SECTION II: ALTERNATIVES ANALYSIS

In accordance with FHWA guidance, this Supplemental Final Environmental Impact Statement (SFEIS) incorporates by reference the Final Environmental Impact Statement (FEIS) and the subsequent Record of Decision (ROD) for the Appalachian Corridor H Project, both issued in 1996. The Parsons-to-Davis Project Supplemental Draft Environmental Impact Statement (SDEIS) was signed and circulated for public and agency comment in December 2002.

In 2003 and 2004, Preferred Alternative Reports were prepared and circulated for agency concurrence. The Revised Original Preferred Alternative (ROPA) has been identified as the preferred alternative for the Parsons-to-Davis Project. This SFEIS incorporates updated information and analysis since the December 2002 SDEIS, as appropriate. Substantive comments received on the SDEIS, are addressed throughout the document and corresponding responses are provided in Appendix A. Substantive comments received on this SFEIS will be addressed in the Amended Record of Decision.

2.1 HISTORY OF ALTERNATIVES CONSIDERED FOR CORRIDOR H

Alternatives for the overall Appalachian Corridor H Project (Corridor H) have been evaluated in five previous National Environmental Policy Act (NEPA) documents. Each document contains a complete discussion of alternatives developed, considered, and eliminated from detailed analysis. These documents are:

- 1992 Corridor Selection Draft Environmental Impact Statement (CSDEIS) – this document studied a broad range of potential corridors for the Corridor H alignment.
- 1993 Corridor Decision Document – this document selected Option D-5 Corridor from the CSDEIS for detailed alignment studies. The document recognized that "it may become necessary to develop a specific alignment outside, but in the general vicinity of the selected corridor for the express purpose of avoiding important sensitive resources."
- 1994 Alignment Selection Draft Environmental Impact Statement (ASDEIS) – this document studied a broad range of potential alignments within the selected Option D-5 Corridor, along with the No-Build Alternative and an Improved Roadway Alternative.
- 1996 Final Environmental Impact Statement (FEIS) – this document identified Option D-5 Corridor as the preferred corridor within which the Preferred Alignment Alternative (Line A) would be constructed for Corridor H as a whole.
- 1996 Record of Decision (ROD) – this document approved Option D-5 Corridor as the preferred corridor within which the Preferred Alignment Alternative (Line A) would be constructed for Corridor H as a whole.

2.2 RANGE OF ALTERNATIVES FOR THE PARSONS-TO-DAVIS PROJECT

2.2.1 DEVELOPMENT OF ALTERNATIVES

According to the Settlement Agreement, the Federal Highway Administration (FHWA) and the West Virginia Department of Transportation (WVDOT), Division of Highways (WVDOH) will evaluate a reasonable range of alternatives for the Parsons-to-Davis Project that will include at least one "Blackwater Avoidance Alignment" and the "Blackwater Alignment". A Blackwater Avoidance Alignment is defined in the Settlement Agreement as "any alignment for Corridor H that is located entirely outside the Blackwater Area" (Appendix B, Settlement Agreement, p. 6). The "Blackwater Alignment" is defined in the Settlement Agreement as "the alignment for the Thomas-Davis Section that FHWA approved in the August 1996 Corridor H ROD, or any other alignment for the Thomas-Davis Section that is located at least partly within the Blackwater Area." The Blackwater Area is defined as "the area within and around the Blackwater Valley, south of Thomas" (Appendix B,

Settlement Agreement, p. 6). The alignment approved by FHWA in the August 1996 Corridor H ROD is referred to as the Original Preferred Alternative (OPA) in this document.

The Settlement Agreement does not establish a minimum number of Blackwater Avoidance Alternatives that must be considered. However, the National Environmental Policy Act (NEPA) requires that all reasonable alternatives be considered. Therefore, a range of alternatives has been developed through a scoping process consistent with FHWA regulations and guidelines. The alternatives identified and studied in the Parsons-to-Davis NEPA process satisfy FHWA's and WVDOT's obligations under NEPA and the Settlement Agreement. This process is illustrated in Figure II-1.

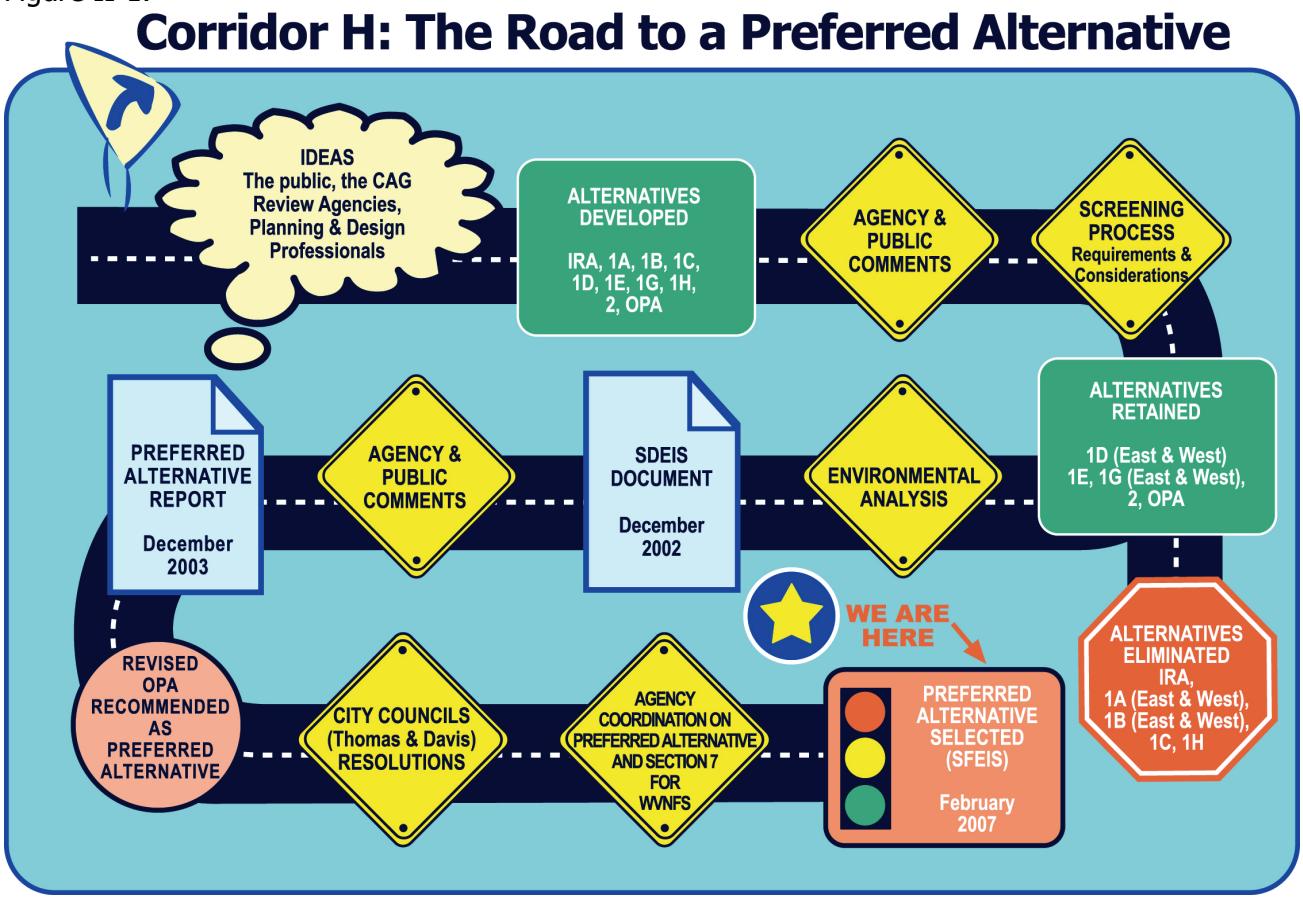

Figure II-1
Corridor H: The Road to a Preferred Alternative

WVDOT and FHWA identified and considered multiple factors in identifying the range of alternatives to be studied in the Supplemental Environmental Impact Statement (SEIS) and in evaluating these alternatives for the Parsons-to-Davis Project. These factors include: (i) environmental constraints and (ii) engineering constraints. A discussion of each of these factors is provided below. All Build Alternatives were developed to fulfill engineering guidelines and to avoid other potential environmental impacts where practicable.

2.2.2 CONSIDERATION OF ENVIRONMENTAL CONSTRAINTS

The locations of environmental constraints in the Study Area were initially identified from existing data sources (e.g., aerial photographs, wetlands mapping, agency file mapping) and information obtained from previous Corridor H environmental documents. These data were then compiled and refined by field investigations, entered into a computer-managed, geo-referenced mapping program

and laid over geo-referenced United States Geological Survey (USGS) digital topographic mapping (scale 1" = 2000') for preliminary environmental analysis and engineering.

Multiple environmental constraints within the Study Area influenced the alternatives that were reasonable, and thus would be studied in detail in the SEIS. These baseline environmental constraints were presented to resource agencies on December 14, 2000 and to the public on January 18, 2001, and included:

- Refuse Sites (e.g., the Tucker County Landfill);
- Wetlands;
- Endangered Species Habitats;
- Potential Displacements (residential, commercial, and industrial);
- Historic Properties;
- Mines;
- Community Services; and,
- Recreational Facilities.

Baseline environmental constraints are shown in Exhibit II-1. Environmental constraints that were of particular importance in evaluating alternatives due to their environmentally sensitive nature included West Virginia Northern Flying Squirrel (WVNFS) habitat, Big Run Bog, and Slip Hill Mill Run.

2.2.2.1 Big Run Bog and Slip Hill Mill Run

During environmental studies conducted in the 1990s, Big Run Bog was identified within the Study Area. Big Run Bog is located on the southeast flank of Backbone Mountain in the Monongahela National Forest, in Tucker County, West Virginia (Exhibit II-1). Designated a National Natural Landmark in December 1974, Big Run Bog is a relict Pleistocene high altitude northern sphagnum-red spruce bog far south of its normal range, with a substantial number of rare plants and animals. The OPA, which was located approximately one half mile north of the bog, did not directly impact this unique wetland resource.

While the 1996 Corridor H FEIS addressed Big Run Bog and presented results of the FHWA's Section 4(f) analysis, the WVDOH received additional comments regarding Big Run Bog from the National Park Service (NPS) in March 1997. In response to those comments, WVDOT conducted additional studies and analyses to determine the potential impact of the OPA on Big Run Bog's contributing watershed, and developed alternative alignments that would avoid any encroachment on the Big Run Bog watershed. In 1998 the OPA was shifted (post-1996 ROD) to the north-northwest to further avoid direct impact to Big Run Bog and its watershed. The alignment shift to avoid the Big Run Bog watershed placed the alignment alternatives for the Parsons-to-Davis Project within the Slip Hill Mill Run and Mill Run watersheds (Figure II-2).

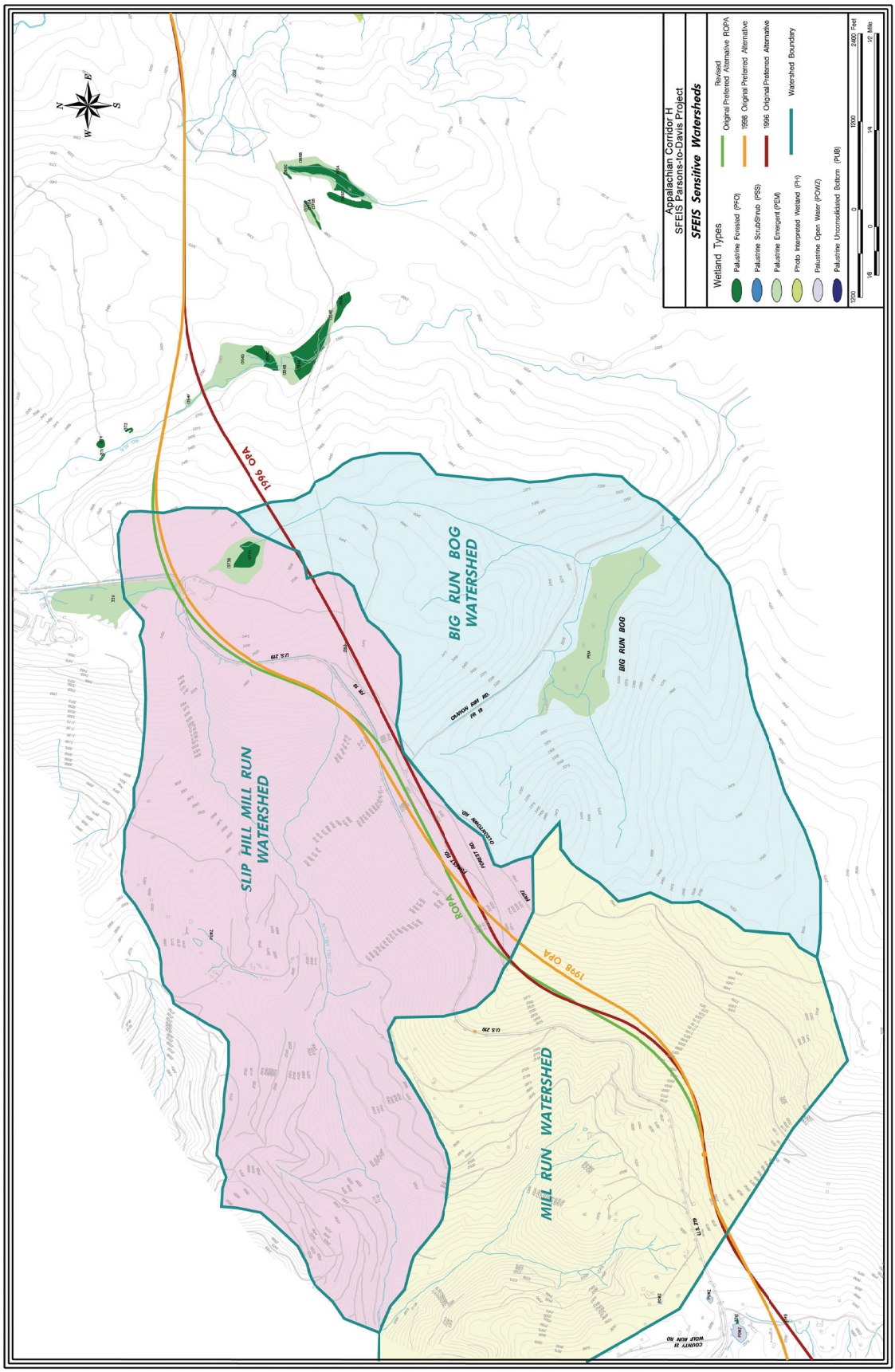

Figure II-2
SFEIS Sensitive Watersheds

Slip Hill Mill Run and Mill Run support native brook trout (*Salvelinus fontinalis*) populations which are very sensitive to changes in stream condition, especially increases in temperature and sedimentation (Etnier and Starnes, 1993). In May 2004, the United States Forest Service (USFS MNF) provided comments to the Parsons-to-Davis Project's Preferred Alternative Report (December 2003) that was circulated for agency comment in January 2004. While supporting efforts to avoid Big Run Bog watershed, the USFS MNF expressed concern that the construction of the Parsons-to-Davis Project may increase the sediment burden of Slip Hill Mill Run and Mill Run, which may impact brook trout reproductive success within these streams. In response to these comments, the WVDOT conducted additional studies of these streams to characterize existing stream debris load and water quality, to determine if brook trout use the headwater tributaries of Slip Hill Mill Run and Mill Run, and to better assess the potential direct and indirect impacts to these sensitive streams. In addition, West Virginia University began long-term water chemistry, benthic macroinvertebrate, and fish surveys within Slip Hill Mill Run, in accordance with environmental commitments made in Volume III of the 1996 Corridor H FEIS.

2.2.2.2 West Virginia Northern Flying Squirrel (WVNFS)

During preparation of the SEIS, FHWA and WVDOT re-initiated informal consultation with the United States Fish and Wildlife Service (USFWS) for the WVNFS under Section 7 of the Endangered Species Act. Consultation was re-initiated because:

1) new information on the ecological habitat requirements and distribution of the WVNFS had been gained since 1996;
2) a post-1996 ROD alignment shift in the OPA to avoid Big Run Bog and its watershed had not been surveyed for WVNFS; and
3) the alternatives being developed to avoid the Blackwater Area in accordance with the Settlement Agreement also needed to be surveyed for the WVNFS.

Live-trapping surveys were conducted in potential habitat along alignments being developed for the SEIS and in the area of the OPA shift by Big Run Bog. Twenty-one WVNFS were captured in an area along Big Run and two were captured in an area near Middle Run. Subsequently, USFWS recommended that WVDOT identify and investigate an alternative that would avoid these capture areas (letter dated August 24, 2001, Appendix A).

A habitat suitability study was undertaken to assist in the development of alignments that would avoid the WVNFS. This study involved three separate but related activities (additional live trapping, detailed vegetative community analysis and Geographic Information System (GIS)-based satellite imagery analysis) and has been detailed in the WVNFS Biological Assessment (BA) prepared for the Parsons-to-Davis Project by Michael Baker Jr., Inc. (submitted to USFWS August 2002 and revised and re-submitted in August 2004). The habitat suitability study resulted in a better understanding of the WVNFS habitat and aided the development of feasible alternatives that would avoid known populations and avoid and/or minimize impact to potentially occupied habitat. Section 2.8 provides details regarding the additional engineering performed on the Revised Original Preferred Alternative (ROPA) as part of on-going Section 7 consultation for the West Virginia Northern Flying Squirrel (WVNFS); additional engineering activities include the reduction/re-appropriation of waste and borrow materials and other design changes. A more detailed discussion of the WVNFS is also included in Section 3.3.3.3 of this SFEIS. The Biological Opinion for the WVNFS is provided in Appendix C.

2.2.3 CONSIDERATION OF ENGINEERING CONSTRAINTS

Based on the environmental constraint mapping, preliminary engineering was conducted to the "line and grade" stage with sufficient detail to (i) estimate the preliminary cost per alternative, (ii) estimate the amount of earthwork required for construction, and (iii) identify and preliminarily

design necessary connections. In addition to the environmental constraints discussed above, the preliminary engineering effort was constrained by design standards, excess excavation, and connection requirements. Each of these engineering constraints is discussed below.

2.2.3.1 Design Standards

The Parsons-to-Davis Project (as part of Corridor H) is being constructed as part of the Appalachian Development Highway System (ADHS) (as discussed in *Section I: Project Background and Need*). Therefore, the design standards for this project must be consistent with the design standards of ADHS and for Corridor H as a whole. Corridor H is a principal arterial roadway with a design speed of 70 miles per hour (mph). The 70 mph design speed and the principal arterial designation determine the severity of allowable horizontal and vertical curves and the severity of allowable grades. The design standards used are those prescribed in the 1994 edition of A Policy of Geometric Design of Highways and Streets (AASHTO) and current West Virginia Division of Highways design directives. Build Alternatives were therefore developed to meet the following applicable design standards:

- Design speed of 70 mph,
- Maximum allowable degree of curve of 3º00'00", and
- Maximum allowable grade of 5 percent.

The standard roadway template for Corridor H, or typical section, is depicted in Figure II-3. Generally, proposed Corridor H consists of a divided highway with two 12-foot lanes in each direction. Each travel way is separated by a maximum 46-foot graded median. Paved shoulders, 10 feet wide, are required for the outside lanes, and 6-foot paved median shoulders are also included.

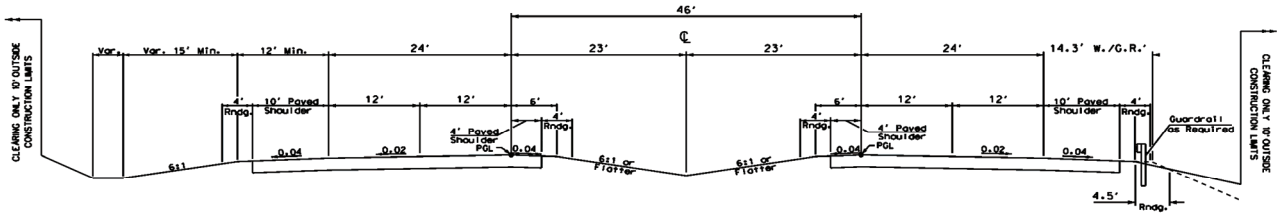

Figure II-3
Typical Section

2.2.3.2 Earthwork Volumes

Another engineering constraint affecting alternative development is the earthwork volume generated by each Build Alternative. Earthwork volume is the amount of soil and/or rock that has to be cut in one area of an alignment and then moved to fill another area. If the amount of cut material exceeds the amount of fill needed, there is an excess or "waste" situation and the waste must be disposed of somewhere off-site. The disposal of waste adds cost and environmental impacts to the project. If the fill requirement exceeds the amount of cut material available, a "borrow" situation exists. Additional fill material must be acquired from some source other than that generated by the project. Like disposal of waste, borrowing can also lead to additional costs and environmental impacts for the project.

Earthwork volumes used in this alternatives analysis are based on large-scale plans, which have been developed at a level appropriate for a NEPA study; it is not possible at this stage to account for how the project will be divided during construction. Therefore, the volumes may change during final design. This analysis is a tool used to evaluate the differences between alternatives.

2.2.3.3 Connection Requirements

As an economic development highway, Corridor H must serve to promote connections between population centers (e.g., Parsons, Thomas, and Davis), and current or proposed employment centers (e.g., the Tucker County Industrial Park, and the Cortland Acres Nursing Home). Connections between other roadways in the Study Area (e.g., US 219) and Corridor H are necessary to achieve the economic development purpose of Corridor H.

Potential connections between the mainline of Build Alternatives and existing roadways must also provide viable access opportunities for truck traffic. Trucks are expected to use Corridor H via connector roads, especially to access the Tucker County Landfill in the eastern portion of the Parsons-to-Davis Project's Study Area. The grades and length of the connections were designed to facilitate efficient truck traffic flow; however, the alternative designs vary in the extent to which each achieves this efficiency as discussed below in the alternatives screening process.

2.3 CONSIDERATION OF ALTERNATIVES IN THE SDEIS

Based upon the factors identified above, WVDOT and FHWA identified and considered a range of alternatives in the SDEIS. Generally, these alternatives included a no-build alternative (Exhibit II-1), an improved roadway alternative, and multiple build alternatives (Exhibit II-2). The specific alternatives considered included:

- No-Build Alternative
- Improved Roadway Alternative (IRA)
- Build Alternatives:
- Blackwater Alternatives:
  - Original Preferred Alternative (OPA), with a Truck Route option
  - Alternative 2, with a Truck Route option
- Blackwater Avoidance Alternatives:
  - Alternative 1A (East and West options)
  - Alternative 1B (East and West options)
  - Alternative 1C
  - Alternative 1D (East and West options)
  - Alternative 1E
  - Alternative 1G (East and West options)
  - Alternative 1H

(Note: Alternative "1F" was eliminated early in the process because it passed through the middle of the Tucker County Landfill.) Additionally, a Truck Route option was considered for the OPA and Alternative 2, in order to allow trucks to bypass the City of Thomas. The Truck Route has been incorporated into those alternatives in this SFEIS.

2.3.1 NO-BUILD ALTERNATIVE

The Settlement Agreement does not specifically mandate consideration of a no-build alternative. However, Council on Environmental Quality (CEQ) regulations governing all federal agencies specifically require analysis of a No Action (i.e., No-Build) alternative in an Environmental Impact Statement (EIS) as a basis for comparison with the other alternatives. Therefore, while the No-Build Alternative clearly does not achieve the purpose and need for the project, it has also been defined and considered in the alternatives analysis, and carried forward for detailed analysis.

Under the No-Build Alternative, the Parsons-to-Davis Project would not be constructed. Instead, WVDOT would continue to maintain existing roads in the Study Area as part of its normal roadway improvement programs. For the purpose of this SFEIS, the No-Build Alternative (Exhibit II-1) assumes that US 219 - WV 32 - WV 93 would remain the principle east-west route through the Study Area. As per FHWA and CEQ regulations, the No-Build Alternative will be carried through the SFEIS as an environmental "base line."

2.3.2 IMPROVED ROADWAY ALTERNATIVE (IRA)

In the Settlement Agreement, the plaintiffs in the Corridor H lawsuit agreed not to submit NEPA comments or file lawsuits seeking further consideration of an IRA in the SEIS. However, the Settlement Agreement does not state that an IRA can be automatically eliminated from detailed consideration in the SEIS. Therefore, an IRA has been defined and considered in the alternatives screening process for this document.

The IRA consists of more extensive upgrades (e.g., climbing lanes, horizontal and vertical curve re-alignments, and improvements to sight distance) to existing east-west roads than are proposed in the No-Build Alternative. This alternative would serve as the Parsons-to-Davis Project portion of Corridor H. Specifically, in this alternative, spot improvements would be made, where possible, to the principal existing east-west route in the Study Area, especially to US 219 as it traverses Backbone Mountain. The IRA would require a lower design speed than the rest of the alternatives. A design speed of 40 mph was used as a general guide, but not an absolute requirement, to determine what spot improvements would be necessary to ensure safe travel on this route. Where achieving a 40 mph design speed would require major relocations of the existing roadway, significant environmental impacts, or substantial costs, it was assumed that a lower design speed would be accepted. The IRA would shorten the existing travel route from 11.8 to 8.9 miles.

2.3.3 BUILD ALTERNATIVES

Consistent with the Settlement Agreement, the Build Alternatives include both "Blackwater Avoidance Alignments," which are located entirely outside the Blackwater Area, and "Blackwater Alignments," which pass through the Blackwater Area. The Build Alternatives include options that avoid known populations of the WVNFS and minimize impacts on potential habitat that could support populations of the WVNFS. All Build Alternatives were developed to fulfill engineering guidelines and to avoid other potential environmental impacts where practicable. The Build Alternatives are described in detail below.

2.3.3.1 BLACKWATER ALTERNATIVES

Original Preferred Alternative (OPA)

The OPA is the portion of Corridor H within the Study Area that was approved in the 1996 Corridor H ROD (between Stations 2465+00 and 2635+00). The OPA would be a four-lane divided highway approximately nine miles in length, and it would span the watersheds of Mill Run, Slip Hill Mill Run, Big Run, Tub Run, Long Run, Middle Run, the North Fork of the Blackwater River (south of Thomas at Coketon), and Pendleton Creek. It provides a diamond-shaped, grade-separated connection with WV 32 just north of its existing intersection with WV 93. It connects with existing WV 93 north of Davis. The OPA is shown in Exhibit II-2 (The diamond-shaped connection is not depicted in the exhibit.)

Alternative 2

As described above, the WVNFS surveys found that the OPA passed through an area where the WVNFS has been found. As a result of these surveys, WVDOT developed Alternative 2 (Exhibit II-2), which avoids the known occupied habitat of the WVNFS.

Alternative 2 begins and ends at the same locations as the other Build Alternatives (the OPA and the Blackwater Avoidance Alternatives). Beginning on the west, Alternative 2 proceeds in a northerly direction, following the same route as the Blackwater Avoidance Alternatives in order to avoid known occupied habitat of the WVNFS. After passing the area of known occupied WVNFS habitat, Alternative 2 diverges from the Blackwater Avoidance Alternatives and turns to the south, where it rejoins the route of the OPA. From that point eastward,

Alternative 2 follows the same route as the OPA, except in the region of Middle Run, where Alternative 2 includes an alignment shift ("Middle Run shift") to avoid an additional area where the WVNFS has been found (Exhibit II-2). Like the OPA, Alternative 2 passes through the Blackwater Area, and thus is not a Blackwater Avoidance Alternative.

Truck Route Option

Existing heavy truck traffic was identified as a problem in the City of Thomas' Development Strategy (1998). Public comments and the Community Advisory Group (CAG) formed pursuant to the Settlement Agreement indicated that the OPA posed some concerns for the citizens of Thomas because it had the potential to increase the already problematic heavy truck traffic traveling through the town.

In order to address the concerns of Thomas, a two-lane Truck Route option was developed. The Truck Route is planned as a two-lane minor arterial with a 40 mph design speed. It would include at-grade intersections at its termini, located along WV 32 in the south and along US 219 to the north. (This route is referred to as a Truck Route because it is primarily intended to remove heavy truck traffic from downtown Thomas; however, the route would be open to all traffic, including passenger cars.) The Truck Route is illustrated in Exhibit II-2.

The SDEIS addressed the Truck Route as an option for addition to either the OPA or Alternative 2, since neither alignment provided a means for trucks to bypass downtown Thomas. After the analysis and assessment of comments on the SDEIS, it became clear that the Truck Route should be incorporated into the OPA and Alternative 2 for purposes of the alternatives analysis in this SEIS. Therefore all analysis since the SDEIS has assumed that the OPA and Alternative 2 would include the Truck Route (and not just have it as an option).

2.3.3.2 Blackwater Avoidance Alternatives

The SEIS considered 11 alignments that avoided the Blackwater Area. These Blackwater Avoidance alignments also avoid known occupied WVNFS habitat. A general Blackwater Avoidance alignment was developed and given the name Alternative "1." This alignment begins and ends along Corridor H at the same locations as the OPA (Stations 2465+00 and 2635+00). However, Alternative 1 proceeds north in order to avoid an area where the WVNFS was found in the western portion of the Study Area and to avoid the Blackwater Area in the eastern portion of the Study Area.

In order to provide an array of connection possibilities for consideration in the SEIS, multiple variations of Alternative "1" were developed and distinguished with the letters A through H. Each alternative would be a four-lane divided highway with partial control of access. Three connections are planned in the following general locations:

- US 219 at Benbush
- US 219 south of William and north of Thomas
- WV 93 north of Davis

Additional at-grade intersections may be accommodated following the guidelines for design set forth in the 1996 Corridor H FEIS.

The Blackwater Avoidance Alternatives considered in the SDEIS (1A East and West, 1B East and West, 1C, 1D East and West, 1E, 1G East and West, and 1H) are shown in Exhibit II-2. As explained below, the "East" and "West" designations reflect the route of the alternative around the Tucker County Landfill.

Tucker County Landfill "East" and "West" options

In March 2001, WVDOT and the Tucker County Solid Waste Authority held several meetings to discuss the Authority's plans for expansion of the Tucker County Landfill and how this proposed expansion might be impacted by Corridor H. Issues discussed included the view of the Tucker County Landfill from the future highway, the containment of windblown debris, and the preferred areas for expansion. Through these meetings, it was realized that the section of Corridor H proximate to the landfill presents specific concerns such as avoidance of the area immediately to the east which is the only suitable place of the landfill to expand its current cells; other concerns involve complex drainage requirements, permitting and the location of the landfill's scale operations.

Four of the Blackwater Avoidance Alternatives (Alternatives 1A, 1B, 1D, and 1G) have the option of passing to either the east or the west of the Tucker County Landfill. Each passes through or near a break in the Pendleton Creek wetland complex just north of the existing landfill (Exhibit II-2). From this point southward, each of the four alternatives could conceivably pass to either the west or the east of the Landfill. There was a concern at the March 2001 meetings between WVDOT and the Tucker County Solid Waste Authority that one of these alternatives could be eliminated solely based on the side of the landfill to which the alternative proceeded. It was decided that east *and* west options be developed, and that they both be considered for addition to any of these four alternatives. These alternatives were developed to compare the impacts and benefits of providing a Corridor H interchange at the landfill (West Options) and providing a Corridor H interchange at the proposed Tucker County Industrial Park (East Options).

2.3.4 PUBLIC INVOLVEMENT DURING SDEIS PREPARATION

During the development of the SDEIS, three public workshops were held to allow the public to participate in the identification of potential alignments. First, a public scoping meeting was held on June 14, 2000, to allow the public to preview the Study Area and to identify and discuss "key issues." On January 18, 2001, a public workshop was held to present the alternatives developed to date and to allow the public to both discuss the alternatives and provide comments on those alternatives that should be carried forward for detailed analysis. Finally, on October 23, 2001, a meeting was held to review the WVNFS findings and present the new avoidance alignments in the western portion of the Study Area.

Additionally, in accordance with the Settlement Agreement, WVDOT established and consulted with a Community Advisory Group (CAG) composed of 12 members representing a cross-section of the interests potentially affected by the location of Corridor H in the Thomas and Davis areas. The CAG held 11 meetings that were attended by WVDOT staff and moderated by a professional facilitator. The CAG prepared and submitted two comment letters that are considered part of the public comment record for the project (Appendix A).

All comments received from the agency meetings and public information workshops were reviewed and considered in the preparation of the Parsons-to-Davis SEIS. In addition to the formal opportunities for agency coordination and public involvement, comments were accepted throughout the SEIS process on the project website, www.wvcorridorh.com.

Section VII: Comments and Coordination provides more detailed information on public involvement in the development of alternatives for the SDEIS. All comment and coordination letters are located in Appendix A.

2.3.5 SDEIS ALTERNATIVE SCREENING PROCESS

The purpose of the screening process was to identify potential alternatives for consideration in the SDEIS. The Settlement Agreement required consideration of the OPA, and CEQ regulations required consideration of the No-Build Alternative. Therefore, the screening process focused mainly on identifying new alternatives – in addition to the No-Build Alternative and OPA – for consideration in the SEIS. This screening process occurred in two stages: Level One, which involved qualitative judgments about facility type and location; and Level Two, which involved a more detailed development and evaluation of specific alignments. After consideration of comments received on the SDEIS and further consultation with resource agencies, the analysis of alternatives was condensed and refined in this SFEIS; an updated comparison of alternatives is addressed in Section 2.5.1

2.3.5.1 Level One Screening

As noted above, the No-Build Alternative and the OPA were automatically carried forward for detailed analysis. Therefore, Level One screening focused on developing Blackwater Avoidance Alternatives. Two main criteria were applied at this stage, which included:

1) Must Provide a Four-Lane Connection from Parsons to Davis. The purpose of the project, as defined in the purpose and need statement (1996 Corridor H FEIS), is to provide a four-lane highway consistent with the design standards for the ADHS. Given this objective, any alternative that does not provide for a four-lane highway between the project termini will not be carried forward for detailed analysis. (Note: The No-Build Alternative does not satisfy this requirement; however, it is carried forward for detailed analysis as required by federal regulations [40 CFR 1502.14].)
2) Avoidance of the Blackwater Area. One of the primary purposes of this study is to determine whether the project can be shifted entirely outside the Blackwater Area as defined in the Settlement Agreement. Accordingly, new alternatives were developed so as to completely avoid the Blackwater Area. The OPA and its variations cross through the Blackwater Area, and therefore do not meet this criterion. However, the OPA and its variations are carried forward for detailed analysis as required by the Settlement Agreement (Appendix B, Settlement Agreement, p. 25) and necessitated by the discovery of new environmental resource information.

This level of screening resulted in the elimination of the IRA. The IRA does not provide a four-lane connection that meets the design standards for the ADHS between Parsons and Davis. It also does not avoid the Blackwater Area, because it would include improvements to US 219 and WV 32 inside the Blackwater Area (in the City of Thomas).

2.3.5.2 Level Two Screening

The alternatives remaining for the Level Two screening in the SDEIS were all the Build Alternatives (Table II-1). In order to satisfy the Settlement Agreement requirement of evaluating the OPA and include an alternative that accounts for the new information on the WVNFS, WVDOT and FHWA carried the OPA and Alternative 2 forward for detailed analysis. Therefore, the Level Two screening process was applied solely to the Blackwater Avoidance Alternatives considered in the SDEIS in order to determine the alignments to be carried forward for detailed analysis. The screening criteria utilized in the Level Two analysis included total earthwork and connectivity. Because of the importance placed on total earthwork by resource agencies (1996 Corridor H FEIS), it was utilized in the screening process. The earthwork analysis was broken into two variables: (i) total footprint and (ii) mass balance of earthwork (described below). Because of the importance placed on connections by the CAG (see letters from the CAG, Appendix A), the desirability of connections was utilized in the screening process. The connections analysis was similarly broken into two variables:

whether or not climbing lanes would be required (which represents the combined effect of length and grade) and the type of connection. Alternatives meeting fewer than three of the four criteria were not carried forward for detailed analysis. The results of the screening process are summarized in Table II-1. As shown and described below, Alternatives 1A, 1B, 1C, and 1H met fewer than three of the Level Two criteria and were therefore not carried forward for detailed analysis.

Table II-1
Level Two Screening Results [1]

Criterion	1A[2]	1B[2]	1C	1D[2]	1E	1G[2]	1H
Footprint (acres)	486	**537**	**575**	**509**	489	468	478
Earthwork Mass Balance	380,000 cubic yards of borrow	**1,560,000 cubic yards of waste**	**840,000 cubic yards of waste**	60,000 cubic yards of borrow	10,000 cubic yards of waste	**1,680,000 cubic yards of waste**	**1,250,000 cubic yards of waste**
Connections not requiring climbing lanes[3]	**None**	**None**	1	1	1	2	1
Includes left turn through oncoming traffic	**Yes (two)**	**Yes (two)**	No	No	**Yes (one)**	No	**Yes (two)**

[1] Solid values represent those not meeting criteria.
[2] Includes average impact of East and West Landfill Options
[3] Disregards East/West Option Area.
Note: Earthwork amounts are based upon the level of engineering available at the screening stage, which occurred during development of the SDEIS in 2001 and 2002.

1A East and West

Alternative 1A (East and West options) was eliminated based on its connections. Connections for the Benbush and Williams areas were developed as part of Alternative 1A. Further examination of these connections revealed that they would both require climbing lanes due to the combined effects of their steepness and length. Both connections would also require a left turn for eastbound travelers in Benbush and for westbound travelers in Williams.

1B East and West

Alternative 1B (East and West options) was eliminated based on both earthwork and its connections. The amount of waste required for this alternative, 1.56 million cubic yards, far exceeds the average of 0.826 million cubic yards of excess material. Connections at both Benbush and Williams would require climbing lanes due to the combined effects of their steepness and length. Additionally, both connections would require a left turn - for eastbound travelers in Benbush and eastbound travelers in Williams.

1C

Alternative 1C was eliminated based on its earthwork, as the footprint for this alternative is greater than the average footprint (575 versus 506 acres) and the amount of waste required for this alternative (0.840 million cubic yards) exceeds the average of 0.826 million cubic yards of excess material as well. Although a specific cost estimate was not made in the screening process, the cost estimate for Alternative C would far exceed that of any other alternative (see Table II-1 of the SDEIS).

1H

Alternative 1H was eliminated based on both earthwork mass balance and its connections. The amount of waste required for this alternative, 1.25 million cubic yards, far exceeds the average of 0.826 million cubic yards of excess material. With regard to connections, Alternative 1H would require a left turn to exit Corridor H for two of its connections (west of Thomas and north of Thomas). In addition, in the screening process, Alternative 1H would require substantial alterations (not required by any of the other alternatives) to US 219 in the vicinity of the connection north of Thomas.

2.3.5.3 Conclusions of the SDEIS Alternative Screening Process

The two-tiered screening process resulted in the elimination of the IRA and six of the Blackwater Avoidance Alternatives. The alternatives carried forward for detailed analysis in the SDEIS included:

- the No-Build Alternative,
- five (5) Blackwater Avoidance Alternatives (Alternatives 1D East and West, 1E, and 1G East and West),
- two (2) Blackwater Alternatives (the Original Preferred Alternative (OPA) and Alternative 2), and
- a truck route, considered in detail as a possible addition to either the OPA or Alternative 2.

The SDEIS evaluated all of these alternatives on an equal basis. The Build Alternatives carried forward for detailed analysis in the SDEIS are depicted on Exhibit II-3. Alternatives carried forward for detailed analysis in the SDEIS are also described below. The SDEIS did not identify a preferred alternative.

No-Build Alternative

The No-Build Alternative was carried forward for detailed analysis in the SDEIS as required by CEQ regulation, even though it does not provide a four-lane connection between Parsons and Davis and thus does not meet purpose and need.

Blackwater Avoidance Alternatives

Five Blackwater Avoidance Alternatives (Alternatives 1D East and West, 1E, and 1G East and West) were carried forward for detailed analysis in the SDEIS. Generally, beginning at the western end, these alternatives travel north to a point north of Tucker County High School, continue east parallel to existing US 219 and north of the City of Thomas, and traverse south toward and then to the east or west of the Tucker County Landfill. The East and West options associated with these alternatives provide for avoidance of the Tucker County Landfill.

Blackwater Alternatives

The OPA was carried forward for detailed analysis in the SDEIS as required by the Settlement Agreement. As defined in the SDEIS, the OPA is a four-lane divided highway approximately nine miles in length. This alternative would span the watersheds of Mill Run, Slip Hill Mill Run, Big Run, Tub Run, Long Run, Middle Run, the North Fork of the Blackwater River (south of Thomas at Coketon), and Pendleton Creek. It would provide a diamond-shaped, grade-separated connection with WV 32 just north of its existing intersection with WV 93 (north of Davis).

Alternative 2 was carried forward for detailed analysis in the SDEIS as a variation of the OPA. Alternative 2 was developed in response to new environmental resource information concerning West Virginia Northern Flying Squirrel (WVNFS) habitat. Alternative 2 begins at the same location as all of the other Build Alternatives. Beginning on the west, Alternative 2 proceeds in a northerly direction, following the same route as the Blackwater Avoidance Alternatives in order to avoid known occupied habitat of the WVNFS. After passing the area of known occupied

WVNFS habitat, Alternative 2 diverges from the Blackwater Avoidance Alternatives and turns to the south, where it rejoins the route of the OPA. From that point eastward, Alternative 2 follows the same route as the OPA, except in the region of Middle Run, where Alternative 2 includes an alignment shift to avoid an additional area where the WVNFS has been found. Like the OPA, Alternative 2 is not a Blackwater Avoidance Alternative.

The Truck Route was developed in response to public and Community Advisory Group (CAG) comments requesting that safety issues associated with heavy truck traffic in Thomas be addressed in the SDEIS. The Truck Route would provide an alternative route for heavy trucks by providing a two-lane connection that runs from US 219 north of Thomas to WV 32 on the southeast side of Thomas, northwest of the entrance to the Tucker County Landfill. The Truck Route also provides for aesthetic improvements to Thomas and a historic resource located within the Blackwater Industrial Complex Archaeological and Historic District, by minimizing noisy, heavy truck traffic from the city.

For additional details regarding the *development and evaluation of alternatives considered*, refer back to the SDEIS, *Section II: Alternatives Analysis*; and for details regarding the *detailed analysis of alternatives carried forward*, refer back to the SDEIS, *Section III: Existing Environment and Environmental Consequences*.

2.4 APPROVAL AND CIRCULATION OF THE PARSONS-TO-DAVIS SDEIS

In December 2002, the SDEIS was approved and circulated for review and comment. FHWA and WVDOT established a comment period ending on February 21, 2003. The comment period was subsequently extended to April 22, 2003 to accommodate a request by Corridor H Alternatives (a plaintiff in the Corridor H lawsuit).

The public hearing for the project was held at the Blackwater Lodge in Davis, West Virginia on Thursday, February 6, 2003. Information regarding the SDEIS was presented in detail with project personnel providing information and answering questions. Formal comments were taken via a certified court reporter (oral comments), in written form, and on the project website. Generally, attendees at the public hearing expressed concerns about the project costs and the lack of a connection to Tucker County High School (TCHS) given the safety issues associated with US 219. The comments received on the SDEIS were considered in modifying the alternatives studied and identifying the Preferred Alternative. Formal responses to these comments are included in this SFEIS in Appendix A, as is consistent with FHWA NEPA regulations.

2.4.1 AGENCY AND PUBLIC COMMENTS ON THE SDEIS

2.4.1.1 Agency Comments

Comment letters were received from the United States Department of the Interior (DOI), United States Environmental Protection Agency (USEPA) (Region III) and the West Virginia Division of Natural Resources (WVDNR) (Wildlife Resource Section) during the comment period. Both agencies expressed concerns regarding the project's potential impacts to the WVNFS habitat areas. Another concern raised by both of the agencies was the potential impacts associated with the earthwork balances (waste/borrow material sites) for the roadway. The WVDNR encouraged WVDOT to select Alternative 1D East as the preferred alternative for the project.

2.4.1.2 Public Comments

A total of thirty-one comments were received from the public during the SDEIS public comment period. Twenty-nine comment letters (including website comments) were received and two (2) citizens submitted oral comments for the record at the public hearing via the court reporter. Of the twenty (20) comment letters that expressed an alternative preference, the majority

supported the OPA. Twelve (12) letters supported the OPA, some including a preference for the Truck Route, and one (1) supported the OPA with the Middle Run shift). Six (6) comment letters supported Blackwater Avoidance Alternatives in general: three preferred 1D, one preferred 1G and one preferred any iteration of Alternative 1 (D, E or G). In addition, two (2) letters supported the No-Build Alternative.

2.4.2 ACTIONS TAKEN IN RESPONSE TO COMMENTS ON SDEIS

As a result of the public hearing held February 6, 2003 and careful review and consideration of agency and public comments received on the SDEIS, additional engineering was performed on the alternatives carried forward for detailed analysis. This additional engineering allowed for a more refined identification of earthwork quantities, project cost, and assessment of key environmental impacts. Additional information regarding surface water resources and further analysis of water quality impacts were also evaluated for all alternatives carried forward in the SDEIS.

As a result of this more refined analysis, small but important changes were made to the OPA presented in the SDEIS. These changes included:

- providing a connection to TCHS from the mainline;
- incorporating a slight shift south in the vicinity of Middle Run to avoid a possible population of the WVNFS; and
- incorporating the Truck Route (a two-lane roadway that would reduce truck traffic in the City of Thomas).

The alternative that incorporates these changes is referred to as the Revised OPA, or ROPA.

In addition to the ROPA, the OPA and Alternative 2 also were modified to include the Truck Route as part of those alignments. After assessment of comments on the SDEIS, it became clear that the Truck Route should be incorporated into these alternatives (versus being just an option) in order to provide a bypass for trucks traveling through downtown Thomas. (As noted above, the Truck Route will be open to all traffic, not just trucks; it is referred to as a Truck Route because its primary purpose is to reduce the volume of heavy truck traffic passing through downtown Thomas.)

Section 2.5.1 provides an updated comparison of the alternatives carried forward for detailed analysis in the SDEIS and the ROPA.

2.4.3 ADDITIONAL COORDINATION WITH CITIES OF THOMAS AND DAVIS

On July 28, 2003, WVDOT transmitted letters to the Mayors of Thomas and Davis, initiating the 60-day review period prescribed in the Settlement Agreement. Pursuant to the terms of the Settlement Agreement, if one of these city councils passes a resolution during the 60-day review period supporting an alternative other than a Blackwater Avoidance Alternative, FHWA and WVDOT have the right to discontinue consideration of the Blackwater Avoidance Alternatives and proceed with the ROPA, without preparing an SFEIS. WVDOT's letters described the ROPA and stated that it is WVDOT's Preferred Alternative for the Parsons-to-Davis Project. Copies of these letters are provided in Appendix A of this SFEIS. On September 10, 2003 and within the 60-day period prescribed in the Settlement Agreement, the Davis City Council adopted a resolution that supported construction of the ROPA. On September 23, 2003, the Thomas City Council adopted a resolution supporting a Blackwater Avoidance Alternative. Copies of these resolutions are also provided in Appendix A of this SFEIS.

While the Settlement Agreement allowed FHWA and WVDOT to proceed without preparing an SFEIS based upon the City of Davis' resolution, FHWA and WVDOT decided to prepare this SFEIS in

order to document the changes to the OPA since the SDEIS that resulted in the ROPA, document selecting the ROPA as the Preferred Alternative, and to complete the NEPA process.[1]

2.5 PREFERRED ALTERNATIVE REPORT- DECEMBER 2003

In response to comments received on the SDEIS, the OPA was revised to include the TCHS connection, the Middle Run alignment shift, and the Truck Route. The alternative that incorporates these changes is the Revised OPA (or ROPA) (Exhibit II-4). The individual elements of the ROPA were examined in the SDEIS as elements of the OPA and/or Alternative 2. However, there was no single alternative in the SDEIS that incorporated all of these elements. Thus, the December 2003 Preferred Alternative Report provided an updated comparison of alternatives. The analysis examined the alternatives carried forward for detailed analysis in the SDEIS and the ROPA (Table II-2).

In accordance with the WVDOT's July 1992 Consensus on Integrating NEPA/Section 404 Process for Transportation Projects, this report was prepared and circulated to participating resource agencies. The December 2003 Preferred Alternative Report compared the alternatives studied in the SDEIS and the ROPA based upon environmental impacts, ability to meet purpose and need, and cost.

2.5.1 UPDATED COMPARISON OF ALTERNATIVES

2.5.1.1 Environmental Impacts

The 2003 and 2004 Preferred Alternative Reports show that the alternatives are generally similar in their environmental impacts. Differences among the alternatives are apparent in terms of their impacts on certain categories of resources. Impacts can be summarized as follows:

- **Total Right-of-Way Required.** The alternative with the smallest "footprint" is the OPA (352 acres, including the Truck Route); the ROPA (with Truck Route and TCHS) is 375 acres. All of the other alternatives would require approximately 100-150 additional acres of right-of-way.
- **Earthwork.** The alternatives are generally similar in terms of the overall amount of earthwork required, but there are some differences.
- **Displacements.** The alternatives are generally similar in terms of residential and business displacements. Most of the alternatives would not result in any residential or business displacements. Alternative 1E, the OPA and the ROPA would each require one residential displacement. The only "business" displacement would occur under Alternatives 1D East, 1D West, 1G East, and 1G West, which would involve impacts to the Tucker County Landfill (on administrative facilities or expansion area, but not the landfill itself).
- **Section 4(f) Resources and Cultural Resources.** None of the alternatives will result in the "use" of land from any Section 4(f)-protected resource (i.e. any park, recreation area, refuge, or historic site). In addition, none of the alternatives would result in an "adverse effect" on any cultural resource (i.e. historic or archeological site).

[1] The Settlement Agreement contains provisions that would have governed the selection of a preferred alternative, if the Blackwater Avoidance Alignments were not eliminated from consideration based on a resolution adopted by the city councils of Davis and/or Thomas. In summary, those provisions would have required FHWA and WVDOT to select a Blackwater Avoidance Alignment unless it found that none of those alternatives were prudent and feasible. Because the city council of Davis has adopted a resolution endorsing the ROPA, the "no prudent and feasible alternative" requirement in the Settlement Agreement does not apply. The selection of a preferred alternative for this project still must comply with all applicable federal laws and regulations.

- **Wetlands, Streams, and Floodplains.** The Blackwater Avoidance Alternatives all generally result in lower total wetland, stream, and floodplain impacts than the Blackwater Alternatives. In particular, the alternatives with the lowest total wetland impacts are Alternatives 1G East and West, and the alternatives with the lowest total stream impacts are Alternatives 1D East, 1E, and 1G East. By comparison, the alternative with the highest total impacts in these categories is the ROPA. These differences in total surface water impacts were noted by the USEPA and WVDNR in their comments on the SDEIS. In part because of the comments of these agencies, a more detailed analysis of surface water impacts was undertaken and is discussed in the 2003 and 2004 Preferred Alternative Reports.
- **Endangered Species Habitat.** All of the alternatives have been found to have the potential to cause an adverse effect on the WVNFS, a federally listed endangered species. Any alternative will require a Biological Opinion to be issued by the USFWS. The BO concluded that "…the project has been designed to avoid and minimize these adverse impacts to *G. s. fuscus*, and the action area should be able to sustain reproducing populations after project construction." The total acreage of impact associated with the ROPA/Preferred Alternative is 364 (25 acres of highly suitable habitat, 232 acres of suitable habitat, and 107 acres of unusable habitat remnants).
- **Sensitive Areas in Monongahela National Forest.** The Monongahela National Forest is classified into management prescription areas (MPAs). None of the MPAs within the Study Area are designated as wildlife refuges or sanctuaries. The Study Area encompasses two MPAs, 3.0 and 6.1. Both are open to hunting and other multiple-use activities (e.g., timber production and management). Additionally, a series of Forest Service roads for both motorized and non-motorized use are located throughout MPAs 3.0 and 6.1. The alternative with the least amount of Monongahela National Forest land within its footprint is the ROPA. The alternative with the least impact specifically on MPA 6.1 is Alternative 2.
- Table II-2 presents a summary of the impacts of each of the alternatives carried forward for detailed analysis and the ROPA.

Section III of this SFEIS provides comprehensive, updated information regarding impact analysis associated with the ROPA/Preferred Alternative. Because the ROPA/Preferred Alternative was refined through additional engineering analysis (required as part of formal Section 7 consultation for the WVNFS) the impact numbers reported in this SFEIS for the ROPA will be slightly different than those report in the 2003 and 2004 Preferred Alternative Reports. While the ROPA/Preferred Alternative has already been identified, the purpose of Section III of this SFEIS is to present a full disclosure of impacts assessed to date. Impact analyses for the Blackwater Avoidance Alternatives, OPA and Alternative 2 remain the same as those presented in the 2003 and 2004 Preferred Alternative Report documents.

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Table II-2
Summary of Impacts by Alternative in December 2003 *Preferred Alternative Report*

ISSUE OR RESOURCE	Alternatives Carried Forward in SDEIS									
	No-Build	**1D West**	**1D East**	**1E**	**1G West**	**1G East**	**2**	**OPA**	**TR**	**ROPA[8]**
Mainline Length (miles)	11.80	11.15	10.99	10.31	11.13	10.97	9.63	8.21	1.75	9.99
Cost (millions) [1]	N/A	209.6	218.2	208.1	209.4	194.4	158.2	137.6	4.8	147.9
Footprint (acres)	N/A	540	538	514	501	499	478	320	32	375
Roadway Earthwork Volumes[2]										
-Cut (MCY)	N/A	22.12	22.45	20.42	19.83	20.16	25.67	19.81	0.31	19.81
-Borrow (MCY)	N/A	4.77	4.85	6.04	0.42	0.42	0.00	0.00	0.00	0.00
-Waste (MCY)	N/A	7.86	7.86	4.29	2.53	2.46	11.40	15.07	<0.01	13.83
TOTAL BORROW AND WASTE	N/A	12.63	12.71	10.33	2.95	2.88	11.40	15.07	<0.01	13.83
Reduction in Downtown Thomas Truck Traffic	N/A	-80%	-80%	-80%	-80%	-80%	-45%[3]	-45%[3]	Up to –35%	-80%
Travel Time (minutes)	18	11	11	10	11	11	10	8	N/A	10
Level of Service (2020)	D	A	A	A	A	A	A	A	N/C	A
Displacements										
-Residential	N/A	0	0	1	0	0	0	1	0	1
-Business	N/A	Landfill facilities[4]	Landfill expansion area[5]	0	Landfill facilities[4]	Landfill expansion area[5]	0	0	0	0
Section 4(f) Use	N/A	None	None	None	None	None	None	None	None	None
Wetlands (acres)[6]										
- PEM	N/A	0.98	1.01	2.04	0.46	0.26	4.12	3.69	0.06	4.68
- PSS	N/A	0.09	0.72	0.34	0.09	0.72	0.98	1.05	0.00	1.05
- PFO	N/A	0.06	0.00	3.48	0.11	0.05	0.00	0.59	0.00	1.52
- POW	N/A	0.00	0.00	0.00	0.00	0.00	0.49	2.58	0.00	0.68
TOTAL	N/A	1.13	1.73	5.86	0.66	1.03	5.59	7.91	0.06	7.93
Streams[7]										
- Impact length (linear feet)	N/A	9,017	6,320	7,716	7,836	5,139	10,009	10,140	1,915	12,570
Floodplains, 100yr (acres)	N/A	0.0	0.0	0.0	0.0	0.0	2.5	3.2	0.0	3.2
Potential impact to WVNFS Habitat?	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Monongahela Nat'l Forest (MNF) (acres)										
- MPA 3.0	N/A	345	345	331	318	318	388	193	1	217
- MPA 6.1	N/A	84	84	83	82	82	68	108	0	109
Cultural Resources *- Effects on NRHP Eligible/Listed Resources (Blackwater Industrial Complex Archaeological and Historic District)*	N/A	No Effect	No Effect	No Effect	No Effect	No Effect	No Adverse Effect	No Adverse Effect	No Effect	No Adverse Effect

N/A = Not Applicable
MCY = Million Cubic Yards
N/C = Not Calculated
TR = Truck Route
WVNFS = West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*)
MPA = Management Prescription Area, based on 1986 MNF Plan.

[1] Based on current average construction costs, including such variables as earthwork, drainage, pavement and bridging. Does not include cost of ROW or utility relocations

[2] Each alternative was divided into reasonable segments (construction contract sections with reasonable haul distances), and evaluated as such. Hence, one segment may have borrow and another segment waste. The volumes shown above are a summation of these sub-sections, so the alternative as a whole has borrow quantities and waste quantities. The segments (or construction contract sections) will be further refined as the project moves forward into final engineering design. There are environmental impacts associated with both borrow and waste activities. Generally, if the amount of cut is greater than fill then waste will be generated; if the amount of cut is less than fill then borrow material must be obtained. Waste and borrow amounts should be viewed in total (added together).

[3] Assumes no Truck Route. (Changes to 80% with the addition of the Truck Route.)

[4] The facilities include the scales and scale house of the Tucker County Landfill. The facilities would need to be moved due to construction of these alternatives.

[5] Indicates the potential expansion area of the Tucker County Landfill.

[6] Wetland impacts for the Parsons-to-Davis Project have been mitigated per the 1996 Record of Decision and Section 404 Permit.

[7] Includes impacts to roadside drainage ditches and jurisdictional streams.

[8] Additional engineering was performed on the ROPA after the submittal of the December 2003 Preferred Alternative (PA) Report. Therefore, impact numbers for streams and wetlands will differ slightly between the December 2003 PA report, the January 2004 Amended PA report and Section III of this SFEIS. See paragraph immediately above table.

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2.5.1.2 Ability to Meet Purpose and Need

As detailed in *Section I: Project Background and Need*, any of the Build Alternatives under consideration would meet the overall purpose and need and objectives for the Appalachian Corridor H project.

Two additional Parsons-to-Davis specific purposes were derived from the needs analysis conducted for the Parsons-to-Davis SDEIS. These two additional purposes were to: 1) reduce heavy truck traffic through the City of Thomas and (2) improve emergency response times and access to emergency facilities.

Each of the alternatives under consideration except the No-Build Alternative is predicted to reduce truck traffic through Thomas by approximately 80 percent (see Section 3.2.1). Therefore, the alternatives under consideration are all essentially the same in terms of their ability to reduce truck traffic through Thomas.

Each of the Build Alternatives can be expected to attract most of the slow-moving heavy tractor-trailer trucks from US 219. Because of this likely removal of these slow-moving vehicles and the difficulty in passing them on the steeply graded, narrow and winding US 219, it can be expected that any of the Build Alternatives would serve to reduce emergency response times within the Study Area.

However, in part because of its shorter length and less circuitous route, the ROPA, when compared to the other alternatives, results in additional reduced response times between Thomas and Davis and the only full-service hospital (Davis Memorial Hospital in Elkins) serving these communities. It is generally accepted among emergency providers that a reduction in response time of even a few minutes is important and can be crucial.

Because the ROPA provides a direct connector from Corridor H to TCHS, emergency response time reduction would also apply to this important facility. Response time reduction would also apply to other emergency providers (e.g., fire and police). Further, the addition of the TCHS connector increases safe travel for students; an element that improves the quality of life in Tucker County. While a connection to TCHS is feasible for the all of the alternatives carried forward for detailed analysis in the SDEIS, the TCHS connection associated with the ROPA is the most desirable based on terrain, earthwork requirements, engineering constraints, and impacts to WVNFS habitat.

Additionally, the ROPA better meets the project objectives compared to Blackwater Avoidance Alternatives that run east of the Tucker County Landfill (Alternatives 1D East, 1E, and 1G East). These alternatives would impact the landfill's ability to expand –- an important local economic consideration. The landfill currently services 10 counties in West Virginia. The ROPA will not impact the landfill facilities or the landfill's ability to expand for future growth. Based on the discussion above, the ROPA better fulfills the project's purpose than any of the other alternatives.

2.5.1.3 Project Cost

Cost is an important consideration for any project. As pointed out above, cost differences must be weighed against, and balanced with, differences in environmental impact and the ability of an alternative to meet the project's purpose and need. As shown in the summary table of impacts by alternative (Table II-2), the cost of constructing the ROPA is $147.9 million, which is approximately $46 million less than the least expensive Blackwater Avoidance Alternative (1G East), and approximately $70 million less than Alternative 1D East, which is the most expensive of the alternatives.

2.5.2 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The December 2003 Preferred Alternative Report identified the ROPA as the Preferred Alternative for the Parsons-to-Davis Project, and sought agency concurrence with this decision. Consistent with the Integrated NEPA/404 process, the report was circulated in January 2004 to the resource agencies for comment.

2.5.3 COORDINATION WITH AGENCIES ON PREFERRED ALTERNATIVE REPORT

Of the resource agencies that received the December 2003 Preferred Alternative Report, the USEPA and the USFWS provided formal comments within the comment period. The USEPA and USFWS submitted comment letters in February 2004 that did not concur with the alternative identified as the Preferred Alternative for various reasons, including the lack of detailed studies on the likely effects on the WVNFS by each of the alternatives. The USFS MNF submitted a comment letter in May 2005 expressing concerns about the preferred alternative's proximity to Big Run Bog and unstable soil conditions associated with Backbone Mountain. All comment and coordination letters are provided in Appendix A of this SFEIS.

2.6 ENDANGERED SPECIES ACT (ESA) SECTION 7 CONSULTATION (INFORMAL)

As a result of the USEPA and USFWS comments on the December 2003 Preferred Alternative Report, additional studies were conducted in connection with the Section 7 consultation on the WVNFS. The differences in impacts among the alternatives analyzed in the SDEIS and the ROPA on the WVNFS and its habitat were reevaluated. These impact differences were presented to the USFWS in an August 2004 Biological Assessment (BA). The August 2004 BA concluded that: 1) all alternatives under consideration will have direct and indirect impacts to WVNFS highly suitable and suitable habitat; 2) some identified habitat may be occupied by populations of the WVNFS; and 3) any of the alternatives adopted would be "likely to adversely affect" the WVNFS. The August 2004 BA also found that "of the alternatives under consideration, the ROPA is likely to have less overall direct and indirect effects [on the WVNFS] than those other alternatives under consideration because:

- The ROPA requires the removal of the fewest number of acres of either suitable or highly suitable habitat.
- The ROPA's removal of highly suitable habitat primarily occurs on the highly suitable habitat's edge and minimizes removal of "core" highly suitable habitat.
- The ROPA has less of a barrier effect and better preserves landscape permeability than the other alternatives because the magnitude of cut/fill slopes is less."

On October 14, 2004, the USFWS concurred with the findings in the August 2004 BA that all Build Alternatives are likely to adversely affect the WVNFS and required initiation of Section 7 Formal Consultation.

2.7 AMENDED PREFERRED ALTERNATIVE REPORT- NOVEMBER 2004

Following receipt of USFWS concurrence on the August 2004 BA, WVDOT circulated an Amended Preferred Alternative Report (November 2004) to resource agencies that are parties to the WVDOT's July 1992 Consensus on Integrating NEPA/Section 404 Process for Transportation Projects. The purpose of the Amended Preferred Alternative Report was to 'respond specifically to the comments submitted by USEPA and USFWS on the 2003 Preferred Alternative Report'. Based on the August 2004 BA and USFWS' concurrence regarding impacts, the Amended Preferred Alternative Report re-affirmed WVDOT's decision to identify the ROPA as its Preferred Alternative for the Parsons-to-Davis Project. WVDOT found that the ROPA:

- Best achieves the purpose and need for the project,
- Is similar to the other alternatives in terms of its overall environmental impacts,
- Is $35.9 million less than the OPA and $56.5 million less than the least expensive Blackwater Avoidance Alternative;
- Is consistent with applicable regulatory requirements, and
- Would have the least impact of the Build Alternatives on the WVNFS.

In its comment letter, USEPA concurred with the selection of the ROPA as the Preferred Alternative. WVDNR's comment letter neither supported nor opposed the identification of the ROPA as the Preferred Alternative. WVDNR continues to cite concerns about the environmental impacts of the ROPA while acknowledging WVDOT's need to acknowledge cost considerations and savings. USFWS's letter also stated that it did not oppose the ROPA as the Preferred Alternative and acknowledged that the ROPA has the least amount of impact to suitable and highly suitable WVNFS habitat.

All coordination letters are located in Appendix A of this SFEIS.

2.8 REFINEMENT OF THE ROPA

Following issuance of the Amended Preferred Alternative Report and during Section 7 consultation (see Section 2.9 below), the location of the ROPA along Backbone Mountain (western portion of the Study Area) was refined. WVDOH determined that it could further reduce excess excavation through additional engineering. Exhibits II-4. II-42, 4b and 4c graphically illustrate the results of this refined engineering.

Based upon this reengineering the refined ROPA:

- reduces the amount of excess excavation that will be generated in the western portion of the Study Area by approximately 10 million cubic yards (which balances waste and borrow quantities and allows waste and borrow to be incorporated into the preliminary engineering construction limits);
- is 10.47 miles (versus 9.99 miles as reported in the Preferred Alternative Reports);
- has a footprint that is currently estimated at 396 acres (versus 375 reported in the Preferred Alternative Reports); and
- costs approximately $101 million (versus $147 million reported in the Preferred Alternative Reports; the reduction in cost is the result of the 10 million cubic yard adjustment in excavation).

The ROPA/Preferred Alternative presented and analyzed throughout this SFEIS includes the engineering refinements discussed above. Thus, Section III reports an updated impact analysis of the refined ROPA/Preferred Alternative, and compares the impacts of the refined ROPA to the impacts of Alternative 2 and all of the Blackwater Avoidance Alternatives carried forward for detailed analysis.

As demonstrated in Section III, as compared to the Refined ROPA, the Blackwater Avoidance Alternatives and Alternative 2 continue to have greater impacts on Slip Hill Mill Run watershed and still require complex (and expensive) structures to negotiate the western slope of Backbone Mountain. Further, the Blackwater Avoidance Alternatives continue to cost significantly more than the ROPA, with that cost difference becoming greater when compared to the refined ROPA. The ROPA as presented in the Preferred Alternatives reports is $10.3 less expensive than the least expensive Blackwater Avoidance Alternative. By comparison, the refined ROPA is $56.5 million less expensive than the least expensive Blackwater Avoidance Alternative. The Blackwater Avoidance Alternatives continue to cost substantially more because they are longer (the current approximate

cost per mile of roadway for Corridor H average approximately $11M per mile) and require more complex structures (bridges and over-sized culverts) that add to project costs.

Thus, the refined ROPA does not significantly change the updated alternatives analysis detailed in the Preferred Alternatives Reports or the identification of the ROPA as the Preferred Alternative. The refined ROPA continues to best achieve purpose and need, remains similar to the other alternatives in environmental impacts, is projected to have the least impacts on WVNFS, and minimizes impacts to Big Run Bog and Slip Hill Mill Run watersheds.

2.9 ENDANGERED SPECIES ACT (ESA) SECTION 7 CONSULTATION (FORMAL)

After the issuance of the Amended Preferred Alternative Report in November 2004, WVDOH and FHWA continued coordination with the USFWS regarding the WVNFS. The goal of this additional coordination was to prepare a complete Section 7 Initiation Package. The Initiation Package is required to transition from informal Section 7 consultation into formal Section 7 consultation. As part of the continuous consultation related to the WVNFS throughout 2005 and the development of the Initiation Package, additional engineering was performed on the ROPA (the Preferred Alternative) in an attempt to further reduce overall environmental impacts and specifically to continue to reduce impacts to suitable and highly suitable habitat for the WVNFS.

The location of the ROPA along Backbone Mountain (western portion of the Study Area) was reevaluated to determine if excess excavation could be further reduced though additional engineering analysis. The additional engineering analysis was successful in adjusting the excavation. For the refined ROPA, the project waste and borrow quantities are balanced and incorporated in the preliminary engineering construction limits. Therefore, the amount of excess excavation that will be generated in the western portion of the Study Area has been reduced by approximately 10 million cubic yards. Exhibits II-4, II-4a, 4b and 4c graphically illustrate the results of the refined engineering on the ROPA/Preferred Alternative. The refined ROPA reduces impacts to the habitat for the WVNFS, reduces other potential indirect and cumulative impacts to sensitive resources, and decreases the cost of the ROPA/Preferred Alternative. Another engineering adjustment made to the ROPA includes the addition of the bifurcation in the area of the Middle Run Shift. The bifurcation was created to better accommodate WVNFS movement by increasing the landscape permeability in the area of highly suitable habitat. The additional engineering, which was completed as part of on-going Section 7 consultation related to the WVNFS in 2004 and 2005, resulted in minor shifts in the alignment which resulted in a slight increase in the overall length of the ROPA. The refined ROPA/Preferred Alternative was then presented to USFWS as part of the Initiation Package for formal Section 7 consultation.

Formal Section 7 consultation was initiated on October 25, 2005 by FHWA and WVDOH. USFWS confirmed the initiation of formal consultation and the completeness of the Initiation Package on November 18, 2005. On March 22, 2006 the USFWS requested an extension for the completion of formal consultation; the request was granted by FHWA on March 30, 2006. A draft BO was issued by USFWS on May 5, 2006. The final BO was issued on November 6, 2006. The BO provides:

- a complete consultation history,
- biological background research and baseline summary,
- confirms the proposed conservation measures,
- terms and conditions associated with the Incidental Take Statement, including Reasonable and Prudent Measures (RPMs) for compliance and
- a conclusion to the formal consultation process with the detailed reinitiation requirements.

The USFWS has stated that, "…FHWA and the WVDOH have selected the least damaging practicable project construction alternative in regards to the direct removal of *G. s. fuscus* habitat.

….Anticipated adverse effects of the project as a result of direct and indirect loss of habitat have been substantially avoided and minimized." Further, the BO specifically states, "After reviewing the current status of the *G. s. fuscus*, the environmental baseline, the effects of the proposed action and the cumulative effects, it is the Services' Biological Opinion that constructing Corridor H, Parson to Davis, as proposed, is not likely to jeopardize the continued existence of the *G. s. fuscus*." The issuance of the final BO concludes the formal consultation process.

The BO is provided in Appendix C and additional information on the WVNFS is provided in Section 3.3.3.

2.10 CONCLUSION

The Parsons-to-Davis SEIS has developed and evaluated a reasonable range of alternatives. To date, alternatives have been considered within the SDEIS, the Preferred Alternative Report, the Amended Preferred Alternative Report and as part of the informal and formal Section 7 consultation for the WVNFS. Table II-3 details the alternatives considered during each phase of the SEIS to date.

Table II-3
Alternatives Evaluated in the SEIS for the Parsons-to-Davis Project

Alternative	Eliminated in Screening	Studied in Detail in SDEIS	Developed After SDEIS	Preferred Alternative
No Build		√*		
Improved Roadway Alternative (IRA)	√			
Blackwater Alternatives				
Original Preferred Alternative (OPA)**		√		
Alternative 2**		√		
Revised Original Preferred Alternative (ROPA)**			√	√
Blackwater Avoidance Alternatives				
Alternative 1A – West	√			
Alternative 1A – East	√			
Alternative 1B –West	√			
Alternative 1B – East	√			
Alternative 1C	√			
Alternative 1D – West		√		
Alternative 1D – East		√		
Alternative 1E		√		
Alternative 1G – West		√		
Alternative 1G – East		√		
Alternative 1H	√			

* Because the No-Build Alternative does not satisfy the purpose and need, it did not pass the SDEIS alternatives screening process. However, as per CEQ regulations, the No-Build Alternative was carried through the SDEIS (and this SFEIS).

** These alternatives include the Truck Route as a bypass for trucks around downtown Thomas. In the SDEIS, the Truck Route was presented as an option for the OPA and Alternative 2. In this SFEIS, the Truck Route has been incorporated into these alternatives.

After exhaustive alternative development, environmental and engineering analysis and continuous coordination with the resource agencies, the public, and the CAG, the ROPA has been identified as the Preferred Alternative for the Parsons-to-Davis Project (Exhibit II-5). The Blackwater Avoidance Alternatives will continue to be substantially more expensive than the ROPA/Preferred Alternative as they are ultimately longer (the current approximate cost per mile of roadway for Corridor H average approximately $11M per mile) and they require more complex structures (bridges and over-sized culverts) which also add to project costs.

Of all of the alternatives considered during the SEIS process, the ROPA:

- Best achieves the purpose and need for the project;
- Is similar to the other alternatives in terms of its overall environmental impacts;
- Is currently $35.9 million less expensive as the OPA and, in particular, is at least $56.5 million less expensive than the least expensive Blackwater Avoidance Alternative;
- Of the alternatives analyzed, it is likely to have the least overall direct and indirect effects on the WVNFS;
- Minimizes impacts to both Big Run Bog and Slip Hill Mill Run watersheds; and
- Has received support from the public via the City of Davis, and the CAG.

While the ROPA has been identified at this stage of the SEIS process as the Preferred Alternative, its identification does not preclude WVDOT from changing the Preferred Alternative's identification at a later stage based on comments on the SFEIS or other new information or changed circumstances (Settlement Agreement, III(C)(b)(2)).

The refined ROPA/Preferred Alternative is presented throughout this SFEIS; Section III reports updated impact analysis associated with the refined ROPA/Preferred Alternative.