constructed at that location while maintaining access from US 220 (North) and MD 144 to the new facility and I-68.

6.5 Corridor D

Of the three corridors, Corridor D would impact the most residential land (and noise sensitive areas); the second-most mixed-use, built up land; and the most commercial and industrial land. Impacts on community cohesion and environmental justice populations would also be expected. As is also the case with Corridor B, Corridor D would impact 58 community facilities, fewer than the 70 community facilities that would be impacted by Corridor C. However, Corridor D would have the second-greatest number of impacts on parks and recreation areas.

In terms of the built-environment, Corridor D could have a considerable impact on residential neighborhoods in Cresaptown and Keyser. However, by providing a new highway facility within the heavily traveled US 220 corridor through LaVale and Cresaptown and in Keyser farther south, Corridor D would have a greater effect on reducing traffic congestion and improving safety than the effect of Corridor C and would be equal to the effect of Corridor B. Because it is located in the study area's most densely developed commercial area, Corridor D supports existing economic development efforts better than they would be supported by Corridor C and Corridor B. The area that Corridor D traverses in Allegany County is within a PFA, and the area it traverses near Keyser has all municipal infrastructure in place. Therefore, Corridor D would support Smart Growth initiatives and related comprehensive planning efforts better than they would be supported by Corridor C, and as well as they would be supported by Corridor B. It would also provide additional north-south access in Moorefield and support that area's economic development efforts.

In terms of cultural resources, Corridor D would impact the most land with very high and high archaeological potential and the most NRHP-listed and NRHP-eligible resources. Corridor D contains a dense cluster of historic resources at its southern terminus. This cluster of resources spans the entire width of the corridor. In addition to NRHP-listed and NRHP-eligible resources, several large, potentially historic farmsteads that could be difficult to avoid with specific highway designs are located within Corridor D. A potentially NRHP-eligible historic district, the US 220 Maryland Rural Historic District, spans the entire width of Corridor D. Additional cultural resource studies could determine that some resources are not NRHP-eligible or that the farmsteads' boundaries are smaller than currently identified. Corridor D contains the most potential Section 4(f) resources among the three corridors.

In terms of the natural environment, Corridor D has the second-greatest amount of wetland acreage, the greatest number of linear feet of streams, the greatest amount of terrestrial habitat, and the highest potential to encounter RTE species. Corridor D also contains six flood control dams and the greatest amount of floodplain acreage. It has the second-greatest amount of agricultural-related land and the greatest amount of farmland soil. As in the case of Corridor B, Corridor D would impact the eastern edge of Dans Mountain and the Pinto Marsh (a non-tidal wetland of special state concern). Additional engineering studies and the development of actual alternatives in Tier Two may be able to minimize the extent of these potential impacts. A considerable amount of coordination with the USFWS, MDNR, and MDE will be necessary during Tier Two to analyze actual alternatives that could impact Dans Mountain. The best options in this area are those that may avoid Dans Mountain altogether, but if Dans Mountain cannot be avoided, alternatives that minimize impacts and restrict them to edge areas of the resource may be advanced. Of course, mitigation will be proposed for any loss of forestland or function.

Preliminary cost estimates indicate that alternatives developed within Corridor D could have lower costs than alternatives developed for Corridor C but higher costs than alternatives developed for Corridor B. Cost estimates could increase, however, within any corridor as the project progresses.

Three possible interchange locations exist for Corridor D at I-68. Option 1 parallels MD 53 between Cresaptown and Lavale and ties into I-68 west of Exit 39. The full interchange between Corridor D and I-68 would provide access between the two roadways in all directions. Option 2 parallels US 220 between Cresaptown and Cumberland and provides a partial interchange with I-68 between Exits 41 and 42. The partial interchange provides access from Corridor D to I-68 eastbound and from I-68 westbound. Construction of a full interchange will have substantial impacts and displacements, given the existing grades and terrain at this location. This option may also present weaving problems and signing overlaps. Option 3 requires the construction of both Option 1 and Option 2, with partial interchanges at each connection to I-68. The western interchange west of Exit 39 connects eastbound I-68 to Option 1 and Option 1 to westbound I-68 *via* ramps from Option 1.

6.6 Potential Impacts in the Corridor D Termini Area

Land cover in the Corridor D termini area is mostly forested with some built-up and agricultural land present. In terms of the built-environment, there could be impacts in the Corridor D northern spur on residential and commercial development located north of I-68 and along MD 53 on the eastern edge of the corridor.

In terms of the natural environment, the Corridor D termini area would impact forestland on the northern reaches of Dans Mountain, but well outside the boundaries of the WMA. Impacts would also occur to a large farm parcel located at its center and some streams including Warriors Run, Braddock Run, and three smaller unnamed tributaries.

In terms of cultural resources, the LaVale Toll House is located within the Corridor D spur, but impacts are unlikely on it because the Toll House is located on the north side of I-68 at the western edge of Corridor D. The Toll House is on the NRHP. The Corridor D could also have impacts to the Julius Grabenstein Farmhouse and the Grabenstein Bungalow, two cultural resources that are NRHP-eligible. There are also two potentially NRHP-eligible resources located in the Corridor D spur area.

CHAPTER 7.0

COMMENTS AND COORDINATION

7.0 COMMENTS AND COORDINATION

In accordance with federal and state regulations, the WVDOH and the MDSHA followed a proactive public and agency involvement process for the project. Public and agency involvement has been achieved to date through three mechanisms: public meetings and the distribution of related informational materials (mailings, news releases, meeting announcements), agency meetings, and public officials meetings.

Notice of Intent to prepare a Tier One EIS appeared in the Federal Register on April 14, 2006. Three agencies, the USEPA, the USFWS, and the NPS, responded to the Federal Register notice. A copy of the notice is found in Appendix A. Subsequent to the notice in the Federal Register, other federal, state, and local agencies agreed to be either a cooperating or participating agency for the project. Those agencies have already been discussed in Chapter 1.0 and listed in the Executive Summary.

7.1 Public and Agency Scoping

Public and agency scoping for the project occurred through a combination of meetings and field views held in early May 2006. Public meetings were held in Keyser on May 1, 2006, in Moorefield on May 2, 2006, and in Cumberland on May 10, 2006. About 120 people attended the public meetings.

Although members of the public who attended the meetings were generally supportive of the project, many of those in attendance voiced as a major concern the potential for creating harm to Patterson Creek Valley. Areas of concern within the Patterson Creek Valley included potential impacts on farmlands, historic resources, water quality, and the overall environment. Other locales mentioned as areas of special concern included New Creek; the Burlington Historic District; rural areas east of Keyser, Knobley Mountain, Greenland Gap, and Old Fields; and Dans Mountain. As with the Patterson Creek Valley, concern for these other areas included the potential impacts the project could have on historic resources, farmlands, and the overall environment.

As part of the scoping process, two separate agency field reviews were held in conjunction with the public meetings. The first field review, held on May 3, 2006, began with a project briefing in

Moorefield before agency representatives traveled into the field. A discussion of the methodologies planned for the socioeconomic and environmental studies associated with preparation of the DEIS was included in the project briefing. Besides staff members of FHWA, WVDOH, and MDSHA, agencies represented that day included USFWS, WVDNR, WVDCH, and the WV Department of Forestry.

Concerns voiced during the field review included bald eagle habitat, the Indiana bat, the Virginia big-eared bat, mussels, threatened and endangered plant species associated with shale barrens, wetlands and streams, and the relationship of this project to Corridor H and US 50. Discussion about cultural resources was directed toward the need to identify historic districts, archaeological sites, and individual historic properties in the vicinity of the study area.

The second agency field review, with similar informational content as the first, was held a week later, on May 10, 2006, in LaVale. Besides staff members of FHWA, WVDOH, and MDSHA, agencies represented at the second field view included USACE, MDNR, MDE, and MDP. Although participants engaged in much discussion of several topics during the field review, initial concerns centered on the potential impact the project could have on the Dans Mountain WMA. Specific concerns related to Dans Mountain, an important natural resource, included:

- The amount of contiguous forestland (including a very large tract of contiguous state-owned forest) it represents.
- Habitat values associated with forest interior, wildlife corridors, and Green Infrastructure.
- Its value as public land for recreation as well as habitat. Hunting and other wildlife-related recreation is closely related to the significant size and nature of the tract.
- Federal funds were used for the resource. Replacement of such a large contiguous tract of public land and its associated values could pose a major difficulty in the region and in the state of Maryland.
- Any taking of state land from Dans Mountain for transportation use will trigger a Section 4(f) consideration. The MDNR may be unable to agree to consistency unless every effort has been made to avoid impacts. Additionally, conversion of existing public land to a transportation use may require conformance with other federal regulations associated with federal fund sources used at Dans Mountain over the years.

Additional concerns included restoration activities in the North Branch Potomac River watershed, wild trout and long-term resident stocked trout, historic resources, the numerous

North Branch Potomac River tributaries flowing east from Dans Mountain, and additional habitats of significance in the vicinity of Fort Hill and along the riparian corridor of the North Branch Potomac River.

Following the field reviews and public meetings, written correspondence was received from the USFWS. A copy of this letter (May 17, 2006) is found in the Appendix. The USFWS discussed many issues, including potential impacts on several federally listed animal and plant species (Indiana bat, Virginia big-eared bat, bald eagle, shale barrens rock cress, and sensitive mussel fauna). It also expressed concern for wetlands, riparian areas, and streams in the proposed study area and reiterated concern about potential impacts on Dans Mountain.

7.2 Continuing Public Involvement

In continuing the efforts of the public involvement process, a second round of informational workshops was held in May 2007. Meetings were again held in Moorefield, Keyser, and the Cumberland area. The first meeting was held at Moorefield High School on May 7; the second at Keyser Primary-Middle School on May 8; and the third on May 10 at the Bel Air Elementary School. The locations of the first two meetings were the same as they were for the first round of public meetings, but the Cumberland area meeting was shifted to Bel Air Elementary School from the Allegany County Government Office Complex to accommodate the anticipated larger attendance.

Copies of the two preliminary reports, the *Purpose and Need Statement* and *Corridors Retained for Further Analysis* were placed on file at area libraries, municipal buildings, and county courthouses 30 days before the meetings were held. The latter report suggested that only Corridors B, C, and D be analyzed further. Each meeting was advertised 30 days in advance, noting the locations at which the public could review the project reports. The MDSHA also distributed an informational mailer on the project to all Maryland zip codes within the study area. A copy of this brochure is included in Appendix F.

Excluding agency officials, more than 260 people attended at least one of the meetings. Approximately 15 people were in attendance at Moorefield, 57 at Keyser, and 189 at Bel Air.

A survey was conducted during the public meetings to solicit public comments on the project's purpose and need, in accordance with SAFETEA-LU 6002, and on the corridors that had the potential to be advanced. Six questionnaires were received on-site in Moorefield, 14 in Keyser, and 81 in Bel Air, and additional correspondence was submitted at each meeting. Agencies returned approximately 30 questionnaires with additional comments *via* mail or email. The Greater Cumberland Committee, the Allegany and Garrett Sportsman's Association, the Allegany Ballistics Laboratory, the Friends of the Folck's Mill site, and the Mineral County Commissioners also submitted information in writing.

Turnout for the second round of meetings was considerably higher than those held a year earlier. Although most attendees at the first round of meetings were from Mineral County (54 percent), Allegany County turned out more attendees for the second round (70%). Most favored Corridors B and C and agreed that Corridors A and E should not be considered further. Some people, however, wished to have Corridors A and E considered because of their minimal impacts on the built environment and their distance east of the congested routes through Cumberland and LaVale.

Many of those who attended the Bel Air meeting asked that no corridor impact Dans Mountain or be located near it. Others asked that no corridor impact the Folck's Mill and Civil War battle site, located at the northern termini of Corridors C and E. Numerous comments were also made about the condition and capacity of the Crosstown Bridge on I-68 through Cumberland.

The general consensus was that the chosen corridor should act as an alternate route away from Cumberland or serve as a direct bypass. Another point of consensus was that congestion on US 220 is a problem, especially through Keyser and Cresaptown. As a result of this second round of public meetings, only Corridors B, C, and D were carried into detailed study.

7.3 Continuing Agency Coordination

Agency coordination has been an ongoing process throughout the project. Formal requests for information have occurred throughout the project and a coordination plan (WVDOH 2011) was prepared in accordance with SAFETEA-LU. A copy of this plan is found in the appendix. As noted previously, formal coordination began with interagency field reviews in May 2006. Field reviews with the Maryland and West Virginia SHPOs also occurred in February-March 2007.

Interagency meetings were also held with the Maryland resource agencies and federal agencies with jurisdiction in Maryland on February 15, 2006, January 17, 2007, June 20, 2007, May 19, 2010, April 18, 2012, November 28, 2012, and December 3, 2013, to provide additional opportunities to review and comment on the project as it evolved. All but the November 28, 2012, and December 3, 2013, meetings were routine, regularly scheduled interagency meetings. The November 28th and December 3rd meetings were scheduled specifically to report on the findings and recommendations anticipated to be included in this FEIS. Minutes and attendance rosters for the interagency meetings are on file with the MDSHA. During the June 2007 meeting, two reports, *Purpose and Need Statement* and *Corridors Retained for Further Analysis,* were presented. Concurrence from most of the resource agencies was secured on those two reports over the next several months.

A meeting was also held with the West Virginia agencies and federal agencies with jurisdiction in West Virginia on February 27, 2007. The agencies were updated on the status of the project at that meeting.

A presentation on the project was also made to the NPS at its Hagerstown headquarters for the Chesapeake and Ohio Canal National Historical Park on April 16, 2007. Following a complete presentation on the project, the NPS expressed its concern regarding the potential impact to the park from Corridors C and E. The NPS also asked to become a cooperating agency on the project. The NPS became a cooperating agency on May 7, 2007. Formal letters for coordination on rare, threatened, and endangered species were sent to the resource agencies in early 2007. A complete discussion on that specific coordination is found in Chapter 4.0.

As part of the Section 106 *National Historic Preservation Act* process, concurrence was also secured from the WVDCH and the MHT, the respective SHPO for West Virginia and Maryland, on the cultural resources studies completed to date. This does not conclude the Section 106 process and additional coordination, reporting, and concurrences will continue throughout the project. Tier Two activities for cultural resources will include: development of a PA in consultation with the WVDOH, the MDSHA, the SHPOs, and the Advisory Council on Historic Preservation; Phase I archaeological surveys for pre-contact and historic period archaeological resources, determination of eligibility for listing of archaeological sites in the NRHP; preparation of an eligibility report for listing of historic resources in the NRHP; coordination with the SHPOs on effects determination; and, preparation of a MOA addressing adverse effects on NRHP sites and specific NPS concerns.

The preliminary DEIS was circulated among federal, state, and local resource/planning agencies in mid and late 2010. Formal and informal comments were received from FHWA, NPS, USACE, USEPA, and MDP. Those comments were addressed and an errata/addendum provided to commenters to assure their concerns were taken into consideration. One unresolved issue from the NPS remains, however. In a letter dated September 24, 2010, the NPS stated that “The project is not compatible with the C&O Canal NHP General Plan,” because future alignments within Corridor C intrude on the natural setting of the canal towpath and jeopardize the natural and human history within the park. As noted in Chapter 6.0, however, Corridor C is not being carried into Tier Two.

Comments were also received from the USACE, Baltimore District. In a letter dated March 28, 2011, the USACE concurred with the project’s purpose and need and offered comments on an early draft of the DEIS. A copy of that letter is found in Appendix D.

7.4 Public Officials Briefings

Several briefings were held with public officials and planners throughout the course of the project. Meetings were held with the governing boards of the Allegany County Planning Commission, the Region 8 Planning and Development Council, the Route 50 Association, and the Greater Cumberland Committee to present updates on the project at key points. Meetings were also held with staff members of the Allegany County Office of Planning Services, the Mineral County Planning Commission, the Hardy County Planning Department, the Grant County Development Authority, and the City of Cumberland. The purpose of those briefings was twofold: (1) to obtain background data and information on the study area and (2) to brief local planners on the status of the project.

7.5 Informational Public Meeting Workshop and Public Hearing on the DEIS

An informational public meeting workshop was held at the Keyser Primary-Middle School on September 13, 2011. A public hearing was held the following day at the Bel Air Elementary School. Full-size drawings of Corridors B, C, and D, and several copies of the DEIS were on display. Comment forms were available at each meeting. Representatives of the MDSHA and WVDOH made a formal presentation at the public hearing. Public testimony was offered after the presentation. Individuals also had the opportunity to present private testimony. The WVDOH held a special meeting on the project in conjunction with the Short Gap VFD on October 5, 2011. Slightly more than 100 people attended the meeting in Keyser, WV more than 400 people attended the meeting in Bel Air, MD and approximately 400 attended the meeting in Short Gap, WV.

Before the meetings were held, copies of the DEIS were posted to each transportation agency's project website, where members of the public could leave their comments. Copies of the DEIS were also available for review throughout the local community at municipal buildings, county planning offices, and libraries. An informational brochure was also distributed before and during the meetings. A copy the brochure is found in Appendix F.

7.6 Comments and Responses

All comments received during the circulation period for the DEIS were reviewed. Responses to common comment themes are presented in this section of the FEIS. The comments generally fit the following categories:

1. Project Need
2. Corridor Selection
3. Environmental Impacts
4. Traffic
5. Economic Impacts
6. Relocation/Right-of-Way
7. Farmlands
8. Cultural Resources
9. Other

7.6.1 Agency Comments

Following distribution of the DEIS, comments were received from 14 federal, state, and local agencies. Federal agencies commenting on the project included the Council on Environmental Quality, the USACE (Huntington and Baltimore Districts), the USEPA, and the United States Department of the Interior (USDOI). State agencies commenting included the MDE, MDP, WVDEP, and WVDNR. Local agencies or government entities commenting included the Archaeological Society of Maryland, the Short Gap VFD, the Mineral County Chamber of Commerce, the Mingo County Redevelopment Authority, and the County Commission of Mineral County. Comments were also received from Gary G. Howell and Margaret Staggers of the WV House of Delegates. The agency comments are summarized in Table 7.6-1.

TABLE 7.6-1
Summary of Comments from Federal, State, and Local Agencies

Agency	Date	Category of Comment									Comment/Concern
		1	2	3	4	5	6	7	8	9	
Advisory Council on Historic Preservation	9-13-2011									x	Process oriented
U.S. Army Corps of Engineers Baltimore District	3-28-2011/ 10/26/201		x	x						x	Waters of the U.S.; corridor selection; process
U.S. Army Corps of Engineers Huntington District	11-22-2011		x	x						x	Waters of the U.S.; corridor selection; process
U.S. Environmental Protection Agency	10-28-2011		x	x				x	x	x	Potential significant impacts in any selected corridor; Tier Two commitments
U.S. Department of the Interior	10-31-2011		x	x		x			x	x	Impacts on RTE species; economic benefits of the Chesapeake & Ohio Canal National Historical Park; need for additional information; NPS strongly opposes Corridor C
MD Department of the Environment	10-28-2011		x	x							Impacts on Dans Mountain and Pinto Marsh; suggests retention of a modified Corridor C
MD Department of Natural Resources	11-21-2011		x	x							Impacts on Dans Mountain and Pinto Marsh; RTE species
MD Department of Planning	11/1/2010/ 7-26-2011									x	State clearinghouse; land use; priority funding areas
WV Department of Environmental Protection	7-26-2011				x						Update air quality information
WV Division of Natural Resources	9-7-2011			x						x	Recognizes Tier One as a broad planning effort
Archaeological Society of Maryland/Western Maryland Chapter	9-19-2011/ 10-14-2011								x		Potential impacts of Corridors B and C on archaeological resources
Short Gap Volunteer Fire Department	9-23-2011									x	Opposed to Corridor C
Mineral County Development Authority	10-13-2011		x			x					Supports Corridor B
Mineral County Chamber of Commerce	10-12-2011		x								Supports Corridor B
County Commission of Mineral County	10-12-2011		x			x					Supports Corridor B

TABLE 7.6-1 (continued)
Summary of Comments from Federal, State, and Local Agencies

Agency	Date	Category of Comment									Comment/Concern
		1	2	3	4	5	6	7	8	9	
Gary G. Howell, WV House of Delegates	10-19-2011									x	Submitted comments and petition opposed to Corridor C on behalf of his constituents
Margaret Staggers, WV House of Delegates	1-12-2012									x	Opposes Corridor C
Category of Comments: 1. Project Need; 2. Corridor Selection; 3. Environmental Impacts; 4. Traffic; 5. Economic Development; 6. Relocation/Right-of-Way; 7. Farmlands; 8. Cultural Resources; 9. Other											

After examining agency comments individually, the following responses to their concerns were provided. Copies of the actual comment letters are found in Appendices C and D. The date of the relevant agency correspondence is noted in parenthesis.

Advisory Council on Historic Preservation (September 13, 2011)

Comment 1: ACHP encourages your agency to coordinate the Section 106 process with NEPA compliance by notifying the SHPO and/or Tribal Historic Preservation Officer, Indian tribes, and other consulting parties pursuant to ACHP regulations.

Response 1: A complete discussion of cultural resources is found in Section 4.2 of the FEIS. During Tier One, the following activities were undertaken: completed background research; developed pre-contact and historic period archaeological resource sensitivity maps; developed and analyzed archaeological predictive surface model; identified historic properties that are listed in, eligible for, or potentially eligible for listing in the NRHP; completed agency field views of study area; and, prepared Historic Resources Abbreviated Report.

As the project proceeds to Tier Two, coordination with the SHPOs of Maryland and West Virginia and other consulting parties identified during Tier One will continue. At the initiation of Tier Two studies, public and agency scoping meetings will help define issues related to cultural resources. Additional cultural resource investigations will also be necessary during Tier Two. The investigations will follow the procedures for Section 106 as outlined in 36 CFR 800.3 through 36 CFR 800.6 and the procedures of each SHPO. Early in the Tier Two process, a PA or procedural outline will be developed in consultation with the WVDOH, MDSHA, the SHPOs, and the Advisory Council on Historic Preservation, detailing the steps to be used for complying with Section 106 as part of the Tier Two approach. During Tier Two, a MOA will also be developed addressing adverse effects and detailing the necessary avoidance/mitigation measures required.

<u>USACE, Baltimore District (March 28, 2011 and October 26, 2011)</u>

Comment 2: It will be helpful to discuss how much opportunity for avoidance and minimization of impacts exists within each corridor.

Response 2: Specific alignment alternatives will be developed for each corridor carried forward in Tier Two. At that time, a complete set of avoidance and minimization strategies will be developed for each alternative.

Comment 3: Impacts to Dans Mountain should be avoided and minimized to the maximum extent possible. Not all of the streams on the eastern slope of Dans Mountain have been assessed for brook trout habitat.

Response 3: With an approximate size of 9,600 acres, the Dans Mountain WMA is the largest tract of contiguous state-owned forestland in Maryland. Dans Mountain State Park serves as a day use seasonal recreational facility that covers 481 acres and offers a wide variety of wildlife, mountain streams, overlooks, and scenic beauty. Potentially impacted by Corridors B and D, Dans Mountain is one of the most important ecological and regional resources in western Maryland. As a result, impacts to Dans Mountain will be avoided and minimized to the maximum extent practicable.

Both temporary and permanent stream impacts are anticipated as a result of the project. The specific nature of the impacts is not known yet due to the preliminary nature of the Tier One studies. During Tier Two, sampling of streams for aquatic life will be conducted to determine specific habitats. Also during Tier Two, measures to avoid or minimize impacts to aquatic habitat and riparian vegetation will be identified. As project planning activities advance to Tier Two, interagency meetings are held to assist in providing direction for the project. This will aid in determining what investigations and/or studies may be required as the project unfolds.

Comment 4: The Potomac River crossing has not been addressed.

Response 4: As alternative alignments are developed during Tier Two, specific design elements will be presented that address the crossing of the North Branch Potomac River. Section 10 authority (regulating navigable waters) within the project area extends to the river's confluence with Wills Creek in Cumberland. Thus, it is possible that any proposed river crossing for the project will be located beyond the navigable reaches of the river.

Regardless of the proposed location, the preferred approach to mitigation of floodplain, wetlands, and stream impacts is avoidance. If encroachment cannot be practicably avoided, an appropriate corrective measure will be provided. Detailed hydrologic and hydraulic analyses will be conducted during final design to further analyze the magnitude of floodplain encroachments. Detailed wetland and stream studies will also be conducted to analyze potential impacts to these resources. Additionally, Maryland has jurisdiction over the North Branch Potomac River. Thus, the primary permitting activities for any major crossing of this river would occur through permit requirements. Nonetheless, any proposed impacts will be documented during the development of a Tier Two EIS.

Comment 5: A joint federal/state permit would be required for activities that impact Waters of the U.S.

Response 5: A permit application will be prepared at the conclusion of Tier Two.

Comment 6: A discussion of potential environmental mitigation for unavoidable adverse impacts to Waters of the U.S. should be included.

Response 6: As already noted by the USACE, this will occur during Tier Two.

<u>USACE, Huntington District (November 22, 2011)</u>

Comment 7: Before a Section 404 Clean Water Act permit application is submitted, jurisdictional determinations shall be submitted to the USACE for review and approval.

Response 7: Coordination with the USCAE will continue as the project proceeds into Tier Two. This will include a jurisdictional determination field view once all potentially impacted wetlands are identified. Prior to the field view, an aquatic resources report will be prepared and distributed to the resource agencies. Wetlands investigations will be conducted in accordance with the *Wetlands Delineation Manual* (Technical Report Y-87-1) (USACE 1987); the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (ERDC/EL TR-10-9) (2010); and Section 404 of the *Federal Clean Water Act*. Wetland habitats will be classified according to the USFWS' *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.* 1979). Pertinent information, including dominant vegetation, Munsell soil color, hydric soil indicators, signs of hydrology, and types of disturbance (if applicable), was recorded onto a Wetland Determination Data Form tailored to the Eastern Mountains and Piedmont Region for each wetland. Wetland functions will be assessed in the field following procedures and protocols described in the USACE, New England District's, *The Highway Methodology Workbook Supplement – Wetland Functions and Values, A Descriptive Approach* (NAEEP-360-1-30a) (1999).

Comment 8: The USACE recommends that the WVDOH and FHWA continue to narrow the Tier One evaluation, especially as it pertains to aquatic resources, as the project continues into the Tier Two process and eventually final design.

Response 8: As noted, detailed wetland and stream studies will be conducted during Tier Two. As the project proceeds into Tier Two, coordination with all resource agencies will continue to determine the extent of those studies.

<u>USEPA (October 28, 2011)</u>

Comment 9: The USEPA recommends that multiple corridors, in addition to the No Action alternative, be retained for study in Tier Two.

Response 9: Corridor B with the possibility of using the northern spur of Corridor D as an I-68 terminus was identified as the preferred corridor as is being advanced as the only corridor for many reasons. In terms of the socioeconomic environment, the preferred corridor would reduce traffic congestion and improve safety greater than Corridor C and equal to Corridor D. Because it is located in the study area's most densely developed area, the preferred corridor supports existing economic development efforts better than Corridor C and as well as Corridor D. It is also within a PFA (in Maryland), and has municipal infrastructure in place (in both Maryland and West Virginia). In terms of cultural resources, the preferred corridor has the least land with very high and high archaeological potential and the fewest NRHP-listed and NRHP-eligible resources. In terms of the natural environment, the preferred corridor has the least amount of wetland acreage, the fewest linear feet of streams, the least amount of terrestrial habitat, and the lowest potential to encounter RTE species. Of primary concern, however, is the fact that the preferred corridor would impact the Dans Mountain WMA and Pinto Marsh.

Comment 10: It is understood that impact levels are inflated as a 4,000-foot corridor is considered, but there is concern that potential build alternatives could have an objectionable amount of environmental impact.

Response 10: Alternative corridors were studied and evaluated during Tier One while actual alternatives will be developed and refined during Tier Two. As part of the analytic effort in Tier Two, avoidance and minimization options will also be developed. Where impacts remain, mitigation strategies will be developed in accordance with federal and state laws, regulations, and guidelines.

Comment 11: The USEPA is concerned about the potential adverse impacts to aquatic resources, including streams, wetland, and floodplains. The Tier One studies do not contain potential impacts to ephemeral streams, nor detailed information for all aquatic resources on habitat values, function, or size.

Response 11: In Tier One, corridors were evaluated at a planning level of detail. Although Tier One considered major environmental factors, more detailed studies were deferred to Tier Two. During the Tier One studies, the following work was completed: identified potential wetlands through the use of existing information and preliminary field investigations; identified streams through the use of existing information and limited field views; took water samples at randomly selected locations to gain background data on streams and water quality; identified the number of potential transverse crossings that may occur as a result of the proposed project; identified flood control dams; and analyzed NFIP maps to evaluate potential impacts on 100-year floodplains. During Tier Two, the following studies will be undertaken: identify and delineate sensitive aquatic habitat; assess eastern slope of Dans Mountain for brook trout populations;

identify watershed boundaries; identify impacts in each watershed; conduct more detailed analysis of potential impacts to water quality and study area wetlands; identify natural and beneficial floodplain values; and conduct hydrology/hydraulic studies to determine potential effects to floodplains.

Comment 12: Please clarify what is meant by modest fill features (page 4-114 of the DEIS) and if these fill features will be placed in stream valleys; please state how large these features may be and how many could be potentially encountered within the corridor.

Response 12: A best fit alignment was developed for each corridor utilizing engineering criteria from WVDOH and MDSHA and information about the region's major environmental features. These preliminary alignments represented only one possible line and grade for a new highway among many possible future roadway alignments. While developing these alignments, it was recognized that construction activities could impact stream valleys, but to what degree will be uncertain until actual alternative alignments are developed during Tier Two. At that point, additional engineering studies will be completed within the preferred corridor(s) that will identify construction limits and the actual impact of fill material on valley streams.

Comment 13: The USEPA would like to see a commitment in the FEIS to study alignment alternatives which avoid valuable resources and incorporate best technologies for natural resource impact avoidance and minimization.

Response 13: Alternative corridors were studied and evaluated during Tier One. Those studies will be continued and refined during Tier Two as potential alternative alignments are developed. As part of the analytic effort in Tier Two, avoidance and minimization options will also be developed. Where impacts remain, mitigation strategies will be developed in accordance with federal and state laws, regulations, and guidelines.

Comment 14: The USEPA has rated the environmental impacts associated with the action alternative corridors as Environmental Objections (EO) and the adequacy of the impacts statement as 2 (Insufficient Information). A rating of EO is the result of significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). A rating of 2 results from insufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the DEIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the FEIS.

Response 14: In Tier One, corridors were evaluated at a planning level of detail. Although Tier One considered major environmental factors, more detailed studies were deferred to Tier Two. A comparison of the Tier One and Tier Two studies is found in the Preface of the EIS. With completion of the additional studies planned for Tier Two, it is anticipated that the environmental document should be elevated to ratings of LO (Lack of Objections) and 1 (Adequate – the EIS adequately sets forth the environmental impact(s) of the preferred corridor and those of the alternatives reasonably available to the project or action).

Comment 15: USEPA remains concerned about possible impacts to environmental justice populations within the study area. Tier One has identified that the potential for environmental justice concerns exist for each of the corridors. Tier Two should consider at-risk populations that are small in number. Additional outreach and data gathering to assure that areas of concern identified in the cursory assessment accurately represent those populations will be needed in Tier Two.

Response 15: The Tier One effort has shown that there is the potential for disproportionate impacts on environmental justice populations. Although positive benefits, including new employment opportunities and improved transportation and connectivity, could offset impacts to minority and low-income populations, additional environmental justice analyses will be undertaken during Tier Two. Per FHWA guidelines, the following activities will be conducted during Tier Two: analyze environmental effects, including human health, economic, and social effects on minority populations and low-income populations when such analysis is required by NEPA; develop mitigation measures to address disproportionately high and adverse environmental effects or proposed actions on minority populations and low-income populations; and provide opportunities for community input, including identifying potential effects and mitigation measures in consultation with affected communities and improve accessibility to public meetings, official documents, and notices to affected communities. As a result, an extensive outreach program will be undertaken early on during the Tier Two process to develop study methodologies and public participation efforts specifically aimed at environmental justice populations. Although mitigation for environmental justice populations (as well as other special populations and important resources) begins with avoidance and minimization strategies, improvements such as parks, pedestrian amenities, and other community-oriented facilities may also be offered as compensation for negative impacts resulting from the project.

Comment 16: It is not clear how impacts to community cohesion will be addressed in Tier Two.

Response 16: The DEIS identified potential impacts to community cohesion within Corridors B, C, and D. Within Corridor B, there could be impacts to community cohesion from Cresaptown to Bel Air, on the west side of Keyser, and south of Keyser. Within Corridor C, there could be impacts to community cohesion from Wiley Ford to Short Gap and in the vicinity of Fountain. Within Corridor D, there could be impacts to community cohesion in the same areas as noted for Corridor B. As the proposed project progresses, Tier Two alternatives will be designed to eliminate or minimize impacts to community cohesion. Close coordination with local officials, residents, community groups, and business owners throughout the design and construction phases of the proposed project would ensure that there are no changes to local traffic conditions that could disrupt future travel patterns, that potential displacements to residences and community facilities are minimized, and that the inherent positive qualities of life in local communities are preserved.

Comment 17: USEPA is concerned about the amount of potential residential and business displacements that are possible for each action corridor.

Response 17: Tier One efforts analyzed socioeconomic data to determine the extent of residential and commercial development in the area. The analysis included preliminary review of settlement patterns, census data, aerial photography, county comprehensive plans, and capital improvements programs. In terms of potential residential and commercial displacements, the intent of the Tier One studies was only to provide a comparative analysis of land use types, not actual displacements. Quantitative analyses will be conducted during Tier Two to identify specific residential and business displacements.

Comment 18: USEPA is concerned about the magnitude of potentially impacted federally and state listed RTE. Of particular concern are the eastern brook trout, shale barren rock cress, wood rat, and Indiana bat. Also of concern is the bald eagle. USEPA remains very concerned about impacts to the Dans Mountain WMA and species that inhabit it.

Response 18: As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required to address potential impacts to RTE species. Foremost among these future studies will be to identify locations of RTE species and their critical habitat; to evaluate potential impacts to RTE habitat; and to develop strategies to avoid, minimize, or mitigate impacts to RTE species. Additionally, specific Dans Mountain avoidance alternatives will be developed as the project progresses.

Comment 19: USEPA is concerned about potential wildlife passages for RTE and non-RTE species.

Response 19: Studies to determine wildlife passages will be included with the analysis of land cover and habitat during Tier Two.

Comment 20: Additional studies and coordination with federal and state agencies will be necessary during Tier Two to identify the extent of potential impacts to aquatic resources. The USEPA is particularly concerned with potential impacts to wetlands because of the nature of the ecoregion in the project area. USEPA is also concerned about the potential impact from Corridors B and D to Pinto Marsh, a Maryland Wetland of Special Concern. The USEPA also requests that an in-depth stream water quality analysis utilizing approved methodologies for stream monitoring, detailed habitat assessments, and benthic macroinvertebrate sampling for perennial, intermittent, and ephemeral streams. Tier Two should also begin to identify stream closure periods.

Response 20: During Tier One, only limited information on aquatic resources was collected, mostly using secondary sources to report potential impacts within the broad study corridors. As alignments are developed in Tier Two, more detailed information on wetlands and stream impacts will be collected and analyzed. Coordination with state and federal resource agencies will continue during Tier Two. Prior to beginning studies of the potential impacts to aquatic resources, the methodologies for the proposed studies will be presented at interagency meetings to assure the proper analyses are being undertaken. As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required. A key component of these future studies will be to develop strategies to avoid, minimize, or mitigate impacts to all important resources. In the case of wetlands, that will specifically include Pinto Marsh.

Comment 21: The selection of any of the action corridors could result in impacts to farmland and agricultural resources. Tier Two should include avoidance and minimization of these resources.

Response 21: During Tier One, farmland investigations were limited to an analysis of soils, land cover, and agricultural preservation/protection areas. Although coordination with local agriculture officials, especially county administrators and NRCS personnel, began in Tier One, additional coordination will be necessary during Tier Two to complete FPPA coordination requirements (including preparation of the appropriate FPPA forms and analyses). To lessen the impacts to land currently in agricultural use, the internal operations of potentially impacted farms will be determined and modifications to the alternatives designed in Tier Two will be considered to avoid or minimize agricultural impacts. During future design activities, efforts will be made to avoid severing access to farmland parcels or creating parcels which are too small to farm. Internal farm roadways may be constructed to allow farm vehicles to travel across project excavation areas to access fields. In areas where a bridge may be located adjacent to cropland or pasture, farm vehicles and livestock would be allowed to travel underneath the bridge/roadway for access to these fields.

Comment 22: If built, the indirect impacts of this project could be significant. A more detailed analysis of potential indirect and cumulative impacts will be necessary during Tier Two. Additional evaluation and discussion of mitigation strategies or controls is needed in Tier Two.

Response 22: The following activities are expected during Tier Two: refine potential impact area for indirect effects; identify potential land use changes and indirect impacts for non-growth areas within the study area; complete additional analyses on potential impacts related to Tier Two alternatives; update identification of all reasonably foreseeable future actions within the study area; complete cumulative effects assessment per CEQ guidelines; and analyze the magnitude and extent of potential cumulative effects within context of the appropriate resource, ecosystem, and human community.

Comment 23: USEPA appreciates coordination efforts to include a large number of government agencies in the planning and development process for this project. USEPA understands that the project is complicated, especially because it spans two states and several federal jurisdictions, but suggests that the coordination improve as the project continues.

Response 23: Coordination efforts to date have been extensive with interagency meetings in both Maryland and West Virginia, preliminary field views, meetings with representatives from individual resource agencies, public meetings, and distribution of draft documents. It is recognized that some coordination efforts have not been successful because of the nature of the tiered process. Better understanding of the project will occur during Tier Two, however, as the project begins to resemble a traditional highway development project.

Comment 24: The USEPA felt that comments on the preliminary DEIS were not addressed.

Response 24: The following information was distributed in an errata sheet to the federal and state review agencies prior to circulation of the DEIS. It provides the comments or questions raised by the USEPA in an email message of November 18, 2010, and the response that was provided at that time. This information was also provided in the FEIS.

> **Comment 24a:** More detailed information is needed about Pinto Marsh and about state listed threatened, rare or endangered species that live there. We recommend avoiding this unique resource as much as possible.
>
> **Response 24a:** DEIS Section 4.3.1.1.2 was revised to include the following: MDNR indicated, however, that Pinto Marsh, a two- to three-acre marshy pond near Cresaptown, is designated as a non-tidal wetland of special state concern and falls within Corridor B. Wetlands like Pinto Marsh receive special state attention because of their value as known habitat for rare, threatened, or endangered species. A breeding record of the state-listed rare sora (*Porzana Carolina*) was previously observed in Pinto Marsh. (The sora is a marsh bird, six to eight inches in length with a wingspan of 12 inches. It is sometimes called the Carolina crake or the sora rail.) Wetlands of special state care are regulated by the Code of Maryland Regulations and afforded certain protections, including a 100-foot buffer from development. As potential habitat for rare, threatened, or endangered species, Pinto Marsh is also one of Allegany County's Sensitive

Areas Elements and is afforded a level of local protection in the county's land development regulations.

Comment 24b: Dans Mountain Management Area is an important natural area that is proposed to be affected by TS-B. While we appreciate that TS-A was dropped from further consideration for potential impacts to Dans Mountain, we suggest that impacts to this area by TS-B be avoided and minimized to the maximum extent practicable. We are also concerned about the eastern brook trout that may have habitat in streams along the eastern face of Dans MT in these areas. We recommend that further coordination and consultation with FWS and other agencies be completed on this issue.

Response 24b: The following was added to the DEIS in the discussion of Corridor B in Chapter 6, Findings and Conclusions: A considerable amount of coordination with the USFWS, MDNR, and MDE will be necessary during Tier Two to analyze and advance actual alternatives that could impact Dans Mountain.

Comment 24c: Coordination and consultation will also be needed for the various other potential impacts to federally and state listed T&E species. We are concerned about the magnitude of potentially impacted species. Of particular concern are the wood rat, and shale barrens rock cress. We defer to the expertise of FWS in this area.

Response 24c: Coordination has occurred and will continue with all resource agencies throughout Tier One and into Tier Two. USFWS is a cooperating agency and MDE, MDNR, WVDNR, and WVDEP are all participating agencies.

Comment 24d: More detailed information is needed for wetlands and streams within each transportation scenario. Further information is needed about the quality of resources within these corridors in order to determine if a particular corridor is environmentally preferable. At this time, we do not feel as though we have enough detailed information to make an informed decision on which transportation scenario should be carried forward to Tier 2.

Response 24d: More detailed studies will occur in Tier Two.

Comment 24e: Steps and decisions that will be taken during Tier 2 should be clarified. We recommend that more than one transportation scenario be carried forward into Tier 2 for more detailed analysis. With the level of information provided in Tier 1, it is difficult to discern the true amount of adverse impact between scenarios. It would be helpful to discuss how much opportunity for avoidance and minimization of impacts to resources exists within each scenario.

Response 24e: The following was added to the DEIS. Preface: Although it is a goal of the project that Tier One leads to the identification of one corridor with the potential to have the fewest environmental impacts, it is possible and, very likely, that more than one corridor may be advanced for additional study. Once potential highway alignments are developed during Tier Two, there will be considerable opportunity for project planners to develop avoidance and minimization strategies addressing potential impacts to cultural, environmental, and socioeconomic resources.

Comment 24f: How frequently are air attainment areas assessed and re-evaluated? The limited air data provided is from 2006. If possible, provide the most up to date air information. Be sure to include all attainment and air quality information beyond ozone and particulate matter, which were included in the draft. In section 4.6.1, it is assumed that mobile source air toxics (MSAT's) will decrease as a result of outside forces, and lower than values were used in analysis. It may be more prudent to use current amounts of MSAT's for analysis; it may give a more accurate representation of worst case scenario. It shouldn't be assumed that outside forces will lower MSATs. We also question the use of CO concentrations as the sole indicator of NAAQS.

Response 24f: Attainment areas were reviewed again and updated with 2008 data, including the other pollutants. The assumption that outside forces could decrease MSATs was deleted from the DEIS. The air quality analysis will be revisited during Tier Two. The statement about CO has been edited to the following: Carbon monoxide (CO) concentrations are often thought to be a good indicator of vehicular-induced pollution on the micro-scale (PennDOT 2008).

Comment 24g: Effects analysis for community facilities and parks and recreational areas only discuss possible positive impacts, without analysis of any possible negative impacts. The document states that impacts will be analyzed in Tier Two; however, we recommend that some level of analysis be included in Tier One. A discussion of facility displacements and loss of park or recreational land should be included.

Response 24g: The following was added to the DEIS Community Facilities effects analysis: Negative impacts could occur to community facilities, as well, especially if community facilities are displaced and not replaced. Negative impacts could also occur if replacements disrupt the use of those facilities, make it difficult for people to use them, or alter community cohesion. Also, a new chapter on Section 4(f) resources was added to the DEIS. As part of that chapter, a qualitative judgment on the probability of avoidance alternatives for these resources is presented. There are a considerable amount of other community facilities within each corridor. Until actual alignments are developed in Tier Two, it will be difficult to determine specific impacts to them.

Comment 24h: Noise analysis was not included in the document. Is noise planned to be addressed in Tier Two. A description of the existing noise environment should be included in the affected environment section. Discussion of potential noise volumes during construction and post-construction should be included. While specific volumes may not be available at this time, a general discussion and inclusion in the document would be beneficial. It is difficult to evaluate noise impacts on potential noise sensitive areas based solely on the quantity. Please include a more detailed description of how noise is being addressed in Tiers One and Two.

Response 24h: A brief noise section was added to the Affected Environment chapter in the DEIS. Very limited work on noise impacts was done during Tier One because actual highway alignments were not developed. Noise analysis was deferred until Tier Two. The Preface includes information on what will be done. That description was expanded to address pre-construction, construction, and post-construction noise levels.

Comment 24i: A discussion of potential environmental mitigation for unavoidable adverse impacts should be included.

Response 24i: Mitigation sections were added for displacements, parks and recreation, cultural resources, wetlands, streams and water quality, floodplains, and RTE.

Comment 24j: More detailed information about proposed interchanges should be included in the conclusions.

Response 24j: Information on the interchanges was added under each corridor conclusion.

Comment 24k: Additional information is needed about the projects connection to Corridor H. It isn't clear where this project is in terms of planning, construction, authorization, planned opening date, capacity, etc.

Response 24k: The first paragraph in Section 2.5.2, Potential Corridor H Interchange was rewritten: Construction is currently underway for Corridor H in the vicinity of the US 220 project’s southern termini. The WVDOH anticipates completion in late 2013. When completed, Corridor H will be opened to traffic from Bismarck (west of the project area) to Wardensville (east of Moorefield). Outside Moorefield, the alignment of Corridor H within the study area traverses a predominantly rural landscape with almost no commercial establishments nearby and few built-up residential areas. Corridor H is being built to similar design and capacity standards as the planned US 220 project discussed in this EIS.

Comment 24l: Clarification is needed for watersheds and subbasins given in Section 3.3.1.2. Subbasins refer to the hydrologic unit code (HUC) 8 size, i.e., North Branch of Potomac and South Branch of Potomac subbasins. Georges, Wills, Evitts, Patterson, and New Creeks all appear to be located within the North and South Branches of the Potomac subbasins. Please keep HUC levels consistent. It would also be helpful to breakdown impacts to streams and wetlands at the subwatershed level. This information would be helpful in assessing potential impacts associated with each scenario.

Response 24l: The watersheds within the sub-basins were clarified by re-writing the introduction to this text as: The study area is located within the Potomac River watershed and the following major sub-basins: North Branch Potomac River in MD and WV; and South Branch Potomac River in WV. Other, smaller watersheds are recognized within each sub-basin, including Georges, Wills, Evitts, Patterson, and New Creek. Also, it was noted in the Preface that impacts to aquatic resources will be calculated for each watershed during Tier Two.

Comment 24m: Cumulative impact section needs to be more in depth. Impacts to affected resources should be considered, in addition to listing what other projects are in the area.

Response 24m: There was an extensive re-write of this section in the DEIS utilizing USACE methodology for analyzing cumulative effects.

Comment 24n: Section 4.8.2.3 says that cumulative impacts are expected to accrue at a comparable existing trend and likely to be absorbed by development. Please clarify what this statement was intended to imply. It seems to be suggesting that cumulative effects are minimal or that they do not warrant mitigation. Without the proper cumulative effects analysis conducted it should not be stated that cumulative effects are minimal.

Response 24n: This section was re-written to clarify significance and mitigation efforts. A complete cumulative effects assessment will be conducted concurrent with the development of a Tier Two EIS.

Comment 24o: Section 4.11.2 Construction Effects Analysis needs more detail. How long is the construction period expected to be, will the project be completed in sections, how long are temporary construction impacts expected for local residents? Clarify what information will be provided in Tier 2, for example road and traffic closures, staging areas, erosion and sediment controls, disposal of road cut waste, air/fugitive dust, etc. Impacts from construction should be evaluated in the environmental consequences section by resource.

Response 24o: Added the following to the first part of the impact analysis, Section 4.11.2: The project will take at least two construction seasons to complete. With an expected length of approximately 34 to 45 miles, several construction contracts will be let. Design phase partnering will be conducted during final design and construction.

Also copied the impacts from this section and added them to the appropriate resource (regional and local economy, streams and water quality, air quality, noise, and potentially contaminated sites. Also, added a mitigation section (4.11.3) that answers the other items raised in this comment.

Comment 24p: Section 4.1.3.2 Environmental Justice Effects analysis needs more detail and some clarification. There is no relationship between the size of the EJ community/impacted population and the existence of an EJ concern. Many times at-risk populations are small in number. This information should be reflected in the document. Maps outlining the location of at-risk populations in the study area, as well as tables that include screening thresholds, census tract percentages and block group percentages for minority and low-income populations should be included. The EJ assessment should take into consideration the localization of impacts, proximity to population, multiple impacts, displacements, hazards such as fugitive dust, and any other potentially adverse impacts that may affect populations of concern. Information should be provided to discuss how potential for adverse impacts would be evaluated.

Response 24p: Although there is no map in the DEIS (Figure 4-4 shows the block groups that were used in the environmental justice analysis, not specific locations of where these populations may live), the other information is included in Tables 4.1.2 through 4.1.6. These tables provide information on the number of environmental justice populations in each of the five study area counties and the area's two major cities. Utilizing the screening method, block group information is compared to county or city averages to determine where environmental justice populations may be. This is done by aggregating the potentially impacted block groups in a county or city and comparing it with the whole county where it is located. The results indicated that there are environmental justice populations present at levels higher than the county averages. This is definitely a broad brush technique, but we conclude that there could be a disproportionate effect on those populations and indicate that more analysis is necessary in Tier Two. At this stage of the process, without actual highway alignments, further analysis could pinpoint block groups where environmental justice populations live, but the conclusions would be the same. Potential environmental justice impacts are recognized as a concern and additional analysis is suggested, but we are deferring that analysis until later when we have a better idea on alignment alternatives and current data (the 2010 Census information) that could be presented to residents, social service agencies, church and school groups, and other community-based organizations. We also committed to extensive outreach in Tier Two with the following text (the last sentence of the section): "Additionally, because the Tier One effort has shown that there is the potential for disproportionate impacts on environmental justice populations within any of the corridors, an extensive outreach program will be developed early during the Tier Two process."

Comment 24q: Consider the possible need to translate documentation into other languages.

Response 24q: Although this in not noted in the DEIS, the census/block group data for "linguistically isolated populations" were analyzed and a very small number (it was almost non-existent) of responses were identified. Consequently, there appears to be little or no benefit to translating the document into another language. Also, while the Census data showed a small number of Hispanic/Latino populations, the amount still seemed too low at this stage of the process to translate the document into Spanish, the most likely possible translation. We can supply these data to you. As further analysis is completed in Tier Two, we may find a need for translations later.

Comment 24r: Potential benefits to minority and low income populations should also be discussed. Table ES-2 indicates that there is a potential for impacts that may be of EJ concern. Explain what these concerns are and who may be adversely impacted by them and why.

Response 24r: The row on environmental impacts was split into two, minority populations and low-income populations; also, the county or city where the impact was expected was noted in the columns.

Comment 24s: It should also be noted that data used in the assessment is now ten years old, and may not be representative of current populations. Additional outreach and data gathering to assure that areas of concern identified by cursory assessment accurately represent those populations.

Response 24s: A commitment was made to conduct a new analysis when the 2010 Census data are released.

USDOI (October 31, 2011)

Combined comments for agencies within the USDOI were submitted. Comments from the USFWS, USGS, and NPS were included in the combined comment letter. Those comments are addressed by agency.

USFWS (October 31, 2011)

Comment 25: The USFWS has previously identified several species of concern that may occur within the study area. These include the bald eagle, the Indian bat, the Virginia big-eared bat, migratory birds, the eastern brook trout, and the Virginia spiraea. Continued coordination will be required with the USFWS. The USFWS may recommend a detailed assessment of Indiana bat summer habitats, avoidance of areas of highly-suitable habitat, mist net surveys, seasonal restrictions of timber clearing, or some combination of these measures. Surveys of the final corridors to identify caves and abandoned mining portals will also be necessary.

Response 25: Coordination with state and federal resource agencies will continue during Tier Two. Prior to beginning studies of the potential impacts to rare, threatened, or endangered species, the methodologies for the proposed studies will be presented at interagency meetings to assure the proper analyses are being undertaken. As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required. A key component of these future studies will be to develop strategies to avoid, minimize, or mitigate impacts to all important resources.

Comment 26: The USFWS encourages project sponsors to work with the state and federal resource agencies to identify all wetlands and streams that may be impacted by the project; to avoid and minimize impacts to these habitats to the maximum extent practicable; and to mitigate appropriately for any unavoidable wetland impacts. The USFWS recommends development of a compensatory mitigation plan to identify all on-site and off-site mitigation.

Response 26: During Tier One, only limited information on aquatic resources was collected. Coordination with state and federal resource agencies will continue during Tier Two. Prior to beginning studies of the potential impacts to aquatic resources, the methodologies for the proposed studies will be presented at interagency meetings to assure the proper analyses are being undertaken. A key component of these future studies will be to develop strategies to avoid, minimize, or mitigate impacts to all important resources.

<u>USGS (October 31, 2011)</u>

Comment 27: The USGS suggests utilizing the *USGS Breeding Bird Survey* and its representative list of birds in the study area to analyze likely effects of the project on trends in the status of avian species.

Response 27: During Tier Two, the *USGS Breeding Bird Survey* and the USGS representative list of birds in the study area will be used to analyze the effects of the project on avian species.

<u>NPS (October 31, 2011)</u>

Comment 28: In a letter from September 24, 2010, the NPS presented several issues with potential impacts from Corridor C on the Chesapeake and Ohio Canal National Historical Park, the WMRR, the Potomac Heritage National Scenic Trail, and the Mexico Farms area. Corridor C would negatively impact all of these resources.

Response 28: Corridor C is not being carried forward in Tier Two.

Comment 29: The NPS asks for clarification on the estimated construction costs of the project.

Response 29: Preliminary cost estimates were presented in the DEIS to represent alignment costs, interchange costs, and combined alignment and interchange costs. The construction cost estimates were developed using unit costs from similar type projects based on the typical sections. The construction cost estimates do not include utility relocation, right-of-way acquisition, engineering, or environmental study costs. Nor do they include future maintenance costs. Utilizing current information, an alignment in Corridor B could cost between $482 million and $500 million; an alignment in Corridor C could cost at least $651 million; and, an alignment in Corridor D could cost between $630 million and $648 million. These estimates would include interchanges on I-68 and Corridor H. It is important to note, however, that more detailed cost estimates will not be available until Tier Two studies begin.

Comment 30: The NPS is concerned about possible negative economic impacts to the area as a result of potential loss of parkland as a result of carrying Corridor C forward.

Response 30: Corridor C is not being carried forward in Tier Two.

Comment 31: The DEIS indicated that a mid-nineteenth and early twentieth century canal tunnel, lockhouse, and boat-building and repair yard can be found in Corridor D. The NPS believes that the C&O Canal was the only canal within the project area and asks for additional information on this potential resource.

Response 31: The C&O Canal is the only canal found within the project area. Following the preparation of the DEIS, some errors were discovered in the database used for the archaeological analysis. Although they were not significant and did not affect the results of the archaeology predictive model, some of the potential archaeological resources listed for the corridors are located elsewhere in the project area, including the mid-nineteenth and early twentieth century canal tunnel, lockhouse, and boat-building and repair yard. The text has been corrected in the FEIS.

Comment 32: The NPS is concerned about the potential impact of Corridor C on the Mexico Farms area. The NPS believes that it would be impossible to develop future highway alignments through this area that avoid the Chesapeake & Ohio Canal National Historical Park, the North Branch Industrial Park, the federal prison, an Allegheny power generation plant, a FEMA Distribution Center, the Mexico Farms Airstrip, and/or the Cumberland Airport.

Response 32: Corridor C is not being carried forward in Tier Two.

Comment 33: The NPS asks that a copy of its September 24, 2010, letter on the project be included in the FEIS.

Response 33: The letter was in response to a preliminary DEIS and the comments and concerns listed in it were addressed in the DEIS that was distributed to the public. None of the agency letters received on the preliminary DEIS were included in the DEIS, but in retrospect should have been. The NPS letter and similar correspondence received from the USEPA and MDP will be included in the appendix of the FEIS.

Comment 34: The NPS is unclear on the intent of a proposed MOA for Tier Two (page P-7 of the DEIS).

Response 34: The MOA will be developed during Tier Two to address adverse effects to any significant cultural resources identified during the detailed studies. It will include all resources adversely impacted by the project.

Comment 35: The Tier One DEIS infers impacts to the Chesapeake and Ohio Canal National Historical Park will be analyzed in Tier Two.

Response 35: Corridor C will not be carried into Tier Two and, consequently, there would not be any impacts to the Chesapeake and Ohio Canal National Historical Park as a result of the project.

Comment 36: The proposed MOA is also mentioned on page P-11, *Unresolved Issues*. The NPS believes that this statement is inappropriate because it presumes that Corridor C will be carried into Tier Two.

Response 36: Corridor C was carried through the detailed analysis stage of Tier One and was not recommended for dismissal until the conclusion of the study. As a result of the Tier One findings and conclusions, Corridor C will not be carried into Tier Two. The wording on P. 11 has been changed in the FEIS.

Comment 37: The Chesapeake and Ohio Canal National Historical Park is a Section 4(f) resource and Corridor C has the potential for irreversibly and irretrievably impacting the Park.

Response 37: Corridor C will not be carried into Tier Two.

Comment 38: During the public hearing, a project engineer suggested that an alternative corridor other than Corridors B, C, or D may be carried into Tier Two. The NPS notes that it would be inappropriate for project sponsors to act on any new alternatives without public review.

Response 38: Tier One will conclude with the selection of a preferred corridor and a wide range of alternative alignments within the recommended corridor will be investigated during Tier Two. Public participation and agency coordination is an important part of the process to develop those alignments. A complete public and agency participation plan will be developed during the early stages of Tier Two. An integral part of that process will be the presentation of potential alternative alignments. No new corridors or specific alignments will be approved without agency and public participation.

Comment 39: The NPS is concerned that the suggested mitigation efforts identified in the DEIS are insufficient for the Chesapeake and Ohio Canal National Historical Park, a historic and recreational resource of national significance.

Response 39: Mitigation activities listed are considered preliminary suggestions and will be expanded in Tier Two if the resources are potentially impacted. Corridor C will not be carried into Tier Two. Thus, there will be no impacts to the Chesapeake and Ohio Canal National Historical Park.

Comment 40: The NPS believes that section 4-12 of the DEIS, *Irretrievable and Irreversible Commitment of Resources*, implies the loss of resources will affect fewer people than not developing the project. The NPS asks that this section be modified. This comment was on the preliminary DEIS.

Response 40: The intent of this section is to note that construction of the proposed project would require a commitment of resources and that it could involve the irretrievable use of wetlands, floodplains, cultural resources, and other natural resources. The section was re-written to clarify its meaning.

Comment 41: In terms of the same section as noted in the previous comment, the NPS does not believe that the expenditure of funds should be noted as an irreversible commitment of resources.

Response 41: The discussion on the expenditure of funds provided in this section of the preliminary DEIS was removed from the DEIS and the FEIS.

Comment 42: The NPS notes that the Western Maryland Rail Trail does not extend as far west as the project area, but there are plans to extend it further west.

Response 42: Much of the information used in the development of the DEIS was provided by other agencies. In terms of trails, both existing and planned trails were shown when that information was made available.

Comment 43: Page 4-26 of the DEIS noted that information on NPS resources was collected from agencies in West Virginia. There is no mention of NPS data from Maryland agencies.

Response 43: Information on NPS resources was collected from a variety of sources, including the NPS itself, other federal agencies, and state agencies in both West Virginia and Maryland. We agree that the discussion in the DEIS failed to make that clear. It has been revised in the FEIS.

Comment 44: The NPS asked why some information from the DEIS was not summarized in the public meeting brochure.

Response 44: The DEIS was posted on both the MDSHA and WVDOH websites and hard copies placed in local libraries and municipal buildings throughout the project area. Copies of the DEIS were also made available at the public hearing and related public meetings. Any person requesting a hard copy of the DEIS has been provided one at no charge. The project brochure was distributed by mail prior to the public hearing and made available to every attendee at the public hearing and at two related public meetings held in West Virginia. Many copies of the brochure were also mailed subsequent to the public hearing. Information from the DEIS was summarized in the brochure to make it more readable for the general public. The decision on what information to portray in the brochure was based on past experience with public involvement.

Comment 45: The NPS is concerned that project staff indicated that the width of right-of-way potentially needed for a highway alignment could be 500 feet, but the DEIS states that future right-of-way width would generally be 300 feet.

Response 45: Both statements are correct, but the DEIS also states that the actual width of land needed to construct the project will not be known until detailed alternatives are developed in Tier Two.

Comment 46: The NPS is concerned that some testimony presented at the public hearing suggested that with additional analysis an alignment could be developed within Corridor C that avoids the industrial facilities located in the Mexico Farms area.

Response 46: Corridor C will not be carried into Tier Two.

<u>MDE (October 28, 2011)</u>

Comment 47: The State of Maryland has continued concerns regarding the project's impact to Dans Mountain WMA and Pinto Marsh. Dans Mountain WMA is a Section 4(f) resource protected by the *U.S. Department of Transportation Act of 1966* and Pinto Marsh has been designated by the State of Maryland as a National Wetland of Special State Concern. Corridors B and D have the potential to impact both of these resources.

Response 47: The project team recognizes the importance of these resources. As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two to develop strategies to avoid, minimize, or mitigate impacts to Dans Mountain and Pinto Marsh.

Comment 48: The MDE requests that consideration of a Modified Corridor C, utilizing the southern portion of the corridor, but not the northern, be retained to allow additional opportunities for future alternatives that avoid Dans Mountain and Pinto Marsh.

Response 48: Crossover corridors similar to what the MDE is suggesting were first examined early in the alternatives analysis phase of Tier One. At that time, it was determined that they would require additional earthwork to cross the steep terrain, require additional access roads to serve travelers, and create additional environmental impacts through heavily forested areas. Consequently, they were dropped from further consideration.

Crossover corridors were also examined after the DEIS was distributed to the public and agencies. New information about the Knobley Ridge aquifer increases the potential impact from possible alternatives within Corridor C. The aquifer and its relationship to Corridors B, C, and D are shown on Figure 7-1. West Virginia University is currently studying the qualitative and quantitative aspects of the aquifer on behalf of Mineral County. Consequently, Corridor C is being dropped from further consideration in its entirety. An analysis of crossover corridors is found in Section 2.8.3 and Appendix G of the FEIS.

MDNR (November 21, 2011)

Comment 49: The MDNR recommends that multiple corridors, in addition to the No Action alternative, be retained for study in Tier Two.

Response 49: Corridor B with the possibility of using the northern spur of Corridor D as an I-68 terminus was identified as the preferred corridor and is being advanced as the only corridor for many reasons. In terms of the socioeconomic environment, the preferred corridor would reduce traffic congestion and improve safety greater than Corridor C and equal to Corridor D. Because it is located in the study area's most densely developed area, the preferred corridor supports existing economic development efforts better than Corridor C and as well as Corridor D. It is also within a PFA (in Maryland), and has municipal infrastructure in place (in both Maryland and West Virginia). In terms of cultural resources, the preferred corridor has the least land with very high and high archaeological potential and the fewest NRHP-listed and NRHP-eligible resources. In terms of the natural environment, the preferred corridor has the least amount of wetland acreage, the fewest linear feet of streams, the least amount of terrestrial habitat, and the lowest potential to encounter RTE species. Of primary concern, however, is the fact that the preferred corridor would impact the Dans Mountain WMA and Pinto Marsh.

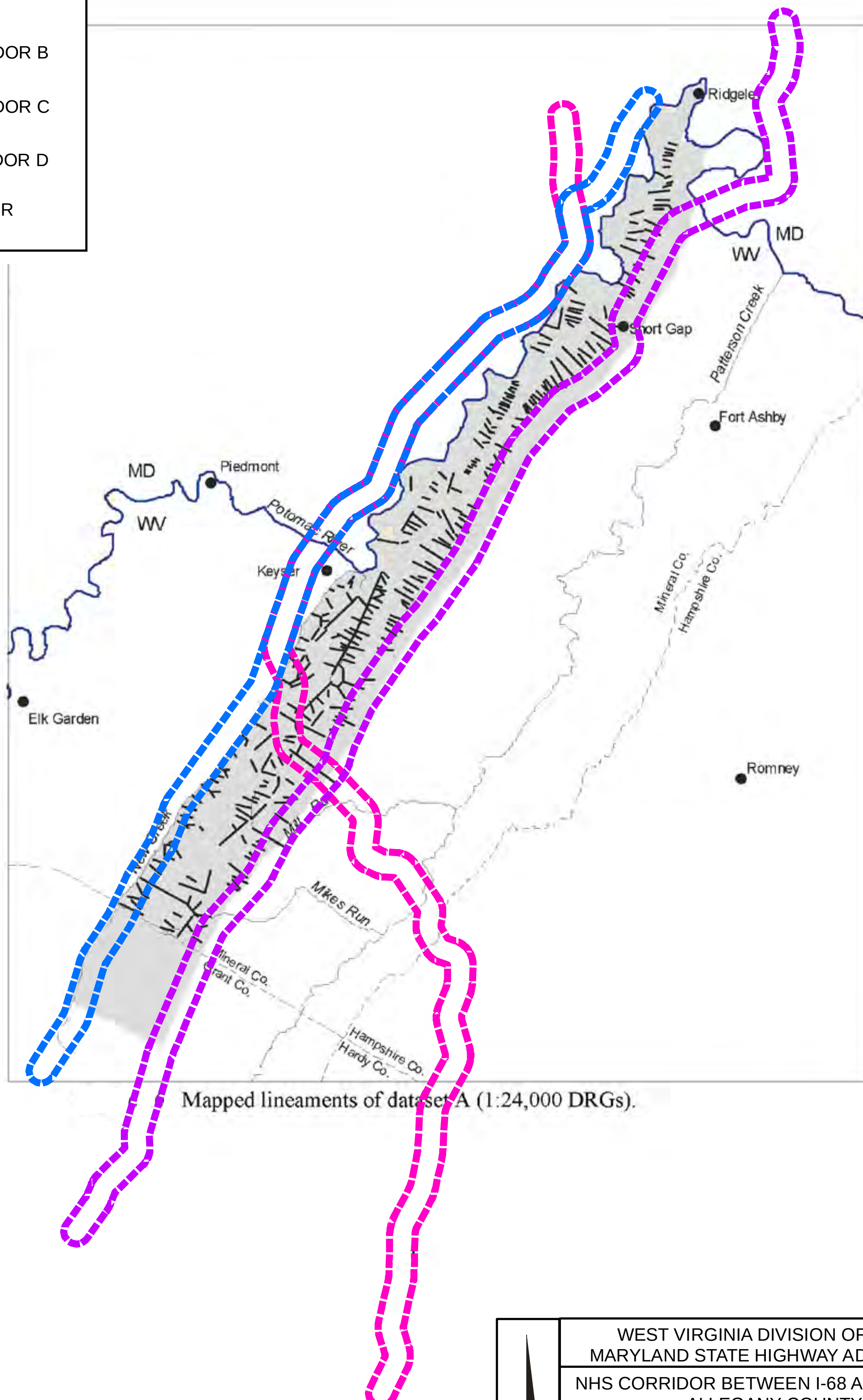
Legend

CORRIDOR B

CORRIDOR C

CORRIDOR D

AQUIFER



Mapped lineaments of dataset A (1:24,000 DRGs).

SOURCE: WVU 2011

0 — 9 km

0 — 5 mi. — 10 mi.

WEST VIRGINIA DIVISION OF HIGHWAYS
MARYLAND STATE HIGHWAY ADMINISTRATION

NHS CORRIDOR BETWEEN I-68 AND CORRIDOR H
ALLEGANY COUNTY, MD
GRANT, HAMPSHIRE, HARDY, AND
MINERAL COUNTIES, WV

KNOBLEY MOUNTAIN AQUIFER

FIGURE - 7-1

Comment 50: The MDNR supports the decisions to drop Corridors A and E from consideration.

Response 50: No response is necessary.

Comment 51: The DEIS accurately reflects the issues and concerns that been raised regarding the potential impact to the Dans Mountain WMA.

Response 51: No response is necessary.

Comment 52: The reference to Dans Mountain State Park being located within Dans Mountain WMA is incorrect. The park is a separate MDNR landholding located near the WMA. The acreage for the WMA is 9,600. Swimming facilities are found at the State Park, not within the WMA.

Response 52: Text within the FEIS has been corrected.

Comment 53: The MDNR recommends that all streams along the eastern slope of Dans Mountain be sampled for brook trout populations during Tier Two.

Response 53: As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required to address potential impacts to species of special concern. Foremost among these future studies will be to identify locations of these species and their critical habitat; to evaluate potential impacts to habitat, and to develop strategies to avoid, minimize, or mitigate impacts. Specifically, during Tier Two, the following studies will be undertaken: identify and delineate sensitive aquatic habitat; assess the eastern slope of Dans Mountain for brook trout populations; identify watershed boundaries; identify impacts in each watershed; conduct more detailed analysis of potential impacts to water quality and study area wetlands; identify natural and beneficial floodplain values; and conduct hydrology/hydraulic studies to determine potential effects to floodplains.

Comment 54: Corridors B and D could impact Pinto Marsh. More information about this resource should be included in Tier Two. Additionally, the MDNR encourages avoidance of Pinto Marsh.

Response 54: Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required. A key component of these future studies will be to develop strategies to avoid, minimize, or mitigate impacts to all important resources. In the case of wetlands, that will specifically include Pinto Marsh.

Comment 55: The MDNR is concerned about the potential impacts to federally and state listed RTE species. Additional coordination will be required during Tier Two to avoid and minimize impacts to RTE species.

Response 55: As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required to address potential impacts to RTE species. Foremost among these future studies will be to identify locations of RTE species and their critical habitat; to evaluate potential impacts to RTE habitat, and to develop strategies to avoid, minimize, or mitigate impacts to RTE species.

Comment 56: Depending on the specific location of a proposed I-68 interchange, the project has the potential to impact several RTE species and sensitive habitats. It also has the potential to impact a wildlife travel corridor between I-68 mile markers 34 and 42.

Response 56: Early consultation with each resource agency will be conducted with the initiation of Tier Two to determine what specific activities, investigations, and/or studies may be required to address potential impacts to RTE species. Additionally, studies to determine wildlife passages including the use of green infrastructure will be included with the analysis of land cover and habitat during Tier Two.

MDP (November 1, 2010 and July 26, 2011)

Comment 57: MDP serves as the intergovernmental review and coordination agency for Maryland and forwarded the DEIS to several state agencies.

Response 57: No response is necessary.

Comment 58: Maryland cannot fund growth-related capital projects outside PFAs. Specific compliance with the PFA law may have to be deferred until Tier Two because specific highway alignments were not developed during Tier One.

Response 58: There was considerable coordination with local planners during Tier One to assure that the project was consistent with local, state, and federal plans, including policies and programs related to smart growth. The location of corridors within PFAs was used as one selection criterion in the development of a recommended preferred corridor. Coordination with MDP will continue during Tier Two to assure compliance with the PFA law. The transportation study team will also continue coordinating with local jurisdictions to address transportation and land use strategies that support planned development and smart growth policies.

Comment 59: MDP suggested that Table 4.8-1, and related text, be changed to indicate that Interchanges 1, 2, 3, and 6 are partially within a PFA, not entirely within one.

Response 59: The table and text have been changed in the FEIS.

WVDEP (July 26, 2011)

Comment 60: NAAQS status may be updated by including the 2006 $PM_{2.5}$ standards. The project is located in counties which are designated attainment for all transportation relevant pollutants.

Response 60: The FEIS has been updated.

Comment 61: The project is located in counties which are designated attainment for all transportation pollutants.

Response 61: No response is necessary.

Comment 62: The low design year AADT appears to obviate any need for more detailed air quality analyses at this time.

Response 62: No response is necessary.

Comment 63: If it is necessary to burn land clearing debris in order to complete the project, approval by the WVDEP Secretary, or authorized representative, is required.

Response 63: Specific language will be inserted in the Tier Two environmental document and subsequent construction contract documents.

Comment 64: If the project entails the renovation, remodeling, or demolition of a structure, building or installation, a formal Notification of Abatement, Demolition, or Renovation must be filed with the WVDEP Secretary's authorized representative and approved before commencement of activities addressed in the Notification.

Response 64: Specific language will be inserted in the Tier Two environmental document and subsequent construction contract documents.

Comment 65: If the project involves demolition, and/or excavation and transportation of soil/aggregates or the handling of materials that can cause dust emissions or entrainment or creation of objectionable odors, adequate air pollution control measures must be applied.

Response 65: Specific language will be inserted in the Tier Two environmental document and subsequent construction contract documents.

<u>WVDNR (September 7, 2011)</u>

Comment 66: Noted that the DEIS is a Tier One analysis and the agency will be deferring comments until Tier Two.

Response 66: No response is necessary.

Archaeological Society of Maryland (September 19, 2011, and October 14, 2011)

Comment 67: Based on comments made at the public hearing is concerned not enough preliminary archaeological work was conducted on the project.

Response 67: A considerable amount of archaeological work was completed in support of the project, primarily through the development of pre-contact and historic period archaeological resource sensitivity maps and use of a predictive model. The US 220 predictive surfaces were constructed using easily available or created digital layers within the GIS. The GIS is a computer-based set of tools developed to acquire, compile, manage, analyze, manipulate, retrieve, and present geo-referenced spatial data sets traditionally represented on maps. Employing the GIS, these data sets can be compared, analyzed, and integrated in order to produce new information. The coded and digitized GIS data sets were utilized to assess the potential for the occurrence and preservation of pre-contact and historic period archaeological resources within the US 220 predictive surfaces study area. Based on the archaeological evidence and predictive surface, it is recommended that once Tier Two begins, a complete Phase I archaeological survey for pre-contact and historic period archaeological resources be performed on the preferred corridor in order to identify archaeological sites and their potential eligibility for listing in the NRHP.

Comment 68: Corridor B could impact the Barton Site, an important archaeological resource.

Response 68: Once Tier Two begins, a complete Phase I archaeological survey for pre-contact and historic period archaeological resources will be performed on the preferred corridor in order to identify archaeological sites and their potential eligibility for listing in the NRHP. Mitigation measures for archaeological resources will be developed through a MOA between MDSHA, WVDOH, the Maryland SHPO, and the West Virginia SHPO.

Short Gap VFD (September 23, 2011)

Comment 69: Members of the Short Gap Community believe Corridor C would be a detriment to Mineral County and the quality of life within their community.

Response 69: Corridor C has been dropped from further consideration and will not be carried forward into Tier Two.

Mineral County Development Authority (October 13, 2011)

Comment 70: Recommends Corridor B as the preferred alternative.

Response 70: Corridor B is being carried forward into Tier Two.

Comment 71: Believes that Corridors C and D have significant negatives for future economic development.

Response 71: Corridor C and major portions of Corridor D have been dropped from further consideration and will not be carried forward into Tier Two. In terms of Corridor D, only the northern spur connecting Corridor B to I-68 in Maryland will be carried into Tier Two, although WVDOH recommends that a connection in Hardy County to Appalachian Corridor H, utilizing a system upgrade of existing roadways and avoiding the historic Old Fields area, be advanced as a separate project.

Mineral County Chamber of Commerce (October 12, 2011)

Comment 72: Recommends Corridor B as the preferred alternative.

Response 72: Corridor B is being carried forward into Tier Two.

County Commission of Mineral County (October 12, 2011)

Comment 73: Recommends Corridor B as the preferred alternative.

Response 73: Corridor B is being carried forward into Tier Two.

Comment 74: Notes that there is strong community opposition to Corridor C because of its potential impact to the local community and the Knobley Ridge aquifer.

Response 74: Approximately 11 percent of all comments and about 30 percent of comments received from the Short Gap meeting specifically raised concern about potential impacts to the Knobley Ridge aquifer, groundwater, or water quality. Also, approximately 1,300 people from Short Gap and the surrounding area signed a petition opposing Corridor C that specifically listed impacts to the Knobley Ridge aquifer as one of the major reasons for their opposition. Corridor C has been dropped from further consideration and will not be carried forward into Tier Two.

Gary G. Howell, WV House of Delegates (October 19, 2011)

Comment 75: Provided comments sent to his office from citizens within his legislative district.

Response 75: All citizen comments, including those sent to Mr. Howell, are addressed in the next section.

Margaret Staggers, WV House of Delegates (January 1, 2012)

Comment 76: Corridor C would greatly disturb the quiet country community that lies within the surrounding area.

Response 76: Corridor C has been dropped from further consideration and will not be carried forward into Tier Two.

Comment 77: Believes that options that position the proposed highway in the Potomac and New Creek Valleys would better serve the citizens of the area.

Response 77: Corridor B falls within the New Creek Valley and is being carried forward into Tier Two.

7.6.2 Supplemental Agency Comments

Subsequent to providing comments on the DEIS, both the USEPA and MDNR submitted additional correspondence on the project, including a letter from the USEPA dated January 2, 2013, a follow-up email message from the USEPA dated April 3, 2013, and an email message from the MDNR dated March 20, 2013. The following responses to that correspondence were developed. Copies of the actual comment letters are found in Appendix D. The date of the relevant agency correspondence is noted in parenthesis.

USEPA (January 2, 2013)

Comment 78: The USEPA supports retaining one or more crossover options for more detailed analysis in Tier Two.

Response 78: Crossover corridors were first examined early in the alternatives analysis phase of Tier One. At that time, it was determined that they would require additional earthwork to cross the steep terrain, require additional access roads to serve travelers, and create additional environmental impacts through heavily forested areas. Consequently, they were dropped from further consideration.

Crossover corridors were also examined after the DEIS was distributed to the public and agencies. New information about the Knobley Ridge aquifer increases the potential impact from possible alternatives within Corridor C. The aquifer and its relationship to Corridors B, C, and D are shown on Figure 7-1. West Virginia University is currently studying the qualitative and quantitative aspects of the aquifer on behalf of Mineral County. Consequently, Corridor C is being dropped from further consideration in its entirety, including any connection to a crossover option. An analysis of crossover corridors is found in Section 2.8.3 and Appendix G of the FEIS.

Comment 79: The USEPA encourages that more than one corridor be carried into Tier Two.

Response 79: Corridor B with the possibility of using the northern spur of Corridor D as an I-68 terminus was identified as the preferred corridor as is being advanced as the only corridor for many reasons. In terms of the socioeconomic environment, the preferred corridor would reduce traffic congestion and improve safety greater than Corridor C and equal to Corridor D. Because it is located in the study area's most densely developed area, the preferred corridor supports existing economic development efforts better than Corridor C and as well as Corridor D. It is also within a PFA (in Maryland), and has municipal infrastructure in place (in both Maryland and West Virginia). In terms of cultural resources, the preferred corridor has the least land with very high and high archaeological potential and the fewest NRHP-listed and NRHP-eligible resources. In terms of the natural environment, the preferred corridor has the least amount of wetland acreage, the fewest linear feet of streams, the least amount of terrestrial habitat, and the lowest potential to encounter RTE species. Of primary concern, however, is the fact that the preferred corridor would impact the Dans Mountain WMA and Pinto Marsh.

Comment 80: The upgrade of existing roads was not an alternative corridor that was evaluated and retained for the detailed study in the Tier One DEIS. It is not clear how the recently proposed upgrade of existing US 220 only in West Virginia would meet the project's stated purpose and need, nor is it clear why an upgrade of existing roads, including US 220 in Maryland, is not feasible if upgrading in West Virginia is. EPA would recommend that an upgrade of existing roadways throughout the entire corridor be carried forward.

Response 80: The recommendation that a system upgrade for US 220 by WVDOH has been clarified in Chapter 6 of the FEIS and should be considered as a related separate future project. Several alternatives will be developed and analyzed during Tier Two within the preferred corridor, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments.

Comment 81: EPA requests another project meeting with all of the involved resource agencies prior to release of the FEIS.

Response 81: A meeting will be scheduled and a pre-draft FEIS distributed to the resources agencies.

<u>USEPA (April 3, 2013)</u>

Comment 82: USEPA asks that more information on the crossover corridors be provided.

Response 82: Crossover corridors were first examined early in the alternatives analysis phase of Tier One and a discussion of that early work was included in the DEIS. Crossover corridors were examined further after the DEIS was distributed to the public and agencies. That additional information is found in Section 2.8.3 and Appendix G of the FEIS.

Comment 83: USEPA is concerned that there are many sensitive environmental areas within Corridor B and it may not be possible to develop viable highway alignments within it during Tier

Two. Given the apparent constraints in Corridor B, USEPA is recommending that portions of Corridor C or the crossover options should be carried into Tier Two.

Response 83: Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources. It is thoroughly understood that there are significant environmental resources within the preferred corridor, resources that will require considerable stewardship and enhancement measures as the proposed project progresses to Tier Two.

Also, there is strong community opposition to Corridor C because of its potential impact to the local community and the Knobley Ridge aquifer. Approximately 11 percent of all comments and about 30 percent of comments received from the Short Gap meeting specifically raised concern about potential impacts to the Knobley Ridge aquifer, groundwater, or water quality. Also, approximately 1,300 people from Short Gap and the surrounding area signed a petition opposing Corridor C that specifically listed impacts to the Knobley Ridge aquifer as one of the major reasons for their opposition.

Comment 84: USEPA is concerned that an upgrade of existing US 220 is not included to be retained into Tier Two.

Response 84: Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. Additional text has been added to Chapter 6 of the FEIS to clarify this.

Comment 85: USEPA is concerned that there are numerous RTE species and associated habitats within or directly adjacent to Corridor B that could be adversely impacted by the proposed action.

Response 85: Several alternatives will be developed and analyzed during Tier Two within the preferred corridor, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. As project planning activities continue, interagency meetings will be held to assist in providing direction for the project. Early consultation with each resource agency will be conducted with the initiation of Tier Two. This will aid in determining what specific activities, investigations, and/or studies may be required to address potential impacts to species of special concern. Foremost among these future studies will be to identify locations of these species and their critical habitat; to evaluate potential impacts to habitat, and to develop strategies to avoid, minimize, or mitigate impacts.

MDNR (March 20, 2013)

Comment 86: The process being followed for the development of the EIS has been less transparent and provided less interaction than the typical MDSHA project.

Response 86: WVDOH is the lead agency for the project and the interagency coordination efforts are different than the process that has been developed in Maryland. While there is significant coordination with the resource agencies for West Virginia projects, coordination is generally focused on key schedule points, such as scoping and document review.

Comment 87: It was MDNR's impression that the results of the crossover analysis would be provided to the resource agencies for review before the final EIS was released.

Response 87: A draft version of the FEIS will be circulated among the resource agencies for review and comment before it is released to the public. The draft includes additional information on the crossover analysis in Chapter 2 and Appendix G.

Comment 88: Three optional locations for crossovers were provided to MDSHA for analysis.

Response 88: Crossover corridors were first examined early in the alternatives analysis phase of Tier One and a discussion of that early work was included in the DEIS. Crossover corridors were examined further after the DEIS was distributed to the public and agencies. That additional information is found in Section 2.8.3 and Appendix G of the FEIS. The crossover corridors are being dropped from further consideration, however, for environmental and engineering reasons, but also because there is strong community opposition to the use of Corridor C and its potential impact to the local community and the Knobley Ridge aquifer. Approximately 11 percent of all comments and about 30 percent of comments received from the Short Gap meeting specifically raised concern about potential impacts to the Knobley Ridge aquifer, groundwater, or water quality. Also, approximately 1,300 people from Short Gap and the surrounding area signed a petition that specifically listed impacts to the Knobley Ridge aquifer as one of the major reasons for their opposition.

Comment 89: MDNR continues to believe that Corridor B holds great potential to result in significant adverse environmental impacts to Pinto Marsh, Dans Mountain WMA, and several state listed rare, threatened, and endangered species of concern, including the Wood Rat, rock cress, shale barrens, and Indiana Bat. This concern is underscored by apprehension that alignment alternatives will be limited to locations only within the 4,000-foot corridor studied during Tier One. MDNR's analysis of the corridor suggests that an alignment cannot be established within Corridor B without impact to Section 4(f) resources.

Response 89: No Section 4(f) resource can be taken for transportation purposes until the FHWA has determined, after rigorous exploration and objective evaluation, that alternative actions avoid the use of those properties, or that there is no feasible or prudent alternative to the use of those properties, and that all possible planning has been done to minimize harm to Section 4(f) properties. Several alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and highways throughout the corridor, transportation systems management strategies, and potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources. It is thoroughly understood that there are significant environmental resources within the preferred corridor, resources that will require considerable stewardship and enhancement measures as the proposed project progresses to Tier Two.

7.6.3 Citizen Comments

Citizens submitted comments through comment cards, letters, email messages, and special web-based forms. A total of 422 comment sheets were submitted. Some comment cards, letters, and email messages were signed by more than one person, bringing the total number of individuals using comment cards, letters, email messages, or the project websites to 473.

Most comments expressed opposition to specific corridors or to the project. Nearly 300 people expressed opposition to the project, or one of the Tier One corridors, including 13 opposed to Corridor B, 235 opposed Corridor C, eight opposed to Corridor D, and 42 opposed to the project. Of those who expressed support for the project, 30 expressed a preference for Corridor B, 11 for Corridor C, eight for Corridor D, nine for the No-Build Alternative or a system upgrade, and four for alternative corridors not currently under study. Five others expressed support for the project without identifying a specific corridor preference. The comments are summarized in Table 7.6-2.

TABLE 7.6-2
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
James Llewellyn	11-4-11	x	x							x	Opposes Corridors B and D
William Hipkiss	9-16-11		x								Prefers Corridor C
Kathy Rice	10-3-11									x	Opposes new road
David and Marion Sutton	10-6-11		x				x				Opposes Corridors B and C
Robert Eagle	10-7-11		x								Supports Corridor B
Sara Jane Rawlings	10-6-11									x	Many historic resources in Corridor B
Elizabeth Spiggle	10-7-11							x			Impact within Corridor C
Garrett D. Roderick	10-7-11		x	x				x			Supports Corridor B; opposes Corridor C
Harold Bennett, Jr.	10-6-11			x	x		x				Impact of project on well water and springs
Paul T. Livengood, MD	10-6-11	x		x			x	x			Opposes Corridor C; impact on farmlands, water supply, and rural lifestyle
Susan Humphreys	10-8-11		x	x			x			x	Opposes Corridor C
Larry and Patricia Liller	10-7-11		x	x				x	x		Opposes Corridor C
Patty Ford	10-8-11		x								Prefers Corridor B; opposes Corridor C
William J. Dembeck	10-8-11		x								Opposes Corridor C
Stephanie P. Rund	10-8-11		x	x					x	x	Opposes Corridor C
Michael E. Ford	10-8-11		x			x	x				Prefers Corridor B; opposes Corridor C
Veva Nield and Joseph Beeman	10-6-11		x	x							Opposes Corridor C

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
William R. Scully	10-8-11		x								Opposes Corridor C
Patti M. Seany	10-7-11		x								Opposes Corridor C
Richard A. Lechliter, DVM	10-6-11		x	x	x		x	x	x		Opposes Corridor C
James Files	10-9-11	x	x	x				x			Opposes Corridor C
Linda Mitenberger	10-9-11			x					x	x	Opposes Corridor C
M. Keith Nester, Sr.	9-13-11						x			x	Opposes project
Nancy Gunta	---									x	Information dissemination
Bill Dunlap	8-26-11			x						x	Opposes Corridor C
Mona Ridder	9-6-11					x					Supports project
Charles Baker, CFM	9-13-11		x								Supports Corridor D
Arlan Shingleton	9-13-11									x	Supports project
Sandra Hunt	9-13-11		x								Supports Corridor D
Stacy Baker	9-13-11									x	Supports project
Carla Gaither	9-13-11									x	Non-specific
Tamra Whipp	9-13-11									x	Supports project
Melissa Lee	9-13-11		x			x					Supports Corridor D
Shirley Reed	9-13-11		x		x						Supports Corridor D
Evelyn Baker	9-13-11		x								Supports Corridor D
Beverly Kitzmiller	9-15-11									x	Opposes project
David O. Heishman	9-20-11									x	Improve roadway farther south
Dennis Dutterer	9-22-11									x	Information request
Tasha Wheeler	10-3-11	x									Opposes project
Sean Grimes	10-7-11		x								Opposes Corridor C
Lonny J. Watro	10-7-11		x	x			x		x	x	Opposes Corridor C
Jeffrey Zollner	10-8-11		x							x	Opposes Corridor C
Ronald Holshey	10-9-11		x				x	x		x	Opposes Corridor C
Glenn and Mary Fruehan	10-10-11	x	x	x	x	x				x	Opposes Corridor C
Charles Bonar	10-10-11		x								Supports Corridor B
Vera Page	10-10-11		x								Supports Corridor B
Richard Shaffer	10-10-11		x					x			Opposes Corridor C
Kerry Wolford	10-11-11									x	Opposes Corridor C
Mary Kuykendall	10-11-11							x			Protect farmlands
Sarah Johnson	10-12-11		x								Supports Corridor B
Molly Bonar	10-12-11		x								Supports Corridor B
J. Sloan Bonar, Jr.	10-12-11		x								Supports Corridor B
Selby Highland	10-12-11		x	x				x	x		Opposes Corridor C
Diane Brelsford	10-13-11		x	x				x	x		Opposes Corridor C
Rodney Brelsford	10-13-11		x	x				x	x		Opposes Corridor C
Faye Lemley	10-13-11		x								Opposes Corridor C
Erin Wyer	10-13-11			x				x	x		Opposes Corridor C; concern over impact on groundwater
Don Wyer, Jr.	10-13-11			x				x	x		Opposes Corridor C; concern over impacts on groundwater and community cohesion
Mary Alice Hannah	10-13-11		x								Opposes Corridor D
Sam Hannah	10-13-11		x					x			Supports Corridor B; concern over impacts on farmlands
Judith Rodd	10-14-11			x				x			Concern about overall environmental impacts; requested to be a consulting party in the Section 106 process

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Charles A. Bonar, Patricia Bonar, Thomas McCormick, Patricia McCormick, and Zen Hendrick	10-14-11	x									Suggests system upgrade of US 220 rather than new highway
Erik Wyer	10-14-11						x	x	x		Opposes Corridor C
Addison Wyer	10-14-11						x	x	x		Opposes Corridor C
Jill Wyer	10-14-11						x	x	x		Opposes Corridor C
Harold Tate	10-14-11									x	Complete Corridor H first
Rita Albury	10-14-11					x				x	Complete Corridor H
Fred Burns	10-14-11									x	Repair existing roads and bridges first
William Hipkiss	10-11-11		x								Supports Corridor C
Bill Roche	10-12-11					x				x	Of all corridors, the impact on Corridor C will be the greatest
Brandon J. Felton	10-10-11	x		x						x	Opposes Corridor C; concern over groundwater impacts; suggests system upgrade
Mr. and Mrs. Robert L. Ward	10-10-11						x			x	Opposes project
Dale and Sharon Pyles	10-13-11									x	Opposes project
Mr. and Mrs. Ernest Gough	10-10-11									x	Concern about the impact of Corridor C
Amy Fetter	10-11-11	x									Questions benefits of the project
Robert and Bonnie Ines	10-7-11				x					x	Supports Corridor C
Valerie Wenrick	10-13-11	x									Opposes project
Raymond D. Miller	10-5-11						x	x			Opposes Corridor C
Thomas R. Marsh	10-10-11					x					Supports Corridor D
Kathy Copen	10-10-11									x	Opposes Corridor C
Edman E. Llewellyn and Barbara J. Llewellyn	10-10-11		x							x	Opposes project
Mr. and Mrs. Carl Hott	10-8-11						x			x	Requests additional information; concern about relocation
Tammy VanSkiver	10-10-11	x									Opposes project
Marylan Liller	10-7-11							x		x	Opposes Corridor C
Kathryn Siddons	10-8-11									x	Concern over noise impacts
Vicki L. Frantz	10-11-11		x	x				x		x	Opposes Corridor C
John R. Bogdan	10-11-11		x							x	Opposes all proposed corridors; suggests ridge corridor
Robert M. and J. Dalene Vollmerhausen	10-2-11		x							x	Opposes Corridor C; concern over groundwater impact
Ruth Elaine Robinson	10-11-11						x				Concern over relocation
Nora V. Ault	10-10-11		x						x		Opposes Corridor C
Eric Kirk	10-9-11			x							Opposes Corridor C
Donald Biser	10-5-11					x					Corridor B will best serve Mineral County
Bonnie M. Scully	10-11-11									x	Opposes Corridor C
Wilda D. Kesner and James D. Kesner	10-10-11						x			x	Opposes Corridor C
Cindy Ketterman	10-10-11									x	Opposes Corridor C
Robin Owens	10-10-11			x				x		x	Opposes Corridor C
Jerry Owens	10-10-11			x				x			Opposes Corridor C
Renee C. Carder	10-9-11						x			x	Opposes Corridor C
Margaret A. Lane	10-7-11						x				Opposes Corridor C
Lori and Chris Newhouse	10-10-11						x				Concern over relocation

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Mario and Bonnie Nossarella	10-11-11									x	Opposes Corridor C
Joy Kuykendall	10-13-11							x		x	Opposes Corridor C
Ron Kuykendall	10-10-11							x		x	Opposes Corridor C
Deanna Rock	10-10-11			x				x			Opposes Corridor C
Kenneth Rock, MD	9-11-11		x								Opposes Corridor C
Von and Willeda Mosser	10-10-11			x		x		x		x	Opposes Corridor C
Susan Cook	10-10-11		x	x				x			Opposes Corridor C
Fawn Gerhard	10-8-11		x	x			x			x	Opposes Corridor C
Jack K. Gerhard	10-8-11		x	x			x			x	Opposes Corridor C
Charles ad Sandra Byram	10-11-11									x	Opposes Corridor C
Dan M. Nield	10-10-11						x				Opposes Corridor C
Doris P. Nield	10-10-11			x		x	x	x			Opposes Corridor C
Philip C. Bartlett	10-11-11							x		x	Opposes Corridor C
Beverly Nicely	10-11-11									x	Concern over project's effect on the community
Kim Nicely	10-10-11						x				Opposes Corridor C
Laura Custer	10-10-11						x			x	Opposes Corridor C
Arthur Strietbeck	10-10-11						x				Opposes Corridor C
Ruth A. Braitwaite	10-10-11			x							Opposes Corridor C
Robert Keeler	10-10-11	x									Opposes project
Wanda Malone	10-10-11									x	Opposes Corridor C
Harold W. Swick	10-10-11						x				Opposes Corridor C
Dale and Sharon Pyles	10-9-11			x			x				Opposes project
Paul and Katie Kirk	10-11-11			x			x	x			Opposes Corridor C; concern about impact on natural springs
Dee Bartlett	10-11-11	x									Opposes project
Richard P. Humphreys	10-8-11		x	x			x			x	Opposes Corridor C
Allen and Karen Deffinbaugh	10-5-11	x		x							Opposes Corridor C
Earlene V. Hott	10-12-11							x			Opposes Corridor C
Joseph Dorsey	10-15-11		x								Route selection
Joan Sharpless	10-17-11		x								Opposes Corridor C
Thomas Sharpless	10-17-11		x								Opposes Corridor C
John Parker	10-10-11										Opposes Corridor C
Leon Dillman	10-12-11		x								Suggests different corridor than those studied in the DEIS
Hugh H. Felton	10-10-11	x			x					x	Opposes Corridor C
Richard J. Waltro	10-16-11					x					Supports Corridor B
Brent J. Felton	10-13-11	x									Opposes Corridor C
Betty Pastorius	10-11-11									x	Opposes Corridor C
Annette C. Peer	10-11-11			x						x	Concern about environmental impact of Corridor C
Janice LaRue	10-11-11									x	Supports Corridor B
Allan T. LaRue	10-11-11		x								Supports Corridor B
Cynthia L. Pyles	10-11-11		x								Supports Corridor B
Dana Young	10-12-11		x	x							Corridor C is the least favorable alternative
Ruth Ann Cecil	10-12-11									x	Impacts of the project on community
Gary Irons	10-10-11	x									Opposes project
Ray Chaney	10-7-11									x	Opposes Corridor C; concern about community cohesion
John I. Rogers, II	10-10-11									x	Opposes Corridor C
Anthony Weaver	10-4-11			x						x	Opposes Corridor C

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
M. Kathryn Moreland	10-10-11	x									Opposes project
Ethel E. Spataro	10-11-11			x						x	Opposes Corridor C
James R. Spataro	10-11-11	x		x							Supports No-Build Alternative; opposes Corridor C
Roger L. and Marilyn Ammons	10-6-11			x			x				Opposes Corridor C
Terri Gleason	10-10-11		x								Opposes Corridor C
Joe Zumpano	10-10-11	x									Opposes project
Josh Flaugher	10-13-11	x	x								Opposes Corridors B and C
Alleise Alexander	10-12-11	x									Opposes project
Beverly Kitzmiller	10-12-11			x						x	Opposes Corridor B
William E. and Susan M. DeMoss	10-12-11				x		x				Opposes Corridor C
Allen Byram	10-11-11			x				x		x	Opposes Corridor C
Sandra Arbogast	10-11-11		x				x			x	Suggests any alternative other than Corridor C
Brittney Scully	10-11-11									x	Opposes Corridor C
Randy Peer	10-11-11									x	Concern about potential negative economic effects of Corridor C
Forrest Jones	10-11-11									x	Opposes Corridor C
Janet L. Pyles	10-11-11									x	Opposes Corridor C
Bobby Joe and Judy Westfall	10-12-11									x	Opposes Corridor C
Nancy Lohr	10-7-11	x									Opposes project
Rose L. Cessna	10-10-11									x	Opposes project
Mark Roberts	10-11-11				x			x	x		Opposes Corridors C and D; supports Corridor B
Jamie Young	10-11-11		x								Opposes Corridor C
Dennis Hoppert	10-12-11		x								Opposes Corridor C
William Mickey	10-11-11		x								Opposes Corridor C
Dallas O. Adams, Sr.	10-14-11	x								x	Opposes Corridor C
R.W. Kenney	10-16-11									x	Concern about the effects of the project
Shawna Shanholtz	10-13-11							x		x	Opposes Corridor C
John and Darlene Steward	10-11-11			x				x			Opposes Corridor C; concern about impact to spring water
Janice J. Livingood	10-12-11	x						x			Opposes Corridors B and C; prefers a system upgrade
Keri Whitacre	10-12-11									x	Opposes Corridor C
David Seth Whitacre	10-12-11									x	Opposes Corridor C
Jill Whiteman	10-13-11									x	Opposes Corridor C
Donna Haines	10-13-11						x				Concern about the number of possible displacements
Malinda Newhouse	10-11-11			x							Opposes Corridor C
Mike and Penny Stickley	10-12-11		x				x	x		x	Suggests using alternative that impacts farmlands the least
Doris Ours	10-13-11	x					x	x			Suggests upgrading US 220
Tim Haines	10-12-11						x				Concern about the number of possible displacements
James E. Hott	10-13-11	x					x	x			Opposes Corridor C
David Frederick	10-16-11							x		x	Supports Corridor B; suggests some corridor shifts
Kevin Livengood	10-10-11	x									Opposes project; suggests upgrading US 220

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Tisha Livengood	10-10-11							x			Opposes Corridor C; suggests upgrading US 220
Gary Custer	10-13-11			x		x		x		x	Opposes Corridor C
E. Betty Spiggle	9-28-11		x					x			Supports Corridor B
Phillip and Nancy Dayton	9-26-11							x		x	Opposes Corridor C
Sam and Linda Lease	9-30-11										Concern about impact on Short Gap
Bill Dunlap	10-1-11			x				x		x	Opposes Corridor C
Nancy Giunta	10-3-11			x					x	x	Opposes Corridor C
Carole Dunlap	10-2-11							x		x	Opposes Corridor C
Barbara B. Linthicum	10-12-11						x			x	Opposes Corridor C
Richard Linthicum	10-12-11									x	Opposes Corridor C
Amanda Reynolds	10-12-11				x					x	Concern about schools in the project area
Callie Fisher	10-14-11		x								Corridor B is closest to existing development
Jim Taylor	10-8-11	x									Opposed to project
Linda A. Wildman	10-10-11					x					Sees no economic benefit of the project
Unsigned	10-12-11		x								Corridor B is closest to existing development
Dixie L. Pownall, Esq.	10-11-11			x	x		x		x	x	Opposes Corridor C
Bonnie Wilson	10-10-11						x				Opposes Corridor C
Gerald K. Felton	10-14-11									x	Opposes Corridor C; concern about impacts on community cohesion
Melissa Anderson	10-14-11									x	Opposes corridor C
Joyce Heinz	10-14-11							x			Opposes Corridor C
Illegible Signature	10-14-11						x	x		x	Opposes Corridor C
Clifton and Donna Bisser, Jr.	10-5-11									x	Consider all the facts before making a decision
Robert L. White	10-14-11									x	Opposes Corridor C
Eileen White	10-14-11									x	Opposes Corridor C
Dr. Wayne and Julia Longenecker	10-10-12			x				x	x	x	Opposes Corridor C
James Yarbrough	10-14-11		x								Suggests choosing Corridor B
Leo W. and Donna J. Cox	10-10-11									x	Opposes project
Teckla Baily	10-5-11									x	Opposes Corridor C
Lori Cross	10-5-11			x			x				Opposes Corridor C
Susan E. Flanagan	10-14-11									x	Opposes Corridor C
Jim Dawson	9-29-11		x								Corridor C will be the most expensive
Christine Funkhouser	10-5-11			x						x	Opposes Corridor C
Delmer and Nancy Ackerman	10-5-11			x							Opposes Corridor C
Carlee Wilhelm	9-26-11			x						x	Opposes Corridor C
Scott, Trudy and Christian Hayes and Harry J. Davis	10-5011						x				Opposes Corridor C
Brian Dayton	10-5-11									x	Opposes project
Mary and Jim Yarbrough	10-14-11									x	Opposes Corridor C
Debbie and Charlie Hiett	10-5-11		x								Opposes Corridor C
Richard and Janet L. Pyles	10-5-11		x								Opposes Corridor C
James and Nancy Arbogast	10-8-11								x	x	Opposes Corridor C
Mindy Walker	10-10-11									x	Opposes Corridor C
Larry E. Weigle	10-10-11		x								Opposes Corridor C

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Carolyn S. Weigle	10-10-11									x	Opposes Corridor C
Kathy and Jeff Brinkman	10-10-11									x	Concern over residential displacements
Harry M. Neilson, Sr.	10-10-11			x				x			Opposes Corridor C
Harry M. Neilson, Jr.	10-10-11									x	Opposes Corridor C
Lorrie Ackerman	10-10-11									x	Opposes Corridor C
Lavada Long	10-10-11									x	Opposes Corridor C
David B. Ujcic	10-10-11									x	Other options are more economically feasible
Frank Fox	10-10-11									x	Opposes Corridor C; concern about noise impacts
Louis E. Milkenberger	10-10-11		x								Supports Corridor D
Kelsi Raines	10-10-11									x	No specific comment
M. Allen Buser	10-10-11	x									Opposes project.
Grayson Ackerman	10-10-11									x	Opposes Corridor C
Marvin and Esther Rinker	10-10-11		x							x	Opposes Corridor C
Ellen Moreland	10-10-11									x	Opposes Corridor C
Matthew Liller	10-7-11									x	Opposes Corridor C
George and Loretta Rice	10-10-11						x			x	Opposes Corridor C
George Rice, Jr.	10-8-11									x	Project will be expensive and a hardship for a lot of people
Dianne L. Liller	10-10-11		x			x					Opposes Corridor C; supports Corridor B
Chris Liller	10-10-11		x			x		x			Opposes Corridor C; supports Corridor B
Tracey Sihls	10-10-11									x	Opposes Corridor C
James P. Stair	10-10-11									x	Opposes Corridor C
Donald D. Cole	10-10-11								x	x	Opposes Corridor C
Joan E. Cole	10-10-11	x								x	Opposes Corridor C
Rhonda L. Maiers	10-14-11		x	x				x	x		Opposes Corridor C; supports Corridor B
Betty Bartlett	10-10-11						x	x		x	Opposes Corridor C
William V. Self	10-10-11		x								Prefers Corridors B and D
Larry and Pamela Taylor	10-5-11									x	Opposes Corridor C
R.A. McClanahan	10-9-11		x	x				x		x	Opposes Corridor C
Carlene Yarbrough	10-10-11			x						x	Opposes Corridor C
David Jackson	10-10-11									x	Concern about rural lifestyle
David Bartlett	10-10-11			x							Concern about environmental and social impacts
Tom Pryor	10-10-11		x								Opposes Corridor C
Dan Lopez	10-10-11									x	Suggests not using Rt. 28
Leah Bartlett	10-10-11		x								Suggests that Corridor B is the most cost-effective
Rebecca Pryor	10-10-11									x	Opposes Corridor C
Ralph and Cathy Carrico	10-10-11		x								Opposes Corridor C
Roberta Wolford	10-10-11	x									Opposes project
Roger Bradshaw	10-5-11		x		x	x					Opposes Corridor C
Michael W. Norris	10-10-11									x	Opposes project
Barbara Drumheller	10-5-11									x	Opposes Corridor C
Leon Drumheller	10-5-11		x							x	Opposes Corridor C
Jannis Malone	10-10-11		x							x	Opposes Corridor C
Barbara Armentrout	10-10-11									x	Opposes Corridor C

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Brian Phillips	10-10-11					x					Concern about socio-economic displacements
Bryce Sincs	10-10-11									x	Unclear
Tamara D. Ballou	10-10-11									x	Opposes Corridor C
Nancy Taylor	10-10-11									x	Opposes Corridor C
Charles Paul	10-10-11					x				x	Concern about compensation for residential displacements
Betty J. Robinson	10-14-11			x						x	List of potential impacts
Michael Weaver	10-10-11			x						x	Opposes Corridor C
Harold Lee Hartman	10-9-11		x	x						x	Sees no benefit to the project
Bailey Scaef	10-10-11						x				Concern over losing home
N. Ruth Tipton	10-10-11			x	x					x	List of potential impacts
Wendy Grabenstyn	10-14-11			x						x	List of potential impacts
Jay L. Neely	10-10-11						x				Concern about relocation
Mildred Neely	10-10-11						x				Concern over relocation
James H. Smith	10-10-11						x				Concern over relocation
Nile E. Chaney	10-10-11		x								Concern over impact of Corridor C
James Anderson	10-10-11		x								Opposes Corridor C
Louise Anderson	10-10-10	x	x	x						x	Opposes Corridor C
Lucile P. Cook	10-10-11			x	x					x	List of potential impacts
Brenda Bunner	10-14-11	x									Opposes project
Lloyd E. Long	10-10-11		x								Opposes Corridor C
Brian Logodon	10-12-11		x								Concern over corridor selection
Wendy Logodon	10-12-11		x								Concern over corridor selection
Lucinda Gillespie	10-10-11									x	List of potential impacts
Gerald L. Cook	10-10-11									x	List of potential impacts
Richard and Velma Boyce	10-10-11			x	x					x	Opposes Corridor C
Darlene Gulino	10-10-11									x	Opposes Corridor C
Gary Cooper	10-10-11							x			Opposes Corridor C
Matt Dennison	10-10-10		x								List of potential impacts
Marshall G. Armentrout, Jr.	10-10-11									x	Opposes Corridor C
Tammy Mackey	10-10-11									x	Opposes Corridor C
Charles and Betty Gough	10-10-11	x							x		Opposes project
Paul Blackiston	10-10-11			x						x	Opposes Corridor C
Loretta Thomas	10-10-11			x				x			Opposes Corridor C
Sue Felton	10-10-11	x						x		x	Opposes project
Rachel B. Iman	10-14-11									x	Opposes project
Virginia D. Kline	10-10-11									x	Opposes project
Paul Doepker	10-7-11			x				x		x	Opposes Corridor C
Cynthia Felton	10-11-11			x						x	Opposes Corridor C
Gerald K. Felton	10-10-11									x	Opposes Corridor C
Shelia Wilson	10-10-11									x	Opposes Corridor C
Connie L. Ase	10-10-11									x	Concern about impacts on specific business
Sonda Sutphin	10-10-11							x	x	x	Opposes Corridor C
Kenneth E. Carder	10-10-11									x	Opposes Corridor C
Robert V. Miltenberger	10-10-11			x				x		x	Opposes Corridor C
Jan Carder	10-10-11						x				Concern about specific impact on house
Nancy Starcher	10-10-11		x						x	x	Suggests other corridors
Shelly Raines	10-10-11									x	Concern about overall effect of the project
Steve Raines	10-10-11									x	Put project on hold

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Unsigned	10-10-11	x									Questions need for project
Rose A. Szwast	10-10-11									x	Opposes project
Dawn E. Cole	10-10-11	x		x				x		x	Opposes project
Sue Johnson	10-10-11		x								Opposes Corridor C
David Horner, Jr.	10-10-11									x	Opposes Corridor C
Marcia A. Miltenberger	10-10-11		x								Supports Corridor D
Karen J. Bundy	10-10-11		x								Supports Corridor D
Donald J. Yaiden	10-10-11						x				Opposes Corridor C
Galen Markley	10-10-11									x	Opposes Corridor C
Brian and Susan Phillips	10-10-11									x	Specific impacts of Corridor C
Gene and Vera Wilt	10-11-11		x				x			x	Opposes Corridor C
Unsigned	10-10-11									x	Opposes Corridor C
Debbie Patterson	10-10-11		x							x	Opposes Corridor C
James R. Patterson	10-9-11		x								Suggests alternative corridor
Candice Stonebraker	10-10-11		x	x				x			Opposes Corridor C
Melissa Imler	10-10-11	x									Opposes Corridor C
Linda Imler	10-10-11	x									Opposes project
Wallace Whitacre	10-10-11							x	x	x	Opposes Corridor C
Roxy Ann Whitacre	10-10-11		x						x	x	Opposes Corridor C
Bernard David Snell	10-10-11			x						x	Opposes project
Wayne Long	10-4-11			x				x		x	Opposes Corridor C
Donald M. Eckard	10-10-11					x					Supports Corridor B; opposes Corridor C
Darlene Kessel	10-8-11		x							x	Opposes Corridor C
Kathy and Jeff Brinkman	10-10-11			x			x			x	Opposes Corridor C
Cheryl Yaider	10-10-11									x	Opposes Corridor C
Donald and Diane Kile	10-10-11			x		x					Opposes Corridor C
Richard F. Weese, Jr., Hazel M. Weese, and Nancy G. Dawson	10-10-11	x									Opposes Corridor C
Robert, Tammy, and Cassianna Claus	10-10-11			x				x			Opposes Corridor C
Lisa McKinnis	10-10-11								x	x	Opposes Corridor C
Mr. and Mrs. Larry R. Reau	10-10-11			x							Too many impacts from project
David V. Stonebraker	10-10-11			x				x	x		Opposes Corridor C
Jimmy Moreland, Jr.	10-8-11		x	x				x			Opposes Corridor C
Carole Moreland	10-8-11							x		x	Opposes Corridor C
Renee C. Carder	10-9-11									x	Opposes Corridor C
Jim Kesner	10-10-11									x	Opposes Corridor C; concern about family cemeteries
Paul Mauck	10-10-11			x				x			Opposes Corridor C
Catherine A. Mauck	10-10-11			x							Opposes project
Ray and Barbara Barb	8-27-11									x	No specific comment
Mary Collins Beatty	8-28-11				x						Supports Corridor B
Susan Brubaker	8-25-11									x	No specific comment
Thomas F. Conlon	--									x	Suggests a limited access highway
William C. Ewing	9-2-11									x	No specific comment
Blair Fike	9-14-11									x	Asks questions related to gas transmission lines
Brian and Kandi Haines	9-2-11						x			x	Concern about highway alignments and impacts on hunting grounds
Kenneth Hout	9-14-11	x					x				Opposes Corridor D
Tessa Jackson	9-14-11				x					x	Supports Corridor C

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Ingrid Killius	8-28-11									x	Cumberland streets in need of repair
Jim Kuntz	9-14-11									x	Identifies contact persons for specific property
Otis B. Lancaster, Jr.	9-13-11						x				Supports Corridor C
Jackson Lawson	9-13-11	x									Supports project
Mark S. Malone	8-26-11									x	No specific comment
Shawn Thomas Orew	8-25-11									x	Requests detailed map
Greg Peters	9-14-11		x								Opposes Corridors B and D
Betty Richtmeyer	9-1-11									x	Supports project
Daniel Rhodes	8-31-11									x	Interested in progress being made
Jeffrey Rosborough	9-14-11									x	Suggests different alternative
Jeffrey Rosborough	9-12-11	x									Opposes project
Greg Schaaf	8-26-11									x	Supports project
David Umling	9-14-11					x					Suggests that project needs to support economic development and smart growth in Cumberland
Tom Willison	8-25-11									x	Suggests need for a different project
William Wilhelm	9-14-11		x								Supports Corridor C
Kenneth Winters	9-14-11		x			x					Supports Corridor B
Unsigned	--		x								Supports Corridor D, or a combination of Corridor C in the north and Corridor D in the south
Unsigned	--									x	Opposes Corridors B and C
Unsigned	--	x									Need to remove truck traffic from MD 51
John Anderson	10-6-11						x				Suggests system upgrade
Larry and Jo Athey	10-8-11		x								Opposes Corridor C
Michael R. Burkey	10-15-11								x		Opposes Corridor C
Charles Burley	9-29-11									x	Has questions about the schedule
Adam and Robin Chamberlain	10-13-11		x							x	Opposes Corridor C
Imogene Chaney	10-2-11	x									Opposes project
Robert L. Clayton	10-1-11									x	No specific comment
John and Gay Cole	--									x	Opposes project
John Fanelli	9-30-11		x								Opposes Corridor C
Richard Feigley	10-1-11		x								Supports Corridor C
Misty Felton	10-11-11	x						x			Opposes project
Steve Felton	10-11-11		x							x	Opposes Corridors B and D
Faron and Peggy Garver	10-10-11						x				Concern about R-O-W process
Homer W. Hoover	10-11-11							x	x		Supports Corridor B
Gary and Carolyn Irons	9-25-11	x		x				x			Opposes project
Bruce Irons	10-12-11		x							x	Opposes Corridors B and D
Mr. and Mrs. Dennis Johnson	10-9-11									x	Opposes Corridor C
Mary Ellen Johnson	10-3-11									x	Requests more information about project
Scott Kline	10-7-11	x									Opposes project
James W. Llewellyn	9-18-11			x						x	Opposes Corridors B and D
John W. Llewellyn	9-9-11									x	Requests information; supports Corridor B
Carole Mann	--		x				x				Opposes Corridors B and D
Ken Mossburg	10-11-11		x								Suggests using MD 51 corridor

TABLE 7.6-2 (continued)
Summary of Citizen Comments

Commenter	Date	Category of Comment									Comment
		1	2	3	4	5	6	7	8	9	
Michael L. Pannone, Sr.	10-3-11		x								Opposes Corridor C; suggests using MD 51 corridor
Richard Platt	10-8-11	x							x	x	Suggests choosing most cost-efficient route with least amount of impact
James Poland	--									x	No specific comment
Ronna Portmess	10-7-11	x		x				x	x		Opposes Corridor C
Ronna Portmess	10-13-11			x				x	x		Opposes Corridor C
Warren L. Portmess	10-6-11			x				x		x	Opposes Corridor C
Warren L. Portmess	10-7-11	x			x	x		x	x		Opposes Corridor C
Jeffrey Rosborough	10-13-11			x					x		Opposes Corridor C
Wayne C. Spiggle	9-22-11		x								Opposes Corridor C; supports Corridor B
Richard J. Watro	10-13-11					x					Supports Corridor B
Diana Wilson	10-4-11		x							x	Opposes Corridor C
Aliesha Winebrenner	9-14-11	x			x						Suggests improving existing roads instead of building a new highway
Kenneth Winters	9-14-11					x					Supports Corridor B
Paul Winter	9-8-11				x						Supports Corridor C
Jim Llewellyn	11-9-11	x									Opposes Corridors B and D
Douglas Love	4-13-12									x	Suggests upgrades to existing road network
Category of Comments: 1. Project Need; 2. Corridor Selection; 3. Environmental Impacts; 4. Traffic; 5. Economic Impacts; 6. Relocation/Right-of-Way; 7. Farmlands; 8. Cultural Resources; 9. Other											

Although citizens who submitted comments expressed concern about many issues, most commenters provided information about the ways in which the project would impact them individually and explained the difficulty they would have relocating if they should be displaced. Many also voiced concern about impacts on community cohesion, elderly residents, churches, groundwater resources, farmlands, and historic resources and stated that a new highway would change the rural character of the Knobley Ridge area and Short Gap. Many expressed specific opposition to Corridor C or overall opposition to the project regardless of which corridor, if any, would be advanced in Tier Two.

Although more than 400 citizen comments were received, the common themes of these comments are summarized and addressed below:

Comment/Issue: Opposition to Corridor C.

Response: Corridor C will not be carried forward into Tier Two and is being dropped from further consideration. Although Corridor C meets the project's purpose and need, it may not be as effective as Corridors B or D in doing so. Corridor C would divert the least amount of traffic from US 220. Even though construction of a new transportation highway within Corridor C would help alleviate traffic congestion on US 220, both of the other corridors would outperform Corridor C in the amount of traffic they would divert from US 220.

It would also be difficult to develop future alignments in the Mexico Farms area of Allegany County without impacting the tightly developed industrial complex and residential neighborhoods there. If any of the thriving businesses, government facilities, or well-kept homes located there were displaced, transportation improvements in the vicinity of Mexico Farms could have a negative impact on the community instead of improving it. Likewise, a new highway in the vicinity of Short Gap in Mineral County could cause many residential displacements and disrupt both the rural characteristics of the area and the strong sense of community cohesion there. Compounding the potential residential displacements in the area, future highway alignments could impact a major aquifer along Knobley Ridge. This aquifer is not only the principal water source for many of the homes in the area, but a key component of in the county’s growth strategy to bring more municipal water service to the county.

Additionally, the Chesapeake and Ohio Canal National Historical Park, a NRHP-listed site, spans the entire width of Corridor C in the vicinity of the scenario’s northern terminus. To date, no environmentally sensitive manner to cross the park has been identified and it may be impossible to construct a new transportation facility within Corridor C without impacting the park. There are also several large potentially NRHP-eligible farmsteads located within the corridor that would be difficult to avoid with future highway designs. Corridor C also contains the highest amount of agricultural land cover of the three corridors studied in detail during Tier One. Similarly, Corridor C contains the highest amount of wetlands of the corridors and more community facilities, parks, and recreation areas than either Corridors B or D.

Comment/Issue: Corridor C will impact a major aquifer along Knobley Ridge.

Response: Corridor C is not being carried forward, but additional environmental and engineering studies can be conducted during Tier Two, if necessary, to assure that future alternatives avoid this important environmental and community resource.

Comment/Issue: Transportation alternatives will displace people and impact community cohesion, regardless of which corridor is advanced.

Response: The DEIS identified potential impacts to community cohesion within Corridors B, C, and D. Within Corridor B, there could be impacts to community cohesion from Cresaptown to Bel Air, on the west side of Keyser, and south of Keyser. Within Corridor C, there could be impacts to community cohesion from Wiley Ford to Short Gap and in the vicinity of Fountain. Within Corridor D, there could be impacts to community cohesion in the same areas as noted for Corridor B.

Mitigative strategies for community cohesion impacts can generally be grouped into design measures, replacement or restoration, monetary compensation, and planning or regulatory measures. As the proposed project progresses, Tier Two alternatives will be designed to eliminate or minimize impacts to community cohesion. Close coordination with local officials, residents, community groups, and business owners throughout the design and construction phases of the proposed project would ensure that there are no changes to local traffic conditions that could disrupt future travel patterns, that potential displacements to residences and community facilities are minimized, and that the inherent positive qualities of life in local communities are preserved.

Comment/Issue: Residential relocation will create a hardship.

Response: All properties to be acquired will be purchased in accordance with the Uniform Relocation Assistance and *Real Property Acquisition Policies Act of 1970*, as amended, and *Title VI of the Civil Rights Act*. As such, individuals and families displaced by the project will be offered the full extent of benefits and payments provided by these acts. Additionally, provisions will be made to assure that any person with a disability who is displaced is offered replacement housing that has been fitted to meet any special needs. During most transportation projects, there is adequate replacement housing available. However, when a housing shortage does occur, the Housing of Last Resort provides several options to create a suitable replacement property, including:

- Purchasing an existing comparable residential property and making it available to the displaced person in exchange for the displacement property;

- The relocation and rehabilitation (if necessary) of a dwelling purchased from the project area by the Agency (i.e., WVDOH or MDSHA) and making it available to the displaced person in exchange for the displacement property;
- The purchase, rehabilitation, and/or construction of additions to an existing dwelling to make it comparable to a particular displacement property;
- The purchase of land for the construction of a new replacement dwelling comparable to a particular displacement property when comparables are not available;
- The purchase of an existing dwelling, removal of barriers, and/or rehabilitation of the structure to accommodate a handicapped displaced person when suitable comparable replacement dwellings are not available;
- A replacement housing payment in excess of the maximum payment limits; and
- A direct loan which will enable the displaced person to construct or contract for the construction of a decent, safe, and sanitary replacement dwelling (FHWA 2001).

Comment/Issue: Potential impacts on farmlands.

Response: To lessen the impacts to land currently in agricultural use within the transportation scenarios, the internal operations of potentially impacted farms will be determined and modifications to the alternatives designed in Tier Two will be considered to avoid or minimize agricultural impacts. During future design activities, efforts will be made to avoid severing access to farmland parcels or creating parcels which are too small to farm. Internal farm roadways may be constructed to allow farm vehicles to travel across project excavation areas to access fields. Finally, in areas where a bridge may be located adjacent to cropland or pasture, farm vehicles and livestock would be allowed to travel underneath the bridge/roadway for access to these fields.

Comment/Issue: Potential impacts on historic and archaeological resources.

Response: The following activities were completed during Tier One to determine the potential impacts on historic and archaeological resources: completed background research; developed pre-contact and historic period archaeological resource sensitivity maps; developed and analyzed archaeological predictive surface model; identified historic properties that are listed in, eligible for, or potentially eligible for listing in the NRHP; completed agency field views of study area; and prepared a Historic Resources Abbreviated Report. As the project proceeds to Tier Two, additional cultural resource investigations will be necessary. The investigations will follow the procedures for Section 106 as outlined in 36 CFR 800.3 through 36 CFR 800.6 and the procedures of each SHPO. Early in the Tier Two process, a PA or procedural outline will be developed in consultation with the WVDOH, MDSHA, the SHPOs, and the Advisory Council on Historic Preservation, detailing the steps to be used for complying with Section 106 as part of the Tier Two approach. During Tier Two, a MOA will also be developed addressing adverse effects and detailing the necessary avoidance/mitigation measures required.

7.6.4 Public and Private Testimony

As noted earlier, a public hearing on the project was held on September 14, 2011. Before public testimony was received, a formal presentation on the DEIS was made. The following people took part in the presentation:

- Anthony Crawford, District Engineer, MDSHA District 6 – Introduction and Project Planning Process;
- William Carver, Assistant Project Manager, MDSHA – Project Description and Background Information;
- Ben Hark, Environmental Manager, WVDOH – Description of the Corridors Under Detailed Study;
- Anne Elrays, Environmental Manager, MDSHA – Environmental Overview;
- Roxanne Harden, Real Property Manager, MDSHA District 6 – Right-of-Way and Relocation Assistance; and,
- Troy Parham, Equal Opportunity Officer, MDSHA – Title VI Program.

Following the formal presentation, 22 people offered public testimony. About half of the testimony supported the project and sometimes offered support for a specific corridor. Two people provided testimony specifically opposed to Corridor C, while another person specifically supported the No-Build Alternative. The remainder of the testimony expressed concern about the number of potential residential displacements, the potential to impact environmental justice populations, stormwater management, the independent utility of the project, and the area's future crime rate. Table 7.6-3 summarizes the comments received at through public testimony.

TABLE 7.6-3
Summary of Public Hearing Testimony

Commenter	Category of Comment									Comment
	1	2	3	4	5	6	7	8	9	
Creade Brodie, Allegany County Commissioner	x									Supports project
William R. Valentine, Allegany County Commissioner						x				Concern about the number of possible residential displacements
Michael McKay, Allegany County Commission	x				x	x				Supports project; concern about the number of possible residential displacements
Jackson Lawson	x				x					Supports an improved highway system
Kenneth Hout	x								x	Concern about the specific geometry of a new highway; concern about access to homes; opposes Corridor D
Colleen Peterson, North/South Appalachian Highway Coalition					x					Supports the project; concern about the amount of time planning efforts have taken
John Davis				x					x	Supports Corridor B
Bob Fisher									x	Supports northern sections of Corridor C
David Umling, Planner, City of Cumberland	x				x				x	Supports project; identifies need for direct access to Cumberland; identifies need for other safety improvements in the area; asks that independent utility discussion in DEIS be strengthened to show that improvements to US 219 and US 220 are independent of each project
Brian Grim, Mayor, City of Cumberland					x					Identifies need for direct access to Cumberland; expresses that the project has independent utility
Marian McIntyre						x			x	Asks for clarification of information in public information brochure; expresses concern about potential residential impacts from the project
Harry Crites		x	x				x	x		Concern about stormwater management
Michael Mudge		x								Supports Corridor C
Rev. Hal Atkins										Concern about how the project could impact environmental justice populations
Unidentified Individual										Suggests tying new corridor into the center of Corridor H
Dave Urbas, Pinnacle Homeowners Association		x								Opposes Corridor C; suggests utilizing corridor along Dans Mountain
Jeff Rosborough										Opposes Corridor C
David Moe, Greater Cumberland Committee and the Garrett County Economic Development Corporation									x	Asks that the project be expedited
Ed Friend				x						Raises questions about US 220, US 219, and I-68
Warren Portmess	x									Supports the No-Build Alternative
Alisha Warrenbrenner									x	Concern that a new highway could lead to an increased local crime rate
Marian McIntyre		x	x							Suggests project utilize Dans Mountain
Category of Comments: 1. Project Need; 2. Corridor Selection; 3. Environmental Impacts; 4. Traffic; 5. Economic Impacts; 6. Relocation/Right-of-Way; 7. Farmlands; 8. Cultural Resources; 9. Other										

In addition to public testimony, private testimony was also presented at the public hearing. A court reporter, on duty throughout the proceedings, allowed anyone to voice opinions on the project in private. Seven people took the opportunity to provide comments in that manner. Those comments are summarized in Table 7.6-4.

TABLE 7.6-4
Summary of Private Testimony

Commenter	Category of Comment						Comment
	1	2	3	4	5	6	
Harry Crites						x	Provides a trucker's perspective on any potential highway alternative
Rev. Hal Atkins						x	Expresses concern about impact of the project on low-income populations
Eugene Flesher	x			x			Concern that none of the alternatives would alleviate traffic on the Crosstown Bridge
Tom Duckworth	x			x		x	Supports Corridor C
Kathy Duckworth			x		x		Supports Corridor C
Kim Twiggs		x		x			Supports project
Carole Mann				x	x		Concern about existing US 220 traffic; concern about relocation assistance
Category of Comments: 1. Project Need; 2. Corridor Selection; 3. Environmental Impacts; 4. Traffic; 5. Relocation or Right-of-Way; 6. Other							

Additional environmental and engineering studies will be conducted during Tier Two to address the concerns expressed during public and private testimony. Those studies will include the development of specific highway alignments and detailed analyses of the potential environmental and socioeconomic impacts of the project. Any properties to be acquired will be purchased in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970*, as amended, and *Title VI of the Civil Rights Act*. Individuals and businesses displaced by the project will be offered the full extent of benefits and payments provided by these Acts.

7.6.5 Petitions

Three petitions were submitted during the comment period. All three petitions expressed strong opposition to Corridor C. In total, the three petitions contained 1,709 signatures. The petitions are summarized in Table 7.6-5.

TABLE 7.6-5
Petitions

Commenter/ Group	Date	Comment	Number of Signers
Citizens of Mineral County (#2)	October 1-10, 2011	We are adamantly opposed to Corridor C. Our concerns are that this option will disrupt the most rapidly growing part of the county and may threaten the groundwater beneath Knobley Mountain, a fragile but plentiful supply of excellent quality drinking water that, if protected, has the potential to serve most of the county. We favor Corridor B. It has less development and water disruption there is less likely.	145
Citizens of Mineral County (received through the Short Gap VFD)	October 2011	We the undersigned adamantly oppose the Route 220, Corridor C Option. We believe that this Corridor will totally disrupt our community, our quality of life, and our water supply. This option slices through rural communities, residences, churches, fire departments, farm land, and will dissect the village of Short Gap. Residents chose the Route 28 and Knobley Road area because of its rural quality. This Corridor will destroy the Short Gap/Knobley Road area! We favor Route 220, Corridor B which aligns with current Route 220 where the road has always run and as such will have a positive effect on that area.	1,277 total, but 218 duplicates were also submitted through the office of Gary G. Howell, WV House of Delegates)
Mexico Farms Area	October 2011	The following people oppose Corridor C for the new Route 220 project. The current projected path has the potential to adversely affect many homes on Uhl Highway and the complete destruction of Mexico Farms. Corridor C also has the highest estimated cost according to the State brochure. In addition this route affects the most wetlands and parks and recreational areas. Other considerations of this route include the old city dump, two cemeteries, the crossing of a major railroad and the interference with future double stacked railroad cars, C&O Canal, Rails to Trails, historic airport, a reduction in tax base, a reduction in water and sewage income to the County, and the direct impact on the 100 year flood plain adversely affecting the Potomac River basin and Chesapeake Bay water shed. We believe the State should consider a route using existing Route 68 and 220 to contain cost. We are hopeful the State Highway Department will remove Corridor C from consideration during the Tier One process.	287

Although Corridor C meets the project’s purpose and need, it may not do so as effectively as Corridors B or D. Corridor C would divert the least amount of traffic from US 220. Even though construction of a new transportation highway within Corridor C would help alleviate traffic congestion on US 220, both of the other corridors would outperform Corridor C in the amount of traffic they would divert from US 220. Consequently, Corridor C will not be carried forward into Tier Two and is being dropped from further consideration.

7.7 Development of the FEIS

After all comments on the DEIS were reviewed and responses developed, a preliminary copy of a final EIS was prepared. The Preliminary FEIS addressed all comments on the DEIS from the resource agencies and the public, as noted in previous sections of this chapter. All agencies that were on the distribution list received copies of the Preliminary FEIS in May 2013.

As with this document, the Preliminary FEIS identified Corridor B as the preferred alternative for Tier Two. Following distribution of the Preliminary FEIS, several federal and state agencies with jurisdiction in Maryland, suggested both formally and informally that more than one corridor should be carried into Tier Two. It was also suggested that a crossover corridor, basically a hybrid of Corridors B and C, Some representatives from federal and Maryland resource agencies also conducted a fieldview of Knobley Ridge in West Virginia to analyze its suitability as a future transportation corridor. If taken to construction, alignments within the hybrid corridors would cross Knobley Ridge.

The following seven agencies submitted comments on the Preliminary FEIS: USACE, USEPA, USDOI, MDNR, MDP, and WVDEP. Copies of their comment letters are found in Appendix H. The following responses to their concerns were offered.

<u>USACE (August 5, 2013)</u>

Comment 90: This office is concerned that our comments and those of the resource agencies have not been fully addressed. Resource agencies proposed potential crossover options and these should be considered in Tier Two.

Response 90: In an effort to avoid potential impacts to Dans Mountain WMA and Pinto Marsh, several resource agencies requested consideration of a Modified Corridor C, near McKenzie, utilizing the northern portion of Corridor B and the southern portion of Corridor C. The USEPA also requested consideration of a different modified corridor utilizing portions of Corridor B at its northern and southern ends, the middle portion of Corridor C, and two crossovers of Knobley Ridge, the northernmost in the vicinity of WV 956 and the southernmost in the vicinity of US 50.

In order to determine what effects might occur within these corridor options, a preliminary environmental screening, utilizing the same information collected for the development of the DEIS, was conducted. After the analysis was completed, the crossover corridors were not shown to offer any improvement over other corridors. From a variety of factors, they would also likely increase the overall environmental consequences and costs of the project and generate considerable public controversy. As a result, crossover corridors were dropped from further consideration. An analysis of the potential crossovers is found in Chapter 2.0 and Appendix G.

Also, all comments have been reviewed and considered in the development of the FEIS. MDSHA, and WVDOH specifically held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, to discuss agency comments with agency representatives, discuss the crossover analysis, update the schedule for finalizing the FEIS, and discuss potential Tier Two environmental commitments.

Comment 91: We suggest that impacts to Dan's Mountain by Corridor B be avoided and minimized to the maximum extent practicable.

Response 91: It is fully understood that the preferred corridor would impact the eastern edge of Dans Mountain. Detailed engineering studies will be conducted in Tier Two to develop actual alternative alignments that may be able to minimize the extent of these potential impacts. Dans Mountain is one of the largest contiguous tracts of forestland in the state of Maryland; a considerable amount of coordination with the USFWS, MDNR, and MDE will be necessary during Tier Two to analyze actual alternatives that could impact it. If necessary, the width of the preferred corridor will be expanded to develop avoidance alternatives.

Comment 92: Not all of the streams on the eastern slope of Dan's Mountain have been assessed for brook trout habitat so aquatic sampling should be done to more precisely map the location of brook trout populations.

Response 92: The streams on the eastern slope of Dans Mountains will be assessed for brook trout through aquatic sampling during Tier Two. That commitment is reflected in the Preface of the FEIS under the proposed Tier Two methodologies. The purpose of the sampling will be to more precisely identify the locations of brook trout populations as Tier Two alternatives are developed. The results of the sampling may lead to further studies of brook trout populations as the project progresses.

Comment 93: The Potomac River crossing has not been addressed. Spanning the entire floodplain, minimizing the number of piers and spanning all wetlands are options that will need to be addressed.

Response 93: The Potomac River, a navigable waterway to the Cumberland area, is subject to Section 10 of the *Rivers and Harbors Act* and Section 404 of the *Clean Water Act*. The Potomac River is only navigable to its confluence with Wills Creek near Cumberland, however, and the USCG has determined that the project would not cross the Potomac River in a navigable location. Consequently, on April 20, 2007, the USCG informed the FHWA that a Coast Guard permit would not be required because the project would not cross a waterway where the USCG had jurisdiction for bridge administration.

The USACE has jurisdiction over environmental impacts on wetlands and most surface waters within the study area, including the Potomac River, and a Section 404 permit under the *Clean Water Act* will be required. Although this Tier One FEIS provides background information in support of a future Section 404 permit application, preparation of a permit application has been deferred until the Tier Two studies have been undertaken and impacts from specific alternative highway alignments can be determined. Additional coordination with the USACE and, possibly, the USCG, will be required as the project progresses into Tier Two.

Comment 94: A joint federal/state permit would be required for activities that impact Waters of the U.S. in Maryland. The applicant must demonstrate that proposed impacts to streams and wetlands are necessary and unavoidable and that all avoidance and minimization measures have been fully exhausted.

Response 94: Although this Tier One FEIS provides background information in support of a future Section 404 permit application, preparation of a permit application has been deferred until the Tier Two studies have been undertaken and impacts from specific alternative highway alignments can be determined.

Comment 95: The US 220 Improvement Project will be subject to the EPA/Corps 2008 Mitigation Rule. A discussion of potential mitigation for unavoidable impacts to Waters of the U.S. should be included. The document states that this will be addressed during Tier Two.

Response 95: As noted in the Preface of this FEIS under the proposed Tier Two methodologies, a commitment to develop avoidance, minimization, and mitigation strategies has been made for the project.

Comment 96: We look forward to discussing the preferred corridor, crossover options, the LEDPA, and additional comments with FHWA and other stakeholders at a meeting as EPA suggested.

Response 96: FHWA, MDSHA, and WVDOH held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, in Cumberland, MD. At the meeting, FHWA, MDSHA, and WVDOH provided updates on the schedule for finalizing the FEIS, provided background on work to date, discussed the crossover analysis, reviewed comments on the Preliminary FEIS, and discussed potential Tier Two commitments. After the meeting, minutes were distributed to all agency representatives. Minutes from that meeting are found in Appendix H.

<u>USDOI (July 24, 2013)</u>

Comment 97: The Department will review and comment on the Section 4(f) Evaluation when it is completed in conjunction with the Tier Two analysis.

Response 97: No response is necessary.

Comment 98: The Department has no further comments or issues with the DEIS dated May 2013 as it no longer proposes development on NPS lands. This opinion shall remain, provided the preferred corridor (Corridor B) does not change.

Response 98: No response is necessary.

USEPA (July 31, 2013)

Comment 99: EPA remains concerned that all comments have not been fully understood or vetted. It is not clear that all comments have been included and addressed in the comment response matrix.

Response 99: All comments have been reviewed and considered in the development of the FEIS. MDSHA, and WVDOH specifically held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, to discuss agency comments with agency representatives, discuss the crossover analysis, update the schedule for finalizing the FEIS, and discuss potential Tier Two environmental commitments.

Comment 100: The resource agencies proposed potential crossover options for FHWA's consideration; documentation for evaluating these options is limited.

Response 100: In an effort to avoid potential impacts to Dans Mountain WMA and Pinto Marsh, several resource agencies requested consideration of a Modified Corridor C, near McKenzie, utilizing the northern portion of Corridor B and the southern portion of Corridor C. The USEPA also requested consideration of a different modified corridor utilizing portions of Corridor B at its northern and southern ends, the middle portion of Corridor C, and two crossovers of Knobley Ridge, the northernmost in the vicinity of WV 956 and the southernmost in the vicinity of US 50.

In order to determine what effects might occur within these corridor options, a preliminary environmental screening, utilizing the same information collected for the development of the DEIS, was conducted. After the analysis was completed, the crossover corridors were not shown to offer any improvement over other corridors. From a variety of factors, they would also likely increase the overall environmental consequences and costs of the project and generate considerable public controversy. As a result, crossover corridors were dropped from further consideration. An analysis of the potential crossovers is found in Chapter 2.0 and Appendix G.

Comment 101: The Preliminary FEIS states that if necessary to avoid environmental, cultural, and socioeconomic resources the current 4,000-foot corridor will be expanded in width during Tier 2. It is not apparent to EPA that the proposed width expansion will be sufficient to adequately avoid and minimize resource impacts to the extent necessary to determine the least environmentally damaging practicable alternative (LEDPA). EPA continues to express concern that there may be no viable alternative within FHWA's preferred corridor B, even with an expanded corridor width.

Response 101: It is thoroughly understood that there are significant environmental resources within the preferred corridor. Although several areas of environmental concern within the preferred corridor will remain at the close of Tier One, a full range of alternatives will be developed and analyzed within the preferred corridor during Tier Two, including a system upgrade of existing roads and transportation systems management strategies, as well as potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid, or minimize impacts to, resources.

Comment 102: EPA requests a meeting to discuss with FHWA and federal and state resource agencies correspondences provided on the Draft EIS and other comments provided to date. At the proposed meeting EPA would like to hear from FHWA how agency comments are being addressed, what changes have been made in the preliminary copy of the Final EIS, and to discuss in greater detail the crossover options presented.

Response 102: FHWA, MDSHA, and WVDOH held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, in Cumberland, MD. At the meeting, FHWA, MDSHA, and WVDOH provided updates on the schedule for finalizing the FEIS, provided background on work to date, discussed the crossover analysis, reviewed comments on the Preliminary FEIS, and discussed potential Tier Two commitments. After the meeting, minutes were distributed to all agency representatives. Minutes from the meeting are found in Appendix H.

Comment 103: EPA suggests initiating a discussion of commitments to be made in the Final Tier 1 EIS and Record of Decision, as well as expectations for the Tier 2 process.

Response 103: FHWA, MDSHA, and WVDOH held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, in Cumberland, MD. At the meeting, FHWA, MDSHA, and WVDOH provided updates on the schedule for finalizing the FEIS, provided background on work to date, discussed the crossover analysis, reviewed comments on the Preliminary FEIS, and discussed potential Tier Two commitments. After the meeting, minutes were distributed to all agency representatives. Minutes from this meeting are found in Appendix H.

MDNR (August 2, 2013)

Comment 104: We strongly advocate and request that further interagency coordination be conducted at this current planning phase to resolve and document the outstanding issues to the satisfaction of the Lead, Cooperating, and Participating Agencies, before project planning and documentation proceeds from the current phase.

Response 104: FHWA, MDSHA, and WVDOH held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, in Cumberland, MD. At the meeting, FHWA, MDSHA, and WVDOH provided updates on the schedule for finalizing the FEIS, provided background on work to date, discussed the crossover analysis, reviewed comments on the Preliminary FEIS, and discussed potential Tier Two commitments. After the meeting, minutes were distributed to all agency representatives. Minutes from this meeting are found in Appendix H.

Comment 105: Our review team is not convinced that adequate joint planning and review coordination has occurred on several project aspects of extreme importance. The Department has the responsibility to fully represent natural resource concerns in Maryland, and we have concerns regarding the balance of issue coordination between different corridors and sections of the project, as well as the level of consideration of potential impact minimization alternatives that have been suggested. It is essential in our review activities to be certain that full consideration has been given to all practicable alternatives and options to fully avoid and then minimize potential impacts to natural resources.

Response 105: All comments and suggestions from the resource agencies and local planning groups have been reviewed and considered in the development of the FEIS. Agency coordination has been an ongoing process throughout the project. Formal requests for information have occurred throughout the project and a coordination plan (WVDOH 2011) was prepared in accordance with *SAFETEA-LU*. Formal coordination began with interagency field reviews in May 2006. Field reviews with the Maryland and West Virginia SHPOs also occurred in February-March 2007. Interagency meetings were also held with the Maryland resource agencies and federal agencies with jurisdiction in Maryland on February 15, 2006, January 17, 2007, June 20, 2007, May 19, 2010, April 18, 2012, November 28, 2012, and December 3, 2013, to provide additional opportunities to review and comment on the project as it evolved. All but the November 28, 2012, and December 3, 2013, meetings were routine, regularly scheduled interagency meetings. The November 28th and December 3rd meetings were scheduled specifically to report on the findings and recommendations anticipated to be included in this FEIS. A meeting was also held with the West Virginia agencies and federal agencies with jurisdiction in West Virginia on February 27, 2007, and with the NPS at its Hagerstown headquarters for the Chesapeake and Ohio Canal National Historical Park on April 16, 2007.

Comment 106: Inadequate documentation and clarity exists related to the consideration of the Potomac River crossover alignments (especially in regards to potential avoidance measures for Pinto Marsh), and the information used to propose dropping of Corridor C from further consideration. Dan's Mountain WMA is of primary importance in our review, and potential impact avoidance and minimization measures for that area require additional coordination. We understand that certain further avoidance and minimization efforts are targeted for Tier Two studies, but given the importance of natural resources in the study area and the proposal to drop corridors and options prior to Tier Two, we advocate that additional detailed discussion, documentation, and avoidance and minimization efforts occur now prior to leaving the Preliminary Draft stage of the FEIS.

Response 106: There are significant environmental resources within the preferred corridor, including Dans Mountain that will require considerable stewardship, enhancement measures, and mitigation as the project progresses to Tier Two. Although several areas of environmental concern fall within the preferred corridor, a full range of alternatives will be developed and analyzed during Tier Two, including a system upgrade of existing roads and transportation systems management strategies, as well as potential new highway alignments. If necessary to avoid environmental, cultural, and socioeconomic resources, the 4,000-foot corridor studied during Tier One will be expanded in width during Tier Two to accommodate alternatives and avoid or minimize impacts to resources.

Specific commitments to develop avoidance, minimization, and mitigation strategies proposed for Tier Two are listed in the Preface of this FEIS. The list is not exhaustive, however, and additional commitments will be made as the project proceeds in Tier Two.

Comment 107: We advocate that the agencies meet to go over the previous comments and Project Study Team responses in an effort to further study and resolve the review topics where agency disagreement remains.

Response 107: FHWA, MDSHA, and WVDOH held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013, in Cumberland, MD. At the meeting, FHWA, MDSHA, and WVDOH provided updates on the schedule for finalizing the FEIS, provided background on work to date, discussed the crossover analysis, reviewed comments on the Preliminary FEIS, and discussed potential Tier Two commitments. After the meeting, minutes were distributed to all agency representatives. Minutes from this meeting are found in Appendix H.

MDP (August 2, 2013)

Comment 108: Alleghany County noted that the section on public transportation, the priority funding map, and the land use map should be updated.

Response 108: These sections have been updated in Chapters 1.0 and 3.0 of this FEIS as requested

Comment 109: We suggest that the information on the requirement on the compliance with the PFA law in the Tier Two NEPA study be included in the Executive Summary and Preface's unresolved issues sections.

Response 109: This information has been added to both the Executive Summary and the Preface of the FEIS.

Comment 110: The FEIS should make a note that the Tier Two studies for the US 220 corridor will address smart growth related strategies for future improvements within the corridor.

Response 110: This information has been added to both the Executive Summary and the Preface of the FEIS.

Comment 111: Please contact MDP for an updated PFA boundary map for Allegany County.

Response 111: MDP has provided the updated PFA boundaries. They are reflected in Figure 1-7 of this FEIS.

Comment 112: In the section on Indirect Impacts, we suggest the FEIS include information on Alleghany County's Mountain Ridge Rural Legacy Area and how it would be affected by the project.

Response 112: This information has been added to the "Unresolved Issues" section of the Preface in the FEIS.

Comment 113: Through the MDP's clearinghouse function, the MDE requested that the following ten items be included in the Tier Two EIS: 1.) Provide information on the ages of any existing structures that will be disturbed or demolished; 2.) Use BMPs to reduce potential for particles becoming airborne during construction; 3.) Provide information on any equipment which has the potential for creating emissions; 4.) In the event contaminated soil is encountered, the MDE should be contacted; 5.) If there are any expected changes in traffic volumes, a detailed evaluation of the resulting change in emissions may be required; 6.) An evaluation of emissions resulting from construction or any newly installed equipment will need to be calculated to confirm these emissions do not exceed permitted levels; 7.) All new construction must meet and/or exceed state requirements for energy efficiency; 8.) Cutback asphalt shall not be used during June, July and August; 9.) The project falls within a PFA; and 10.) The cumulative impacts of emissions from other concurrent construction projects should be evaluated.

Response 113: Commitments addressing these issues have been added to the Preface in the FEIS.

Comment 114: Any solid waste generated from the project must be properly disposed of at a permitted solid waste acceptance facility.

Response 114: A commitment to properly dispose any solid waste generated from the project at a permitted solid waste acceptance facility has been added to the Preface in the FEIS.

Comment 115: It is recommended that environmental screening for Tier II High Quality Waters be incorporated into the project's work plan.

Response 115: Commitments to conduct more detailed analyses of potential impacts on streams, wetlands, water quality, and other natural resources have been made in the Preface of the FEIS.

Comment 116: Through the MDP's clearinghouse function, the MDNR noted its concern with potential impacts to Dan's Mountain WMA that would likely occur if the current preferred corridor is chosen.

Response 116: It is fully understood that the preferred corridor would impact the eastern edge of Dans Mountain. Detailed engineering studies will be conducted in Tier Two to develop actual alternative alignments that may be able to minimize the extent of these potential impacts. Dans Mountain is one of the largest contiguous tracts of forestland in the state of Maryland; a considerable amount of coordination with the USFWS, MDNR, and MDE will be necessary during Tier Two to analyze actual alternatives that could impact it. If necessary, the width of the preferred corridor will be expanded to develop avoidance alternatives.

Comment 117: The air quality issues appear to be adequately addressed for this phase of the FEIS. The documentation includes a summary of comments/responses, which indicate that the significant comments previously submitted by WVDEP will be adequately addressed in the Tier Two FEIS.

Response 117: No response is necessary.

Comment 118: We defer additional comment until the Tier Two FEIS is completed and made available for review.

Comment 118: No response is necessary.

At the request of the resource agencies, FHWA, MDSHA, and WVDOH held a coordination meeting with representatives from federal, Maryland, and West Virginia resource agencies on December 3, 2013. The meeting was held at the MDSHA District office in Cumberland, MD. At the meeting, FHWA, MDSHA, and WVDOH provided updates on the schedule for finalizing the FEIS, provided background on work to date, discussed the crossover analysis, reviewed comments on the Preliminary FEIS, and discussed potential Tier Two commitments. FHWA also noted that only one corridor, Corridor B, was being recommended to be carried into Tier Two, but that corridor could be expanded beyond its current 4,000-foot width to allow for many potential highway alignments to be studied.

7.8 Post-December Agency Meeting Coordination

After the December 3, 2013 coordination meeting, minutes were distributed to all agency representatives regardless of whether or not they attended the meeting or offered comments. Minutes from that meeting are also found in Appendix H.

Following the meeting, several email messages were submitted from agency representatives. The messages conveyed clarifications to previous comments, provided additional suggestions for Tier Two, or confirmed that coordination efforts were progressing in a positive direction. Agencies submitting email messages included MDNR, MDP, USEPA, USFWS, and WVDCH. MDNR clarified certain points in the previous meeting's minutes, including the need for environmental enhancements in the project for wildlife. Both MDP and USFWS confirmed that they had no further comments. The USEPA asked for confirmation that any new commitments for Tier Two would be reflected in the document and that the Tier Two would feature an enhanced agency participation process. The WVDCH indicated that the section 106 requirements for Tier One had been fulfilled, but coordination would have to continue into Tier Two. Copies of the emails are included in Appendix H. All of the issues raised in these emails are addressed in the Preface of this FEIS.

Finally, Appendix H also includes a guide to responses and comments to aid readers of the FEIS. This guide is offered through two tables, the first summarizes the agency comments and responses to assist with a review of the changes to the FEIS and serves as a guide for reviewing specific comments and responses. The second serves as a guide to changes made after the Preliminary FEIS was distributed to the resource agencies.

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CHAPTER 11.0

ACRONYMS

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AADT Average Annual Daily Traffic

AASHTO American Association of State Highway and Transportation Officials

ABL Allegheny Ballistics Laboratory

ACHP Advisory Council on Historic Preservation

ADHS Appalachian Development Highway System

ADT American Discovery Trail

AST Above Ground Storage Tank

BFA Best Fit Alignment

BMP Best Management Practice

B&O Baltimore and Ohio

ca./c. Circa

CAA Clean Air Act

CEA Cumulative Effects Assessment

CEQ Council on Environmental Quality

CFR Code of Federal Regulations

CNA Conditions Not Allowable

CO Carbon Monoxide

COMAR Code of Maryland

CR County Route

CSR Code of State Regulations

CWA Clean Water Act

DEIS Draft Environmental Impact Statement

DFIRM Digital Flood Insurance Rate Map

EIS Environmental Impact Statement

ESA Endangered Species Act

FEIS Final Environmental Impact Statement

FEMA Federal Emergency Management Agency

FHWA Federal Highway Administration

FIDS Forest Interior Dwelling Species

FIRM Flood Insurance Rate Map

FPPA Farmlands Protection Policy Act of 1981

FY Fiscal Year

GIS Geographic Information System

HUC Hydrologic Unit Code

LOS Level of Service

LRTP Long-Range Transportation Plan

MD Maryland

MDE Maryland Department of the Environment

MDNR Maryland Department of Natural Resources

MDP Maryland Department of Planning

MDSHA Maryland State Highway Administration

MHT Maryland Historical Trust

MOA Memorandum of Agreement

MOU Memorandum of Understanding

mph Miles Per Hour

MPO Metropolitan Planning Organization

MSA Metropolitan Statistical Area

MSAT Mobile Source Air Toxic

MYBP Million Years Before Present

NAAQS National Ambient Air Quality Standards

NAC Noise Abatement Criteria

NEPA National Environmental Policy Act of 1969

NFIP National Flood Insurance Program

NHS National Highway System

NOI Notice of Intent

NPDES National Pollutant Discharge Elimination System

NPS National Park Service/Non-Point Source

NRCS Natural Resources Conservation Service

NRHP National Register of Historic Places

NSA Noise Sensitive Area

NWI National Wetlands Inventory

O_3 Ozone

O-D Origin – Destination

OMB Office of Management and Budget

PA Programmatic Agreement

PCB Polychlorinated Biphenyls

PEM Palustrine Emergent

PennDOT Pennsylvania Department of Transportation

PFA Priority Funding Area

PFO Palustrine Forested

PHF Peak Hour Factor

POW Palustrine Open Water

PSD Public Service District

PSS Palustrine Scrub-Shrub

PUS Palustrine Unconsolidated Shore

RCRA Resource Conservation and Recovery Act

REC Recognized Environmental Conditions

RFFA Reasonably Foreseeable Future Action

RM River Mile

ROD Record of Decision

RTE Rare, Threatened, and Endangered

SAFETEA-LU Safe, Accountable, Flexible, Efficient Transportation Act: A Legacy for Users

SHPO State Historic Preservation Office

SIP State Implementation Plan

SO_2 Sulfur Dioxide

TEA-21 Transportation Equity Act for the 21st Century

TMDL Total Maximum Daily Load

UNT Unnamed Tributary

USACE United States Army Corp of Engineers

USCB United States Census Bureau

USCG United States Coast Guard

USDA United States Department of Agriculture

USDOI United States Department of the Interior

USDOT United States Department of Transportation

USEPA United States Environmental Protection Agency

USFWS United States Fish and Wildlife Service

USGS United States Geological Survey

UST Underground Storage Tank

UTM Universal Transverse Mercator

VFD Volunteer Fire Department

VMT Vehicle Miles Traveled

VPD Vehicles per Day

VPH Vehicles per Hour

WMA Wildlife Management Area

WMRR Western Maryland Railway or Railroad

WPA Works Progress Administration

WV West Virginia

WVDCH West Virginia Division of Culture and History

WVDEP West Virginia Department of Environmental Protection

WVDNR West Virginia Division of Natural Resources

WVDOH West Virginia Division of Highways

WVURC West Virginia University Research Corporation

WVURRI West Virginia University-Regional Research Institute

WVSOS West Virginia Secretary of State