Environmental Document

For the

Allegheny Tunnel Transportation Improvement Project

Allegheny and Stonycreek Townships Somerset County, PA

prepared for

Pennsylvania Turnpike Commission

Harrisburg, PA

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EXECUTIVE SUMMARY

The Allegheny Tunnel is an integral part of the Pennsylvania Turnpike (Turnpike) limited access highway system and is located in Allegheny and Stonycreek Townships, Somerset County, Pennsylvania (PA) approximately 13 miles (mi.) east of Exit 110 (Somerset, PA) and 23 mi. west of Exit 146 (Bedford, PA). The Allegheny Tunnel Transportation Improvement Project was initiated by the Pennsylvania Turnpike Commission (PTC) in 1996 as a result of increasing concerns regarding:

- Traffic congestion;
- Frequency and severity of accidents in the vicinity of the tunnel;
- Physical and structural conditions of the tunnel; and,
- Rerouting of hazardous materials, which are currently prohibited in the tunnels, onto alternate routes.

Numerous alternatives have been evaluated over the years and presented to resource agencies, public officials and the public. Eight (8) alternatives were retained for further evaluation and include widen existing tunnel, three (3) cut options, three (3) tunnel options, and the no build alternative. The Brown Cut, Brown Tunnel, Yellow Cut and Yellow Tunnel alternatives are located north of the existing tunnel and the Gray Cut and Gray Tunnel alternatives are located south of the existing tunnel. The Southern alternatives were created in response to a request from U.S. Fish and Wildlife Service to develop an alternative to the south of the existing tunnel to avoid adverse impact to the travel corridor of the Federally endangered Indiana bat. The Widen Existing Tunnel alternative was eliminated due to the extended timeframe necessary for construction (approximately 20 years) and potential for reduced safety for the traveling public during those times. A thorough examination of the northern alignments (the Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives) was conducted, and it was determined that these four (4) Alternatives would not become the preferred alternative for the proposed Project. It was determined no definitive benefits resulting from these Alternatives exist that outweigh the substantial adverse impacts to the federally-listed Indiana bat population.

Analysis between the Gray Cut and Gray Tunnel alternatives yielded the following information. The two (2) alternatives have relatively similar impacts to most environmental resources. Both avoid the known travel corridor of the Indiana bat, both impact one known and one potential bat hibernaculum, and both impact the same number of small-footed bat rocky habitat locations. The Gray Cut and Gray Tunnel alternatives each impact the ancient landslide located south of the Turnpike. The impact numbers are also similar for the plant species noted by DCNR as primary concern species for the Project. From a design standpoint, both alternatives eliminate the substandard curves east of the Allegheny Tunnel. They both add needed capacity. A tunnel may also have a unique potential to impact bats, due to their well-developed search behavior and curiosity of openings (Butchkoski, 2019), as well as, the lighting required for tunnels. Lighting could attract the bat's food source resulting in direct and indirect negative effects to their reproductive, foraging and roosting opportunities. Fast flying species such as Pipistrellus are attracted to lighting for feeding; while slow flying species such as Myotis could be indirectly affected by the reduction in food source within the immediate surroundings (due to the insects being attracted to the light) (Bat Conservation Trust and Institution of Lighting Professionals, 2018). The lighting and operation aspects required for a tunnel option would additionally result in greater energy usage as compared to a cut option. Another consideration between a cut or tunnel alternative involves the restrictions on hazardous materials carriers traveling through the Allegheny Tunnel. Currently, hazardous material haulers utilize SR 0031, SR 0030, and SR 0219 as a bypass to the Allegheny Tunnel, traveling through small communities. SR 0031 travels through the Borough of Berlin's (Well #9) wellhead protection zones 1, 2, and 3, resulting in an increased risk of hazardous materials spilling within the wellhead protection zones; thereby, increasing the risk of potential water contamination for the Borough. This restriction and present bypass route for hazardous materials would extend to any proposed tunnel alternative including the Gray Tunnel Alternative. The Gray Tunnel Alternative impacts a greater amount of both wetlands (21% more) and streams (2,534 linear feet more) when compared to the Gray Cut Alternative. The Gray Tunnel is also the only alternative with a residential displacement. The Gray Cut alternative design is the

closest in proximity to the existing Turnpike roadway. It utilizes previously disturbed area and the edge habitat created by the existing Turnpike thus reducing the amount of interior forest impacts as much as possible. The Gray Tunnel alternative is located within more of the interior forest, further away from the existing Turnpike roadway. Another distinct difference between the two (2) alternatives is the increased cost of the Gray Tunnel. At $627,900,000, the estimated total Project cost for the Gray Tunnel is nearly double that of the Gray Cut at $332,400,000. The Gray Tunnel Alternative also has yearly operational and maintenance costs of $3,300,000, compared to $1,100,000 for the Gray Cut Alternative.

There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. As noted, the Gray Cut Alternative is not without environmental impacts; therefore, federal and state permits will be required.

1.0 Introduction / Project History

The Allegheny Tunnel is an integral part of the Pennsylvania Turnpike (Turnpike) limited access highway system and is located in Allegheny and Stonycreek Townships, Somerset County, Pennsylvania (PA) approximately 13 miles (mi.) east of Exit 110 (Somerset, PA) and 23 mi. west of Exit 146 (Bedford, PA). The approximate center of the Project area is located at Latitude 39° 57' 47.3" North and Longitude -78° 51' 02.8" West. (Appendix A, Figure A-1 USGS Project Location Map and Figure A-2 Aerial Project Location Map).

The Allegheny Tunnel Transportation Improvement Project was initiated by the Pennsylvania Turnpike Commission (PTC) in 1996 as a result of increasing concerns regarding:

- Traffic congestion;
- Frequency and severity of accidents in the vicinity of the tunnel;
- Physical and structural conditions of the tunnel; and,
- Rerouting of hazardous materials, which are currently prohibited in the tunnels, onto alternate routes.

A needs analysis was conducted from 1996-1997 and identified five (5) needs, which focused on transportation demand, existing geometric constraints, accident rates, tunnel conditions, and system linkage and continuity. Project needs are discussed in greater detail in Section 2.0 of this report. Based on the project needs, 12 preliminary alternatives were designed for environmental and engineering analysis during the years of 1997 and 1998. The preliminary alternatives included: Pink Cut, Blue Cut, Orange Cut, Orange Tunnel, Red Tunnel, Purple Cut, Black Cut, Black Tunnel, Brown Cut, Brown Tunnel, Yellow Cut and Yellow Tunnel. A no build alternative was also assessed with the 12 preliminary alternatives. Each was evaluated with regard to: environmental impacts, traffic, engineering criteria, cost, public feedback and agency input. The following six (6) alternatives were moved forward for detailed analysis: Orange Cut, Brown Cut, Brown Tunnel, Yellow Cut, Yellow Tunnel and Red Tunnel. Detailed engineering and environmental analysis occurred during the years of 1998 to 2000 on the six (6) alternatives and the no build alternative. Examples of detailed environmental studies conducted during that timeframe include: wetland and surface water delineation, threatened and endangered species habitat assessments, historic structures evaluation, archeological predictive model preparation, hydrogeologic analysis, and general habitat assessments. Additional studies, agency coordination and public involvement occurred throughout 2001. At the end of 2001, the project was placed on hold due to lack of funding. Copies of the Needs Analysis, Preliminary Alternatives Analysis, and Draft Detailed Alternatives Analysis are located in the project technical file.

The project was re-initiated in 2010. Presentations were made at various agency meetings to re-introduce the project and discuss potential alternatives. Section 12.0 of this EA summarizes agency coordination. The Brown Cut, Brown Tunnel, Yellow Cut and Yellow Tunnel alternatives (all located north of the existing tunnel) were proposed for further study. Several agencies requested an alternative be evaluated that would consists of widening the existing tunnel, and the U.S. Fish and Wildlife Service (USFWS) requested an alternative be developed south of the existing tunnel to avoid impact to the travel corridor of the Indiana bat. Project alternatives are discussed in Section 3.0 of this report and include: Widen Existing Tunnel, Brown Cut, Brown Tunnel, Yellow Cut, Yellow Tunnel, Gray Cut, and Gray Tunnel. The Gray Cut and Gray Tunnel alternatives were developed as the alternatives located south of the existing tunnel.

The Brown Cut, Brown Tunnel, Yellow Cut, Yellow Tunnel, Gray Cut, and Gray Tunnel alternatives were evaluated with regard to environmental, social, and cultural resources; traffic; engineering criteria; costs, public feedback and agency input from 2011-2015. Examples of environmental studies conducted during that timeframe include: wetland and surface water delineation, threatened and endangered species habitat assessments, historic structures evaluation, archeological predictive model update, geotechnical analysis, and general habitat assessments. During geotechnical investigations, an ancient landslide was discovered southeast of the tunnel's east portal, affecting the Gray Cut and Gray Tunnel alternatives. It was determined remediation of the landslide would require over-excavation of a larger area extending beyond the original study area. In addition to the landslide, an increased

amount of environmental impacts were identified for the Brown Cut and Brown Tunnel alternatives in comparison to the other alternatives. As a result of these issues, the study area was expanded in 2015. It was expanded to the north to evaluate the potential to reduce environmental impacts associated with the Brown Alternatives and to the south to address the area of over-excavation required for the Gray Alternatives. Environmental and engineering analysis were conducted during the 2015-2016 timeframe to gather information on the expanded areas. Figure A-3 depicts the original study area and the expanded study area. This Environmental Document (ED) discusses the Alternatives developed, reviews the results of the studies conducted, analyzes impacts for each alternative and recommends an alternative to move forward for detailed engineering.

1.1 Tunnel History

The current westbound Allegheny Tunnel was constructed between 1938 and 1940 and was part of the 160 mi. (257.50 km) long "Original Section" of the Turnpike, which was largely designed to follow the abandoned South Penn Railroad right-of-way (ROW). The original South Penn Railroad tunnel, which was never completed, is located immediately adjacent to, and north of, the existing Allegheny Tunnels. The original Allegheny Tunnel was a bi-directional facility that eventually needed to accommodate four-lanes of traffic.

As a result of increased traffic volumes and congestion, a second tunnel was constructed during the years of 1962-1965 south of, and adjacent to, the original tunnel. This new tunnel carried two lanes of traffic in the eastbound direction. At the same time, the original tunnel was completely refurbished and modernized to carry westbound traffic.

In the late 1960s, traffic congestion again became an issue at the westbound approach to the tunnel. This was due to the steep grades ranging from 3.0% to 5.0% and the absence of a truck climbing lane approaching the tunnel. In response to the increasing traffic congestion in this area, the PTC added a third westbound lane (opened in December 1981) between New Baltimore and the eastern portal of the Allegheny Tunnel with this lane being designated as a truck climbing lane. As traffic volumes increased over the years, the merging of slower moving trucks from the climbing lane with faster moving vehicles from the two lanes that pass through the westbound tunnel became problematic and traffic congestion persisted. As an interim solution to ease this problem, the PTC "resigned" the lanes in 1996, which eliminated the designation of the third lane as a truck climbing lane. Instead, passenger vehicles traveling at similar speeds must merge right from the left lane.

Since the opening of the new eastbound tunnel and the refurbishing of the original (westbound) tunnel in 1965, the Allegheny Tunnels and approaches have continued to be improved and modernized. These improvements include: alarm, lighting and vent control work; portal facade and signing work; tunnel lighting work; and installation of high mast lighting. In addition, in 1987 and 1988 both tunnels underwent major rehabilitation. An inspection conducted by the PTC in 1995 and 1996 revealed that the tunnels were rapidly deteriorating and were once again in need of major rehabilitation. More recent improvements completed to keep the tunnels in working order include drainage repair and fire pump replacements in 2003, roof replacement of portal buildings in 2004, lighting replacement in 2005, fan housing replacement in 2006, a substation in 2010, general rehabilitation in 2011, and electrical upgrades in 2014. The tunnel's lighting and conduit are scheduled for replacement in 2020 - 2021.

1.2 Project Description

As detailed in Section 1.0 above, the following alternatives were determined to be viable alternatives for analysis and included in the Allegheny Tunnel Transportation Improvement Project.

- Widen Existing Tunnel;
- Brown Cut;
- Brown Tunnel;

- Yellow Cut;
- Yellow Tunnel;
- Gray Cut; and,
- Gray Tunnel.

The Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives are located to the north of the existing Turnpike, while the Gray Cut and Gray Tunnel Alternatives are located to the south.

These Alternatives along with a No Build Alternative were evaluated with regard to:

- Environmental impacts;
- Engineering criteria;
- Traffic
- Costs (construction, operation, and maintenance); and,
- Public feedback and agency input.

The intent of the Project is to identify the alternative that best meets the project needs, while balancing environmental impacts and meeting engineering design criteria. This alternative will then be moved forward for detailed engineering.

2.0 Project Purpose and Need

The PTC originally presented the findings of the Project's Needs Analysis to state and federal resource agencies at an Agency Coordination Meeting (ACM) on April 23, 1997. Following this meeting, the PTC received written concurrence from each of the participating agencies on the overall need for the Project. It was noted that Project Alternatives would not be required to satisfy all the Project Needs to be considered for detailed studies.

The original Project Needs Analysis identified the following factors to support the need for transportation improvements to the Allegheny Tunnel area:

- Transportation Demand - The current and future transportation demands on the tunnel and its approaches result in unacceptable Levels of Service (i.e., LOS D, E, or F) and traffic congestion;
- Existing Geometric Constraints - Some geometric features of the tunnel and its approaches do not meet current highway design standards with respect to lane width, termination of truck climbing lane, horizontal curvature, and sight distance;
- Accident Rates - The fatal accident rate for the tunnel and its approaches is three (3) times higher than the entire Turnpike system and four (4) times higher than PA Department of Transportation (PennDOT) statewide rates;
- Tunnel Conditions - Both the eastbound and westbound tunnels are in need of major rehabilitation. During rehabilitation, the tunnels would be closed alternately to maintain traffic. This would significantly increase traffic congestion and the potential for higher accident rates; and,
- System Linkage and Continuity - System linkage and continuity on the Turnpike is currently disrupted due to the fact that certain hazardous materials are not permitted through the Allegheny Tunnel.

With the re-initiation of the Project in 2010, the Project Needs were re-evaluated and determined to remain valid. The following summarizes the results of that re-evaluation.

- Transportation Demand: The current and future transportation demands on the tunnel and its approaches result in unacceptable Levels of Service (LOS) and traffic congestion.
    - A traffic analysis update was conducted in 2017, in part to derive the future Year 2025, Year 2035, and Design Year 2045 traffic volumes. Results of the capacity analyses that were conducted using the projected traffic volumes, indicate the existing two-lane template will have segments that are projected to operate at unacceptable LOS D by the year 2025, and at LOS E by the year 2035.
- Existing Geometric Constraints: Some geometric features of the tunnel and its approaches do not meet current highway design standards with respect to lane width, termination of truck climbing lane, horizontal curvature, and sight distance.
    - The curve to the east of the tunnel along both eastbound and westbound travel lanes remains substandard. Also, the left lane drop-off (for the truck climbing lane) to the east of the tunnel along the westbound travel lanes remains substandard.
- Accident Rates: The accident rate for the tunnel and its approaches is higher than the entire Turnpike system and PennDOT statewide rates.

- The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA.

- Tunnel Conditions: Both the eastbound and westbound tunnels are in need of major rehabilitation.
  - Routine maintenance has occurred since the original study to maintain the tunnel, but major rehabilitation is still needed.
- System Linkage and Continuity (continuous travel without required exiting): System linkage and continuity on the Turnpike is currently disrupted due to the fact that certain hazardous materials are not permitted through the Allegheny Tunnel (diversion of hazmat haulers to local roads).
  - Certain hazmat carriers cannot travel through the tunnel due to current restrictions. These carriers then divert to local roadways through small communities.

Based on the aforementioned transportation needs, the purpose of the Project remains to:

- Relieve traffic congestion and improve the level of service in the tunnel area;
- Improve the level of safety for motorists traveling through the tunnel area; and,
- Improve system linkage and continuity for hazardous material carriers between Ohio and Breezewood.

3.0 Project Alternatives

During the years 1997 and 1998, a Preliminary Alternatives Analysis was initiated to develop alternatives that met the project purpose and need. Twelve (12) build alternatives were developed and evaluated with regard to; environmental impacts, engineering criteria, traffic, cost, public feedback and agency input. These included the following alternatives; Pink Cut, Blue Cut, Orange Cut, Orange Tunnel, Brown Cut, Brown Tunnel, Yellow Cut, Yellow Tunnel, Red Tunnel, Black Cut, Black Tunnel, and Purple Cut Alternatives. A No-Build Alternative involving the rehabilitation of the existing tunnels, was also included for comparison purposes.

On July 22, 1998, the Preliminary Alternatives Analysis was presented at an ACM to obtain concurrence from the resource agencies on the alternatives recommended for detailed studies. Based on the preliminary evaluations, six (6) alternatives were dismissed from further investigation [four (4) cut and (2) tunnel]. These alternatives were dismissed due to the following:

- Pink Cut Alternative – Greatest impacts to wetlands, streams, forest land, statewide important soils and Agriculture Security Areas, most expensive and second longest at 6.1 miles
- Blue Cut Alternative - Greatest impacts to prime farmland soils, air and noise receptors: 29 residences, second for Agriculture Security Areas, longest at 6.5 miles
- Purple Cut Alternative – Greatest impacts to agricultural areas, perennial streams, second for forest land (279 Ac.)
- Black Cut Alternative – Greatest residential displacements (13), second for statewide important soils
- Orange Tunnel Alternative - Greatest impacts to rangeland, second for wetlands, streams and forest land
- Black Tunnel Alternative – Immediately adjacent, parallel and duplicative to the Red Tunnel Alternative, which shares similar termini, second for residential displacements (12)

Additional information was requested on the Brown Tunnel Alternative by the U.S. Army Corps of Engineers (USACE). For this reason, the project was presented at another ACM on October 28, 1998. As a result of this meeting, a request to evaluate a second Brown Cut Alternative (Modified Brown Cut) was made. The Modified Brown Cut Alternative was dismissed because of an increase in environmental impacts, higher construction costs due to increased earth moving and a longer alignment using the same termini, when compared to the other alternatives. The remaining six (6) alternatives: (Orange Cut, Yellow Cut, Yellow Tunnel, Brown Cut, Brown Tunnel, and Red Tunnel) were recommended for detailed engineering and environmental analysis, under the *Detailed Alternatives Analysis and Environmental Studies,* which occurred during the years of 1998 to 2000. Concurrence letters on these alternatives were received from the participating state and federal agencies from October 1998 through February 1999.

In October 1999, the USACE requested investigation of a Fly Over Alternative. This alternative was investigated to the same level of detail as in the Preliminary Alternatives Analysis, then dismissed due to engineering, environmental and economic considerations. The alternatives in the Detailed Alternatives Analysis had less impact, similar design and lower cost.

In September 2000, the Brown Cut was identified as the PTC preferred alternative.

In November 2000, the USACE requested investigation of a Bifurcated Tunnel Alternative. This alternative was investigated to the same level of detail as in the Preliminary Alternatives Analysis, then dismissed due to engineering, environmental and economic considerations. The alternatives in the Detailed Alternatives Analysis had less impact, similar design and lower cost.

In 2001, a revised Draft of the *Detailed Alternatives Analysis and Environmental Studies* document was prepared and included analysis of the no build alternative along with the previously mentioned six (6) alternatives consisting of three (3) cut alternatives (Orange, Brown, and Yellow) and three (3) tunnel alternatives (Brown, Yellow, and Red). The Red Tunnel and Orange Cut Alternatives were not indicated as being favored by the agencies, public or project team and were dismissed due to the following:

- increased impacts to: forest land, active agricultural land, eight (8) residential displacements, sensitive noise receptors, six (6) private wells, and eight (8) potential historic sites. Each of these alternatives also had the greatest overall alignment length of 6.5 miles.

Later in 2001, the Project was placed on hold due to lack of funding. The project was re-initiated in 2010 and has come to include the evaluation of eight (8) alternatives. These consist of one (1) no-build option (updating per current design standards), three (3) cut alternatives (Brown, Yellow, and Gray), three (3) tunnel alternatives (Brown, Yellow, and Gray), and the Widen Existing Tunnel Alternative. The Gray Cut and Gray Tunnel Alternatives were included south of the existing Turnpike, at the request of several resource agencies. The Alternatives were developed to represent the options which best meet the project needs, and environmental and engineering design considerations, while providing cost-effective solutions. Each alternative is differentiated by horizontal and vertical curvature, environmental impacts, cost, and constructability. A detailed discussion of the Alternatives follows.

The cut Alternatives ultimate typical section consists of three (3), 12 ft. lanes in both the eastbound and westbound directions, 12 ft. paved outside shoulders and 12 ft. paved inside shoulders with median barrier. The typical section in cut includes an 18 ft. swale along the outside shoulder to collect roadway runoff and direct the drainage to the nearest toe of fill ditch, pipe or detention basin. In areas where climbing lanes are warranted, an additional 12 ft. lane width was provided, and in cut sections the swale is replaced with a bituminous wedge curb along the outside edge of shoulder and cut slope. Fill slopes at 2:1 and cut slopes at 1.5:1 or 2:1 tie the proposed roadway to the existing ground. Depending on the presence of climbing lanes, the total distance from outside edge of the westbound shoulder to outside edge of the eastbound shoulder for the cut alternatives vary from 125.5 ft. to 137.5 ft.

The tunnels would be built to provide three lanes eastbound and four lanes westbound. The inside shoulder width in the tunnel would be 3.5 ft. and the outside shoulder width would be 2 ft. The total width of the two tunnels would be 195.9 ft., utilizing 62.9 ft. for the four-lane tunnel and 52.4 ft. for the three-lane tunnel, and a distance of 80.6 ft. between the tunnels. Although the tunnel approach median width varies from 96 ft.to 26 ft., the tunnel Alternatives utilize the same typical sections as the cut alternatives for areas to the east and west of the proposed tunnels.

The typical sections for this Project were developed using a combination of PennDOT's Design Manual Part 2 and the PTC's Design Consistency Guidelines. The typical sections for widening the existing tunnel can be found in Appendix B, Figure B-1. The proposed roadway typical sections can be found in Appendix B, Figure B-2. The proposed tunnel typical sections can be found in Appendix B, Figure B-3.

3.1 No Build Alternative

The No Build Alternative includes rehabilitation of both the existing eastbound and westbound tunnels (Appendix B, Figure B-4 No Build Alternative). This rehabilitation would only include conducting the necessary repairs to keep the existing tunnels open and operational, and would include major renovation of the ventilation systems, groundwater drainage systems, and the tunnel wall surface in both tunnels. Additionally, the westbound tunnel would require the removal or replacement of the ceiling slabs. The No Build would also include the remediation of the ancient slide area southeast of the tunnel. The remediation plan will be similar to the successful New Baltimore Slide Remediation, which is located further east along the Turnpike. The plan to stabilize the slope includes over-excavation of the slide by removing the existing earth along the hillside, in a "stepped" fashion, down to the source of the landslide or "failure plane", which is most likely a mud seam. The mud seam will be removed, and benches will be constructed into competent rock. This will occur starting at the top of the hillside and working down the slope. The excavated material from the down slope "step" will be hauled to the top of the over-excavated area, used as fill and compacted to cover the benches from the top down. This process is repeated as construction continues down the slope. Drainage measures will be placed in and around the area to ensure the reconstructed slope remains stabilized. Following construction, the area of over-excavation will be revegetated as much as possible. The volume of over-excavation material for this Alternative is approximately 6,163,075 cubic yards. A detailed construction, operation, and maintenance cost estimate for the No Build Alternative is provided in Appendix B, Figure B-4A – No Build Cost Estimate.

The No Build Alternative does not involve any horizontal or vertical alignment improvements to the existing roadway conditions. The No Build Alternative will not meet the purpose and needs of the Project as discussed in Section 2.0 Project Purpose and Need. Rehabilitation of the tunnels would not improve level of service, correct existing geometric deficiencies, improve safety within the area or provide system linkage and continuity for restricted hazardous materials carriers. Although the No Build Alternative does not meet the Project purpose and need, it will be carried forward to provide a comparison to the build Alternatives.

3.2 Widen Existing Tunnel Alternative

This Alternative would widen the existing tunnels to provide additional lanes and increase shoulder widths to meet current design standards (Appendix B, Figure B-1 Widen Existing Tunnel Alternative). A conceptual design and cost estimate were developed by Paul C. Rizzo Associates, Inc. for widening both the east bound and west bound tunnels. An evaluation of the available geologic and geotechnical information was presented and the suitability of various types of excavation equipment was evaluated.

Based on the existing information and time constraints imposed on the construction, widening of the existing Allegheny Tunnel was determined not practical for the following reasons:

- Disturbance to the South Penn Railroad Tunnel, directly or indirectly due to construction activities, has the potential to affect the federally endangered Indiana bat, and other bat species that utilize this known hibernaculum.
- Potential failure to provide adequate ventilation during construction activities will reduce traffic visibility due to dust.
- The cost of widening the existing Allegheny Tunnel and associated roadway improvements is nearly $500 million.
- The progress of the project is affected by maintenance of traffic, low production rates of excavation and seasonal restrictions, resulting in an unacceptable construction duration of up to twenty (20) years.
- Traffic cannot be in a tunnel during the installation or disassembly of the tunnel shield, resulting in bi-directional traffic in the one tunnel that is not being worked on. The sequential closings of the tunnels, or reduction to one lane of traffic for a day or two, occurs for a total of two hundred thirteen (213) intermittent days. Numerous traffic stoppages will also be associated with blasting. The traffic control measures required with the widening of the existing tunnels are not practical due to the interruption of traffic flow, increased potential of accidents and substantial congestion generated by these operations.
- The contractor will have reasonable and appropriate safety measures in place; however, due to the nature of the construction activities and confined working space adjacent to traffic, there is a substantially increased risk of a major incident occurring during the widening of the existing tunnels.

Due to the extended timeframe necessary for construction and the potential for reduced safety for the traveling public during those times, this Alternative has been eliminated, and has not been carried forward for further evaluation. For additional details on this Alternative, the complete *Final Report Design Memorandum; Allegheny Tunnel Expansion*, by Paul C. Rizzo Associates, Inc., October 15, 2013 can be referenced in the Project Technical Files.

3.3 Brown Alternatives

The Brown Alternatives are located to the North of the existing Allegheny Tunnel and utilize slightly different horizontal alignments but have similar western and eastern termini.

3.3.1 Brown Cut Alternative

The Brown Cut Alternative was initially designed to include a six (6) lane template with climbing lanes, 2:1 cut slopes and a sixty (60) ft. median. This Alternative was preliminarily laid out to utilize a large area of previously cleared forest while maintaining current design standards. However, this alignment resulted in impacts to a number of headwater tributaries to the Raystown Branch Juniata River and a large number of direct and indirect impacts to wetlands. In 2015, the alignment of this Alternative was re-evaluated to determine if impacts to the noted streams and other environmental resources could be reduced. The revised Alternative and its alignment is described below.

The current Brown Cut Alternative utilizes a six (6) lane template with an additional westbound truck-climbing lane, swales, 1.5:1 cut slopes and a twenty-six (26) ft. median with concrete barrier. This Alternative incorporates a multi-span bridge over SR 0160 and the Tributary to Stonycreek River to minimize wetland impacts and is shifted north of the headwaters to the Raystown Branch Juniata River. The profile was raised in elevation at the ridge top to minimize impacts to two adjoining wetlands.

The Brown Cut Alternative is 3.6 mi. long and is located approximately 1,900 ft. north of the existing tunnel (Appendix B, Figure B-5 Brown Cut Alternative). The western terminus of this Alternative is at existing Milepost 121.10 on the existing Turnpike, or approximately 5,801 ft. north of the existing tunnel's western portal. The Alternative moves east on an ascending 2.92 percent grade and a 0°39' horizontal curve to the left. The grade ascends at 5.00 percent for 880 ft., and flattens to an ascending 0.50 percent grade for 2,560 ft. A single structure measuring 1,675 ft. long crosses SR 0160 at proposed Milepost 121.65 and the UNT to Stonycreek River at proposed Milepost 121.87. The Alternative returns to a tangent and ascends on a 4.00 percent grade, continuing to the crest point at proposed Milepost 122.75. After the crest, the Alternative descends for 9,475 ft. on a 5.00 percent grade, which creates a need for a westbound truck-climbing lane. At proposed Milepost 122.72, the first of two wildlife overpasses will be constructed (Appendix B, Figure B-11 Wildlife Crossings). This multi-use overpass is in 36 ft. of cut, is 212 ft. long and 100 ft. wide and will provide a safe crossing over the turnpike for wildlife and adjacent property owners. At proposed Milepost 122.82 the Alternative turns southeasterly through a 3°10' horizontal curve to the right. There is a substantial amount of cut through this section with the deepest cut being 199 ft. At proposed Milepost 123.43, the Alternative turns northeasterly with a 3°10' horizontal curve to the left. At proposed Milepost 123.68, the second wildlife crossing bridge is in 36 ft. of cut, is 212 ft. long and 100 ft. wide. At proposed Milepost 123.76, the Alternative again turns southeasterly with a 3°10' horizontal curve to the right. This Alternative crosses the headwaters of the Raystown Branch Juniata River on a 2,130 ft. long, 256 ft. high structure at proposed Milepost 124.19. A 3.12 percent descending grade and a 3°10' horizontal curve to the left tie this Alternative to the existing eastern terminus of the Turnpike at existing Milepost 124.66.

Relocation of an access road to private property is provided along the top of cut of this Alternative from proposed Milepost 124.49 to proposed Milepost 124.56 Rt.

A detailed construction, operation, and maintenance cost estimate for the Brown Cut Alternative is provided in Appendix B, Figure B-5A – Brown Cut Cost Estimate.

The Brown Cut Alternative has been determined to meet the project needs and has been carried forward for detailed study throughout the remainder of the document.

3.3.2 Brown Tunnel Alternative

The Brown Tunnel Alternative was initially designed to include a six (6) lane template with climbing lanes, 2:1 cut slopes and a sixty (60) ft. median. Similar to the Brown Cut Alternative, this alternative resulted in impacts to a number of headwater tributaries to the Raystown Branch Juniata River. In 2015, the alignment of this Alternative was re-evaluated to determine if impacts to the noted streams and other environmental

resources could be reduced. The revised Alternative and its alignment is described below.

The current Brown Tunnel Alternative utilizes a six (6) lane template with an additional westbound truck-climbing lane, swales, 1.5:1 cut slopes and a twenty-six (26) ft. median with concrete barrier. This Alternative also incorporates a multi-span bridge over SR 0160 and the Tributary to Stonycreek River to minimize wetland impacts and is shifted north of the headwaters to the Raystown Branch Juniata River.

The Brown Tunnel Alternative utilizes a different horizontal alignment than the Brown Cut Alternative and is 3.6 mi. long with a 0.78 mi. long tunnel and 0.5 mi. long approaches. It is located approximately 1,900 ft. north of the existing tunnel's western portal (Appendix B, Figure B-6 Brown Tunnel Alternative). The western terminus of this Alternative is at existing Milepost 121.10 on the existing Turnpike, or approximately 5,801 ft. from the existing tunnel's western portal. The Alternative moves east on an ascending 2.92 percent grade and a 0°39' horizontal curve to the left. At proposed Milepost 121.20, the Alternative begins a positive 5.0 percent grade for 880 ft. and flattens to an ascending 0.50 percent grade for 2,560 ft. The Alternative then ascends on a 2.50 percent grade. A single structure measuring 1,675 ft. long crosses SR 0160 at proposed Milepost 121.65 and the UNT to Stonycreek at proposed Milepost 121.87, before starting on a 3°10' horizontal curve to the right. It then continues to the crest point at proposed Milepost 122.60, before reaching the western portal of the proposed tunnel at proposed Milepost 122.66. The tunnel length is 4,118 ft. long and a descending grade of 1.50 percent will have a vertical curve cresting about 3,185 ft. inside the tunnel at proposed Milepost 123.26. A descending grade of 5.00 percent brings the Alternative to the eastern portal at proposed Milepost 123.44. At proposed Milepost 123.58, the Alternative takes a 3°10' horizontal curve to the right heading southeast. A cut is located through this section, with the deepest cut being 148 ft. The Alternative continues at this grade for 6,985 ft., crossing 282 ft. above the Raystown Branch Juniata River with a 1,927 ft. long structure at proposed Milepost 124.13. The length and steepness of this 5.00 percent grade necessitate a westbound truck climbing lane. At proposed Milepost 124.38, the Alternative continues on a 0°39' horizontal curve to the left. At proposed Milepost 124.55, the Alternative continues on a 0°05' horizontal curve on existing alignment to the left. The grade changes to negative 2.86 percent at proposed Milepost 124.59 and continues for 212 ft. until tying into the existing eastern terminus of the Turnpike at existing Milepost 124.75.

A relocation of an access road to private property is provided along the top of cut of this Alternative from proposed Milepost 124.41 to proposed Milepost 124.50 Rt.

A tunnel option would require maintenance and operation tasks beyond what a cut would require including but not limited to construction/maintenance of a portal building, HVAC of portal building, tunnel ventilation, lighting of the tunnel (24 hours a day 7 days a week), and high mast lighting for the roadway approaches to the tunnel (dusk to dawn each day). A detailed construction, operation, and maintenance cost estimate for this proposed Alternative is provided in Appendix B, Figure B-6A Brown Tunnel Cost Estimate.

The Brown Tunnel Alternative has been determined to meet a majority of the project needs and has been carried forward for detailed study throughout the remainder of the document.

3.4 Yellow Alternatives

The Yellow Alternatives are also located to the North of the existing Allegheny Tunnel, but south of the proposed Brown Alternatives. Both Yellow Alternatives utilize a similar horizontal alignment and have similar western and eastern termini.

3.4.1 Yellow Cut Alternative

The Yellow Cut Alternative was initially designed to include a six (6) lane template with climbing lanes, 2:1 cut slopes, and a sixty (60) ft. median. This Alternative was the shortest and most direct northern cut alternative. The general alignment of this Alternative has not varied significantly since 2001, with only minor

modifications as needed to ensure the Alternative will meet current design standards. The current Alternative is described below.

The current Yellow Cut Alternative utilizes a six (6) lane template with an additional westbound truck-climbing lane, swales, 1.5:1 cut slopes and a twenty-six (26) ft. median with concrete barrier and maintains the same alignment as the previously designed alternative.

The Yellow Cut Alternative is 2.7 mi. long and is located approximately 670 ft. north of the existing tunnel's western portal (Appendix B, Figure B-7 Yellow Cut Alternative). The western terminus of this Alternative is at existing Milepost 121.65 on the existing Turnpike, just east of SR 0160, or approximately 553 ft. from the existing tunnel's western portal. The Alternative moves east on a descending 2.51 percent grade and 2°00' horizontal curve to the right. At proposed Milepost 121.85, the Alternative crosses an UNT to Stonycreek River with a 555 ft. long structure before starting into a 2°00' degree curve to the left. From proposed Milepost 121.86, the Alternative climbs at 5.00 percent for approximately 3,737 ft. to proposed Milepost 122.56. At proposed Milepost 122.47, a multi-use overpass will be constructed (Appendix B, Figure B-11, Wildlife Crossings). The bridge crossing is in 25 ft. of cut, is 212 ft. long and 100 ft. wide and will provide a safe crossing over the Turnpike for wildlife and members of a private sportsman club that own property on both sides of the existing Turnpike. To this point, the Alternative is primarily in fill, with a maximum height of 50 ft. The Alternative proceeds through a 0°30' horizontal curve to the right, while descending on a 4.90 percent grade for 1.40 mi. This creates the need for a westbound truck climbing lane. There is a substantial amount of cut through this section, the deepest cut being 400 ft. The Alternative continues east across the Raystown Branch Juniata River on a structure 1,946 ft. long at proposed Milepost 123.69. At proposed Milepost 124.01 the grade descends at 2.72 percent while moving southeasterly in a 3°00' horizontal curve to the right. The eastern terminus of this Alternative is at existing Milepost, 124.63 on the existing Turnpike.

A relocation of an access road to private property is provided along the top of cut of this Alternative from proposed Milepost 123.90 to proposed Milepost 124.28 Rt.

A detailed construction, operation, and maintenance cost estimate for the Yellow Cut Alternative is provided in Appendix B, Figure B-7A Yellow Cut Cost Estimate.

The Yellow Cut Alternative has been determined to meet the project needs and has been carried forward for detailed study throughout the remainder of the document.

3.4.2 Yellow Tunnel Alternative

The Yellow Tunnel Alternative was initially designed to include a six (6) lane template with climbing lanes, 2:1 cut slopes and a sixty (60) ft. median. The general alignment of this Alternative has not varied significantly since 2001, with only minor modifications as needed to ensure the Alternative will meet current design standards. The current Alternative is described below.

The current Yellow Tunnel Alternative utilizes a six (6) lane template with an additional westbound truck-climbing lane, swales, 1.5:1 cut slopes and a twenty-six (26) ft. median with concrete barrier.

The Yellow Tunnel Alternative is 2.7 mi. long with a 0.91 mi. long tunnel and 1.63 mi. long approaches. It is located approximately 544 ft. north of the existing tunnel's western portal (Appendix B, Figure B-8 Yellow Tunnel Alternative). The western terminus of this Alternative is at existing Milepost 121.65 on the existing Turnpike, just east of SR 0160, or approximately 2,885 ft. from the existing tunnel's western portal. The Alternative moves east on a descending 3.00 percent grade to proposed Milepost 121.80, while moving through a 2°00' horizontal curve to the right. From proposed Milepost 121.80, the Alternative starts a 3.00 percent ascent, crossing an UNT to Stonycreek River with a 555 ft. long structure at proposed Milepost 121.85. The 3.00 percent grade continues to proposed Milepost 122.45 while passing through a 2°00'

horizontal curve to the left. The proposed western portal of the new tunnel is located on a 3.00 percent downgrade at proposed Milepost 122.60. The proposed tunnel is 4,803 ft. in length. The Alternative continues a downgrade of 3.00 percent and exits the eastern portal of the tunnel at proposed Milepost 123.51. The downgrade increases to 4.50 percent at proposed Milepost 123.51, creating the need for a westbound truck climbing lane, and continues across a structure over the Raystown Branch Juniata River at proposed Milepost 123.68. The structure will be 1,375 ft. long and 205 ft. high. The Alternative continues for 550 ft. at a 2.99 percent downgrade and passes through a 3°00' horizontal curve to the right before tying into the existing Turnpike at existing Milepost 124.63.

A relocation of an access road to private property is provided along the top of cut of this Alternative from proposed Milepost 123.86 to proposed Milepost 124.28.

A tunnel option would require maintenance and operation tasks beyond what a cut would require including but not limited to construction/maintenance of a portal building, HVAC of portal building, tunnel ventilation, lighting of the tunnel (24 hours a day 7 days a week), and high mast lighting for the roadway approaches to the tunnel (dusk to dawn each day). A detailed construction, operation, and maintenance cost estimate is provided for the Yellow Tunnel Alternative in Appendix B, Figure B-8A Yellow Tunnel Cost Estimate.

The Yellow Tunnel Alternative has been determined to meet a majority of the project needs and has been carried forward for detailed study throughout the remainder of the document.

3.5 Gray Alternatives

The Gray Alternatives are located to the South of the existing Allegheny Tunnel. Each Gray Alternative has a slightly different horizontal alignment, but both have similar western and eastern termini.

3.5.1 Gray Cut Alternative

The Gray Cut Alternative was developed in 2010 as an alternative south of the existing Turnpike to avoid potential impact to the travel corridor of the federally-endangered Indiana bat. This Alternative initially included a six (6) lane template with climbing lanes, 2:1 cut slopes and a sixty (60) ft. median. During geotechnical investigations, an ancient landslide was discovered southeast of the tunnel's east portal, affecting the Gray Cut and Tunnel alternatives. It was determined remediation of the landslide would require over-excavation of a larger area extending beyond the original study area. The revised Alternative and alignment is described below.

The current Gray Cut Alternative utilizes a six (6) lane template with an additional westbound truck-climbing lane, swales, 1.5:1 cut slopes and a twenty-six (26) ft. median with concrete barrier. At the location of the existing western portal of the Allegheny Tunnel, this Alternative is approximately 361 feet from the southern most end of the portal. The alternative alignment at this location avoids a large wetland system to the south. A higher profile over the ridge has also been incorporated into the design to minimize additional stream impacts at this location.

The Gray Cut Alternative is 3.8 mi. long and is located approximately 470 ft. south of the existing tunnel (Appendix B, Figure B-9 Gray Cut Alternative). The western terminus of this Alternative is at existing Milepost 121.04 on the existing Turnpike, or approximately 361 ft. south of the existing tunnel's western portal. After ascending on a 3.47 percent grade, the Alternative then moves east on a descending 1.00 percent grade and a 1°08' horizontal curve to the right. At proposed Milepost 121.63, the Alternative crosses SR 0160 with a 170 ft. long structure and continues on the 1°08' horizontal curve to the right. At proposed Milepost 121.84, the Alternative crosses an UNT to Stonycreek River with a 240 ft. long structure and continues on the 1°08' horizontal curve to the right. At proposed Milepost 122.25, the Alternative continues on a 0°17' horizontal curve to the right. At proposed Milepost 121.95, the grade ascends 5.00 percent for 4,410 ft. and the Alternative continues to the crest point at proposed Milepost 122.78. At

proposed Milepost 122.61, a wildlife overpass will be constructed (Appendix B, Figure B-11, Wildlife Crossings). The bridge crossing is in 26 ft. of cut, is 200 ft. long and 100 ft. wide and will be constructed over the Alternative to provide a safe crossing for wildlife over the Turnpike. After the crest, the Alternative descends for 8,200 ft. on a 5.00 percent grade, which creates a need for a westbound truck-climbing lane. At proposed Milepost 122.81 the Alternative turns northeasterly through a 1°45' horizontal curve to the left. This section consists of a cut, with the deepest cut being 249 ft. The Alternative crosses the headwaters of the Raystown Branch Juniata River on a 1,100 ft. long, 139 ft. high structure at proposed Milepost 123.49. A 2.94 percent descending grade and a 3°09' horizontal curve to the right ties this Alternative to the existing eastern terminus of the Turnpike at existing Milepost 124.67.

The cut section of this Alternative, between proposed Milepost 123.58 and proposed Milepost 123.96, is through a slope that has evidence of sliding movement, as documented by inclinometer readings. The remediation plan will be similar to the successful New Baltimore Slide Remediation, which is located further east along the Turnpike. The plan to stabilize the slope includes over-excavation of the slide by removing the existing earth along the hillside, in a "stepped" fashion, down to the source of the landslide or "failure plane", which is most likely a mud seam. The mud seam will be removed, and benches will be constructed into competent rock. This will occur starting at the top of the hillside and working down the slope. The excavated material from the down slope "step" will be hauled to the top of the over-excavated area, used as fill and compacted to cover the benches from the top down. This process is repeated as construction continues down the slope. Drainage measures will be placed in and around the area to ensure the reconstructed slope remains stabilized. Following construction, the area of over-excavation will be revegetated, including native tree species, with the exception of a 100 ft. buffer from the edge of the highway. The volume of over-excavation material for this Alternative is approximately 6,163,075 cubic yards.

An access road is provided under the structure over the Raystown Branch Juniata River for members of a sportsman's club that owns property on both sides of the Turnpike. The access road ties into an existing road south of the existing eastern portal and terminates above the tunnel as a tie into an existing trail.

A relocation of an access road to private property is also provided along the top of cut of this Alternative from proposed Milepost 124.05 to existing Milepost 124.73 Rt.

A detailed construction, operation, and maintenance cost estimate for the Gray Cut Alternative is provided in Appendix B, Figure B-9A Gray Cut Cost Estimate.

The Gray Cut Alternative has been determined to meet the project needs and has been carried forward for detailed study throughout the remainder of the document.

3.5.2 Gray Tunnel Alternative

The Gray Tunnel Alternative was developed as an alternative south of the existing Turnpike to avoid potential impact to the travel corridor for the federally-endangered Indiana bat. This Alternative initially included a six (6) lane template with climbing lanes, 2:1 cut slopes and a sixty (60) ft. median. During geotechnical investigations, an ancient landslide was discovered southeast of the tunnel's east portal, affecting the Gray Cut and Tunnel alternatives. It was determined remediation of the landslide would require over-excavation of a larger area extending beyond the original study area. The revised Alternative and alignment is described below.

The current Gray Tunnel Alternative utilizes a six (6) lane template with an additional westbound truck-climbing lane, swales, 1.5:1 cut slopes and a twenty-six (26) ft. median with concrete barrier. At the location of the existing western portal of the Allegheny Tunnel, this Alternative is approximately 292 ft. from the southern most end of the portal. The alternative alignment at this location avoids a large wetland system to the south.

The Gray Tunnel Alternative is 3.9 mi. long and is located approximately 292 ft. south of the existing tunnel's western portal (Appendix B, Figure B-10 Gray Tunnel Alternative). The western terminus of this Alternative is at Milepost 121.04 on the existing Turnpike, or approximately 6,130 ft. from the existing tunnel's western portal. After ascending on a 3.47 percent grade, the Alternative then moves east on a descending 1.51 percent grade and a 0°50' horizontal curve to the right. At Milepost 121.62, the Alternative crosses SR 0160 with a 170 ft. long structure and continues on the 0°50' horizontal curve to the right. At Milepost 121.84, the Alternative crosses an UNT to Stonycreek River with a 275 ft. long structure and continues on the 0°50' horizontal curve to the right. The grade ascends 5.00 percent for 2,933 ft. and the Alternative continues to the crest point at Milepost 122.52. After the crest, the Alternative descends for 3,286 ft. on a 0.75 percent grade through the proposed tunnels. The proposed western portal of the new tunnel is located at Milepost 122.64. At Milepost 123.18 the Alternative turns northeasterly through a 3°10' horizontal curve to the left. The proposed tunnel is 3,045 ft. in length. The alternative exits the eastern portal of the tunnel at Milepost 123.22 with a 5.00 percent descending grade for 8,605 ft., requiring a westbound truck-climbing lane. This Alternative crosses the headwaters of the Raystown Branch Juniata River on an 825 ft. long, 135 ft. high structure at milepost 123.38, as the Alternative continues on a 3°09' horizontal curve to the right before descending on a 2.95 percent grade and tying into the existing eastern terminus of the Turnpike at Milepost 124.67.

The cut section of this Alternative, between Milepost 123.78 and Milepost 124.02, is through a slope that has evidence of sliding movement, as documented by inclinometer readings. The remediation plan will be similar to the successful New Baltimore Slide Remediation, which is located further east along the PA Turnpike. The plan to stabilize the slope includes over-excavation of the slide by removing the existing earth along the hillside, in a "stepped" fashion, down to the source of the landslide or "failure plane", which is most likely a mud seam. The mud seam will be removed and benches will be constructed into competent rock. This will occur starting at the top of the hillside and working down the slope. The excavated material from the down slope "step" will be hauled to the top of the over-excavated area, used as fill and compacted to cover the benches from the top down. This process is repeated as construction continues down the slope. Drainage measures will be placed in and around the area to ensure that the reconstructed slope remains stabilized. Following construction, the area of over-excavation will be revegetated, including native tree species, with the exception of a 100 ft. buffer from the edge of the highway. The volume of over-excavation material for this Alternative is approximately 7,050,974 cubic yards.

A relocation of an access road to private property is provided along the top of cut of this Alternative from Milepost 124.11 to existing Turnpike Milepost 124.73 Rt.

A tunnel option would require maintenance and operation tasks beyond what a cut would require including but not limited to construction/maintenance of a portal building, HVAC of portal building, tunnel ventilation, lighting of the tunnel (24 hours a day 7 days a week), and high mast lighting for the roadway approaches to the tunnel (dusk to dawn each day). A detailed construction, operation, and maintenance cost estimate for the Gray Tunnel Alternative is provided in Appendix B, Figure B-10A Gray Tunnel Cost Estimate.

The Gray Tunnel Alternative has been determined to meet a majority of the project needs and has been carried forward for detailed study throughout the remainder of the document.

4.0 Traffic Analysis

A traffic analysis has been completed in support of the Allegheny Tunnel Transportation Improvement Project. The analysis includes a description of existing conditions, projection of traffic to the design year 2045 and an evaluation of the levels of service for each of the various cut and tunnel alternatives. The analysis also addresses safety in terms of emergency response, hazardous materials routing and tunnel security. Traffic volume data was used from 2016 and was deemed a sufficient representation of data pre-COVID 19.

4.1 Existing Conditions

4.1.1 Existing Traffic Volumes

The 2016 average daily and peak hour traffic volumes for the peak month were obtained from the PTC. Based on the traffic data provided by PTC, the daily traffic volumes on the Turnpike segment between Somerset (Exit 110) and Bedford (Exit 146) for the year 2016 were 26,564 and 22,597 vehicles per day traveling in the eastbound and westbound directions, respectively. The PTC also provided L.R. Kimball with the 50th highest peak hour design volumes for the year 2016, which were 2,317 and 2,100 vehicles per hour traveling in the eastbound and westbound directions, respectively. During the design hour, the percentage of heavy vehicles was calculated to be approximately 10 percent in the eastbound direction and 8 percent in the westbound direction. The peak traffic volume for this segment of the Turnpike is in May. The 2016 traffic data provided by the PTC is included as Appendix C-1.

4.1.2 Existing Geometry

East of the Allegheny Tunnel, the existing Turnpike has two descending eastbound lanes and three westbound lanes climbing the Allegheny Front. The left westbound lane is dropped, merging into the center lane just prior to the tunnel (MP 123.7). The right lane is used by slower moving vehicles climbing the 2.94 percent grade westbound. Lanes on this portion of the Turnpike are typically 12 feet wide.

The Allegheny Tunnel itself consists of two (2) tunnel structures. The westbound tunnel has two (2) 11.5 foot lanes. This tunnel was part of the original Turnpike and was opened to traffic in October 1940. The eastbound tunnel, which was opened to traffic in March 1965, has two (2) 13 foot lanes.

Approaching the tunnel from the west, a 2.98 percent grade for 0.48 miles precedes a 3.02 percent downgrade for 0.71 miles to just within the western entrance to the tunnel. From the east, the Turnpike climbs the Allegheny Front at a 2.94 percent grade for approximately 1.3 miles before reaching the eastern tunnel entrance. Along this section of the Turnpike, the highway proceeds on an upgrade through a winding roadway with curvatures of five (5) and six (6) degrees, not meeting current desirable design criteria. Additionally, the existing Turnpike does not provide full width shoulders in all locations. Existing median widths range from 26 feet (12 foot shoulders with a 2 foot median barrier) west of the tunnels to 10 feet (4 foot shoulders with a 2 foot median barrier) east of the tunnels.

4.1.3 Crash Analysis

L.R. Kimball performed a comprehensive crash analysis to assess the overall safety of the Allegheny tunnels on the Turnpike mainline. The detailed report narrative and corresponding figures and tables are included as Appendix C-2.

Summarizing the conclusions of this report, the crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate

segments in Pennsylvania. In general, the crash rates within the environs of the tunnels along the Turnpike Mainline are higher than the statewide average. Comparing the crash data within approximately a one mile radius of the tunnels reveal that the interstate crash rate for the Turnpike increases significantly within ½ mile on either side of the tunnels. Within the vicinity of the tunnels, the majority of crashes occurred during daylight hours and under clear conditions.

The results of the crash analysis indicate that the presence of tunnels along the Turnpike is a contributing factor to the crash rates being considerably higher than the statewide averages. It should be noted that when construction or routine maintenance occurs on the Turnpike within the environs of the tunnels, the divided two-way traffic is sometimes forced to utilize one tunnel. This creates an opportunity for head-on or opposite direction sideswipe accidents to occur. However, only four (4) opposite direction sideswipe crashes were reported over the five-year study period. It should also be noted that during the winter months, traffic approaching the Allegheny Tunnels is routinely stopped to enable snow and ice removal from the Tunnels, as necessary. This most likely contributes to the high number of rear-end crashes approaching the tunnels in addition to the delay experienced by the traveling public.

4.2 Future Traffic Volume Projections

The PTC also provided L.R. Kimball with Year 2020 and Year 2040 traffic volume projections for the Turnpike segment between the Somerset (Exit 110) and Bedford (Exit 146) interchanges. The projected average daily traffic volumes were calculated by applying an exponential growth rate of 2.09 percent per year to the Year 2016 eastbound traffic volumes and an exponential growth rate of 1.53 percent per year to the Year 2016 westbound traffic volumes. The projected design hourly volumes were then derived by applying a K-factor of 8.72 percent eastbound and 9.29 percent westbound to the projected average daily traffic volumes. L.R. Kimball then utilized the growth rates and K-factors provided by the PTC to derive the future Year 2025, Year 2035 and Design Year 2045 traffic volumes. The resultant projected traffic volumes are summarized in Table 4.2.

Table 4.2 Updated Projected Traffic

	Average Daily Traffic Volumes (ADTs)						Design Hourly Volumes (DHVs)					
	Eastbound			Westbound			Eastbound			Westbound		
Year	Trucks	Cars	Total	Trucks	Cars	Total	Trucks	Cars	Total	Trucks	Cars	Total
2020	2,902	25,953	28,855	1,887	22,125	24,012	253	2,264	2,517	175	2,056	2,231
2025	3,218	28,781	31,999	2,035	23,871	25,906	281	2,510	2,791	189	2,219	2,408
2035	3,957	35,396	39,353	2,369	27,785	30,154	345	3,087	3,432	220	2,582	2,802
2040	4,389	39,252	43,641	2,556	29,976	32,532	383	3,423	3,806	238	2,785	3,023
2045	4,867	43,529	48,396	2,758	32,340	35,098	424	3,797	4,221	256	3,006	3,262

4.3 Operational Analysis

4.3.1 Level of Service Methodology

The *Highway Capacity Manual (HCM2010)* methods were used to evaluate levels of service for each of the detailed alternatives. The *Highway Capacity Software (HCS 2010 Version 6.50)*, was utilized to implement the HCM2010 methodology. The analysis methods require inputs for peak hour traffic volumes, traffic flow characteristics (i.e., percent trucks), roadway geometry (i.e., grades) and other design parameters.

Levels of service (LOS) are qualitative measures of congestion and driver service quality. According to the HCM2010, LOS on a basic freeway segment is defined by density. Density describes the proximity to other vehicles and is related to the freedom to maneuver within the traffic stream. Unlike speed, however, density is sensitive to flow rates throughout the range of flows. The levels of service range from LOS A, which describes free-flow conditions; to LOS F, which indicates system failure. Definitions for each Level of Service, as it relates to freeway segments, are presented in Table 4.3.1. According to AASHTO guidelines, LOS C is the threshold of acceptability for rural freeway facilities. Therefore, since patrons of the Turnpike are paying tolls and should expect acceptable levels of service, average peak hour density thresholds should not exceed 26 passenger cars / mile / lane.

Table 4.3.1 Freeway Level of Service Definitions

Level of Service	Max. Density (PC / MI / LN)*	Description
A	11	Free-flow operations. Free-Flow Speed (FFS) prevails on the freeway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of minor incidents or point breakdowns are easily absorbed.
B	18	Reasonably free-flow operations and FFS on the freeway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents or point breakdowns are still easily absorbed.
C	26	Flow with speeds near the FFS of the freeway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.
D	35	Level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver with the traffic stream is seriously limited and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
E	45	Operation is at capacity and is highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious breakdown and substantial queuing. Physical and psychological comfort of drivers is poor.
F	>45	Traffic flow is unstable and breaks down. These conditions exist within queues forming behind bottlenecks. Breakdown occurs when the ratio of existing demand to actual capacity, or of forecast demand to estimated capacity, exceeds 1.00. LOS describes conditions at the point of the system failure as well as within the resulting queue that forms behind that point of failure.

* Passenger cars per mile per lane

4.3.2 Highway Capacity Manual Methodology Assumptions

In order to account for the effect of grades, tunnels, truck climbing lanes and other design elements and existing alignment, each of the proposed alternatives was segmented and each segment was analyzed separately. The number of segments per alternative ranged from two (2) to four (4), depending on the roadway characteristics. Appendix C-3 provides tables which describe the stationing, lengths and grades of the various segments for each alternative that were used for LOS calculations.

A set of assumptions were required to complete the analysis for each segment. Some of these assumptions applied to all segments (global) while others were segment specific. The global assumptions that were applied to all segments include a peak hour factor (PHF) of 0.95 and 100 percent of the heavy vehicles being considered trucks and buses, as opposed to recreational vehicles. The passenger car equivalents for trucks and buses were obtained from HCM2010 Exhibit 11-11 and Exhibit 11-13 for upgrades and downgrades, respectively.

The first segment specific assumption was the estimate of free-flow speed for each segment. The free-flow speed used for all new alignments was 70 miles per hour (mph) for the mainline non-tunnel segments and 60 mph for all tunnel segments. The second segment specific assumption involves the tunnel segments. Since vehicles traveling through the tunnels are prohibited from changing lanes, their movements are restricted, thus decreasing capacity. The effect of this no passing restriction was accounted for in the HCS by using a Driver Population Factor (DPF) of 0.85 as opposed to the DPF of 1.00 that was used for all non-tunnel segments. This reduced DPF reflects the assumptions that were utilized in all previous traffic analyses that have been performed for this project.

4.3.3 Level of Service Results

L.R. Kimball conducted detailed capacity analyses for the existing conditions year 2017 utilizing the existing grades and roadway characteristics. The capacity calculations for Segment 4 in the westbound direction account for the truck climbing lane that is currently provided. The results of the existing conditions analysis are depicted in Table 4.3.3-A. As shown in the table, the existing four-lane facility is operating at acceptable LOS C or better throughout the study area.

Table 4.3.3-A
Existing Conditions LOS Table

Segment	Direction	LOS (Density)
1	EB	C (18.7)
	WB	B (16.7)
2	EB	C (18.7)
	WB	B (17.3)
3*	EB	C (25.6)
	WB	C (22.9)
4	EB	C (18.7)
	WB	B (11.5)

* Tunnel Segment

L.R. Kimball also conducted detailed capacity analyses for the design year 2045 for each of the alternatives. As discussed previously, each alignment was segmented and capacity analyses were conducted for each segment to account for the effect of grades, tunnels and other design elements. Please refer to Appendix C-3 for tables which describe the stationing, lengths and grades of the various segments for each alternative that were used for LOS calculations.

Utilizing the detailed analyses performed for the design year and projected traffic volumes, service flow rates and densities were also calculated to determine levels of service for the future years 2025 and 2035. For this analysis, the service flow rate calculation utilized per HCM2010 is:

$$v_p = V / (PHF * N * f_{HV} * f_p)$$

Where v_p = passenger-car equivalent flow, V = design hourly volume, N = number of lanes, f_{HV} = heavy vehicle adjustment, and f_p = driver population factor. The flow rate was then divided by the FFS to determine the density and level of service for each segment of each alternative. The results of the LOS analysis are given in Table 4.3.3-B. The table depicts the LOS for a 2-Lane and 3-Lane cross section under the future years 2025 and 2035, and the proposed design year of 2045. It should be noted that the grades shown for the year 2017 analysis reflect the proposed grades, to provide a comparison to the levels of service on the existing alignment that are provided in Table 4.3.3-A.

As shown in Table 4.3.3-B, the two-lane template has segments that are projected to operate at unacceptable LOS D by the year 2025, and at LOS E by the year 2035. Incorporating truck climbing lanes on the upgrades may remedy the unacceptable LOS on these segments for the year 2025, however, this would only provide a short-term solution to the capacity problems that are anticipated to occur by the year 2035.

Table 4.3.3-B
LOS Comparison Table

Alternative	Segment	Direction	Design Hour (LOS / Density)						
			Year 2017	Year 2025		Year 2035		Year 2045	
			2-Lane	2-Lane	3-Lane	2-Lane	3-Lane	2-Lane	3-Lane
Brown Cut	1	EB	C (21.7)	D (26.6)	B (16.8)	E (36.7)	C (20.9)	F (59.2)	D (26.9)
		WB	B (16.7)	C (18.9)	B (12.5)	C (22.3)	B (14.6)	D (27.0)	B (17.0)
	2	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	C (19.3)	C (22.1)	B (14.5)	D (26.7)	B (16.9)	D (33.6)	C (19.7)
Brown Tunnel	1	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	B (16.7)	C (18.9)	B (12.5)	C (22.3)	B (14.6)	D (27.0)	B (17.0)
	2*	EB	C (25.6)	D (30.7)	C (20.2)	E (42.3)	C (24.8)	F (75.8)	D (31.0)
		WB	C (22.9)	C (25.8)	B (17.2)	D (30.5)	C (20.0)	E (37.9)	C (23.3)
	3	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	C (19.3)	C (22.1)	B (14.5)	D (26.7)	B (16.9)	D (33.6)	C (19.7)
Yellow Cut	1	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	B (16.7)	C (18.9)	B (12.5)	C (22.3)	B (14.6)	D (27.0)	B (17.0)
	2	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	B (17.3)	C (19.7)	B (13.0)	C (23.4)	B (15.2)	D (28.5)	B (17.7)
Yellow Tunnel	1	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	B (16.7)	C (18.9)	B (12.5)	C (22.3)	B (14.6)	D (27.0)	B (17.0)
	2*	EB	C (25.6)	D (30.7)	C (20.2)	E (42.3)	C (24.8)	F (75.8)	D (31.0)
		WB	C (22.9)	C (25.8)	B (17.2)	D (30.5)	C (20.0)	E (37.9)	C (23.3)
	3	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	B (18.0)	C (20.4)	B (13.5)	C (24.4)	B (15.7)	D (30.1)	C (18.3)
Gray Cut	1	EB	C (21.7)	D (26.6)	B (16.8)	E (36.7)	C (20.9)	F (59.2)	D (26.9)
		WB	B (17.3)	C (19.7)	B (13.0)	C (23.4)	B (15.2)	D (28.5)	B (17.7)
	2	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	C (18.6)	C (21.3)	B (14.0)	C (25.5)	B (16.3)	D (31.8)	C (19.0)
Gray Tunnel	1	EB	C (21.7)	D (26.6)	B (16.8)	E (36.7)	C (20.9)	F (59.2)	D (26.9)
		WB	B (16.7)	C (18.9)	B (12.5)	C (22.3)	B (14.6)	D (27.0)	B (17.0)
	2*	EB	C (25.6)	D (30.7)	C (20.2)	E (42.3)	C (24.8)	F (75.8)	D (31.0)
		WB	C (22.9)	C (25.8)	B (17.2)	D (30.5)	C (20.0)	E (37.9)	C (23.3)
	3	EB	C (18.7)	C (22.5)	B (14.7)	D (29.5)	C (18.1)	E (42.4)	C (22.7)
		WB	C (19.3)	C (22.1)	B (14.5)	D (26.7)	B (16.9)	D (33.6)	C (19.7)

* Tunnel Segment

The proposed three-lane template is projected to operate at acceptable LOS C or better for each of the cut and tunnel sections through the design year with the exception of the following segments which are projected to operate at LOS D in the year 2045:

- Brown Cut – Segment 1 EB
- Brown Tunnel – Segment 2 EB
- Yellow Tunnel – Segment 2 EB
- Gray Cut – Segment 1 EB
- Gray Tunnel – Segments 1 and 2 EB

The LOS D which is anticipated to occur within Segment 1 of the Brown and Gray alternatives, is most likely attributed to the steep grades being proposed within this segment, whereas the LOS D within Segment 2 of the Brown, Yellow and Gray tunnel alternatives is most likely attributed to the reduced driver population

factor that was applied to this segment to account for the no passing restriction within the tunnel. Although the levels of service for certain segments fall below the acceptable LOS C thresholds, the overall section between Somerset (Exit 110) and Bedford (Exit 146) is not anticipated to approach or exceed capacity by the design year. In addition, the degradation to LOS D on the upgrades in Segment 1 is not enough to warrant the implementation of truck climbing lanes on the proposed six-lane template. Please refer to Section 4.3.4 – Truck Climbing Lane Analysis for a more detailed discussion on when truck climbing lanes are warranted.

The detailed Existing Year 2017 and Design Year 2045 capacity analysis outputs from HCS can be found in Appendix C-4, while the flow rate / capacity calculations for each of the alternatives in the years 2017, 2025, 2035 and 2045 are included in Appendix C-5.

4.3.4 Truck Climbing Lane Analysis

Utilizing the methodology provided in AASHTO, the following three criteria, should be satisfied to justify a climbing lane for a two-lane highway:

1. Upgrade traffic flow rate in excess of 200 vehicles per hour.
2. Upgrade truck flow rate in excess of 20 vehicles per hour.
3. One of the following conditions exists:
    - A 15 km/h [10mph] or greater speed reduction is expected for a typical heavy truck
    - Level-of-service E or F exists on the grade
    - A reduction of two or more levels of service is experienced when moving from the approach segment to the grade

Utilizing the existing traffic data provided by the PTC, the projected volumes for the Year 2017 in the eastbound direction are 2,365 vph (238 trucks) and in the westbound direction are 2,132 vph (168 trucks). Based on the projected volumes, the first 2 criteria are easily satisfied under existing conditions. Based on the critical lengths of grade for each of the proposed cut and tunnel sections, a speed reduction of greater than 10 mph is also anticipated on the proposed upgrades in each section. On four-lane highways, AASHTO states that in addition to the criteria above being satisfied, climbing lanes should generally not be considered unless the directional volumes are greater than 1,000 vehicles per hour per lane regardless of the percentage of trucks. Therefore, accounting for the fact that all of these criteria are satisfied under existing conditions, truck climbing lanes would be justified in both the eastbound and westbound directions for this section of the Turnpike if a four-lane cross-section is provided.

Since a six-lane cross-section is being proposed for each alternative, the slower moving trucks can be directed to use the rightmost lane, thereby leaving two through lanes open for the faster moving passenger vehicles. According to AASHTO, the service volume on an actual grade should not exceed that for the next poorer level of service from that used for the basic design. AASHTO also states that climbing lanes should not be considered unless the directional traffic volume for the upgrade is equal to or greater than the service volume for level of service D. Therefore, L.R. Kimball assumed that unless the level of service on an individual grade drops below LOS D, the provision of a truck climbing lane was not justified. As shown in Table 4.3.3-B, all segments are projected to operate at LOS D or better in the Design Year 2045, thus truck climbing lanes are not required based on levels of service.

Although a six-lane cross-section is being proposed for each alternative and all segments are projected to operate at LOS D or better, the Turnpike is a toll facility and patrons anticipate traveling at optimal speeds. Therefore, L.R. Kimball compared the grades in the eastbound and westbound directions for each

alternative, to determine the speed reductions anticipated to occur as a result of the 5 percent grades that are proposed in both directions of travel. Traveling in the eastbound direction, the 5 percent upgrade is proposed to occur over a distance of less than ½ of a mile with approach grades of approximately 1.5 percent. Although this results in a speed reduction of greater than 10 mph, the distance that heavy vehicles are traveling at these reduced speeds is less than a mile. Traveling in the westbound direction, the 5 percent upgrade is proposed to occur over a distance of approximately 1 mile with approach grades of approximately 3 percent. This steeper approach grade results in heavy vehicles traveling at speeds well below average before reaching the steeper 5 percent grade, where they continue to reduce speeds as they travel along the upgrade. Based on the critical lengths of grade, speed reductions of greater than 30 mph are anticipated for certain alternative. Thus, based on the fact the Turnpike is a toll facility and patrons expect to travel at optimal speeds, the anticipated speed reductions in the westbound direction are not acceptable and L.R. Kimball recommends implementation of a truck climbing lane in addition to the 3 travel lanes. Please refer to Appendix C-3, for charts depicting the speed reductions anticipated as a result of the critical lengths of grade being proposed for each alternative.

4.4 Emergency Response

The Turnpike is a toll facility which charges for its use. Therefore, the Turnpike offers a range of services which are not typically provided on non-toll highways. Among these are service plazas, roadside assistance and safety patrol services, *11 emergency cellular phone service and advanced traveler information systems. The PTC also maintains a Traffic Operation Center which is staffed 24 hours a day, 365 days a year. This Traffic Operation Center continuously monitors Turnpike activities such as roadway conditions, construction status, and weather conditions and serves as the focal point for all incident management activities.

A very important aspect of customer service is emergency response. The Turnpike utilizes Unified Incident Command as their means to respond to incidents effectively and efficiently. This program enables multiple agencies to coordinate the emergency response effort through one incident manager. The primary objectives of Unified Incident Command are to arrive on the scene as quickly as possible, conduct an accurate and thorough assessment of the incident, secure the scene of the incident, protect the workers at the scene and ensure that the backlog resulting from the incident is managed in a safe manner.

For this reason, it is important to compare the performance of the alternatives in terms of emergency response. Overall, open segments perform better in terms of emergency response than segments which include tunnels. For example, if an accident would occur within a tunnel, traffic would be blocked behind the accident, providing little room for vehicles to move aside and let the emergency vehicles pass. Typically, the emergency vehicles would need to access the accident scene from the opposite end of the tunnel, requiring traffic to be stopped in the through lanes until the incident is resolved. This practice of stopping traffic on a high speed facility, although unavoidable, can result in a potentially hazardous situation due to the increased risk of a serious rear-end collision occurring at the back of the traffic queue.

Accidents which occur in open sections can also cause major blockage, however, traffic can typically be shifted to the side onto shoulders or recovery zones to provide a path for emergency vehicles to pass through the queue of traffic and gain access to the accident site with minimal delay.

The emergency routing currently utilized by the Turnpike in the vicinity of the Allegheny Tunnel would most likely remain the same whether a tunnel or open segment is chosen. Depending on the location and severity of the incident and availability of emergency personnel and equipment, responders would either be dispatched from Somerset County or Bedford County. In Somerset County, fire and rescue responders would either be dispatched from Somerset or Shanksville Volunteer Fire Departments. In Bedford County, fire and rescue

responders would either be dispatched from New Baltimore or Shawnee Valley Volunteer Fire Departments. Ambulance services would be provided by either Somerset EMS or Shawnee Valley EMS.

4.5 Hazardous Materials Routing

The Turnpike restricts the passage of vehicles carrying certain hazardous materials through all of their tunnels. Vehicles making long-distance trips carrying restricted materials often avoid the Allegheny Tunnel by exiting the Turnpike and using highways such as I-80 and I-68, which run parallel to the Turnpike. Locally based trucks and trucks running shorter routes must exit the Turnpike at either the Somerset (eastbound) or Bedford (westbound) Interchange, to avoid the Allegheny Tunnel. The most common alternate routes used by trucks that exit at Somerset or Bedford to bypass the Allegheny Tunnel are SR 0030 and SR 0031. Both routes contain sharp curves, steep grades, numerous driveways / intersections, residential and commercial areas, and in general, are unsuitable to the safe and efficient movement of truck traffic. Due to the numerous geometric features along SR 0030 and SR 0031, there is a greater risk of accidents involving hazardous materials and therefore a greater potential of exposure to the local population, public water supplies and agricultural land within the communities located along these routes. Therefore, the use of these alternate routes as a means of hauling hazardous materials is a major concern of local officials and emergency service providers.

Furthermore, because hazardous material carriers are not permitted to utilize the Allegheny Tunnel, their hauling times are increased. The distance between Exit 110 (Somerset) and Exit 146 (Bedford) via the Turnpike is 36.6 miles, while the distance via SR 0031 is 41 miles and via SR 0030 is 44 miles. This increased distance coupled with the rugged terrain and multiple stops and speed reductions experienced along these alternate routes results in significantly increased travel times for hazardous material carriers. Also, by requiring hazardous material carriers to utilize alternate routes, the system linkage and continuity of the Turnpike is disrupted.

Assuming that hazardous material restrictions are the same for the proposed Tunnel Alternatives as the existing Allegheny Tunnel, trucks carrying hazardous materials would be required to depart the Turnpike as they do now. The increased travel times experienced by the hazardous material haulers and the risk of accidental spills within the communities located along the alternate routes would remain. It should also be noted that despite the Turnpike's restriction of hazardous materials being transported through the tunnels, there is past evidence of accidents occurring between the Somerset and Bedford interchanges that involved trucks carrying prohibited hazardous materials. This situation increases the potential for a catastrophic event to occur within the tunnel, such as a fire.

The restrictions placed upon hazardous materials carriers would be lifted in an open cut area allowing the continuation of travel on the Turnpike between Exits 110 and 146. Providing a highway designed for the latest highway standards reduces the potential for accidents and decreases the potential for spills to occur within the communities along the alternate routes. Construction of an open section will also provide system linkage and continuity on the Turnpike and result in significantly reduced travel times for hazardous material haulers which will no longer need to utilize alternate routes to bypass the tunnel.

4.6 Tunnel Maintenance and Security

Tunnels, in general, have higher operating costs than cut sections. The annual maintenance and operating cost of the Allegheny Tunnels is currently greater than $1.5 million. The PTC assigns tunnel operations staff to each of its five tunnels. This staff, comprised of tunnel operators and tunnel guards, are responsible for ongoing monitoring of each tunnel. Tunnel operators monitor roadway traffic, detect incidents, respond to facility and system alarms, respond and report to the traffic operations center and coordinate the activities of the tunnel guards. Tunnel guards are also responsible for monitoring traffic in the tunnel, in addition to responding to breakdowns or accidents and performing various maintenance tasks such as de-icing, re-lamping and lighting

adjustments, storm drain cleaning and removing debris. The tunnel guards conduct "drive-throughs" every two hours where they look for debris or other potential problems inside the tunnels. The tunnel operations staff work rotating shifts to ensure coverage 24 hours a day, 365 days a year.

In addition to higher operating costs, tunnel security is also a concern. Terrorism against American citizens and assets is a real and growing threat, and the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO), acknowledges that the nation's bridges and tunnels are vulnerable to terrorist attacks. A terrorist attack could cause catastrophic structural damage, result in substantial human casualties and major economic losses. In addition to the replacement costs associated with construction of a new structure, revenue from toll facilities lost through a terrorist attack could dramatically affect the viability of the Turnpike.

5.0 Affected Environment

This section documents the existing environmental resources that would likely be affected by the proposed Project. These resources have been identified through a combination of desktop and field investigations. The resources identified are located within the Project study area, which was developed to include sufficient area to encompass the limits of disturbance associated with the Project Alternatives, plus additional area that may be required for the implementation of erosion and sediment controls during construction, development of post-construction stormwater management facilities, private property owner access, etc.

The majority of the Project study area is comprised of upland deciduous forest associated with the Allegheny Mountain ridge. The eastern and western termini of the Project study area consist of wetland bottomlands associated with the Raystown Branch Juniata River and UNT to Stonycreek River, respectively. The study area extends north and south of the existing tunnel, with the largest portion of the study area located north of the existing Turnpike roadway. The only other publicly maintained roadways within the Project study area are Huckleberry Highway (SR 0160), which runs roughly north to south near the western terminus of the Project study area, and Big Rock Road which extends off SR 0160 in an easterly direction. Deeter Gap Road is located south of the southeastern portion of the study area and provides access to the southeastern section. Additional access roads are located throughout the Project study area, but are privately owned and maintained, including Bluebird Lane and Senna Lane, which are located off Big Rock Road. Residential homes are located within the Project study area along SR 0160, Big Rock Road, Deeter Gap Road, and Bluebird Lane. There are also agricultural fields present within the Project study area, concentrated in the vicinity of SR 0160.

The following sections discuss the specific resources identified within the Affected Environment as they relate to the Project study area. Appendix D contains figures that display the location of the various resources in the Project study area.

5.1 Active Agricultural Land

Active agricultural land was identified within the Project study area in accordance with the definitions of PA Act 1979-100 (Act 100) and PA Act 1981-43 (Act 43), as well as 4 PA Code Chapter 7 § 7.301 et seq.; the Commonwealth's *Agricultural Land Preservation Policy* (ALPP).

Act 100 and Act 43 Productive Agricultural Land

In December 1979, the Pennsylvania Administrative Code of 1929 was amended by P.L. 478, Act Number 100 (referred to as Act 100). Act 100 established the ALCAB as an independent administrative board with approval authority over the condemnation of land being used for productive agricultural purposes (PAL) for certain types of transportation projects. The Agricultural Area Security Law (Act 43) enables landowners to propose the creation of Agricultural Security Areas (ASAs) to municipal governments. There are currently two (2) parcels that contain ASA's within the Project study area. It should be noted that while there are ASA lands present, they do not meet the definition of prime agricultural land under Act 43. Act 100 governs land that is considered productive agricultural land, which is any land currently used for production, for commercial purposes, of crops, livestock, and livestock products. There are six (6) properties within the Project study area that meet the definition of productive agricultural land (Appendix D, Figure D-1 Active Agricultural Land). All six (6) properties are located within Stonycreek Township. Secondary source data, including the Somerset County Farmland Survey, Somerset County Tax Maps, Somerset County ASA file; and aerial photography were used to assess each property with productive agricultural land.

Table 5.1 – Act 100 Productive Agricultural Land, contains a brief description of each property's use of productive agricultural land:

Table 5.1
Act 100 Productive Agricultural Land

Type of Productive Agricultural Use	Property Under Special Tax Status	Property Size – ac.	Amount of Property in Productive Agricultural Use – ac.
Row Crops	Yes – Acts 515/319	18.08	6.62
Row Crops	No	8.76	2.59
Row Crops	Yes – Acts 515/319	22.76	5.44
Row Crops (Leased)	No	15.75	1.22
Row Crops / Maple Syrup	No	19.27	9.76
Row Crops / Hay Field	Yes – Acts 515/319	59.02	6.16

Agricultural Land Preservation Policy (ALPP) – Prime Agricultural Land

4 PA Code Chapter 7 § 7.301 et seq. is the Commonwealth's *Agricultural Land Preservation Policy* (ALPP). This policy outlines agricultural preservation standards that all state agencies must support. The ALPP is intended to protect and preserve the Commonwealth's "prime agricultural land." The "prime agricultural land" includes land currently in active agricultural use (not including the growing of timber) which has been devoted to active agricultural use for the preceding three years. It is categorized into five levels, presented in order of priority:

- Highest priority protection is assigned to preserved farmland. Preserved farmland includes productive agricultural land restricted solely for agricultural use by 1) an agricultural conservation easement or 2) deed restrictions.

- Second highest priority protection is assigned to farmland within ASAs. The ASA program was created under PA Act 43 of 1981, as amended. The farmland is approved as an ASA by local government units after public review and comment.

- Third highest priority protection is assigned to farmland that is enrolled in preferential tax assessment programs to encourage open space uses and discourage conversion to other uses. This priority specifically refers to farmland enrolled in Act 319 of 1974, as amended (Clean and Green), or Act 515 of 1966, as amended.

- Fourth highest priority protection is assigned to farmland that is planned for agricultural use and is subject to effective Agricultural Zoning. This directly applies to farmland designated for agricultural use in a comprehensive plan and/or zoning ordinance adopted pursuant to Act 247 of 1968, as amended (the Municipal Planning Code) that delineates an area of agriculturally valuable soils and existing farms.

- Fifth highest priority protection is assigned to farmlands with Soil Capability Classes I, II, III, and IV or farmlands classified as unique. The Soil Capability Classes are identified in the Soil Survey of Somerset County, PA, published by the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS). Unique farmland is defined as land other than prime farmland that is used for production of specific high-value food and fiber crops, as determined by the Secretary of Agriculture. Unique farmland possesses a special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farm methods. Examples of such crops include tree nuts, fruits, and vegetables.

Prime agricultural land as defined by ALPP is located within the Project study area. Properties within the study area that meet the definition of prime agricultural land are noted below in conjunction with their priority rating under ALPP.

- First Highest Priority – There are no preserved farmlands within the Project study area.
- Second Highest Priority – There are no ASA lands present within the Project study area that meet the definition of prime agricultural land.
- Third Highest Priority – There are three (3) properties enrolled in the Clean and Green program within the Project study area that meets the definition of prime agricultural land.
- Fourth Highest Priority – There is no agricultural zoning or planned agricultural areas within the Project study area.
- Fifth Highest Priority – There are properties in the Project study area containing soil capability classes I through IV that meet the definition of prime agricultural land.

5.2 Community Facilities / Services

There are no community facilities / services within the Project study area. Two (2) PA State Police barracks are located in Somerset Township. The Troop "T" Barracks provides police protection to a 40-mi. section of the Turnpike and Troop "A" serves Somerset County. The Project study area is not served by a full-time professional fire department. Volunteer fire departments serving the Project study area include, Stoystown Volunteer Fire Company (VFC), Berlin VFC, Friedens VFC, New Baltimore & Area VFC, and Shanksville VFC. Emergency Medical Service (EMS) providers for the area are found in Berlin, Central City, Schellsburg, and Somerset. A regional hospital is located in Somerset.

Public Schools and/or other education centers are not found within the Project study area. The project area includes Berlin-Brothersvalley and Shanksville-Stonycreek school districts.

There are no churches located within the Project study area. The closest church is the Sarver Church located along Deeter Gap Road (SR 1013) east of the Project study area. There are two (2) maintained cemeteries located within the Project study area. The first is Clark Cemetery, which is a small, non-active family cemetery located in a residential yard off Bluebird Lane. The second, is Downey Cemetery, a slightly larger, potentially active cemetery with several families represented. This cemetery is located along the west side of SR 0160, south of Big Rock Road. The cemetery locations are noted in Appendix D, Figure D-2 Residences, Community Facilities, and Property Access.

There are no public water or wastewater systems within the Project study area. The Borough of Berlin has public water supply wells located south of the Project area (south of SR 0031). The wellhead protection zones for these water wells extends north of SR 0031, but the northern most extent of the wellhead protection zone is located over 1.5 miles south of the southern-most proposed Alternative.

5.3 Residences and Property Access

The Project study area is located in a rural setting where residential development is widely scattered. Businesses are not located within the Project study area. A total of 16 housing units are located within the Project study area, which are concentrated along SR 0160, Big Rock Road, and Bluebird Lane. This count includes permanent structures that may be utilized as single-family residential use, even if currently vacant. Included in this number is one (1) hunting cabin/structure that was identified by an adjacent property owner as

likely utilized for human habitation. This structure is located adjacent to the cleared field associated with the cell tower in that area. There are no utilities, water or sewage associated with the structure and it can only be accessed via the cell tower access road.

There are also privately maintained access roads within the Project study area that lead to residential homes, cabins, or property located outside of the Project study area boundary. These include one (1) access road (Senna Drive) that is located in the northwest portion of the study area that leads to a residential home that is outside of the Project study area. Additionally, there is an access road in the southeast portion of the study area that leads to a privately-owned cabin. The cabin itself is not located within the Project study area, but portions of the cabin access road are within the Project study area. This access road traverses the former South Penn Railroad grade across four (4) properties, including property held by the PTC.

The majority of private property within the study area is held by the Mountain Field and Stream Club (MFSC), a private sportmans organization. Currently there are two (2) main access points for MFSC members to access their property within the Project study area. The southern access point consists of a gated gravel road, located off SR 1013. The northern access point also consists of a gated gravel road, which is located off Bluebird Lane. There is also a smaller gated access road utilized to access the western portion of the MFSC property, located off the south side of Big Rock Road.

The housing unit locations, structures, and access drives are identified in Appendix D, Figure D-2 Residences, Community Facilities, and Property Access.

5.4 Floodplains

The 100-year floodplains located within the Project study area were identified using Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and Flood Hazard Boundary Maps. Floodplain locations can be found in Appendix D, Figure D-3 Wetland, Surface Water Resources, and Floodplains. Based on the FEMA FIRM Maps 42111C0435D and 42111C0455D (effective September 19, 2012), there are 100-year floodplains associated with the UNT to Stonycreek River and the Raystown Branch Juniata River. The mapping indicates that both streams are located in a Zone A Floodplain with no base flood elevations documented. There are no mapped floodways within the Project area.

5.5 Geology / Soils

The project location is situated at the extreme eastern edge of the Allegheny Mountain section of the Appalachian Plateaus Province. Topography is characterized by broad, rounded ridges, separated by broad valleys, with elevations ranging from 2,795 ft. (852 m) on the crest of Allegheny Mountain to roughly 1,925 ft. at the Raystown Branch Juniata River in Suhrie Hollow. The boundary between the Allegheny Mountain section and the lower lying lands of the adjacent Ridge and Valley physiographic province to the east is marked by the southeast-facing escarpment of the Allegheny Mountains.

5.5.1 Stratigraphy and Structural Geology

Stratigraphy

Various geologic units lie within the Project study area and are identified in Appendix D, Figure D-4 Geologic Features. The geologic formations exposed are listed from oldest to youngest geologic strata. They are each gradually exposed east to west in the Project area. These formations are listed and briefly described, according to the United States Geological Survey (USGS), as follows:

Oldest Units to Youngest Units

- *Catskill*
- *Rockwell*
- *Burgoon Sandstone*
- *Mauch Chunk*
- *Pottsville*
- *Allegheny*
- *Glenshaw*

Catskill
The Catskill Formation is defined as grayish-red sandstone, siltstone, shale, and mudstone; locally conglomeratic; and contains gray sandstone in upper part. (USGS)

Rockwell
The Rockwell Formation is defined as a buff, fine- to medium-grained, cross-bedded, argillaceous sandstone and dark-gray shale; includes some interbedded carbonaceous shale, sporadic conglomerate beds, and diamictite. (USGS)

Burgoon Sandstone
The Burgoon Sandstone formation is defined as buff, medium-grained, cross-bedded sandstone; includes shale and coal; is conglomeratic near the base of the formation; and contains fossils. (USGS)

Mauch Chunk
The Mauch Chunk Formation is defined as grayish-red claystone/shale, siltstone, sandstone, and some conglomerate and some non-red beds. Included within the Mauch Chunk formation is the Loyalhanna Member. The Loyalhanna is described as a cross bedded, sandy limestone occurring at the base in south-central and southwestern Pennsylvania. It also includes the Greenbrier Limestone Member, which encompasses the Wymps Gap and Deer Valley Limestone. (USGS)

Pottsville
The Pottsville Formation is defined by predominantly gray sandstone and conglomerate; also containing thin beds of shale, claystone, limestone, and coal; minable coals and commercially valuable high-alumina clays can be present locally. (USGS)

Allegheny
The Allegheny Formation is described as a cyclic sequencing of sandstone, shale, limestone, clay, and coal; includes valuable clay deposits and Vanport Limestone; commercially valuable and extensively mined Freeport, Kittanning, and Brookville-Clarion coals are present. The base is defined by the occurrence/base of Brookville-Clarion coal. (USGS)

Glenshaw
The Glenshaw formation is comprised of gray and brown claystone, shale, siltstone and sandstone, with several coal beds; lower members contain redbeds and fossiliferous marine shales (USGS)

Structural Geology

The Project area is on the geologic structural flank (broad structural fold) situated between the Berlin Syncline and Deer Park Anticline. The axis of these structural features is oriented northeast to southwest in alignment with the Allegheny Mountain system.

The rock strata within the Project study are parallel folds striking between N30°E and N35°E, according to published literature. Based on limited field measurements taken during field reconnaissance, the average strike of rock strata was found to lie between N50°E and N60°E. The dip is highly variable ranging from a minimum of 7° to a maximum of 35° to the northwest, with averages for the different formations ranging from 15° to 22°.

The subsequent folding has also resulted in the formation of joints, fractures and occasional faulting. The intersection of joints can create secondary pathways for groundwater to flow through the bedrock. Tributaries, seeps and springs that have developed as a result of geologic structure and hydrology contribute flow to the Raystown Branch Juniata River and the Stony Creek.

A cursory examination of aerial photography exhibits fracture traces within the Project area. These features may indicate fractured bedrock associated within the bedrock, which may impart higher permeability's to the rock strata.

5.5.2 Soils

According to the Somerset County Soil Survey, there are 41 soil mapping units within the Project study area. Table K1 – Project Study Area Soils, located in Appendix K, summarizes the soil types and general characteristics present within the project area. Project area soils can be seen on Appendix D, Figure D-5 Project Area Soils. Below is a general overview of the soils within the Project study area traveling roughly east to west.

Soils lying on the steep escarpment of the Allegheny Mountains belong primarily to the Leck Kill (LmF), Albrights very stony silt loam (AgD), and the Rayne-Gilpin channery silt loam (RgF) soil series. These soils occur in long bands parallel to Allegheny Mountain. Albright stony loams have large stones covering from 5 to 15 percent of the surface, Leck Kill soils generally contain a lesser percentage of surface stones. Soils occurring less frequently and in smaller and more irregularly shaped areas along the escarpment includes: Hazelton very bouldery sandy loam (HzF), Ernest very stony silt loam (EsD) and Leck Kill very stony silt loams (LkD). Hazelton very bouldery sand loams are littered with boulders covering an estimated 60 to 90 percent of the soil surface. Ernest very stony silt loams and Leck Kill very stony silt loams contain large stones scattered over an estimated 3 to 15 percent of the surface.

The crest of Allegheny Mountain, within the project area, is composed of smaller, irregularly shaped to somewhat elongated soil mapping units sub-parallel to Allegheny Mountain. Soils consist of Albrights very stony silt loams (AgB), Berks-Weikert channery silt loams (BkC and BkD), Leck Kill channery silt loams (LeB), Leck Kill very stony silt loams (LkB), Rayne-Gilpin channery silt loams (RgB and RgC), Rayne-Gilpin very stony silt loams (RpB), Wharton silt loams (WhB). Soils mapping units such as LkB contain a scattering of stones covering an estimated 5 to 15 percent of the surface.

On the more moderate to gently sloping western flank of Allegheny Mountain, soils are composed primarily of Brinkerton very stony silt loams (BtB), Ernest very stony silt loams (EsB), and Hazelton very stony sandy loams (HbB), each containing an estimated 5 to 15 percent surface covering of large stones. Rayne-Gilpin very stony silt loams (RpD) occur closer to the crest of Allegheny Mountain and in an irregular area, at the existing west portal, lying sub-parallel to the Allegheny Mountain. Lesser amounts of Hazelton very bouldery sandy loam (HzB), Nolo very stony loam (NsB), and Udorthents, mine spoil (UDD) are interspersed.

The Rayne-Gilpin-Wharton-Cavode mapping unit occurs on the gentle slopes within the western portion of the project area and overlies the rock strata of the upper Allegheny Group and the Glenshaw Formation of the Conemaugh Group. The Hazelton-Cookport mapping unit, which lies adjacent to the Rayne-Gilpin-

Wharton-Cavode, occurs in a narrow band corresponding with the rock strata of the lower Allegheny and Pottsville Groups. Immediately to the east, the Leck Kill-Albright mapping unit overlies the red shales and mudstones of the Mauch Chunk.

5.5.3 Coal and Mineral Resources

Somerset County is underlain by approximately 14 coal beds, five (5) of which are of sufficient thickness, quality, and extent to be considered economically important. Within the project area, the coal beds are contained within the rock strata of the Allegheny Group near the western end of the project area. The Upper Kittanning, Lower Freeport, and Upper Freeport, which occur in the middle and upper parts of the Allegheny Group, were surfaced mined north of the Project study area. Currently there, are two (2) permitted sites in the Project vicinity located off Big Rock Road and Bluebird Lane. PADEP records note the first site as the Magneto Strip owned by PBS Coals. This site has been reclaimed to its approximate original contour. PADEP records note the second site as a small surface mining operation (less than 2000 tons). It is termed the Senna strip, and is owned by Brantview Farms Excavation, Inc. No deep mines on these coal beds are known to occur within the Project area.

In southern Somerset County, coal beds of the lower Allegheny Group - the Brookville, Clarion, and to a lesser extent, the Lower Kittanning are generally considered to be irregular in thickness and poor in quality, containing numerous shale partings and lenses of pyrite. The Lower Kittanning, which also contains pyrite, is generally of higher quality, although it may not exceed 30 inches (in.) in thickness. No mining of the Lower Kittanning is reported within the project area.

Based on available information from PADEP Bureau of Mining and published literature, the economically important coal beds have been largely mined out within the project area. The proposed alignments cross the presumed outcrops of the Lower Kittanning and Upper Kittanning coal beds at the western end of the project beneath a large wetland system, and the Brookville and Mercer outcrops further to the east. Any remaining minable coal is limited to a small area north of the west portal of the Allegheny Tunnels. Recent information indicates the price of coal is currently low, and unless these coal beds were part of an extensive, high quality coalfield, there is little economic incentive to mine them.

Since the project was put on hold in 2001, drilling for natural gas within the Marcellus and Utica Shale formations has become more common throughout southwestern PA. The noted Marcellus and Utica Shale formations underlies the Project study area. At this time, there are no active wells within the Project study area. The closest active well is owned by Samson Resource Company and is located along SR 0031. Currently, there are no known proposed wells within the Project study area.

5.5.4 Acid Base Accounting

Introduction

An acid base accounting analysis was completed for two borings drilled as part of the environmental and geo-technical investigation for the proposed Project. The purpose of this study is to complete a preliminary overburden analysis for the Project. A copy of the *Acid Base Accounting and Petrographic Analysis Report for the PTC Allegheny Tunnel Transportation Improvement Project* can be found in the Project Technical Files.

The Project alternatives and corridors are situated in various geologic formations that contain recognized acid bearing rock units. The following geologic formations occur within the Project study area and are recognized as acid-bearing as per the Pennsylvania Geologic Survey *(from younger to older strata).*

- Casselmen Formation
- Glenshaw Formation
- Allegheny Formation
- Pottsville Formation
- Burgoon Sandstone Formation
- Rockwell Formation

Methodologies

Borings were sited, drilled and rock core logged for lithologic and geo-technical information. Two (2) Borings, termed OB-2 and SB-1 were utilized for this analysis. The borings were selected for the overburden analyses based on their proximity to proposed excavation and cut locations.

SB-1 and OB-2 are both situated geologically in the Rockwell Formation described as a - Buff, fine- to medium-grained, crossbedded, argillaceous sandstone and dark-gray shale; includes some carbonaceous shale, sporadic conglomerate beds, and diamictite.

The entire cored length of each of the borings was segmented into no more than 3-feet continuous sections of homogenous lithology. Discreet samples were sent to Mahaffey Laboratories where the samples were collected and crushed from the selected intervals. The chemical analyses were complete as per "*Pennsylvania Department of Environmental Protection Overburden and Sampling Testing Manual, ME 86210.*

The analytical data was entered in a spreadsheet developed by the PADEP. The resultant spreadsheet calculates the net neutralization based on the chemical analysis and the amount of calcium carbonate necessary to offset the acid conditions.

The analyses and interpretation of the acid base accounting is based primarily on the following documents:

- *Evaluation of Acid Base Accounting Data Using Computer Spreadsheets*
- *Acid Bearing Rock Policy, Pennsylvania Department of Transportation*

Thin sections of selected boring rock intervals were also prepared and analyzed via petrographic and scanning electron microscope. These efforts were completed to further evaluate rock lithology, sulfidic content, texture and depositional characteristics of the sulfides as they relate to the generation of acidic conditions.

Results

The overall acid base accounting results indicate from the two (2) borings evaluated that pyritic and lithologic conditions vary significantly across the area of investigation. Results range from slightly excess neutralization potential to very deficient in neutralization potential.

The thin section analysis confirmed that most of the pyrite occurs as microscopic grains, some of which is framboidal. The nature of the framboidal pyrite will deteriorate at a faster rate for large grains. The thin section work also produced images that confirm the rock type, sulfidic type and depositional characteristics.

5.6 Groundwater Resources

Lithology, topographic setting, and geologic structure are the most important factors that control the type and distribution of water-bearing zones. The yield of wells is dependent upon the size, number, distribution, and

degree of interconnection of water-filled openings penetrated by the well. In the project area, secondary porosity and permeability due to fractures and bedding-plane partings are the most important factors in the transmission of ground water.

The occurrence of both primary and secondary porosity and permeability varies according to lithology. Sandstone beds tend to fail by brittle fracture when stress is applied, whereas limestone and shale tend to flow. As a result, fractures are more abundant and more persistent in sandstone than shale or limestone. In shales, fractures are generally closely spaced and may not extend into overlying or underlying lithologies. Bedding plane partings and joints in limestone can be enlarged by solution, and therefore high yields can be realized if solution cavities are encountered.

In general, wells located in valleys and gullies yield greater quantities of ground water than those located on hilltops or hillslopes. Many stream valleys, gullies or depressions form due to weaknesses in the underlying rock strata, such as a change from resistant sandstone to less resistant shale. Other weaknesses include bedding plane separations, joints, and faults. The Allegheny escarpment marks the boundary between the tightly folded rock strata of the Ridge and Valley physiographic province to the east and the less deformed strata of the Appalachian plateau to the west. Valleys and depressions are often localized along fractures and bedding plane separations produced during folding. In addition, wells penetrating nearly horizontal strata generally have higher yield than those in steeply dipping strata. This is because more bedding plane separations can be intercepted in horizontal strata than in steeply dipping strata.

The project area is sparsely populated and residential areas are concentrated in Downey at the western terminus of the project area, along SR 0160. The residents within the Project study area rely on wells for water.

5.6.1 Residential Private Water Supply Wells

Preliminary investigations of ground water resources were conducted through review of PA Department of Conservation and Natural Resources' (DCNR's) groundwater information system (PaGWIS) and door-to-door surveys of residents that were conducted in April 2013 and July 2016. In total, twenty (20) residential wells were noted within the Project study area. Four (4) of the twenty (20) wells are hand dug wells. The deepest well within the Project study area is approximately 500 ft. deep. The remaining wells were not advanced beyond 300 ft.

5.6.2 Berlin Water Supply

A Report on the Preliminary Analysis of Impacts to the Berlin Borough Public Water Supply, was prepared by L.R. Kimball in October 2016, following concerns expressed by the Berlin Borough Municipal Authority at the October 22, 2013 Public Plans Display for the project. The report included information from published geologic data, past reports conducted for the PTC, the PADEP Bureau of Water Supply Management, and the Berlin Borough Municipal Authority.

The public water supply of the Borough (Pennsylvania Department of Environmental Protection Identification Number – 4560029) is composed of an 8-well and 6- spring water system that is permitted as a public water supply through the PADEP. These public water sources serve a population of approximately 2,450 within the Berlin Borough Area. The general location of the Borough's water supply is approximately 1.6 miles south of the Project study area, near SR 0031. The northern point of the recharge area for the Borough wells has been delineated as approximately 1.14 miles south of the Project study area. For security purposes, the exact location of public water supply sources is not published by PADEP.

The current operating system utilizes 3 of the 8 wells, and 5 springs. They are identified as Wells 6, 9 and 10 and Springs 1, 2, 3, 4, and Boose Spring. The other remaining sources are not currently utilized, but are

listed as a permitted source (*2001, PADEP PWSI*). The design capacity of the Borough system is 600,000 gallons per day. (2001, PADEP PWSI) Water levels, withdrawals and water quality of the water sources are monitored and recorded as part of the water system operations.

The Berlin water supply wells 6, 9, and 10 were constructed in 1969, 1989, and 1990, respectively. These wells are within the Raystown Branch of Juniata River watershed, with flow in the well vicinity traveling to the northeast. The Borough wellheads of Wells 6, 9 and 10 range 2580 to 2585 ft. above sea level.

The springs have been part of the Borough water supply since 1917. The springs are located approximately 3.5 miles southwest of the Project study area and discharge flow to the Buffalo Creek watershed with flow traveling in a westerly direction in the vicinity of the Project study area. The springs are considered "upgradient" of the Project study area and reside in a different ridge complex. The springs daylight at elevations approximately 2600-ft above sea level.

5.7 Hazardous Materials

A preliminary area reconnaissance (PAR) on potentially affected parcels was conducted from August 2, 2011 through August 12, 2011 and again on April 28, 2014 within and adjacent to the Project study area. The purpose of the PAR is to establish the potential for the presence of hazardous or other environmentally sensitive waste on a project wide basis. Background research consisted of agency contacts to determine the potential for environmental liabilities on properties adjacent to and/or within the proposed project area. Additionally, Environmental Data Resources (EDR) performed multiple one-mile radius searches to cover the subject area, which were summarized in a Radius Report dated September 25, 2012. A walk-over of the 35 parcels within the Project study area was then conducted. A copy of the 2012 *Preliminary Area Reconnaissance Report* (updated 2014) can be found in the Project technical files.

Nine (9) properties were categorized as having recognized environmental concerns (RECs) or potential RECs. Of the nine (9) properties identified, six (6) properties were recommended for a limited Phase II Investigation, two (2) properties were recommended for a geophysical survey with the potential for a limited Phase II investigation, and one (1) property was recommended to have a debris pile removed. The nine (9) properties can be seen on mapping located in Appendix D, Figure D-6 Properties with Potential Hazardous Materials Concerns.

The following Areas of Concern (AOC) have been recommended for a limited Phase II Investigation if impacted by the proposed Project:

- AOC 1, Spoil material pile;
- AOC 3, Spoil material pile;
- AOC 4, Refuse piles, drums;
- AOC 7, Fill pile;
- AOC 8, Refuse piles, drums, raw sewage; and
- AOC 9, Tire pile and dump site.

The following AOCs have been recommended for a geophysical survey with potential limited Phase II investigations if impacted by the proposed Project:

- AOC 5, Potential USTs; and,
- AOC 6, Potential UST.

The following AOC has been recommended for removal of debris if impacted by the proposed Project:

- AOC 2, Fill pile.

As noted, the Project study area was expanded to the north and to the south in 2015. An additional field reconnaissance was conducted for these areas that were not part of the original PAR. This reconnaissance was conducted on June 13, 2016. An updated EDR Radius Report (dated July 7, 2016) was prepared and reviewed. No additional sites were listed in this radius report when compared to the 2012 radius report.

None of the parcels within the expanded study areas were noted as having recognized environmental concerns except for a hunting cabin/structure identified adjacent to the cell towering clearing. An adjacent property owner indicated that the cabin may be utilized as a permanent residence for one person, and at the time of the reconnaissance, there was no evidence of water and or septic/sewage connected to this cabin, which could present itself as a potential REC. This property was termed AOC 10 for potential waste concerns.

5.8 Historic / Archaeological Resources

The project study area was surveyed for above ground historic and archeological sites. Cultural resources were identified and evaluated in compliance with Section 106 of the National Historic Preservation Act (NHPA), its impending regulations, Executive Order 11593, the Archaeological and Historic Preservation Act, Commonwealth of PA State Acts and the PA History Code.

5.8.1 Identification of Area of Potential Effect (APE)

As stated in 36 CFR 800.2(c), a Project's area of potential effect (APE) is "the geographic area or areas within which the undertaking may cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking." An APE includes, but is not limited to, the Project study area and immediate environs, and depends on the nature of the topography and the cultural resources in the area, as well as the scope of the proposed undertaking.

The APE for historic resources encompasses all areas that might be subject to visual, auditory, and physical effects from any of the Alternatives currently under consideration. To account for potential visual effects, the APE generally follows the crests of surrounding hills and ridges and incorporates all areas within the Project view shed. As the Project has evolved, so has the APE for historic resources. Cultural resource studies were originally performed in connection with the project between 1997 and 2001, but the project was suspended prior to the selection of a preferred alternative. When the project was re-initiated in 2010, several alternatives were eliminated and others were added. In two reports dated November 2011 and February 2012 (Heberling Associates, Inc. 2011, 2012), Heberling Associates, Inc. updated existing cultural resource information gathered during previous studies and also assessed historic resource and archaeological potential throughout the modified Area of Potential Effect (APE). Potential effects of the project on historic properties were assessed in a report dated October 2014 (Heberling 2014). Following the 2011 and 2012 cultural resource updates, the project continued to evolve, resulting in an expansion of the APE. The study area was expanded to the north to evaluate the potential to reduce environmental impacts and expanded to the south to address geotechnical issues. The location of the historic structures APE can be seen in Appendix D, Figure D-7 APE for Historic Resources and National Register Eligible Resources.

A phased approach to the archaeology resource identification studies is being employed. During the initial alternatives analysis, studies have been limited to file review, background research, limited field visits, and an update of resource information gathered as part of previous studies. Detailed archaeological resource

studies will not be performed until a Preferred Alternative is selected. Currently, a preliminary APE for archaeology has been delineated. The PA Historical and Museum Commission (PHMC) concurred with the preliminary APE in a letter dated November 9, 2011. A copy of the November 2011, *Allegheny Tunnel Transportation Improvement Project ER # 97-0474-11, Definition of Area of Potential Effect,* by Heberling Associates, Inc. can be found in the Project technical files, and a copy of the PHMC concurrence letter is included in Appendix E, Agency Correspondence. Since the 2012 archaeological resources update, the APE has been expanded by approximately 652 acres to include additional areas to the northwest, north, and east of the existing tunnel. The Preliminary APE for Archaeology can be seen in Appendix D, Figure D-8 Preliminary Archaeology APE and Potential Archaeological Resources. Once a Preferred Alternative has been selected, a final APE for archaeology will be defined. The final APE will consist of the Project footprint, encompassing all areas subject to ground disturbance and other direct physical effects.

5.8.2 Historic Resources

Under Section 106 of the National Historic Preservation Act of 1966 (NHPA) and other federal and state legislation, it is necessary to consider potential effects of the proposed Project on historic properties. Other relevant laws and regulations include the regulations of the Advisory Council on Historic Preservation (36CFR800); Commonwealth of PA acts nos. 1970-120 and 1978-23; and the PA History Code (37 Pa. Cons. Stat., Sect. 507 *et seq*.).

A variety of cultural resource studies were performed by Skelly and Loy, Inc. in connection with the Project study area between 1997 and 2001, but the Project was suspended prior to the selection of a Preferred Alternative. Due to the addition of southern alternatives and the length of time that had passed since the 1997-2001 studies, it was necessary to update the existing information concerning historic properties. A historic properties update was conducted by Heberling Associates, Inc. (Heberling) in July-October 2011.

In order to update the Historic Resources findings, the cultural resource documents prepared by Skelly and Loy, Inc. as part of the 1997-2001 studies were reviewed. These included the Historic Resources Survey and Determination of Eligibility Report (Skelly and Loy, Inc. 2000), the Determination of Effect Report (Skelly and Loy, Inc. 2000b), and the Alternatives Analysis and Environmental Studies Report (Skelly and Loy, Inc. 2001). The PHMC's on-line Cultural Resources Geographic Information System (CRGIS) database was then reviewed to determine whether there had been any change in the eligibility status of properties in the present APE since 2001. Finally, a field view was performed to confirm the presence and condition of previously-identified properties, identify potential historic properties that were outside the 2001 APE but were within the 2011 APE, and identify any properties that have achieved the National Register 50-year age threshold since 2001 and might need to be evaluated for eligibility.

The 2011 APE consists mainly of steep, rugged terrain on the crest and slopes of Allegheny Mountain and was not attractive for historic settlement. There are very few structures of any kind, and most of these are located in the extreme western portion. The great majority of the properties identified and evaluated by Skelly and Loy were located outside the 2011 APE and were not re-examined during the update. Only six (6) previously-surveyed properties lie within the 2011 APE: the Turnpike; the South Penn Railroad Tunnel; the Jacob Kimmel House; the Anthony Sidone House; the Matthias Kimmel House; and the Edward Gohn House. The latter four (4) properties are located in the village of Downey.

Of the six (6) previously-surveyed properties, it was confirmed through CRGIS in 2011 and again in 2017 that none are listed in the National Register of Historic Places. Two (2) properties were determined to be eligible for listing: the right-of-way (ROW) of the Turnpike and the South Penn Railroad Tunnel. The location of these features is described below, and can be seen on Appendix D, Figure D-7 APE for Historic Resources and National Register Eligible Resources.

- The Turnpike resource is part of the historically-significant original Middlesex to Irwin section of the Turnpike, the first limited-access toll highway in the United States. The Allegheny Tunnel is considered to be a noncontributing resource due to the extensive modernization and dualization work that was completed in 1965. The 6.2 miles of roadway immediately east of the Tunnel (MP 123.6 to MP 129.8) also is considered to be noncontributing due to the addition of a third lane to the westbound side after the period of significance; in this section portions of the roadway also have been relocated to alleviate sharp curves. These changes compromised the integrity of the Tunnel and its eastern approach. However, the roadway section to the west of the Tunnel is considered to be contributing (Skelly and Loy 2005:84, 86).

- The South Penn Railroad Tunnel is an abandoned and partially completed 3,900-ft. long tunnel located 85 ft. north of the westbound tube of the PTC's Allegheny Tunnel. It was constructed between 1883 and 1885. The NRHP boundaries are undefined.

The above noted properties were examined during the 2011 field view. The Turnpike and South Penn Railroad Tunnel have undergone no changes that would affect their eligibility for listing in the National Register. The four (4) properties in the village of Downey are still extant and relatively unchanged since 2001. Another property mapped in CRGIS, the Abraham Miller House, which apparently was dismissed from consideration early in the Skelly and Loy survey, was determined in 2011 to lack integrity and is not eligible.

The 2011 field view also identified two (2) properties meeting the 50-year National Register age requirement which were outside the original APE but are located within the 2011 APE. The first is a small frame Dutch Colonial house located on the west side of SR 0160 about 0.2-mi. southwest of the village of Downey. It dates to the early 20th century. The house is architecturally undistinguished and has suffered a loss of integrity through the addition of a modern front porch and garage, application of modern siding, and replacement of windows. It is not eligible for the National Register due to a lack of architectural or historical significance and a lack of integrity. The second property is located on the west side of SR 0160 a few hundred feet southwest of the house discussed above. This 19th century farmstead, identified as "J. Landis" on the 1876 county atlas, consists of a frame four-over-four house, a frame barn, and tile milkhouse. Both the house and the barn have been altered substantially. The house has modern siding and replacement windows, and it appears that at least one original window has been covered by siding. The barn appears to have been constructed typical to the time period, but its first story has been enclosed and features modern windows and doors, destroying its defining characteristics. The J. Landis Farmstead is not eligible for the National Register due to a lack of architectural and historical significance and a lack of integrity.

During the 2011 investigation, it was determined that there were no substantial changes to any of the properties surveyed in 2001 which would warrant a reassessment of National Register eligibility. There were no properties in the original APE that have achieved the 50-year National Register threshold since 2001. The two (2) properties located in the 2011 APE that were not in the original APE are not eligible for the National Register due to a lack of architectural and historical significance and a lack of integrity. They are undistinguished and highly altered examples of common local building types. The Turnpike and the South Penn Railroad Tunnel are the only above-ground historic properties in the APE. The determination of eligibility of these properties was concurred upon by the PHMC in a June 13, 2012 letter.

Following the 2011 and 2012 cultural resource updates, the project continued to evolve, resulting in an expansion of the APE. The study area was expanded to the north to evaluate the potential to reduce environmental impacts and expanded to the south to address geotechnical issues. A September 2016 Addendum to the 2011 Historic Resources Update was completed that extended the reconnaissance survey to the expanded APE.

It was determined that there are nine resources meeting the 50-year NRHP age requirement in the expanded APE northwest and north of the Allegheny Tunnel, including eight (8) buildings or groups of buildings, and one (1) cemetery. Another very small cemetery located just within the limits of the original APE also was included in the survey. All ten of these resources are located within the area surveyed by Skelly and Loy, Inc. during their 1997-2001 studies, but none were evaluated at that time (Skelly and Loy, Inc. 2000). None were recorded by the Somerset County Historic Sites Survey (Somerset County Planning Commission 1984, 1985a, 1985b) or are recorded in the PHMC's CRGIS database. In most cases the resources were not included in previous surveys because of their relative recent (mid-twentieth century) construction dates. There are no resources located in the expanded APE east of the Tunnel. That area is rugged and steep and would not have been suitable for historic period occupation or farming.

Resources in the expanded APE to the northwest and north of the Allegheny Tunnel are clustered along SR 0160 north of the Turnpike, with two (2) others located along intersecting roads. PHMC abbreviated survey forms for all properties were completed. Surveyed properties included five (5) mid-twentieth century ranch houses, one (1) Minimal Traditional house, one (1) small Queen Anne style house, one (1) I-house, and two (2) small cemeteries. It was determined that none of the eight (8) buildings/buildings are eligible for the NRHP due to a lack of historical significance and in some cases a loss of integrity. No additional documentation or evaluation was recommended. The two (2) cemeteries in the expanded APE were surveyed by a Works Progress Administration (WPA) recording project in the mid-1930s. Based on NRHP eligibility criteria the cemeteries are not eligible for the NRHP, but they should be avoided if possible. PHMC concurred with the expanded APE and that the ten (10) noted resources are not eligible for listing in the NRHP in a letter dated November 21, 2016.

A copy of the November 2011, *Allegheny Tunnel Transportation Improvement Project ER # 97-0474-11, Historic Resources Update,* as well as the September 2016, *Addendum to Historic Resources Update (2011)*, by Heberling Associates, Inc. can be found in the Project technical files, and copies of the PHMC correspondence letters can be referenced in Appendix E, Agency Correspondence.

5.8.3 Archaeological Resources

In order to provide an updated assessment of possible effects to archaeological resources, Heberling reviewed the original archaeological reconnaissance and predictive model completed by Skelly and Loy, checked the site files maintained by the PHMC's on-line CRGIS database, and visited the APE on three (3) occasions (August 25 and October 28, 2011 and February 17, 2012), to evaluate the conditions for the 2012 update. The field visits included a walkover of characteristic terrain within the APE, and an inspection of the South Penn Railroad tunnel portal and a cave identified by Skelly and Loy in an October 1, 1999 letter to the PTC (Beckman 1999).

A review of the PA Archaeological Site Survey (PASS) files available through the CRGIS database indicated that there are no recorded archaeological sites in or near the 2012 preliminary APE. The nearest recorded sites are located approximately 3.1 mi. (5 km) to the west and 1.9 mi. (3 km) to the east. The 11 prehistoric sites to the west, include a range of prehistoric sites of various sizes and unknown functions situated on terraces, flats and slopes overlooking Glades Creek and the Stonycreek River. Little is known about these sites, and the rolling hilly terrain in the vicinity contrasts with the mountainous and rugged topography of the APE, so it is difficult to extrapolate from these sites to those that might be present in the APE. The site recorded to the east is situated on a bench overlooking the Raystown Branch Juniata River, a setting that approximates more closely those within the APE, but the site produced only stone debitage, and little is known of its function other than the inference that it served as a camp site. The local sites thus present an inadequate basis for generalizing about the nature of prehistoric settlement in the APE and the distribution and character of sites there.

The Skelly and Loy 1999 predictive model for prehistoric archaeological site locations and the sensitivity map for historic archaeological sites (Duncan *et al.* 1999) were then thoroughly reviewed. It was determined that little had changed since the development of the 1999 predictive model to alter its general recommendations. After the development of the predictive model, local residents reported the presence of a cave within the APE limits. A 1999 field view of the site confirmed its presence and suggested that it might contain potentially significant archaeological deposits (Beckman 1999).

The 2012 APE was visited on three (3) occasions and consists mainly of steep, rugged terrain on the crest and slopes of Allegheny Mountain. The reconnaissance of portions of the 2012 APE included visits to the cave and the identification of other areas of archaeological concern not specifically noted by the predictive model.

1. *The* cave *and nearby rock overhangs and rock faces:* The cave was visited on two (2) occasions. The first inspection, which was limited to the cave entrance and vicinity, suggested that areas outside the main entrance might be sensitive locations for archaeological deposits and that chambers not accessible at the time of the field visit might contain archaeological deposits. The cave was revisited on February 17, 2012, with personnel from the PA Game Commission (PGC). In neither case was evidence of Native American use of the cave noted: e.g., remnants of fire, pictographs, surface artifacts, etc. However, subsurface probing was not conducted inside the cave chamber or at the entrance, and a complete assessment of the archaeological potential of the cave must await further, systematic testing.

   Of similar interest was the presence of rock faces and overhangs in the vicinity of the cave. The entire south face of the hillside contains rock overhangs and faces that might have been suitable settings for rock shelters or windbreaks used by the prehistoric inhabitants of the region. Access to water and varied resources in the immediate vicinity would have been added incentives to camps and temporary bivouacs there. Such settings should be systematically tested if they fall within the APE for the preferred alignment.

2. *Other rock outcrops and boulder fields:* The Burgoon formation outcrops are present on southeast-facing slopes above the Little Juniata River to the north of the Turnpike at a comparable elevation to the outcrops near the cave. A long series of rock faces was identified on steep slopes above the river. Although the slopes would have discouraged aboriginal use, it is possible that some of these overhangs or faces were used as sites for temporary camps or bivouacs. Numerous large boulders at slightly higher elevations on this slope may have been similarly used. Overhangs and vertical rock faces that may have served as protection from wind and weather should be systematically examined and tested if they fall within the APE for the Preferred Alternative.

3. *Upland flats near water:* Numerous upland flats were noted near wetlands, springs and drainage heads. These would have been highly attractive locales for small hunting and other resource-procurement camps. Many of these settings fall within areas already identified by the predictive model as having a medium to high potential, but such locations should be systematically surveyed if they fall within the APE for the Preferred Alternative.

4. *Historic foundations, walls, and features:* Several individual features are noted on the map of the Potential Archaeological Resources and should be assessed in detail as part of the Phase I survey of the Preferred Alternative. This map can be seen in Appendix D, Figure D-8 Preliminary Archaeology APE and Potential Archaeological Resources. The potential resources include obvious structural remains at the base of the eastern slopes of Allegheny Mountain - a house foundation, spring box and related features to the south of the Raystown Branch and west of Suhrie

Hollow Road, apparently associated with the J. Wambach residence that appears on the 1876 Beers atlas map of Allegheny Township (Beers 1876) - and the possibly related stone cairns and wall remnants nearby, the latter lying just outside the Project study area limits. A small structure foundation and spring box was noted on the western slopes of the mountain, substantially removed from any current roads. These remains may be related to a structure shown on the 1929 Berlin USGS quadrangle map (USGS 1929) but seem to be separate from the J.A. Landis residence mapped to the west within the APE in the 1876 Beers atlas. Other surface remains noted during the two field visits include a stone wall and gate opening on steep slopes overlooking the Raystown Branch and three (3) stone cairns along the Raystown Branch located outside the Project study area limits. All the remains noted are in zones identified as having low or very low potential on the 1999 historic sensitivity mapping (Duncan *et al.* 1999: Plate 2).

Properties with archaeological potential are recorded on historic maps of the area (Beers 1876, USGS 1929). The 1876 Beers map shows the noted Landis and Wambach properties, and a Miller residence on the steep eastern slopes of Allegheny Mountain. The 1929 USGS map indicates, in addition to the structure noted above on the western slopes of Allegheny Mountain, two (2) structures within the present APE to the east. These represent former buildings at least 80 years old and potential archaeological sites. The locations of the six (6) structures on the 1876 and 1929 maps will be examined during the Phase I survey of the Preferred Alternative if they fall within that APE.

The 2012 study determined that the 1999 archaeological predictive model for prehistoric sites and historic site sensitivity mapping still provide basic guidance for considering archaeological potential in the revised preliminary Project APE. However, it was determined that the model may under-represent certain classes of potential archaeological sites. There are several resource types that are not reflected in the 1999 report that will be considered in archaeological studies for the Preferred Alternative: rock faces and overhangs that may have served as rock shelters or windbreaks; upland flats near springs, seeps and first-order or intermittent streams; and historic deposits associated with stone cairns, walls and foundations, some of which are shown on nineteenth and early twentieth century maps but are not noted in the 1999 report.

Since the 2012 archaeological resources update, the APE has been expanded by approximately 652 acres to include additional areas to the northwest, north, and east of the existing tunnel. A *September 2016 Addendum to the 2012 Archaeological Resources Update* was completed that extended the reconnaissance survey to the expanded preliminary archaeology APE.

The 2016 Addendum noted that no additional prehistoric or historic archaeological sites have been recorded in the PASS files since the 2012 archaeological resources assessment. It also indicated that the PHMC and PennDOT have jointly developed a statewide predictive model for pre-Contact Native American archaeological sites that includes the APE. In general, this model addresses some of the same factors that were considered in the 1999 Skelly and Loy model and discussed above. The predictions are comparable, although the new model also seemingly addresses the potential for sites at rock overhangs and on upland flats noted in the 2011 assessment. The predictive model is presented with respect to the preliminary archaeology APE and identified potential resources in Appendix D, Figure D-9 Preliminary APE and Prehistoric Archaeology Predictive Model.

A copy of the March 23, 2012, *Allegheny Tunnel Transportation Improvement Project Archaeological Resources Update,* and September *2016 Addendum to the 2012 Archaeological Resources Update* by Heberling Associates, Inc. can be found in the Project technical files.

5.9 Land Use / Zoning

The Project study area is located in Somerset County within Allegheny and Stonycreek Townships. The Project study area is largely rural with widely scattered residential development throughout. Somerset County has an approved Comprehensive Plan from 2006, but the County has no designated zoning within the Project study area. Additionally, the municipalities within the study area have no zoning or comprehensive land use plans.

Land use patterns and areas within the study area were analyzed using aerial photography interpretation and the Anderson Land Use and Land Cover Classification System. Land use/cover identified within the Project study area includes active agricultural, residential, barren land, forest, rangeland, and transportation, as can be seen in Appendix D, Figure D-10 Land Use / Land Cover. It should be noted that these land use categories are based on what can be readily identified utilizing an aerial photograph. More detailed information on several of the land use types, including active agricultural, forest, and residential can be referenced in their appropriate sections within this document. Surface waters are covered in much greater detail in Section 5.11 and have not been included as a land use category as they are under-represented in aerial photography. The dominant land use/cover identified within the Project study area is forest, covering over two-thirds of the area. Table 5.9 provides the area of each land use/cover found within the Project study area.

Table 5.9 – Land Use / Cover within the Project Study Area

Land Use / Cover	Area within Project Study Area ac.
Active Agricultural	35.48
Barren Land	1.58
Forest	1421.77
Rangeland	214.43
Residential	26.33
Transportation	61.76

5.10 Noise

A traffic noise monitoring work plan was developed and conducted by Gannett Fleming for the Project study area for the purpose of evaluating and identifying the effort required to define the noise impacts and costs of abatement associated with the Project Alternatives. The analysis was conducted in accordance with the guidelines outlined in PennDOT's *Publication 24: Project Level Highway Traffic Noise Handbook* and techniques described in the Federal Highway Administration's (FHWA's) *Report Number FHWA-PD-96-046, Measurement of Highway-Related Noise*. Gannett Flemings studies can be referenced in the two (2) *Preliminary Engineering Noise Analysis Reports for the PTC Allegheny Tunnel Transportation Improvement Project*, dated December 2014 and June 2017. These reports can be found in the Project's technical file.

The noise monitoring work plan determined the proposed Project as a Type 1 Project and then identified noise study areas (NSA) and noise receptor sites for traffic noise monitoring. In the 2014 Analysis, two (2) NSA's were analyzed. Due to the study area expansion, the 2017 Analysis included four (4) NSAs comprised of a total of 14 short-term monitoring sites. Only the Brown and Gray Alternatives were re-evaluated during the 2017 Analysis, as these four (4) alternatives are located in the expanded study area. Ambient noise measurements were conducted within each of the above NSAs. Short-term (20-minute duration) noise measurements were taken along with concurrent traffic counts at the six (6) locations using American National Standards Association (ANSI) Type I noise meters. For purposes of verifying peak noise hour conditions, 24-hour noise measurements were conducted at one (1) location within the Project study area. ANSI Type II noise meters were used for this monitoring.

The locations of the proposed noise measurement sites were selected to be representative of outdoor conditions for different activity categories in accordance with PennDOT's noise policy (November 2015). These sites can be referenced in Appendix D, Figure D-11 Noise Study Area Locations. The choice of the number and location of the noise measurement sites were influenced by topography, relative location in relation to the Turnpike and local road traffic in the area.

NSA 1
Residential (Activity Category B) land uses are located adjacent to the eastbound travel lanes (south side) of I-76, from Pike View Road to Huckleberry Highway. Noise sensitive land use in NSA 1 is comprised of single-family residences. Two (2) short-term monitoring sites were utilized for this NSA termed M1-1 and M1-2.

NSA 2
Activity Category B land uses are located adjacent to the eastbound travel lanes (south side) of I-76, from Huckleberry Highway to approximately 500 feet east of Huckleberry Highway. Noise sensitive land use in NSA 2 is comprised of single-family residences. Three (3) short-term monitoring sites termed M2-2 to M2-4, and one 24-hour long-term site (L-1) are proposed for this NSA.

NSA 3
Activity Category B land uses are located adjacent to the westbound travel lanes (south side) of I-76, from Pike View Road to west of Huckleberry Highway. Noise sensitive land use in NSA 3 is comprised of single-family residences. One (1) short-term monitoring sites was utilized for this NSA termed M3-1.

NSA 4
Activity Category B land uses are located adjacent to the westbound travel lanes (south side) of I-76, along Big Rock Road. Noise sensitive land use in NSA 4 is comprised of single-family residences. Eight (8) short-term monitoring sites were utilized for this NSA termed M-1 to M-8.

5.11 Surface Water and Wetland Resources

Prior to 2001, during the original evaluation of the Project, environmental studies were conducted including surface water and wetland studies. With the re-initiation of the Project in 2010 it was determined that new surface water and wetland investigations were warranted given the length of time that has passed since the previous studies, the changing conditions in portions of the study area, and the revisions to the Project study area under consideration. Therefore, surface water and wetland field investigations were conducted from May through August 2012, April 2013, during April 29 and May 1, 2014, in November 2015, and from May through September 2016.

A preliminary jurisdictional determination (PJD) meeting was conducted on October 23, 2013 with the USACE, PADEP, PTC, and L.R. Kimball to view the identified surface waters and wetlands. The USACE indicated in a follow-up email on November 06, 2013 that all the resources presented in the PJD and Wetland and Waters of the United States Findings Report, July 2013 were accepted as jurisdictional resources. Following completion of the 2014 field investigations and July 2014 *Wetlands and Waters of the United States Findings Addendum Report,* a letter was received from USACE, dated July 24, 2014, stating that the all the waters identified in the July 2014 *Addendum Report* may be jurisdictional waters of the United States. The July 24, 2014 letter noted that for purposes of the determination of impacts, compensatory mitigation and other resource protection measures, the streams and wetlands identified in the July 2014 *Addendum Report* will be evaluated as if they are jurisdictional waters of the United States. Following completion of the 2016 field investigations and November 2016 *Wetlands and Waters of the United States Findings Addendum Report,* a letter was received from USACE, dated July 11, 2017, stating that the all the waters identified in the November 2016 *Addendum Report* may be jurisdictional waters of the United States. A copy of the *2013 Wetlands and Waters of the United States Findings Report, as well as the 2014 and 2016 Addendum Reports* can be found in the Project technical files. A copy of the 2013 PJD meeting minutes can be referenced in Appendix J, Special Agency Meetings. A copy of the 2013 PJD approval email along with the

July 24, 2014 USACE letter and July 11, 2017 USACE letter can be referenced in Appendix E, Agency Correspondence.

5.11.1 Surface Water Resources

The Project study area lies within two (2) watersheds including the Stonycreek River and the Raystown Branch Juniata River. The portion of the Project study area lying west of Allegheny Mountain escarpment is drained by unnamed tributaries (UNT)s to the Stonycreek River, which eventually drains to the Ohio River via the Conemaugh and Kiskiminetas Rivers. Surface water within the Project study area on the east side the Allegheny Mountain escarpment drains into the Raystown Branch Juniata River, which eventually drains to the Chesapeake Bay via the Susquehanna River.

Surface waters identified during the investigations were classified as perennial, intermittent, or ephemeral waterways in accordance with the criteria defined by the United States Army Corps of Engineers (USACE) Pittsburgh District and the PADEP. They are:

- Perennial stream – Has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

- Intermittent Stream – Has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

- Ephemeral stream – Has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

The conditions of the Project study area surface waters were assessed using the PADEP PA Riverine Condition Level 1 Rapid Assessment Protocol (RAP) Version 1.0. Prior to initiating the field investigation, coordination with the PADEP and the USACE occurred to identify an appropriate functional assessment methodology (May 11, 2012). At the time, PADEP was in the process of developing a RAP for both wetlands and streams. They provided a draft of the Level 2 PA Riverine and Wetland Condition Level 2 RAPs for review. Upon review of these RAPs and further discussion with the PADEP, it was agreed that the Level 2 assessments were too detailed for this large of a study area and the PADEP agreed to the preparation of a Level 1 RAP for each wetland and stream habitats for use on this Project. The PADEP indicated that the Level 2 RAPs should be utilized in assessing the Preferred Alternative, once selected.

Based on this guidance from the PADEP, a Riverine Level 1 RAP was completed for each identified stream resource. For additional details on the delineation methodology and functions and values assessment, the complete July 2013 *Wetlands and Waters of the United States Findings Repor*t, the July 2014 *Wetlands and Waters of the United States Findings Addendum Report,* and the December 2016 *Wetlands and Waters of the United States Findings Addendum Report* for the Project study area can be found in the Project technical files. Copies of the Draft Level 1 Condition Assessment Forms are provided within the Stream Resource Data Packages, located within Appendix B of the *Wetlands and Waters of the United States Findings Report and Addendum Reports* noted above.

A total of 153 surface waters comprised of 165 stream sections (some streams contained multiple classification types) were identified within the Project study area as a result of all the field investigations. Table 5.11.1-A provides a summary of the stream section types and length identified within the Project study area. The

location, extent, and classification of each stream can be seen in Appendix D, Figure D-3 Wetlands, Surface Water Resources, and Floodplains.

Table 5.11.1-A
Project Study Area Stream Summary

Stream Section Type [1]	# of Identified Stream Sections Within Project Study Area	Resource Length Within Project Study Area ft. [2, 3]
Perennial	71	50,977
Intermittent	42	13,169
Ephemeral	52	24,458
TOTAL	165[4]	88,604

Notes:
1. Perennial, Intermittent, or Ephemeral based upon PADEP and USACE criteria.
2. Length of stream resource within the Project study area is measured to the nearest ft., based upon GPS data.
3. Conversion from ft. to m provided to by rounding to the nearest whole number
4. The total number of stream sections identified is greater than the total number of surface waters, as some stream channels consisted of multiple sections with different classifications (PER, INT, EPH).

All the streams identified within the Project study area are tributaries to either the Stonycreek River or Raystown Branch Juniata River. The Stonycreek River has a PADEP Chapter 93 designation of Cold Water Fishes (CWF). It does not carry any PA Fish and Boat Commission (PFBC) special designations within the vicinity of the Project study area. The Raystown Branch Juniata River has PADEP Chapter 93 designation of Cold Water Fishes, Migratory Fishes (CWF, MF), and is classified by the PFBC as a Natural Reproduction Trout (NRT) stream and a Stocked Trout Stream (STS). The Raystown Branch Juniata River does not carry the classification of PFBC Class A Wild Trout Stream, or Wilderness Trout Stream. Details on individual surface water resources identified within the Project study area can be found in Table K2 in Appendix K.

Water Quality Studies

In order to determine the water quality of the Raystown Branch Juniata River, baseline water sampling has been conducted on the stream throughout the project. During the first round of environmental studies for the Project, two (2) water samples from the Raystown Branch Juniata River were collected. One sample was collected upstream of the current Turnpike alignment and one sample was collected downstream from the current Turnpike alignment. This information was documented in the *Preliminary Hydrogeologic Impacts of the Proposed New Alignment Options* (Casselberry, March 27, 2000), and is summarized in Table 5.11.1-B below. The Casselberry Report can be found in the Project technical files.

Table 5.11.1-B
Sampling Results for Raystown Branch Juniata River
February 28-29, 2000

Parameter	Upstream of Turnpike	Downstream of Turnpike
pH	6.0	7.1
Alkalinity (mg/l)	11	23
Acidity (mg/l)	13	0
Sodium (mg/l)	8.2	125
Total Dissolved Solids (mg/l)	80	439
Calcium (mg/l)	9.7	27.2
Sulfate (mg/l)	7	13
Hardness (mg/l)	32.1	94
Conductivity (micromhos)	111	834

As noted in the 2000 Casselberry Report these results indicate that the Raystown Branch Juniata River increases in flow as it crosses the study area, and that the water quality becomes progressively more alkaline in a downstream direction. The stream contains soft acidic waters above the Turnpike crossing and hard alkaline waters below the crossing. The alkaline water quality creates conditions that appears capable of supporting a healthy trout fishery. The major source of the alkalinity in the stream is likely from deicing agents that enter the groundwater and surface water systems along the existing Turnpike corridor.

In order to expand on this sampling effort and to include aluminum, which was not tested in 2000, L.R. Kimball collected two (2) rounds of stream sampling to assess a baseline water quality conditions. Two (2) samples were collected on April 25, 2013 by L.R. Kimball. One (1) was taken upstream of the Turnpike and one (1) was taken downstream of the Turnpike. They were analyzed for the following parameters: pH (field and lab), temperature (field only), alkalinity, chloride, specific conductance, sulfate, total dissolved solids, total suspended solids, aluminum, calcium, hardness, iron, magnesium, manganese, and sodium. These samples were collected and sent to Environmental Services Laboratory (ESL) in Indiana, PA for analysis. The analytical data from the April 25, 2013 sampling is summarized in Table 5.11.1-C.

Table 5.11.1-C
Sampling Results for Raystown Branch Juniata River
April 25, 2013

Parameter	Upstream of Turnpike	Downstream of Turnpike
pH (field)	6.66	6.92
pH (lab)	6.71	6.84
Alkalinity (mg/l)	Less than reporting limit of 20.0	Less than reporting limit of 20.0
Acidity (mg/l)	-7.10	-10.9
Sodium (mg/l)	6.07	28.1
Total Dissolved Solids (mg/l)	43.0	112
Calcium (mg/l)	5.40	8.17
Sulfate (mg/l)	5.2	6.4
Hardness (mg/l)	18.1	27.4
Conductivity (umhos/cm)	70.4	195.0
Aluminum (mg/l)	0.173	0.134

A second round of sampling during summer conditions was conducted on July 22, 2014 at the same locations. The information provided by the July 22, 2014 sampling is summarized in Table 5.11.1-D. The results of the sample points taken upstream and downstream of the Turnpike indicate that runoff from the Turnpike roadway impacts the chemistry of the downstream waters. It is assumed that this is a result of increased sedimentation from the highway, as well as runoff from salt and deicers used on the highway in inclement weather.

Table 5.11.1-D
Sampling Results for Raystown Branch Juniata River
July 22, 2014

Parameter	Upstream of Turnpike	Downstream of Turnpike
pH (field)	8.55	9.12
pH (lab)	6.67	7.03
Alkalinity (mg/l)	21.0	36.0
Acidity (mg/l)	-12.9	-30.7
Sodium (mg/l)	8.70	75.8
Total Dissolved Solids (mg/l)	75	279
Calcium (mg/l)	9.86	21.1
Sulfate (mg/l)	Less than reporting limit of 5.0	9.4
Hardness (mg/l)	31.4	69.2
Conductivity (umhos/cm)	115.4	532.8
Aluminum (mg/l)	0.109	0.044

Additional sampling will occur during Final Design and prior to construction.

5.11.2 Wetland Resources

As previously noted, the most recent surface water and wetland field investigations for the Project were conducted from May through August 2012, April 2013, April 29 and May 1, 2014, November 2015, and from May through September 2016. During these field investigations, determinations were made regarding the presence or absence of wetland resources in accordance with the criteria established in the *USACE, Technical Report Y- 87-1, USACE Wetland Delineation Manual, 1987* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, Version 2.0* (USACE, April 2012). As established by the manual and supplemental guidance, the sites were assessed for the presence of the following three (3) wetland criteria:

1. Hydrophytic vegetation;
2. Hydric soils; and,
3. Wetland Hydrology.

In areas where one or more of these criteria are disturbed due to man-made, seasonal, or other conditions, a determination was made as to whether the missing criteria would be present under normal circumstances.

The functions and values of the Project study area wetlands were assessed using the PADEP PA Wetland Condition Level I Rapid Assessment Protocol (RAP), Draft Version 1.0. As noted is Section 5.11.1, this method was coordinated with PADEP, resulting in Wetland Condition Level 2 RAPs being completed for each identified wetland resource. For additional details on the delineation methodology and functions and values assessment please reference the complete July 2013 *Wetlands and Waters of the United States Findings Repor*t, the July 2014 *Wetlands and Waters of the United States Findings Addendum Report,* and the December 2016 *Wetlands and Waters of the United States Findings Addendum Report* for the Project study area, which can be found in the Project technical files. Copies of the Draft Level 1 Wetland Condition Assessment Forms are provided within the Wetland Resource Data Packages and Stream Resource Data Packages, located within Appendices A and B of the *Wetlands and Waters of the United States Findings Report and Addendum Reports* noted above.

A total of 112 wetlands were identified within the total Project study area. Table 5.11.2 provides a summary of the wetland types and acreage identified within the Project study area. Table K3 in Appendix K provides additional information on each wetland identified within the Project study area. The location, extent, and classification of each wetland can be found in Appendix D, Figure D-3 Wetlands, Surface Water Resources, and Floodplains.

Table 5.11.2
Project Study Area Wetland Summary

Cowardin Wetland Classification [1]	Acreage Identified Within Study Limits [2, 3] ac. (ha)
PEM	32.43 (13.12)
PSS	16.14 (6.53)
PFO	27.70 (11.21)
POW	1.54 (0.62)
TOTAL	77.81 (31.44)

Notes:
Cowardin Wetland Classification:
- PEM – Palustrine Emergent
- PSS – Palustrine Scrub Shrub
- PFO – Palustrine Forested
- POW – Palustrine Open Water

Wetland areas are provided to the nearest 0.01-ac./ha.
Conversion from ac. to ha provided by rounding to the nearest hundredth ha.

5.12 Threatened and Endangered Species

The primary protection afforded to plants and wildlife is a result of Section 7 of the Endangered Species Act (ESA), which applies to Federal agency actions. This Act requires consultation with the agency having jurisdiction to determine that any action an agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species or result in the destruction or adverse modification of critical habitat. Coordination is required with the USFWS or the National Marine Fisheries Service (NMFS), as appropriate. Pennsylvania also affords protection to threatened and endangered species within the State. In PA, the responsibility for protecting threatened and endangered species lies with three (3) separate agencies. The Bureau of Forestry within the DCNR is responsible for protecting all plant species. The PGC is responsible for birds and mammals. The PFBC has jurisdiction over fish, reptiles and amphibians.

Prior to 2001, during the original evaluation of the Project, environmental studies were conducted including coordination with the PA Department of Natural Resources (DCNR), the PA Game Commission (PGC), the PA Fish and Boat Commission (PFBC), and the U.S. Fish and Wildlife Service (USFWS) regarding rare, threatened, and endangered (RTE) species under their respective jurisdictions. With the re-initiation of the Project in 2010 it was determined that updated coordination with each agency was warranted given the length of time since the previous studies, updates on the status of RTE species, and the revisions to the Project study area under consideration. Coordination with DCNR, PGC, PFBC, and USFWS was therefore re-initiated in 2011 along with the restart of the project. Each agency identified RTE species under their jurisdiction that may potentially be impacted as a result of the proposed Project. This section discusses the results of the agency coordination and subsequent RTE surveys.

5.12.1 Federal-Listed Species

United States Fish & Wildlife Service

Indiana Bat – Federally and PA Endangered

In letters dated December 21, 2010, January 5, 2012, August 28, 2014, November 2, 2015, and February 7, 2020, the USFWS, has identified that the proposed Project is located within the range of the Indiana bat *(Myotis sodalis),* a species that is federally listed as endangered. A copy of these letters and all USFWS correspondence can be referenced in Appendix E, Agency Correspondence.

The Indiana bat is known to utilize the South Penn Railroad Tunnel as a hibernaculum, and several previous studies have been conducted for the Indiana bat in this vicinity. Those studies include the *South Penn Tunnel Myotis sodalis Study*, by Bat Conservation and Management, 2000; *Habitat Update; Tree Heights and Diameters* by L.R. Kimball, 2000; *South Penn Tunnel 2007 Indiana Bat Migration* by Bat Conservation and Management and Sanders Environmental, Inc., 2007; *South Penn Tunnel Fall 2007 Indiana Bat Telemetry* by Bat Conservation and Management and Sanders Environmental, Inc., 2007; and *Biological Assessment , Indiana Bat (Myotis sodalis) for the Shaffer Mountain Wind Farm* by Tetra Tech, Inc., 2010. The previous studies, as well as the USFWS letters, noted that most of the previously tracked Indiana bats found within the area of the South Penn Railroad Tunnel appear to be migrating to summer habitat north of the existing Turnpike. A copy of these reports can be found in the Project technical files.

A summer mist netting survey was conducted as requested by the PGC during the period of July 6 through July 13, 2012. Sampling consisted of eleven (11) mist net sites, sampled for two (2) nights each. The locations of mist net sites were submitted to and approved by PGC personnel. Chosen locations were suspected to be likely commuting routes between potential roost areas, foraging areas, and water sources. The mist net site locations were selected on a larger landscape scale with consideration of topographic features that serve as key linear landscape formations, funneling bats into certain areas. The final version of the "*Summer Mist Net Survey*" report was submitted to the USFWS and PGC on February 25, 2013, which indicated that no individuals from this federally-listed species were observed during the above-referenced survey effort. A copy of this report can be referenced in the Project technical files.

Northern Long-Eared Bat – Federally Threatened

The Project study area is also within the range of the federally threatened northern long-eared bat (*Myotis septentrionalis*). Due to the emergence of white-nose syndrome, the species was suggested for listing as a federally threatened species. Therefore, the PTC coordinated with the USFWS regarding potential impacts to the northern long-eared bat. In response to a Project update request submitted to the USFWS on April 15, 2014, the USFWS provided interim guidance on conservation measures and mitigation for this species, entitled *Northern Long-Eared Bat Interim Conference and Planning Guidance, January 6, 2014*. The USFWS then officially listed the northern long-eared bat as a federally threatened species under the Endangered Species Act (ESA) on May 4, 2015. Subsequent letters from the USFWS, dated November 2, 2015 and February 7, 2020, noted two (2) bat hibernacula within, or in close proximity to, the project area, where northern long-eared bats were identified. A Final 4(d) Rule, explaining the "take" prohibitions for the species, was then published by the USFWS on January 14, 2016 with respect to the northern long-eared bat. In accordance with the Final 4(d) Rule, due to the nature of this Project, the standard section 7 procedures will be utilized for any proposed impacts to the northern long-eared bat.

The Northern long-eared bat is also known within the Project study area as a result of the studies conducted for the Indiana bat that were noted previously, and from hibernacula surveys that were conducted in the Project vicinity. The Northern long-eared bat was noted in a 1999 hibernacula survey in the area and has been identified in varying numbers in surveys from that point on.

5.12.2 State-Listed Species

PA Department of Conservation and Natural Resources

Prior to 2001, during the original evaluation of the Project, environmental studies were conducted including coordination with the PA DCNR. The original response letter from the DCNR, dated March 31, 1997, noted five potential RTE plant species in the Project vicinity. These included Mountain bugbane (*Cimicifuga Americana*), Appalachian Blue Violet (*Viola appalachiensis*), Small-headed Rush (*Juncus brachycephalus*), Tennessee Golden-rod (*Solidago roanensis*) and Alleghany Plum (*Prunus alleghaniensis*). Upon receiving a more detailed study area in 1999, the DCNR responded with a letter dated April 10, 2000 stating that no occurrences of plant species of special concern were noted in the project area.

Due to the Project hiatus from 2000 to 2010, correspondence was re-initiated with the DCNR in 2011. A PNDI Environmental Review response letter was received for the Project from the DCNR dated, October 3, 2011. A copy of this letter and all correspondence from the DCNR can be referenced in Appendix E, Agency Correspondence. The letter indicated that the following Plant Species of Special Concern in PA (POSCIP) could potentially occur within the 2011 Project study area:

- Appalachian Blue Violet (*Viola appalachiensis*) – classified as PA Threatened; Proposed Rare; found in bogs and stream banks in rich, moist woods. Flowering season for this species is April – June;

- Mountain Bugbane (*Actaea podocarpa*) – classified as PA Threatened; Proposed Rare; found in rich, moist wooded slopes and coves in mountains. Flowering season for this species is August.

- Mountain Goldenrod (*Solidago roanensis*) – classified as PA Rare, Proposed Threatened; found in rocky banks, roadsides, cut-over woods and wood edges. Flowering occurs for this species during August – September.

Per DCNR's request, surveys were conducted at the appropriate time of year as listed above to determine if these or any other POSCIP species occur in the Project study area. The results of the survey were documented in the *A Report on the Results and Findings of the Botanical Survey for the Allegheny Tunnel Transportation Improvement Project*, completed by Lisa L. Smith in March 2013. This document can be found in the Project technical files. Of the three (3) POSCIP species identified in the PNDI Environmental Review letter, the Appalachian blue violet was the only species identified within the Project study area. During the surveys, six (6) additional POSCIP species not formerly known to the Project study area were discovered. These additional observations included:

- Mountain Bellwort (*Uvularia pudica*) – classified as PA Tentatively Undetermined; Proposed Rare
- Thick-Leaved Meadow-Rue (*Thalictrum coriaceum*) – classified as PA Endangered; Proposed Threatened
- Bog Goldenrod (*Solidago Ulignosa*) – classified as PA No Legal Status; Proposed Threatened
- Stiff Cowbane (*Oxypolis rigidior*) – classified as PA Tentatively Undetermined; Proposed Rare
- Veiny-Leaved Aster (*Symphyotrichum praeltum*) – classified as PA No Legal Status; Proposed Tentatively Undetermined and,
- Ginseng (*Panax quinquefolius*) – classified as PA Vulnerable; Proposed PA Vulnerable

A summary of the POSCIP species identified during the 2012 survey is noted in Table 5.12.2-A. The general habitat locations of these POSCIP species, and the additional known RTE species found within the Project study area, can be seen in Appendix D, Figure D-12 Rare, Threatened, and Endangered Species Habitat Locations.

Table 5.12.2-A
2012 Botanical Survey Results

Species	Status	Proposed Status	Presence (Yes / No)	Habitat Description
Appalachian Blue Violet	PA Threatened	PA Rare	Yes (8 locations)	Variable, but generally in moist areas within a red maple – black cherry forest habitat
Mountain Bugbane	PA Threatened	PA Rare	No	N/A
Mountain Goldenrod	PA Rare	PA Threatened	No	N/A
Mountain Bellwort	PA Tentatively Undetermined	PA Rare	Yes (6 locations)	On soils that are generally dry and acidic
Thick-Leaved Meadow-Rue	PA Endangered	PA Threatened	Yes (2 locations)	On calcareous soils
Bog Goldenrod	No Current Legal Status	PA Threatened	Yes (5 locations)	Bottomland wetlands
Stiff Cowbane	PA Tentatively Undetermined	PA Rare	Yes (2 locations)	Bottomland wetlands
Veiny-Leaved Aster	No Current Legal Status	PA Tentatively Undetermined	Yes (92 locations)	Varying habitats including reverting fields, haul roads, powerline ROS and drier edges of bottomland wetland
Ginseng	PA Vulnerable	PA Vulnerable	Yes (2 locations)	Headwater area of Raystown Branch Juniata River

Following the 2012 survey, a response letter was received from the DCNR on April 26, 2013. It noted that DCNR's regulation for plant species of concern uses the Proposed PA Status, since this is the most scientifically up-to-date information available. The letter then stated that the top concerns for the Project study area are the stiff cowbane, bog goldenrod, and thick-leaved meadow-rue population's onsite.

In 2014 an additional area was studied as a potential excess excavation area and associated access road for the Project. Separate PNDI receipts were obtained for this area located along Big Rock Road near the northwest of the original study area. The PNDI receipts dated February 18, 2014 and April 3, 2014 along with correspondence from the DCNR dated May 15, 2014 did not find any additional plant species of concern or Threatened and Endangered plant species within the proposed excess excavation and access road. The correspondence from the DCNR noted further coordination would be needed to avoid, minimize and mitigate the already determined impacts to populations of stiff cowbane, bog goldenrod, and thick-leaved meadow-rue within the entire Project study area.

Following completion of field investigations from 2010 to 2014, the Project study area was expanded to the north to evaluate the potential to reduce environmental impact associated with the Brown Cut and Tunnel Alternatives. The study area was also expanded to the south to address geotechnical issues that were identified along a portion of the proposed alignment for the Gray Cut and Tunnel Alternatives. Upon request for information on POSCIP species within the updated study area, the DCNR replied in a letter dated October 14, 2015 stating that potential impacts were anticipated to thick-leaved meadow-rue and mountain bellwort and requested a botanical survey for those species in areas of the Project that had not yet been surveyed.

Per the DCNR's request, a survey was conducted in May and early July 2016 to determine if these or any other POSCIP species occur in the expanded Project study area. The results of the survey were documented in the *Addendum to the Report on the Results and Findings of the Botanical Survey for the Allegheny Tunnel Transportation Improvement Project*. This document can be found within the Project technical files. As a result of the 2016 survey, both thick-leaved meadow-rue and mountain bellwort were identified, along with new and expanded sites for Appalachian blue violet. The *Addendum Report* was sent to the DCNR with a response letter received on February 9, 2017. The DCNR response letter confirmed the 2016 survey findings. In the letter, DCNR suggests avoiding the population of thick-leaved meadow-rue if at all possible. If avoidance is not feasible, mitigation and monitoring will be required. DCNR also recommended avoidance and/or minimizing impacts to the PA plant species of concern, mountain bellwort, which occurs throughout the study area. In addition, minimizing impacts for the Appalachian blue violet is recommended, though not the highest priority, since this species can tolerate disturbance.

A summary of the POSCIP species identified during the 2016 survey is noted in Table 5.12.2B. The general habitat locations of these POSCIP species, and the additional known RTE species found within the Project study area, can be seen in Appendix D, Figure D-12 Rare, Threatened, and Endangered Species Habitat Locations.

Table 5.12.2B
2016 Botanical Survey Results

Species	Current Status	Proposed Status	Presence (Yes / No)	Habitat Description
Appalachian Blue Violet	PA Threatened	PA Rare	Yes (3 locations)	Low-lying areas along water courses and in richer, more diverse forests
Mountain Bellwort	PA Tentatively Undetermined	PA Rare	Yes (9 locations)	"heath" and associated communities in soils that are generally dry and acidic
Thick-Leaved Meadow-Rue	PA Endangered	PA Threatened	Yes (1 location)	On calcareous soils, most were found on-site in a band between 2300 and 2400-feet in elevation along limestone outcrops

DCNR correspondence was again updated in December 2019 due to the length of time that had passed since the last coordination effort. A letter dated December 16, 2019 was received from DCNR indicating No Impact Anticipated per Avoidance, Minimization and Mitigation – Conditional. It also states given the lack of changes to PNDI records since 2015 and the currently preliminary nature of the project alignment and construction plans, there have been no significant changes to DCNR's recommendations. DCNR recommends avoiding the populations of thick-leaved meadow-rue and bog goldenrod. If avoidance is not feasible, mitigation (transplanting) and monitoring will be required. DCNR also recommends avoidance and/or minimization of impacts to mountain bellwort and stiff cowbane. Minimization of impacts to Appalachian blue violet is recommended, but not the highest of priorities.

PA Game Commission

Prior to 2001, during the original evaluation of the Project, environmental studies were conducted including coordination with the PGC. A response letter from the PGC, dated August 6, 1998, noted that the Allegheny woodrat (*Neotoma magister*) is known to occur in the study area and a woodrat survey was requested for all

potential habitat within the study area. Based on woodrat surveys conducted in 1998, the PGC replied in a letter dated December 16, 1998 that no recent woodrat activity was located during the surveys, but that other woodrat colonies are close enough to potentially recolonize the woodrat habitat that exists in the study area.

Due to the Project hiatus from 2000 to 2010, correspondence was re-initiated with the PGC in 2011. Subsequently, on November 10, 2011, May 14, 2013, June 30, 2014, November 4, 2015, and January 23, 2020, the PGC provided letters identifying potential impacts to RTE species under their jurisdiction. A copy of these letters, along with all correspondence from the PGC, can be found in Appendix E, Agency Correspondence. These five (5) letters list the Indiana bat, northern long-eared bat, Allegheny woodrat and eastern small-footed bat as species of concern with the Project area. The 2020 letter additionally lists the little brown bat and tri-colored bat.

Details of the survey and reporting efforts by species are provided below.

Indiana Bat – Federal and PA Endangered

Within the above-referenced letters, the PGC identified that Indiana bats are a federally listed endangered species under the jurisdiction of the USFWS. Therefore, the PGC deferred comments on potential impacts to Indiana bats to the USFWS. Information regarding these efforts are located in Section 5.12.1.

Northern Long-Eared Bat – Federally Threatened

Prior to the May 4, 2015 designation of federally threatened, the PGC had jurisdiction over this species. Following this listing, PGC correspondence, dated November 4, 2015, noted that northern long-eared bats were now federally listed threatened species under the jurisdiction of the USFWS. Therefore, the PGC deferred comments on potential impacts to northern long-eared bats to the USFWS. Information regarding these efforts can be found in Section 5.12.1.

Allegheny Woodrat – PA Threatened

The PGC requested in their November 10, 2011 letter that an Allegheny woodrat habitat assessment be performed within and 300 (91m) feet beyond the Project study area by an experienced woodrat surveyor following protocols described in the *PGC Woodrat Guidance Document*.

On May 17, June 18 and 19, August 15, 16, and 22, September 5 and 6, and September 24 through 26, 2012, six (6) locations having the characteristics essential for potential habitat use by the Allegheny woodrat were investigated and assessed by L.R. Kimball. No signs of Allegheny woodrat activity or presence were noted in any of the identified potential habitat areas. The *Allegheny Woodrat Habitat Assessment Survey Report* was submitted to the PGC on January 14, 2013. A copy of this Report can be found in the Project technical files.

In the PGC's response letter dated May 14, 2013, the PGC noted the six locations as having the characteristics essential for potential habitat use by Allegheny woodrats, but that no sign of woodrat activity or presence was noted. The PGC recommended that impacts to the six (6) potential habitat areas identified be avoided and minimized to the greatest extent possible to avoid impacting Allegheny woodrats.

Following completion of field investigations from 2010 to 2014, the Project study area was expanded to the north to evaluate the potential to reduce environmental impacts. The study area was also expanded to the south to address geotechnical issues. Upon request for information on RTE species within the updated

study area, the PGC replied in a letter dated November 4, 2015 that potential impacts were anticipated to the previously noted species, including the Allegheny woodrat. The PGC requested additional Allegheny woodrat habitat assessments be conducted in the expanded study area and a 300 ft. buffer.

On May 11, 17, and December 01, 2016; Bat Conservation and Management Inc. (BCMI) identified and examined five (5) Allegheny woodrat habitat sites within the expanded study area. Each site was examined for woodrat activity or sign, predator sign, and potential activity centers. Potential activity centers were identified within the expanded study area, but no Allegheny woodrat activity or sign was observed during the habitat assessment. This information was documented in a report titled, *Allegheny Tunnel Transportation Improvement Project: Allegheny Woodrat Habitat Assessment*, December 2016, by BCMI. A copy of this report can be found in the Project technical files. The report was submitted to the PGC on April 5, 2017. A response e-mail was received by the PGC on April 27, 2017 stating the Report had been reviewed with no additional questions or comments. A copy of this e-mail can be found in Appendix E, Agency Correspondence.

Eastern Small-Footed Bat – PA Threatened

The PGC requested in their November 10, 2011 letter that bat mist netting and telemetry be conducted on the Project area by a qualified consultant on the USFWS's approved Indiana bat list and following *USFWS Indiana Bat Mist Netting Protocols*. A PGC special use permit was obtained by BCMI on behalf of the PTC to conduct the surveys for this Project, since the investigation required the handling of bat species under the PGC's jurisdiction. Additionally, a draft bat mist-net survey plan was provided to, and approved by, the PGC prior to implementation. The PGC requested telemetry be conducted on all suitable species of concern bats that may be captured during the mist net survey.

Mist netting surveys were conducted over the period of July 6 to 13, 2012 and consisted of 11 mist net sites, sampled for two (2) nights each. The locations of mist net sites were approved by the PGC. Sites were selected in areas likely to be utilized as commuting routes between potential roost areas, foraging areas, and water sources. The mist net site locations were selected on a larger landscape scale with consideration of topographic features that serve as key linear landscape formations, funneling bats into certain areas. Additional information on the sites is detailed in the *2012 Summer Bat Mist Netting Survey*. A copy of the Survey Report can be found in the project technical files.

The objective of this study was to provide an inventory of summer bat species occurring in the vicinity of the proposed Project. BCMI conducted a summer mist net survey meeting the protocols set forth in the USFWS' *Indiana Bat Revised Recovery Plan*. A total of 262 bats representing five (5) species were captured including: 170 big brown bats (*Eptesicus fuscus*), 60 eastern red bats (*Lasiurus borealis*), one (1) eastern small-footed myotis, five (5) little brown myotis (*Myotis lucifugus*), 24 northern long-eared myotis, one (1) Myotis species, and one (1) unknown bat species. The unknown species was a bat that escaped the mist nets before final identification.

The one (1) eastern small-footed myotis that was captured was a juvenile, non-reproductive male. It was captured on July 6, 2012. Additional morphological measurements and photographs were taken; however, radio telemetry was not conducted on this individual because the bat appeared to be a newly volant juvenile and the lightest transmitter available exceeded 10 percent of the bat's body weight. The decision to not conduct radio telemetry was reported to the PGC on July 7, 2012, which PGC biologists concurred with on July 9, 2012.

The capture of the juvenile male eastern small-footed myotis indicated to the PGC the presence of a maternity colony in the vicinity of the capture location, thus additional surveys were requested by the PGC in their November 10, 2011 and May 14, 2013 letters. The letters requested that an eastern small-footed

myotis roosting habitat assessment be conducted for all rocky habitat that may offer suitable roost sites for this species, with any identified areas delineated and photo-documented. Additionally, the PGC stated that all identified rocky habitat that is not considered to be suitable eastern small-footed bat roost habitat should also be photo-documented and a written narrative provided describing the reason(s) for its non-suitability.

On January 20, 2014 BCMI's *Myotis Leibii Assessment* report was submitted to the PGC. This report included the results of the eastern small-footed myotis habitat assessment conducted between June and August 2013, which identified 275 rock formations within the Project study area. Of these 275 rock formations, 37 potential habitats were identified, comprised of nine (9) low quality habitats, 15 medium quality habitats, and 11 high quality habitats. In addition, two (2) potential hibernacula habitats were identified during this survey effort, including one (1) low quality habitat/hibernacula habitat and one (1) hibernacula habitat. Out of the 37 potential habitat locations, 29 were located within the Project study area.

The *Myotis Leibii Assessment* report also included the results of acoustic monitoring, which was conducted for three (3) consecutive nights for each of the 37 potential habitats from July 29 through August 10, 2013. Twenty-one of the 37 potential habitats were documented as having myotis species activity, with only one (1) site having a confident identification of eastern small-footed myotis activity. At ten (10) of the 13 previously-identified high quality and/or hibernacula habitats, myotis species activity was documented. Since these 13 high quality and/or hibernacula habitats are located less than one (1) mi. (1.6 km) from the known hibernacula at the South Penn Railroad Tunnel, these sites are considered to be part of the eastern small-footed myotis network of key summer roosting habitats. A copy of this Report is found in the Project technical file. A March 10, 2014 e-mail from the PGC noted no comments on the January 20, 2014 *Myotis Leibii Assessment* report.

Following completion of field investigations from 2010 to 2014, the Project study area was expanded to the north to evaluate the potential to reduce environmental impacts. The study area was also expanded to the south to address geotechnical issues. Upon request for information on RTE species within the updated study area, the PGC replied in a letter dated November 4, 2015 stating potential impacts were anticipated to the previously noted species, including the small-footed myotis. In the letter the PGC requested additional hibernacula investigations and a roost habitat assessment be conducted in the expanded study area.

To satisfy PGC requests, BCMI completed a habitat assessment of the expanded study area in May 2016. The results of the investigation are presented in the *Allegheny Tunnel Transportation Improvement Project Myotis leibii Assessment,* dated November 2016 by BCMI. This report is found in the Project technical file. A total of 28 sites of potential eastern small-footed myotis habitat were identified within or adjacent to the Study Area investigated during the habitat assessment. Seventeen of those sites (9 low potential, 3 medium potential, and 5 high potential) occur within the expanded study area. One (1) additional potential hibernaculum was identified during the study. This potential hibernaculum has been noted as a potential hibernaculum for additional bat species along with the small-footed myotis. The report was submitted to the PGC on April 5, 2017. A response e-mail was received by the PGC on April 27, 2017 stating the Report had been reviewed with no additional questions or comments. A copy of this e-mail can be found in Appendix E, Agency Correspondence.

Little Brown and Tri-colored Bats – PA Endangered

The PGC requested in their letter dated January 23, 2020 mist-netting and telemetry studies, hibernacula investigations, roost habitat assessments and bat roost emergence counts be conducted by a USFWS qualified surveyor for these newly listed species. A copy of this letter can be found in Appendix E, Agency Correspondence. A teleconference meeting was held on March 24, 2020 with the PGC and USFWS to discuss additional bat surveys (Appendix J, Special Agency Meetings). It was noted the bat species listed above are present within the study area given the results of past hibernaculum and mist-net surveys

(all species listed were present in the South Penn Railroad Tunnel Surveys and/or captured during previous mist-net surveys). The determination to conduct additional surveys on the preferred alternative in the near future was reached. A new PNDI search will be conducted for the preferred alternative giving the agencies a chance to update their information for one specific area as opposed to the very large study area used in this Environmental Document.

PA Fish & Boat Commission

Prior to 2001, during the original evaluation of the Project, environmental studies were conducted including coordination with the PFBC. A response letter from the PFBC, dated March 5, 1997 stated that the timber rattlesnake (*Crotalus horridus*) was known from the vicinity of the Project site and requested additional information on the Project. A follow up letter dated May 19, 2000 requested that a qualified/certified timber rattlesnake surveyor conduct a timber rattlesnake survey. The subsequent survey was conducted and summarized in a report titled, A Survey to Determine if the Timber Rattlesnake (Crotalus horridus) Occurs at the Proposed Allegheny Tunnel Alteration Site, September 2000. No rattlesnakes were observed during the time of the survey. A copy of this report can be found in the Project technical files.

Due to the Project hiatus from 2000 to 2010, correspondence was re-initiated with the PFBC in 2011. The PFBC again identified that the proposed Project study area is within the known range of the PA candidate species timber rattlesnake according to a response letter dated October 13, 2011. This letter requested a habitat assessment survey of the Project study area be conducted by a PFBC Qualified Timber Rattlesnake Surveyor (QTRS). A copy of the letter and all PFBC correspondence can be found in Appendix E, Agency Correspondence.

Timber Rattlesnake (Crotalus horridus) – PA Candidate

On May 17, June 18 and 19, August 15, 16, and 22, September 5 and 6, and September 24 through 26, 2012, three (3) locations having the characteristics essential for consideration as critical timber rattlesnake habitat were identified and assessed. All three (3) of the locations were observed as having timber rattlesnakes present during at least one (1) occasion over the survey period. Two (2) of the identified habitats were located within the Project study area, and were recommended for avoidance, as provided to the PFBC in the *Timber Rattlesnake Habitat Assessment Report* on January 11, 2013. A copy of the Report is found in the Project technical files.

Following completion of the 2012 field investigation, the Project study area was expanded to the north to evaluate the potential to reduce environmental impacts. The study area was also expanded to the south to address geotechnical issues. Upon request for information on RTE species within the updated study area, the PFBC replied in a letter October 27, 2015 stating potential impacts were anticipated to the timber rattlesnake. In the letter the PFBC requested additional habitat assessment in the expanded study area due to the proximity to the previously identified habitat.

Based on the PFBC letter, a habitat assessment of the additional Project Study Area was conducted on June 28 and 29, 2016. Two (2) of the habitats identified in 2012 were located within the additional Project Study Area and both locations were observed as having timber rattlesnakes present during the 2016 survey. No additional habitat was identified beyond the locations noted in the 2012 investigation. A copy of the *Timber Rattlesnake Habitat Assessment, June 28 and 29, 2016* can be found in the Project technical files. A copy of the report was sent to the PFBC, and they responded in a letter dated November 28, 2016. The PFBC letter agreed with the findings, provided recommendations for the Project and requested updates be sent once the preferred alternative/proposed route is determined.

PFBC correspondence was again updated in December 2019 due to the length of time that had passed since the last coordination effort. A response letter dated January 7, 2020 indicated the timber rattlesnake was noted as a species of special concern with the Project area. The PFBC letter agreed with the previous findings, provided recommendations for the Project and requested updates be sent once the preferred alternative/proposed route is determined.

5.13 Weather

The Allegheny Tunnel on the Turnpike passes through Allegheny Mountain, which is the most easterly ridge in the Allegheny Plateau. To the east of the Tunnel, the Turnpike descends the Allegheny Front, a 1,300 ft. high escarpment, which is the transition between the Allegheny Plateau and the Ridge and Valley Topographic Regions of PA. The elevations, topography and ridgelines all contribute to weather conditions in the Project study area. During the initial evaluation of the project in 1996 to 2001, it became apparent that the issue of weather effects on roadway safety in the Project vicinity was of importance to the public. In order to evaluate the potential of weather to affect the proposed Project, an initial investigation into weather was performed 1998. Following further Project studies and resulting public and agency concern a Safety Analysis was conducted in 2000, which included additional investigations with regard to weather. Weather related information from the 1998 *Weather Study*, the 2000 *Allegheny Tunnel Transportation Improvement Project – Safety Analysis*, as well as updated weather data from the PTC Communication Center is summarized in the following sections.

5.13.1 Summary of 1998 Weather Study

This Weather Study identified four (4) fundamental aspects of weather as it affects highway travel:

- Temperature;
- Precipitation;
- Fog or Visibility; and,
- Wind.

For winter driving conditions, the greatest concern occurs with the combination of temperature and precipitation, which cause icy conditions on the road surface; fog, which causes reduced visibility; and high crosswinds, which can blow large profile vehicles off course, and can cause snow to drift onto the roadway surface.

To understand weather conditions and variation along the Turnpike, it is useful to review topography and alignment of the Turnpike in the Project study area and beyond. The area reviewed includes the ridges and valleys in the area through which the Turnpike passes, between the Donegal Interchange at MP 90.7, on the west slope of Laurel Ridge, to Kegg Maintenance, MP 132.1, which is to the east of the Allegheny Front. This is a distance of about 41 mi. along the Turnpike.

It should be noted that the crossing of Laurel Ridge is the highest elevation on the Turnpike at 2,603 ft. The crest of Laurel Ridge is at elevation 2,870 ft. By comparison, the highest elevation of the Turnpike within the Allegheny Tunnel is 2,337 ft., and the top of Allegheny Mountain at this point is 2,743 ft.

Available data on weather conditions within this greater Project study area were gathered for the WSA study. Information was obtained from the National Climatic Data Center, the Somerset and Johnstown Airports and PennDOT.

Weather records, which are maintained by the Turnpike Communications Center, were also utilized. Every four (4) hours, weather conditions are recorded at the Turnpike's maintenance centers and tunnels and

relayed to the Communications Center, so that roadway conditions can be provided to the media and to motorists who call in. In this area, these reports are produced at the maintenance facilities at Donegal (MP 89), Somerset (MP 114) and Kegg (MP 132), and at the PTC office at the West Portal of the Allegheny Tunnel (MP 122). The PTC data included the following elements:

- Temperature in degrees Fahrenheit (F),
- Presence and severity of precipitation (rain, snow, sleet),
- Presence and severity of winds and clouds,
- Roadway conditions (dry, wet, snow, ice), and
- Maintenance action (plow, salt, cinders).

This data shows that, in general, east-west trends in weather do exist. These trends can be summarized as follows:

- Average monthly winter temperatures increase from west to east; Donegal, 31.8° F; Somerset, 33.1° F; Allegheny Tunnel, 33.3° F; Kegg, 34.1° F.

- Incidence of precipitation decreases from west to east. The percentage of days sampled with any precipitation reported are as follows: Donegal, 76.0 percent; Somerset, 72.9 percent; Allegheny Tunnel, 64.7 percent; Kegg, 38.8 percent.

- The Allegheny Mountain location had the lowest percentage of days with snow covered roads reported at 5.8 percent. Donegal had 10.1 percent, Somerset had 12.4 percent and Kegg had 10.1 percent.

- Reports of high winds decrease from west to east. The percentage of days with high winds reported were as follows: Donegal, 6.2 percent, Somerset, 4.7 percent, Allegheny Tunnel, 2.9 percent and Kegg, 2.3 percent.

- There does not seem to be a west-east trend for foggy conditions at the four (4) locations. Donegal has the highest incidence of fog at 13.2 percent of the days sampled. The Allegheny Tunnel was next at 10.1 percent, followed by Somerset at 8.5 percent. The weather station with the lowest percentage of days with fog was Kegg Maintenance at 6.2 percent.

In general, weather conditions were slightly worse at the Donegal and Somerset Maintenance stations than at the Allegheny Tunnel. Weather conditions appear to be best (least severe) at the Kegg maintenance station MP 132. Table 5.13.1 summarizes the weather data collected at these four (4) locations.

Table 5.13.1
PTC Winter Weather Summary[1]

Observation	Donegal Maintenance		Somerset Maintenance		Allegheny Mountain Tunnel		Kegg Maintenance	
	Totals	%	Totals	%	Totals	%	Totals	%
Total Days Surveyed (Nov. to Mar.)	129	100	129	100	139	100	129	100
Days w/Fog	17	13.2	11	8.5	14	10.1	8	6.2
Days w/Snow	59	45.7	58	45.0	58	41.7	53	41.1
Days w/Rain	49	38.0	50	38.8	47	33.8	47	36.4
Days w/Sleet	10	7.8	5	3.9	4	2.9	6	4.7
Days w/Wind	8	6.2	6	4.7	4	2.9	3	2.3
Days w/ Any Precipitation (Snow, Rain, Sleet)	98	76.0	94	72.9	90	64.7	50	38.8
Days w/Snow Covered Roads	13	10.1	16	12.4	8	5.8	13	10.1
Days w/ Wet Roads and Temps Below Freezing	54	41.9	52	40.3	49	35.3	49	38.0

Notes:
1. As taken from the Wilber Smith Associates, 1998 Weather Study.

While the PTC's weather data indicates the incidence of precipitation and the temperature, it does not record the amount of precipitation or wind velocities and directions. Thus, weather data from other available sources was also analyzed. This included the National Climatic Data Center (NCDC) data, which was obtained from Hydrosphere Data Products, Inc.

Weather stations within a 40-mi. radius of the Allegheny Tunnel were included. Other information used from the Hydrosphere Data included average annual precipitation, average temperature during the winter months (November through March), and elevation of the weather station. The weather data was then plotted against elevation with the following results:

- It was determined that average winter temperature decreases as elevation increases. This is as expected. However, the change in temperature between the highest elevation, 2,680 ft. on Laurel Ridge and lowest elevation, 1,000 ft. at Everett, is 4.4° F, which is approximately 0.26 degrees per 100 ft. This trend indicates that for "small" changes in elevation, there is no dramatic change in temperature.
- It was also determined that average annual snowfall for the region tends to increase with elevation. As with temperature, the change in snowfall for small increases in elevation is not very dramatic, approximately 3.3 in. per year per 100 ft. change in elevation.
- Finally, it was determined that average annual precipitation (excluding snowfall) for the region tends to increase with elevation. As with snowfall, the change in precipitation for small increases in elevation is not very dramatic, approximately 0.8 in. per year per 100 ft. change in elevation.

This data also shows that weather conditions on Allegheny Mountain, in terms of precipitation, are different from Laurel Ridge. The range in annual snowfall is 60 to 100 in near Allegheny Mountain, compared with 90 to 110 in. on the west slope of Laurel Ridge.

Upon analysis, the reasons for the differences in precipitation between Allegheny Mountain and Laurel Ridge are apparent. The distance between these two (2) ridge lines is about 23 mi., and they both have the same southwest to northeast orientation. The peak elevations of the two ridges are similar, with the Laurel Ridge reaching 2,870 ft. and the Allegheny Mountain reaching 2,740 ft. in the vicinity of the Turnpike corridor; however, the two (2) ridgelines have significantly different weather conditions.

It is important to recognize that the prevailing wind direction during winter months is from the west northwest. When a prevailing wind encounters a mountain range, the air mass is forced to rise to overcome the barrier. As the air rises and is compressed, precipitation is produced. This is known as orographic precipitation, meaning "related to mountains".

Orographic precipitation is caused by a warm air mass moving up the windward side of a mountain. The air mass cools as it rises, at about 1° F per 180 ft. climb in elevation. When the air mass reaches the dew point, precipitation occurs, thus dumping a lot of the moisture the clouds are carrying, before the Allegheny Plateau is reached. As the air mass passes over the crest and descends the leeward side of the mountain ridge, the air mass warms, at about 1° F per 180 ft. of elevation drop. When the air masses descend to the Allegheny Plateau, they have much less moisture than when they ascended the western slope of Laurel Ridge.

The same process, orographic precipitation, occurs as the air masses approach the Allegheny Mountain ridge; however, when these air masses reach this ridge, they are much cooler and, have lost much of their moisture content. They do not have the same precipitation potential. This explains why the heaviest snowfalls in the area are on the western slope of Laurel Ridge, which is why the Seven Springs and Laurel Valley ski areas are located there.

To analyze winter winds, the PTC Weather data was reviewed. This data shows that reports of high winds were more predominant at the Donegal and Somerset Maintenance facilities. The percentage of days with high winds reported were as follows: Donegal, 6.2 percent; Somerset, 4.7 percent; Allegheny Tunnel, 2.9 percent and Kegg, 2.3 percent.

Wind data was also obtained from records retained at the Somerset County Airport. A sample was taken to correspond to the same days as were selected for sampling of the Turnpike's weather data. In qualitative terms, this data showed that the predominant direction from which winter winds come is between Northwest and West Southwest, accounting for 60 percent of the wind data during the winter period sampled.

Investigations as to whether fog is related to elevation were also explored. Data from the Turnpike Communications Center, as well as data from a research paper entitled "Morning Fog Occurrence Along a Ridge and Valley Transect in Central PA" by the School of Forest Resources at Penn State, was used to see whether a relationship exists. Both sources showed that there is no consistent relationship between elevation and fog.

5.13.2 Summary of Weather Data from 2000 Safety Analysis

Following the 1998 study there remained public and agency concern regarding safety issues in regards to the Project. Therefore, a Safety Analysis was conducted in 2000, which included additional investigations with regard to weather. A summary of the weather related information from that analysis is presented below.

The weather conditions at the Allegheny Tunnel were researched using weather records maintained by the PTC and long term weather records (in most cases 10 years or more) from observation sites within 50 miles of the Allegheny Tunnel, including stations in Maryland and West Virginia. Elevation, topography, and distance from the Allegheny Tunnel were all factored into these calculations.

The snowfall normals were determined using from 10 to 52 years of annual snowfall data. All sites were within 50 miles of the Allegheny Tunnel, and the site elevations varied from less than 1200 ft. to more than 2800 ft. The snowfall differences caused by being north, south, east or west of the Allegheny Tunnel were also examined. While there were some differences attributable to geographic location, those differences were dwarfed by differences due to elevation. In the vicinity of the Allegheny Tunnel, the average annual snowfall increases approximately 3.9 inches per 100 ft. increase in elevation. It was determined that the average annual snowfall is 94.1 in. at the existing Allegheny Tunnel East Portal and 95.4 in. at the West Portal.

The liquid precipitation and temperature calculations were made using 30 years of monthly actual precipitation and temperature data from 1961 to 1990. Calculations show that the average liquid precipitation at the existing Allegheny Tunnel East Portal is 45.7 in. and 46.0 in. at the West Portal. The 30-year temperature data for the 5-month period from November 1 through March 31 indicates that the average temperature decreases 4.2 degrees per 1000 ft. increase in elevation. The average temperature for the 5-month winter period is approximately 29.1 degrees at the East Portal of the Allegheny Tunnel and 29.0 degrees at the West Portal.

To determine wind direction and speed during the winter months, long term wind data from Philipsburg, Johnstown, Somerset, Pittsburgh, and Morgantown were examined. This analysis determined that at the current Allegheny Tunnel, the predominant wind directions during the winter months are west-northwest, west, and northwest, in that order. The wind blows from one of those three (3) directions 50 percent of the time. The average wind speed when the wind blows from those directions is approximately 14 miles per hour. However, throughout the area there will be localized differences in wind direction and wind speed due to sheltering and channeling. The funneling effect of the wind passing through gaps in the mountains can cause substantially stronger winds and gusts during windy periods. No direction other than west-northwest, west and northwest has a wintertime occurrence frequency of over nine (9) percent.

Where fog is a problem depends on the time of year. During the non-winter months, fog more frequently occurs in the valleys, particularly during a clear and calm late summer or fall night. During the winter months, fog is more prevalent on the ridges. The duration of fog can vary from an hour or two, to an entire day. In the vicinity of the current Allegheny Tunnel, the average number of winter days with the visibility reduced to ¼ of a mile or less by fog is approximately 20. In that same area, the average number of winter days with the visibility reduced to one (1) mile or less by fog is approximately 50. These numbers vary greatly from winter to winter depending on the prevailing weather pattern.

A summary of the temperature, wind direction, precipitation, snowfall, and fog days at the existing Allegheny Tunnel is summarized in Table 5.13.2.

Table 5.13.2
Weather Conditions for the Allegheny Tunnel[1]

Location	Elevation ft.	Estimated Annual Liquid Precipitation in.	Estimated Annual Snowfall in.	Estimated Winter Average Temp. °F	Prevailing Winter Wind Direction	Estimated Winter Fog Days
Allegheny Tunnel (East Portal)	2,293	45.7	94.1	29.1	West-Northwest	~20
Allegheny Tunnel (West Portal)	2,325	46.0	95.4	29.0	West-Northwest	~20

Notes:
1. As taken from Table 11, Weather Comparisons from the 2000 Safety Analysis for the Allegheny Tunnel Transportation Improvement Project by Donald J. Jacobs. P.E.

5.13.3 Summary of 2012-2014 Weather Data from PTC Stations

Weather related conditions typically have long term trends with year-to-year fluctuations if there are no major changes in the nearby landforms or vegetation removal. The Turnpike has not experienced any major changes at the referenced weather locations. However, to ensure the previously completed weather studies remained relevant, summary data was obtained from the PTC for the Donegal Maintenance, Somerset Maintenance, Allegheny Mountain Tunnel, and Kegg Maintenance locations for the winter of 2012-2013 and 2013-2014. Table 5.13.3-A and 5.13.3-B summarize that data by location. The PTC summary data can be found in the Project technical files.

Table 5.13.3-A
PTC Winter Weather Summary
2012/2013

Observation	Donegal Maintenance		Somerset Maintenance		Allegheny Mountain Tunnel		Kegg Maintenance	
	Totals	Percent (%)	Totals	Percent (%)	Totals	Percent (%)	Totals	Percent (%)
Total Days Surveyed	151	100%	151	100%	151	100%	151	100%
Days w/Fog	32	21.2%	14	9.3%	11	7.3%	20	13.3%
Days w/Snow	56	37.1%	64	42.4%	68	45.0%	63	41.7%
Days w/Rain	41	27.2%	37	24.5%	33	21.9%	35	23.2%
Days w/Sleet	6	4.0%	8	5.3%	4	2.7%	5	3.3%
Days w/Wind	98	64.9%	64	42.4%	37	24.5%	45	29.8%
Days w/Any Precipitation (Snow, Rain, Sleet)	89	58.9%	95	62.9%	94	62.3%	91	60.3%
Days w/Snow Covered Roads	15	9.9%	14	9.3%	19	12.6%	8	5.3%
Days w/Wet Roads and Temps Below Freezing	70	46.4%	74	49.0%	70	46.4%	63	41.7%

Notes:
1. Data obtained from PTC for the winter of 2012-2013

Table 5.13.3-B
PTC Winter Weather Summary
2013/2014

Observation	Donegal Maintenance		Somerset Maintenance		Allegheny Mountain Tunnel		Kegg Maintenance	
	Totals	Percent (%)	Totals	Percent (%)	Totals	Percent (%)	Totals	Percent (%)
Total Days Surveyed	151	100.0%	151	100	151	100	151	100
Days w/Fog	14	9.3%	16	10.6%	10	6.6%	10	6.6%
Days w/Snow	61	40.4%	70	46.4%	67	44.4%	59	39.1%
Days w/Rain	41	27.2%	32	21.2%	27	17.9%	35	23.2%
Days w/Sleet	4	2.7%	4	2.7%	8	5.3%	5	3.3%
Days w/Wind	112	74.2%	108	71.5%	63	41.7%	76	50.3%
Days w/Any Precipitation (Snow, Rain, Sleet)	87	57.6%	92	60.9%	86	57.0%	86	57.0%
Days w/Snow Covered Roads	7	4.6%	7	4.6%	7	4.6%	3	2.0%
Days w/Wet Roads and Temps Below Freezing	83	55.0%	58	38.4%	64	42.4%	48	31.8%

Notes:
1. Data obtained from PTC for the winter of 2013-2014

After reviewing the most recent weather data, it was determined the previous weather studies remain valid. The 2012-2013 and 2013-2014 data from the PTC is in-line with the previously used PTC data, except for the number of days with wind. It is believed that the large increase in the number of days with wind from the previous PTC weather data to the most recent set, is due to a change in how the data was collected, and not a significant change in actual weather conditions.

5.14 Wildlife and Vegetation

During several field investigations within the Project study area, L.R. Kimball recorded observations on habitat types and wildlife usage within the study area. The habitat types contained within the Project study area were identified during the wetland and stream field investigation, as well as several rare, threatened, and endangered species (plant and vertebrate) investigations. During these investigations, Project biologists noted individual occurrences of wildlife species within the Project study area.

5.14.1 Vegetation

The Project study area includes a variety of habitats that were described and confirmed during the two (2) surveys conducted for POSCIP in 2011 and 2016. Land features include ridge tops and moderately-steep to very-steep slopes covered with early successional to mature forest, bottomland wetlands, floodplain forests, exposed rock outcrops, reverting meadows, agricultural fields, wildlife food plots, and powerline

ROWs. The following Habitat Types summarize these areas that were encountered during the above-referenced field surveys. The location and extent of each habitat type within the Project study area can be seen in Appendix D, Figure D-13, Habitat Types Within the Project Study Area.

HABITAT 1: Bottomland Wetland

This is a large wetland complex that exists in the bottomlands at the base of the western slopes of Allegheny Mountain on both the north and south sides of the Turnpike corridor. Streams that originate on the mountain slopes run down into the low-lying areas where their waters disperse to form several wetland types. These include palustrine emergent marshes, dominated by common cattail (*Typha latifolia*) and tussock sedge (*Carex stricta*), to graminoid emergent marshes, dominated by tussock sedge and bluejoint (*Calamagrostis canadensis*). A dense shrub layer exists along both sides of a stream that runs south at the base of the slope to the north of the Turnpike. This shrub layer includes Southern arrow-wood (*Viburnum dentatum*), meadow-sweet (*Spiraea latifolia*), winterberry (*Ilex verticillata*), chokeberry (*Photinia sp*.), and gray dogwood (*Cornus racemosa*). In one small area on the south side of the Turnpike, a small Sphagnum bog with cottongrass (*Eriophorum virginiana*) and sundew (*Drosera rotundifolia*) has formed. The Bottomland Wetland habitat type harbors populations of bog goldenrod (*Solidago uliginosa*), cowbane (*Oxypolis rigidior*), and veiny-leaved aster (*Symphyotrichum praealtum*).

HABITAT 2: Sugar Maple – Black Cherry Forest

This forested habitat is some of the highest quality forest in the study area and is limited in its range. A mature section of this sugar maple (*Acer saccharum*) and black cherry *(Prunus serotina*) forest is located west of SR 0160 beyond cultivated fields where the study area is narrow and restricted. The forested habitat appears to have reverted from former pasture or cultivated field and contains sections that have been logged where logging/access roads are prevalent. This habitat is rich in wildflower, shrub and tree diversity and harbors a significant population of Appalachian blue violet. A small conifer plantation is included in this area and was not delineated as a separate habitat type. The sugar maple – black cherry forest type is also located just east of SR 0160 behind and to the north of homes along Big Rock Road. Here the forest has been more disturbed and is in an earlier stage of succession. Appalachian blue violet was found in this area just north and outside of the study area. There is an intensive sugaring operation in place in the section of this habitat to the west of SR 0160, as well as a second sugaring operation in place in a small section of this habitat on the north side of Big Rock Road near Bluebird Lane.

HABITAT 3: Red Oak – Red Maple – Black Cherry Forest

This early- to mid-successional forest habitat covers a significant portion of the Project study area and is dominated by red oak (*Quercus rubra*), red maple (*Acer rubrum*), and black cherry. It is found on both the east and west flanks of the Allegheny Mountain at elevations extending from 2330 to 2740 feet within the study area. While oak (*Quercus alba*), maple (Acer spp.), and black cherry are the most consistent canopy dominants, black birch (*Betula lenta*) can be quite dominant in the areas where the forest is in an earlier stage of succession and recovery from timber harvesting. Spring seeps, spring runs, and small streams are found throughout this habitat creating micro-habitats within this larger area. These water courses provide habitat for a variety of plants, with species diversity and numbers increasing where the forest is less disturbed and in the lower elevations. Appalachian blue violet is most commonly associated with this habitat type, especially in areas where soils are mesic and surface water features are present. Veiny-leaved aster and ginseng (*Panax quinquefolius*) are also found in this habitat.

HABITAT 4: Calcareous Mixed Hardwood Forest

This habitat ranges from a mid-successional to mature forest dominated by sugar maple, red oak, basswood (*Tilia americana*), and American beech (*Fagus grandifolia*). Hercules's club (*Aralia spinosa*) and striped maple (*Acer pennsylvanicum*) are common in the understory. This forest habitat is largely found between the elevations of 2,260 and 2,420 ft. on the east side of the Allegheny Mountain on both sides of the Raystown Branch Juniata River. There is an additional occurrence in a small area on the east side of the Allegheny Mountain between 2,500 and 2,720 feet in elevation on a south facing slope above the Raystown Branch of the Juniata River. It extends upslope and downslope from this elevation range in certain areas but is largely restricted to where limestone outcrops and calcareous soils are present. A band of large exposed outcrops are a feature of this habitat and it is in this area where the forest is the oldest and plant species diversity the highest. The forest substrate can be described as thin, dry, rocky soils that appear to be alkaline in nature. Black birch (*Betula lenta)* and small black cherry (*Prunus serotina)* trees are the canopy dominants with witch-hazel (*Hammamelis virginiana*) common in the understory. This habitat type harbors occurrences of thick-leaved meadow-rue (*Thalictrum coriaceum*) and veiny-leaved aster. Other herbaceous species found in this habitat include black snakeroot (*Actaea racemos),* mayapple *(Podophyllum peltatum),* garlic mustard *(Alliaria petiolata),* common chickweed *(Stellaria media),* and white snakeroot (*Ageritina altissima*).

HABITAT 5: Exposed Rock Outcrop and Cliffs

This habitat encompasses a large sandstone outcrop on the north facing slopes above the Turnpike on the east side of the Allegheny Mountain. The outcrops and associated cliff and talus slope run from approximately 2,400-2,600 ft. in elevation. The bedrock is Pottsville Sandstone and given where the outcropping is situated, the micro-climate is very cool. Additionally, conditions are generally dry with dominant vegetation including mature cucumber magnolia (*Magnolia accuminata*), chestnut oak (*Quercus montana*), red oak, white oak, black birch, black cherry, red maple, and striped maple. Shrubs are scattered throughout and include alternate-leaved dogwood (*Cornus alternifolia*), red-berried elder (*Sambucus pubens*) and wild gooseberry (*Ribes rotundifolium*). Ferns are abundant as are some short-lived spring ephemeral wildflowers. No plant species of special concern were found in this habitat type.

HABITAT 6: Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest

The mid-successional forest habitat is dominated by tulip poplar (*Liriodendron tulipifera*), sugar maple, red oak, and black cherry. It is found largely on the east side of Allegheny Mountain flanking the lower elevations along the Raystown Branch of the Juniata River at an elevation extending from approximately 1,880 to 2,500 ft. It is the common forest type on the floodplain of the river and its major northern tributary, including the lower slopes, as well as the north-facing slopes on the south side of the Turnpike above the river. Soils are rich, moist, and well-developed and the diversity of plant species is high. Several occurrences of veiny-leaved aster were found in this habitat type.

HABITAT 7: Chestnut Oak – Red Maple – Black Cherry – Blueberry Forest

A large powerline right-of-way runs in a southwest to northeast direction along the west facing slope of the Allegheny Mountain across the entire Project study area. The powerline right-of-way is approximately 100 ft. in width and crosses an elevation in this part of the Project study area between approximately 2,630 and 2,760 ft. The land on both the upslope and downslope sides of the ROW is dominated by red oak, red maple, black cherry, and mountain laurel forest. Just upslope of the powerline on its northeastern end is a series of spring seeps that result in wet conditions that harbor a diversity of species such as black bulrush (*Scirpus atrovirens*), soft rush (*Juncus effusus*), interrupted

fern (*Osmunda claytoniana*), tussock sedge (*Carex stricta*), and bentgrass (Agrostis sp.). Conditions appear to be acidic and generally wet where small spring runs spread out over the flatter topography along the powerline and into the downslope woodlands. One such area on the southern end of the powerline in the Project study area harbors a small group of Appalachian blue violet plants. The northeastern end harbors species such as ground-pine (Lycopodium spp.), northern dewberry (*Rubus flagellaris*), patches of chokeberry (Photinia sp.), black huckleberry (*Gaylusaccia bacatta*), leatherleaf (*Chamaedaphne calyculata*), mountain laurel (*Kalmia latifolia*), and low sweet blueberry (*Vaccinium angustifolium*), which are found on dry, rocky, and somewhat acidic soils which additionally support an occurrence of mountain bellwort (*Uvularia pudica*). Veiny-leaved aster is found throughout this habitat.

The habitat described here includes an early-mid successional, dry, acidic forest community dominated by chestnut oak (*Quercus montana*), red maple and black cherry in the canopy and blueberry (*Vaccinium* spp.) in the understory. This forest is situated along the northwest edge of the right-of-way corridor. The right-of-way is included in this habitat type as this entire area (forest included) provides conditions that support a large population of mountain bellwort. This oak forest type is also found on a separate parcel of land that is situated in the southern portion of the expanded study area. This parcel includes a small ridgeline and associated northwest facing slopes. The ridge and nose of the slopes are dry and harbor this habitat with a dense understory of bracken fern (*Pteridium aquilinum*) along with the several species of blueberry. Mountain bellwort is prevalent throughout this area, a species thought to be adapted to this dry, oak woodland forest type.

HABITAT 8: Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest

The habitat includes a large portion of the Project study area that is inhabited by a forest dominated by red oak, red maple, black cherry, and an understory of mountain laurel. This forest habitat is on both the east and west flanks of the Allegheny Mountain. While oak, maple, and cherry are the most consistent canopy dominants; however, chestnut oak, black birch, and sassafras (*Sassafras albidum*) can be quite dominant. Conditions are generally dry, although spring seeps, spring runs, and small streams are found throughout this habitat creating micro-habitats within this larger area. Occurrences of mountain bellwort, a species thought to be adapted to this dry, oak woodland forest type, were found throughout this community.

HABITAT 9: Reverting Meadow

This habitat includes approximately 2-3 ac. of open, reverting meadow along the southern banks of the Raystown Branch of the Juniata River adjacent and upstream of Suhrie Hollow Road. This meadow is situated at the lowest elevation in the Project study area, between 1,860 and 1,880 ft., and may have been used as a log landing or for some other activity in the recent past. It is largely dominated by goldenrods (*Solidago spp.*), asters (*Symphiotrichum spp*.), and other early successional plants. Scattered trees are invading from the adjacent forested floodplain and slopes. No plant species of special concern were found in this habitat.

HABITAT 10: Forested Wetland

This habitat is limited to a relatively small area at the upper elevations of the study area just west of the large powerline right-of way at the headwaters of Stonycreek River. The topography here is only moderately sloped and characterized by scattered spring seeps that create small wetland pockets dominated by Sphagnum moss (*Sphagnum* spp.), cinnamon fern (*Osmunda cinnamomea*), swamp dewberry (*Rubus hispidus*) and surrounded by a shrub and tree layer of swamp azalea (*Rhododendron viscosum*), mountain holly (*Ilex montana*), black gum (*Nyssa sylvatica*) and red maple. The elevation of this habitat is between 2600 and approximately 2610 feet. It was included as part of a logging

operation in the past 50 years and, as a result, trees are pole sized and growing close together. No plant species of special concern were found in this habitat type.

HABITAT 11: Modified Upland Field

This habitat type is found throughout the survey area, mostly on lower slopes and in bottomland areas where residential development and agricultural activity is most prevalent. This habitat description is used as somewhat of a 'catch-all' for land that ranges from being actively cultivated for crops such as corn or pastured by livestock, to land that was recently taken out of production and is reverting to common meadow species. It also includes land that has been abandoned for more than five (5) years and allowed to naturally succeed after being in pasture or cultivation as well as land that was strip – mined for coal and then reclaimed. Common species found in this habitat type include everything from goldenrods *(Solidago spp*.), asters (*Symphiotrichum spp*.), cold-season grasses and common meadow forbs to hawthorns (*Crataegus spp*.), serviceberry (*Amelanchier spp*.), apple (*Malus spp*.), bush honeysuckle (*Lonicera spp*.) and olive (*Eleagnus spp*.). A small patch of Appalachian blue violet was found growing along an actively mowed path in one area that is beginning to revert to early successional forest.

HABITAT 12: Miscellaneous

This habitat includes approximately 169 ac. of habitat that was not specifically identified or included within the survey for POSCIP. This area contains a mix of residential, agricultural, and rangeland habitat.

Table 5.14.1 provides a summary of the habitat types identified within the Project study area and the acreages associated with each habitat type.

Table 5.14.1
Habitat Types Within the Project Study Area

Habitat ID	Habitat Name	Area within Project Study Area ac.
Habitat 1	Bottomland Wetland	25.33
Habitat 2	Sugar Maple – Black Cherry Forest	29.49
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59
Habitat 7	Chestnut Oak – Red Maple – Black Cherry – Blueberry Forest	61.20
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63
Habitat 9	Reverting Meadow	2.42
Habitat 10	Forested Wetland	19.53
Habitat 11	Modified Upland Field	129.14
Habitat 12	Miscellaneous	169.42

5.14.2 Wildlife

L.R. Kimball conducted various surveys to determine the quality and diversity of wildlife populations and habitats within the Project study area. The Project study area supports a variety and abundance of wildlife species that are associated with large tracts of upland, deciduous forested landscape, wetland bottomlands, and riparian corridors. Populations of game and non-game wildlife species are well established and commonly seen in all habitat types.

Birds

More than half of the Project study area is located within an Audubon designated Important Bird Area (IBA) termed the Allegheny Front. The Allegheny Front has been designated as an IBA partly due to the high concentrations of raptors and songbirds that utilize this area during fall and spring migration. It has been documented to provide important routes for spring raptor migration, especially Golden Eagles. The ridges also provide nesting habitat for interior forest songbird species. Table 5.14.2-A provides a list of bird species identified during wetland, stream and rare, threatened, and endangered species field investigations of the Project study area.

Table 5.14.2-A Project Study Area Avian Species Observations	
Common Name	Scientific Name
American Crow	*Corvus brachyrhyncos*
American Goldfinch	*Cardueli tristis*
American Kestrel	*Falco sparverius*
American Redstart	*Setophaga ruticilla*
American Robin	*Turdus migratorius*
American Woodcock	*Scolopax minor*
Barn Swallow	*Hirundo rustica*
Barred Owl	*Strix varia*
Blue Jay	*Cyanocitta cristata*
Black-Billed Cuckoo	*Coccyzus erythropthalmus*
Black-Capped Chickadee	*Parus atricapillus*
Brown-Headed Cowbird	*Molothrus ater*
Black-Throated Green Warbler	*Dendroica virens*
Black Vulture	*Coragyps atratus*
Black-and-White Warbler	*Mniotilta varia*
Blue Jay	*Corvus brachyryhncos*
Brown-Headed Cowbird	*Molothrus ater*
Brown Thrasher	*Toxostoma rufum*
Canada Goose	*Branta canadensis*
Cedar Waxwing	*Bombycilla cedrorum*
Cerulean Warbler	*Dendroica cerulea*
Chestnut-Sided Warbler	*Dendronica pensylvanica*
Chimney Swift	*Chaetura pelagica*
Chipping Sparrow	*Spizella passerina*
Common Grackle	*Quiscalus quiscula*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Accipiter cooperii*
Dark-Eyed Junco	*Junco hyemalis*
Eastern Kingbird	*Tyrannus*
Eastern Oriole	*Icterus galbula*
Eastern Meadowlark	*Sturnella magna*
Eastern Phoebe	*Sayornis phoebe*
Eastern Towhee	*Pipilo erythrophthalmus*
Eastern Wild Turkey	*Meleagris gallopavo*
Eastern Wood Peewee	*Contopus virens*
European Starling	*Sturnus vulgaris*
Field Sparrow	*Spizella pusilla*
Fox Sparrow	*Passerella iliaca*
Great Blue Heron	*Ardea herodias*

Table 5.14.2-A Project Study Area Avian Species Observations	
Common Name	Scientific Name
Great Crested Flycatcher	*Myiarchus crinitus*
Gray Catbird	*Dumetella carolinensis*
Hairy Woodpecker	*Picoides villosus*
Hermit Thrush	*Catharus guttatus*
Hooded Warbler	*Wilsonia citrina*
House Finch	*Carpodacus mexicanus*
House Sparrow	*Passer domesticus*
House Wren	*Troglodytes aedon*
Indigo Bunting	*Passerina cyanea*
Least Flycatcher	*Empidonax minimus*
Killdeer	*Charadrius vociferus*
Mallard Duck	*Anas platyrhynchos*
Masked Warbler	*Geothlypis trichas*
Mourning Dove	*Zenaida macroura*
Northern Cardinal	*Cardinalis*
Northern Flicker	*Colaptes auratus*
Northern Mockingbird	*Mimus polyglottos*
Northern Junco	*Junco hyemalis*
Ovenbird	*Seiurus aurocapillus*
Pileated Woodpecker	*Dryocopus pileatus*
Red-Breasted Nuthatch	*Sitta canadensis*
Red-Eyed Vireo	*Vireo olivaceus*
Red-Tailed Hawk	*Buteo jamaicensis*
Red-Winged Blackbird	*Agelaius phoeniceus*
Rose-Breasted Grosbeak	*Pheucticus ludovicianus*
Ruffed Grouse	*Bonasa unbellus*
Song Sparrow	*Melospiza melodia*
Scarlet Tanager	*Piranga olivacea*
Tree Swallow	*Tachycineta bicolor*
Tufted Titmouse	*Parus bicolor*
Turkey Vulture	*Cathartes aura*
Warbling Vireo	*Vireo gilvus*
Wood Thrush	*Hylocichia mustelina*
Yellow-Billed Cuckoo	*Coccyzus americanus*
Yellow-breasted Chat	*Icteria virens*
Yellow-throated Vireo	*Vireo flavifrons*
Yellow Warbler	*Dendroica petechia*

Mammals

Table 5.14.2-B provides a list of mammals observed during wetland, stream and rare, threatened, and endangered species surveys.

Table 5.14.2-B
Project Study Area Mammal Species Observations

Common Name	Scientific Name
Beaver	*Castor canadensis*
Black Bear	*Ursus americanus*
Bobcat	*Lynx canadensis*
Eastern Chipmunk	*Tamias striatus*
Eastern Cottontail Rabbit	*Sylvilagus floridanus*
Eastern Coyote	*Canis latrans*
Eastern Gray Squirrel	*Sciurus carolinensis*
Gray fox	*Urocyon cinereoargenteus*
Groundhog	*Marmota monax*
Mink	*Mustela vison*
Muskrat	*Ondatra zibethicus*
Opossum	*Didelphis marsupialis*
Porcupine	*Erethizon dorsatum*
Raccoon	*Procyon lotor*
Red Fox	*Vulpes*
Red Squirrel	*Tamiasciurus hudsonicus*
Striped Skunk	*Ephitis macroura*
White-Footed Mouse	*Peromyscus leucopus*
White-Tailed Deer	*Odocoileus virginianus*
Big Brown Bat	*Eptesicus fuscus*
Eastern Red Bat	*Lasiurus borealis*
Eastern Small-footed Bat	*Myotis leibii*
Little Brown Bat	*Myotis lucifugus*
Norther Long-earred Bat	*Myotis septentrionalis*
Tri-colored Bats	*Perimyotis subflavus*
Indiana Bats	*Myotis sodalis*

Reptiles and Amphibians

Table 5.14.2-C provides a list of reptiles and amphibians observed during wetland, stream and rare, threatened, and endangered species surveys.

Table 5.14.2-C
Project Study Area Reptile and Amphibian Species Observations

Common Name	Scientific Name
American Bullfrog	*Rana catesbeiana*
American Toad	*Bufo americanus*
Black Rat Snake	*Elaphe obsoleta*
DeKay's Snake	*Storeria dekayi*
Eastern Garter Snake	*Thamnophis sirtalis*
Eastern Newt	*Notophthalmus viridescens*
Four-toed Salamander	*Hemidactylium scutatum*
Green Frog	*Rana clamitans*
Northern Dusky Salamander	*Desmognathus fuscus*
Northern Leopard Frog	*Rana pipiens*
Northern Slimy Salamander	*Plethodon glutinosus*
Pickerel Frog	*Rana palustris*
Smooth Green Snake	*Opheodrys vernalis*
Spring Peeper	*Psuedacris crucifer*
Spring Salamander	*Gyrinophilus porphyriticus*
Timber Rattlesnake	*Crotalus horridus*
Wood Frog	*Rana sylvatica*

6.0 Environmental Consequences

The Environmental Consequences section will address the potential impacts the proposed Project may have on the resources identified within Section 5.0, Affected Environment. The impacts have been determined for each Build Alternative and the No Build Alternative to provide a comparative basis between the different Alternatives.

6.1 Active Agricultural Land

Applicable regulations/policies relating to agricultural land that would apply to the proposed Project include PA Act 1979 – 100 (Act 100), 4 Pa. Code Chapter 7, §7.301 (ALPP), and PA Act 1981-43 (Act 43). The Project study area contains productive agricultural land as defined in Act 100 and prime agricultural land as defined under ALPP. It should be noted that while there are ASA lands present within the Project study area, they do not meet the definition of prime agricultural land under Act 43 and would not be impacted by the proposed Alternatives. Impacts to prime agricultural land under the ALPP were calculated based on the cut / fill limits for each Alternative, including probable stormwater basin locations and a 20-ft. buffer. The impacts to active agricultural land can be referenced below in Table 6.1 as well as in Figures F-1A to F-1G for the proposed build alternatives. The greatest impacts to active agricultural land would result from the Brown Cut and Brown Tunnel alternatives, which both impact two (2) Act 100 properties and 3.08 acres of ALPP Lands. The Yellow Cut and Yellow Tunnel alternatives would impact the least amount of active agricultural land, with two (2) Act 100 properties impacts and no ALPP lands.

Table 6.1
Agricultural Land Impacts

Alternative	Act 100 Properties (# of Properties Impacted)	ALPP Lands ac.
No Build	0	0.00
Brown Cut	2	3.08
Brown Tunnel	2	3.08
Yellow Cut	2	0.00
Yellow Tunnel	2	0.00
Gray Cut	5	1.27
Gray Tunnel	5	1.25

No Build Alternative

Impacts to agricultural land would not occur as a result of the No Build Alternative.

Brown Cut Alternative

The Brown Cut Alternative would impact portions of two (2) properties considered productive agricultural land under Act 100. The Brown Cut Alternative would also impact 3.08 ac. of prime agricultural land as defined under ALPP.

Brown Tunnel Alternative

The Brown Tunnel Alternative would impact portions of two (2) properties considered productive agricultural land under Act 100. The Brown Tunnel Alternative would also impact 3.08 ac. of prime agricultural land as defined under ALPP.

Yellow Cut Alternative

The Yellow Cut Alternative would impact portions of two (2) properties considered productive agricultural land under Act 100. The Yellow Cut Alternative would not impact prime agricultural land as defined under ALPP.

Yellow Tunnel Alternative

The Yellow Tunnel Alternative would impact portions of two (2) properties considered productive agricultural land under Act 100. The Yellow Tunnel Alternative would not impact prime agricultural land as defined under ALPP.

Gray Cut Alternative

The Gray Cut Alternative would impact portions of five (5) properties considered productive agricultural land under Act 100. The Gray Cut Alternative would also impact 1.27 ac. of prime agricultural land as defined under ALPP.

Gray Tunnel Alternative

The Gray Tunnel Alternative would impact portions of five (5) properties considered productive agricultural land under Act 100. The Gray Tunnel Alternative would also impact 1.25 ac. of prime agricultural land as defined under ALPP.

6.2 Community Facilities / Services

The Project study area is serviced by varying community facilities and services. However, there are no community facilities located directly within the Project study area. Direct impacts to community facilities / services are not anticipated as a result of the proposed Project. Temporary disruption of traffic patterns or road closures may occur during construction. Should detours be required for construction, coordination will occur with emergency responders and school busing companies.

Direct impacts to the Berlin Borough Municipal Public Water Supplies, which are located approximately 1.6 miles south of the Gray corridor, are not anticipated from the proposed project as per *A Report on the Preliminary Analysis of Impacts to the Berlin Borough Public Water Supply,* 2016. Detailed information regarding the Berlin Borough Municipal Water Supplies is located in Section 6.6.2. A copy of the Report can be found in the Project technical files.

6.3 Displacements, Housing, and Property Access

Displacements

Each alternative was assessed for the displacement of residences, businesses, and community facilities. As previously discussed, the project area does not contain businesses or community facilities, so there would be no impacts. The residential homes within the Project area are located in the western portion of the study area with multiple residences located along SR 0160, Big Rock Road and Bluebird Lane. A housing unit was considered as 'displaced' if it was located within a designated 50 ft. right-of-way (ROW) that extends off the cut and fill limits for each alternative, or if reasonable access or necessary utilities could not be maintained. ROW will be better defined during the next phase of design. It may result in a reduction of area required for ROW, reducing or eliminating property impacts / displacements. Vacant properties or properties with unoccupied housing units were not considered displacements.

The proposed displacements and general location of residences in relation to the Project Alternatives can be found on Figures F-2A to F-2G for the proposed build alternatives. Of the proposed alternatives, only the Gray Tunnel Alternative would result in a residential displacement.

No Build Alternative

There would be no displacements as a result of the No Build Alternative.

Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives

The alternatives to the north of the existing Turnpike, including the Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives would not result in displacements of residential homes.

Gray Cut Alternative

The Gray Cut Alternative would not result in residential displacements, but would impact a resident's garage.

Gray Tunnel Alternative

The Gray Tunnel Alternative would result in one (1) residential displacement.

Property Access

One (1) access driveway/private lane (Senna Drive) is located in the northwest portion of the study area that leads to a residential home located outside of the Project study area. However, all the Project alternatives are located south of the driveway entrance and it will not be impacted. There is also a private cabin that is accessed along a road located within a portion of the study area to the south and east of the existing Allegheny Tunnel east portal. This road traverses the former South Penn Railroad grade across four (4) properties and will be impacted by the proposed Project. Therefore, a relocated access road has been designed for each Alternative impacting this private drive to ensure property access.

Within the Project study area, a large amount of private property is held by the Mountain Field and Stream Club (MFSC) both north and south of the existing Turnpike. The Club currently has three (3) main access points for their membership and maintain parcel connectivity by traversing roads and trails over the existing tunnel ROW. The southern access point consists of a gated gravel road, located off SR 1013. The northern access point consists of a gated gravel road, which is located on Bluebird Lane. There is also a western access point consisting of a smaller gated access road located off the south side of Big Rock Road. The project has the potential to impact portions of these access roads. Relocated access roads have been designed where possible to ensure property access for MFSC for each Alternative.

The impacts to private access roads, along with proposed relocations can be found in Figures F-2A to F-2G for the build alternatives. The relocation of private access roads has been designed to utilize and/or connect to existing access roads to minimize impacts. The Alternative Figures in Appendix B – Typical Sections, Engineering Descriptions and Mapping indicate the location of the proposed relocated access roads. All the proposed alternatives would require re-routing or relocation of private access roads.

No Build Alternative

This Alternative would not affect existing property access.

Brown Cut Alternative

The Brown Cut Alternative would impact the MFSC gated access road on Blue Bird Lane that allows primary access to their properties north of the existing Turnpike. A multi-use overpass is proposed in the approximate location where the proposed Brown Cut Alternative crosses Bluebird Lane on an adjoining property to MFSC. The multi-use crossing was placed in this location due to locational and engineering constraints. Such constraints include proximity to residential areas, proposed locations of fill, and width of the proposed cut in this vicinity. Right-of-way acquisition from the adjoining property owner would be required to provide the access to the MFSC property.

The MFSC gated access road located south of Big Rock Road would also be impacted by this Alternative. This portion of MFSC property will remain accessible via Big Rock Road or through contiguously owned MFSC property to the east. Therefore, this access road is not proposed to be replaced.

The Brown Cut Alternative would also require the installation of a section of new access road for the cabin located southeast of the existing East Portal. The cabin on this property is currently accessed utilizing a gravel road, which is approximately 5,259 ft. in length, located along the abandoned South Penn Railroad grade. This alternative would require the rerouting of approximately 360 ft. of access road along the proposed top of cut for this Alternative.

Brown Tunnel Alternative

MFSC's property access via the existing, gated access roads on Bluebird Lane and off SR 1013 will remain in-tact with this Alternative, with the interior of the MFSC property still accessible. The MFSC gated access road located south of Big Rock Road would be eliminated by this Alternative. This portion of MFSC property will remain accessible via Blue Bird Lane or through contiguously owned MFSC property to the east. Therefore, this access road is not proposed to be replaced.

The Brown Tunnel Alternative would also require the installation of a section of new access road for the cabin located southeast of the existing East Portal. This alternative would require the rerouting of approximately 315 ft. of access road along the proposed top of cut for this Alternative.

Yellow Cut Alternative

The existing MFSC gated access road on Bluebird Lane will remain in-tact with the Yellow Cut Alternative and will provide access to the MFSC properties to the north of the alternative. Access to the southern portion of the MFSC property will also remain intact via the existing access road off SR 1013, which continues up to and over the existing Allegheny Tunnels. However, the Yellow Cut Alternative would bisect several smaller MFSC interior roads that currently travel through the portions of the property located north of the existing Turnpike. To preserve access to the interior portions of the MFSC property, a multi-use overpass is proposed to the west of the existing powerline ROW. A newly graded access road for MFSC will extend north and south of the proposed crossing for a total length of 2,640 ft. to preserve connection with existing access roads.

The Yellow Cut Alternative would also require the installation of a section of new access road for the cabin located southeast of the existing East Portal. This alternative would require the rerouting of approximately 1,918 ft. of access road along the proposed top of cut for this Alternative and require PTC to obtain right-of-way from adjacent property owners to construct the re-aligned access road.

Yellow Tunnel Alternative

MFSC's property access via the existing, gated access roads on Bluebird Lane and off SR 1013 will remain intact with this Alternative, with the interior of the MFSC property still accessible.

The Yellow Tunnel Alternative would also require the installation of a section of new access road for the cabin located southeast of the existing East Portal. This alternative would require the rerouting of approximately 2,069 ft. of access road along the proposed top of cut for this Alternative and require PTC to obtain right-of-way from adjacent property owners to construct the re-aligned access road.

Gray Cut Alternative

MFSC access off SR 1013 will require re-routing the existing access road under the proposed Raystown Branch Juniata River bridges and grading of a new access road from the existing East Portal for access to the northern portion of the MFSC property from the south. The proposed access road will require approximately 5,010 ft. of road grading for the purpose of maintaining MFSC access. The northern access points will not be affected by this alternative.

The Gray Cut Alternative would also require the installation of a new access road for the cabin located southeast of the existing East Portal. This alternative would require the rerouting of approximately 4,980 ft. of access road along the proposed top of cut for this Alternative and require the PTC to obtain right-of-way from adjacent property owners to construct the re-aligned access road.

Gray Tunnel Alternative

MFSC's property access via the existing, access roads on Bluebird Lane, Big Rock Road and off SR 1013 will remain intact with this Alternative.

The Gray Tunnel Alternative would also require the installation of a new access road for the cabin located southeast of the existing East Portal. This alternative would require the rerouting of approximately 4,980 ft. of access road along the proposed top of cut for this Alternative and require the PTC to obtain right-of-way from adjacent property owners to construct the re-aligned access road.

6.4 Floodplains

The location and design of the Project Alternatives and structures was performed with the consideration of the effects on the natural floodplains and with the aim of minimizing potential damage to residences or other sensitive areas within the vicinity. Based on the FEMA FIRM Maps 42111C0435D and 42111C0455D (effective September 19, 2012), there are 100-year floodplains associated with the UNT to Stonycreek River and the Raystown Branch Juniata River. The mapping indicates that both streams are located in a Zone A Floodplain with no base flood elevations documented. There are no mapped floodways within the Project area.

Impacts to the 100-year floodplain were determined for each alternative based on the respective cut / fill limits of each alternative, including probable stormwater basin locations and a 20-ft. buffer. The UNT to Stonycreek River and the Raystown Branch Juniata River are proposed to be bridged. The bridges will be constructed such that the abutments will be located outside the floodplain, with the only potential encroachments being bridge piers necessary for the proposed structures. The exact location of bridge piers is not known at this stage of alternatives development and would vary by structure for each Alternative. In order to account for the pier placement impacts, an additional 0.01 acres has been added to the impacted floodplain areas for each alternative. The bridges proposed for the alternatives would be constructed without altering the natural stream channels. The flood risk posed by the proposed bridges would be very minimal.

The impact to the 100-year floodplain within the Project study area can be found below in Table 6.4 as well as in Figures F-3A to F-3G for the proposed build alternatives.

Table 6.4
100-Year Floodplain Impacts

Alternative	Stonycreek Watershed 100-Year Floodplain ac	Raystown Branch of Juniata River Watershed 100-Year Floodplain ac
No Build	0.00	0.00
Brown Cut	0.01	0.02
Brown Tunnel	0.01	0.01
Yellow Cut	1.35	0.02
Yellow Tunnel	1.28	0.34
Gray Cut	0.15	0.05
Gray Tunnel	0.10	0.19

6.5 Geology / Soils

As noted in Section 5.5.4, an acid base accounting analysis was completed for two borings drilled as part of the environmental and geo-technical investigation for the proposed Project. The purpose of the study was to complete a preliminary overburden analysis for the Project. A copy of the *Acid Base Accounting and Petrographic Analysis Report for the PTC Allegheny Tunnel Transportation Improvement Project* can be found in the Project technical files.

As stated in the analysis, all the proposed corridors and subsequent alternatives will pass through multiple geologic units that are recognized as having acid bearing potential. The analysis indicated acid bearing rock is present and overburden must be neutralized to some extent.

6.6 Groundwater Resources

6.6.1 Residential Wells

Residential wells will not be directly impacted as a result of the Brown and Yellow Alternatives. The Gray Cut Alternative will impact one (1) residential well on an un-occupied property that contains a mobile home. The mobile home is currently used as a workshop and for storage only. The Gray Tunnel alternative will impact two (2) residential wells, including the un-occupied mobile home property and a well associated with a residential home that is proposed for displacement. There are no indirect impacts anticipated to residential wells located outside of the Project area.

6.6.2 Berlin Water Supply

A Report on the Preliminary Analysis of Impacts to the Berlin Borough Public Water Supply, was prepared by L.R. Kimball in October 2016, following concerns voiced by the Berlin Borough Municipal Authority at the October 22, 2013 Public Plans Display for the project. The Report can be found in the Project technical files. The Report noted that the closest or southernmost alternative, the Gray Cut Alternative is situated approximately 1.6 miles north of the Berlin Water Supply wells and 3.53 miles north of the springs. The Gray Cut Alternative is also 1.14 miles north of the northern point of the delineated recharge area for the Berlin Water Supply wells. The Report then evaluated the potential of the Project to impact quantities of the wells and/or springs, quality of the wells and/or springs, and any impacts to the aquifer/recharge area.

The Project alternatives are not anticipated to impact the Berlin water supply as the borough water sources are situated up-gradient of the Project, and groundwater flow directions in the Project area are to the west and to the north depending on specific location. The Report concluded that a monitoring program should be implemented for the Berlin Borough Water Supplies during construction of the chosen alternative to ensure issues do not occur.

6.7 Hazardous Materials

Impacts to properties with recognized environmental concerns were calculated based on each alternative's cut / fill limits occurring within the identified parcels including probable stormwater basin locations and a 20-ft. buffer. The parcels containing areas of concern that would be impacted by each proposed alternative are indicated in Figures F-4A to F-4G.

The following properties have been recommended for a limited Phase II investigation if impacted by the proposed Project:

- Area of Concern (AOC) 1, Spoil material pile;
- AOC 3, Spoil material pile;
- AOC 4, Refuse piles, drums;
- AOC 7, Fill pile;
- AOC 8, Refuse piles, drums, raw sewage;
- AOC 9, Tire pile and dump site; and
- AOC 10, potential waste concerns.

The following properties have been recommended for a geophysical survey with potential limited Phase II investigations if impacted by the proposed Project:

- AOC 5, Potential USTs; and,
- AOC 6, Potential UST.

The following property has been recommended for removal of debris if impacted by the proposed Project:

- AOC 2, Fill pile.

The Gray Cut and Gray Tunnel alternatives would impact the greatest number of AOC's at seven (7) each. The Yellow Cut alternative would impact the least number of AOC's at three (3).

No Build Alternative

The remediation of the ancient slide area would impact one AOC noted as AOC 10. This area is recommended for a limited Phase II investigation if impacted.

Brown Cut Alternative

The Brown Cut Alternative would impact five (5) AOCs. These include AOC 1, AOC 2, AOC 3, AOC 7 and AOC 9. Except for AOC 2, these properties are recommended for a limited Phase II investigation if the Brown Tunnel Alternative is chosen as the Preferred Alternative. Removal of debris is recommended for AOC 2.

Brown Tunnel Alternative

The Brown Tunnel Alternative would impact five (5) AOCs. These include AOC 1, AOC 2, AOC 3, AOC 7 and AOC 9. Except for AOC 2, these properties are recommended for a limited Phase II investigation if the Brown Tunnel Alternative is chosen as the Preferred Alternative. Removal of debris is recommended for AOC 2.

Yellow Cut Alternative

The Yellow Cut Alternative would impact four (4) AOCs. These include AOC 5, AOC 7, AOC 9, and AOC 10. These properties are recommended for a limited Phase II investigation if the Yellow Cut Alternative is chosen as the Preferred Alternative.

Yellow Tunnel Alternative

The Yellow Tunnel Alternative would impact four (4) AOCs. These include AOC 5, AOC 7, AOC 9, and AOC 10. All of the noted AOC's are recommended for a limited Phase II investigation if the Yellow Tunnel Alternative is chosen as the Preferred Alternative.

Gray Cut Alternative

The Gray Cut Alternative would impact seven (7) AOCs. These include AOC 1, AOC 2, AOC 3, AOC 4, AOC 5, AOC 9, and AOC 10. Except for AOC 2, and AOC 5, these properties are recommended for a limited Phase II investigation if the Gray Cut Alternative is chosen as the Preferred Alternative. AOC 5 is recommended for a geophysical survey with potential limited Phase II investigations, and AOC 2 is recommended for removal of debris.

Gray Tunnel Alternative

The Gray Tunnel Alternative would impact seven (7) AOCs. These include AOC 1, AOC 2, AOC 3, AOC 4, AOC 5, AOC 9, and AOC 10. Except for AOC 2, and AOC 5, these properties are recommended for a limited Phase II investigation if the Gray Tunnel Alternative is chosen as the Preferred Alternative. AOC 5 is recommended for a geophysical survey with potential limited Phase II investigations, and AOC 2 is recommended for removal of debris.

6.8 Historic / Archaeological Resources

Historic Resources

To determine impacts to historical resources, Heberling Associates, Inc. reviewed and updated the Historic Resources findings prepared by Skelly and Loy, Inc. as part of the 1997-2001 studies. The results are detailed in the November 2011, *Allegheny Tunnel Transportation Improvement Project ER # 97-0474-11, Historic Resources Update,* by Heberling Associates, Inc. A *2016 Addendum to the Historic Resources Update* was also completed to cover the 2015 expanded APE. PHMC concurred with the expanded APE and that the ten (10) noted resources documented in the Addendum are not eligible for listing in the NRHP in a letter dated November 21, 2016, which can be referenced in Appendix E, Agency Correspondence. In summary, the right-of-way (ROW) of the Turnpike and the South Penn Railroad Tunnel are the only above-ground historic properties in the APE that are eligible for listing in the National Register of Historic Places. These are described below.

- The Turnpike resource is part of the historically-significant original Middlesex to Irwin section of the Turnpike, the first limited-access toll highway in the United States. The Allegheny Tunnel is considered a noncontributing resource due to the extensive modernization and dualization work that was completed in

1965. The 6.2 miles of roadway immediately east of the Tunnel (MP 123.6 to MP 129.8) also is considered to be noncontributing due to the addition of a third lane to the westbound side after the period of significance; in this section portions of the roadway also have been relocated to alleviate sharp curves. These changes compromised the integrity of the Tunnel and its eastern approach. However, the roadway section to the west of the Tunnel is considered to be contributing (Skelly and Loy 2005:84, 86).

- The South Penn Railroad Tunnel is an abandoned and partially completed 3,900-ft. long tunnel located 85 ft. north of the westbound tube of the PTC's Allegheny Tunnel. It was constructed between 1883 and 1885. The NRHP boundaries are undefined.

Following the review and update of the historical resources within the Project APE, a *Determination of Effect Report* was completed by Heberling Associates, Inc. in January 2015. A copy of the Report can be found in the Project Technical Files. The Report evaluated the proposed Alternatives, including the No Build Alternative.

It was determined that all the proposed Alternatives, including No Build, would have No Effect on the South Penn Railroad Tunnel. It was also determined that all six (6) of the build Alternatives would have an Adverse Effect on the Turnpike. The No Build Alternative would have No Effect on the Turnpike. PHMC concurred with the findings in a letter dated March 26, 2015. A copy of the PHMC concurrence letter is located in Appendix E, Agency Correspondence. The location of the NR Eligible resources in relation to the proposed alternatives can be found on Figures F-5A to F-5G.

Archaeological Resources

Heberling Associates, Inc conducted preliminary archaeology investigations as summarized in Section 5.8.3, and detailed in the March 23, 2012, *Allegheny Tunnel Transportation Improvement Project Archaeological Resources Update* and a September 2016 *Addendum*, which can be referenced in the Project technical files.

In summary, it was originally determined the 1999 archaeological predictive model for prehistoric sites and historic site sensitivity mapping provided basic guidance for considering archaeological potential in the revised preliminary Project APE; however, it was later determined that the model may under-represent certain classes of potential archaeological sites. The following resource types not reflected in the 1999 report will be considered in archaeological studies for the Preferred Alternative: rock faces and overhangs that may have served as rock shelters or windbreaks; upland flats near springs, seeps and first-order or intermittent streams; and historic deposits associated with stone cairns, walls and foundations, some of which are shown on nineteenth and early twentieth century maps but are not noted in the 1999 report. These include obvious structural remains at the base of the eastern slopes of Allegheny Mountain—a house foundation, spring box and related features to the south of the Raystown Branch and west of Suhrie Hollow Road, apparently associated with the J. Wambach residence that appears on the 1876 Beers atlas map of Allegheny Township, and the possibly related stone cairns and wall remnants nearby, the latter lying just outside the study area limits. A small structure foundation and spring box were noted on the western slopes of the mountain, substantially removed from any current roads. These remains may be related to a structure shown on the 1929 Berlin USGS quadrangle map but seem to be separate from the J.A. Landis residence mapped to the west within the APE in the 1876 Beers atlas. Other surface remains noted during the two (2) field visits include a stone wall and gate opening on steep slopes overlooking the Raystown Branch of Juniata River, three stone cairns along the Raystown Branch of Juniata River located outside the study area limits, and some cut stone blocks likely associated with the construction of the South Penn Railroad tunnel. Figures F-6A to F-6G indicate the location of these identified potential archaeology resource points and areas in relation to the proposed alternatives.

The 2016 Addendum also indicated the PHMC and PennDOT jointly developed a statewide predictive model for pre-Contact Native American archaeological sites that was valid for the Project APE. In general, this model addresses some of the same factors that were considered in the 1999 Skelly and Loy model. The predictions

are comparable, although the new model also addresses the potential for sites at rock overhangs and on upland flats previously noted as lacking in the 1999 predictive model. Therefore, the PHMC / PennDOT predictive model was utilized to calculate potential impacts for pre-Contact Native American archaeological sites based on areas of low, medium, or high probability within the cut / fill limits for each Alternative, probable stormwater basin locations and 20-ft. buffer. This impact acreage provides a basis of comparison between the proposed Alternatives for the Project. It should be noted that once a preferred alternative is selected, a Phase I archaeological survey will be conducted for the APE that is determined for that alternative. The proposed impacts to prehistoric archaeological sites can be referenced in Table 6.8 located below and on Figures F-7A to Figure F-7G. Utilizing the prehistoric probability predictive model, the Gray Cut alternative would have the greatest impact on high probability area at 25.99 acres and the Yellow Tunnel alternative would have the least impact on high probability area at 13.31 acres.

Table 6.8
Prehistoric Archaeology Impacts

Alternative	Prehistoric Archaeology Probability Levels		
	Low ac.	Medium ac.	High ac.
No Build	54.39	14.33	0.00
Brown Cut	93.10	64.16	14.95
Brown Tunnel	84.45	38.04	15.68
Yellow Cut	127.62	39.03	18.98
Yellow Tunnel	93.36	13.44	13.31
Gray Cut	192.26	45.32	25.99
Gray Tunnel	159.86	47.58	24.27

Notes:
1. Areas reflect the acreage of prehistoric archaeology probability levels that are located within each alternative impact area.

The preliminary archaeology studies summarized in Section 5.8.3 also identified several potential historic archaeological sites, which can be seen in association with the proposed build Alternatives in Figures F-6A to F-6G.

No Build Alternative

The No Build Alternative, as a result of the slide remediation, would impact no areas of high probability prehistoric archaeology areas. It would impact two (2) identified potential historic archaeology resources.

Brown Cut Alternative

The Brown Cut Alternative would impact 14.95 ac. of high probability prehistoric archaeology area as well as one (1) identified potential historic archaeology resource.

Brown Tunnel Alternative

The Brown Tunnel Alternative would impact 15.68 ac. of high probability prehistoric archaeology area as well as one (1) identified potential historic archaeology resource.

Yellow Cut Alternative

The Yellow Cut Alternative would impact 18.98 ac. of high probability prehistoric archaeology area as well as one (1) potential historic archaeology resource, and one (1) area of rock faces / overhangs that may result in prehistoric archaeology findings.

Yellow Tunnel Alternative

The Yellow Tunnel Alternative would impact 13.31 ac. of high probability prehistoric archaeology area as well as one (1) potential historic archaeology resource, and one (1) area of rock faces / overhangs that may result in prehistoric archaeology findings.

Gray Cut Alternative

The Gray Cut Alternative would impact 25.99 ac. of high probability prehistoric archaeology area as well as one (1) potential historic archaeology resource, and one (1) area of rock faces / overhangs that may result in prehistoric archaeology findings.

Gray Tunnel Alternative

The Gray Tunnel Alternative would impact 24.27 ac. of high probability prehistoric archaeology area as well as two (2) potential historic archaeology resources, and one (1) area of rock faces / overhangs that may result in prehistoric archaeology findings.

6.9 Land Use / Zoning

The Project study area is largely rural with no zoning or comprehensive land use plans identified on the municipal level. Therefore, impacts to zoning are not anticipated. More detailed information on impacts to several of the land use types, including active agricultural, forest, and residential can be referenced in their appropriate sections within this document. Surface waters impacts are covered in much greater detail in Section 6.11 and have not been included as a land use category as they are under-represented in aerial photography. Table 6.9 provides an overview of the land use impacts per alternative and they can be seen on Figures F-8A to F-8G. Impacts to land use were calculated based on the cut / fill limits for each Alternative, including probable stormwater basin locations and a 20-ft. buffer.

Table 6.9
Impacts to Land Use/Cover Per Alternative

	Total Acreage of Land Use Type in Study Area	No Build	Brown Cut	Brown Tunnel	Yellow Cut	Yellow Tunnel	Gray Cut	Gray Tunnel
Active Agricultural ac.	35.48	0.00	6.73	8.15	0.00	0.00	1.27	1.25
Barren Land ac.	1.58	0.00	0.00	0.00	1.58	1.58	0.00	0.00
Forest ac.	1,421.78	66.64	136.88	102.33	154.56	88.76	211.81	178.07
Rangeland ac.	211.84	1.63	22.79	20.49	18.84	19.14	26.90	28.93
Residential ac.	26.33	0.00	0.05	0.49	0.17	0.16	1.35	1.77
Transportation ac.	61.76	0.45	10.44	11.39	10.40	10.48	22.19	21.68

6.10 Noise

Gannett Fleming, Inc. prepared two (2) *Preliminary Engineering Noise Analysis Reports for the PTC Allegheny Tunnel Transportation Improvement Project*, dated December 2014 and June 2017. These reports can be found in the Project's technical file. These reports included both a review of existing noise levels and validation for the Project area, as well as predictive noise modeling for future levels and an evaluation of noise abatement options per the FHWA's TNM, Version 2.5. PennDOT Noise Abatement Criteria (NAC) for specific land use activity categories were used in the evaluation of traffic noise impacts. These criteria are based on criteria established in Title 23 Code of Federal Regulations, Part 772, U.S. Department of Transportation, Federal Highway Administration (FHWA), *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, and guidelines for "increase over existing" noise levels as set forth in PennDOT Publication *Project Level Highway Traffic Noise Handbook Publication No.24*, dated November 2015.

For Activity Category land uses B (residential), C (public use facilities) and E (hotels, offices, etc.), consideration of noise abatement is required if predicted noise levels approach or exceed 66 dB(A) or if the proposed improvements create a substantial noise increase as compared to exiting noise levels (>10 dB(A) in Pennsylvania). The future year noise levels were compared to the absolute NAC levels and to the increases over existing year noise levels to determine if there would be any noise impacts. Noise impacts were identified in each NSA based on predicted exterior noise levels exceeding the absolute 66 dB(A) criteria level. "Increase over existing" noise levels were generally the result of normal traffic growth predicted to occur between 2013 and 2042 and were not predicted to exceed 10 dB(A).

In addition to evaluating noise impacts, noise analysis sites (receivers) were used in the consideration of noise abatement for noise sensitive receptors within the NSAs. Abatement measures such as traffic management devices were determined not to be feasible since the purpose of the project is to reconstruct a limited access highway and any traffic management techniques would be contrary to the efficient functioning of this Interstate highway. In addition, the topography and development in the area does not lend itself to the use of noise berms as an effective noise abatement technique. Therefore, noise abatement evaluations focused on noise barrier walls.

Based on PennDOT Publication No. 24, the Project was first evaluated as a Type 1 Project requiring a detailed analysis. During the detailed analysis, it was determined if the receptors warranted noise abatement consideration, if it was feasible to provide noise abatement, and if it was reasonable to provide noise abatement. As noted previously, under PennDOT noise criteria, consideration of noise abatement is warranted for residential receptors when the design year total predicted exterior noise levels approach or exceed 66 dB(A) or substantial noise increase occurs. If determined that noise abatement consideration is warranted, then feasibility is considered. Feasible noise barriers are those that provide at least 5 dB(A) of noise reduction for at least 50% of impacted receptors, while posing no safety, engineering, maintenance, constructability, drainage, or utility impacts or access restrictions. If determined to be feasible, a barrier was then evaluated for reasonableness. For a barrier to be reasonable based on PennDOT noise criteria, the proposed noise barrier total square footage divided by the number of benefited receptors must be cost-effective (square footage per benefited residential receptor (SF/BR) must be less than or equal to 2000), and the desires of the affected property owners and residents must be considered. Receptors are considered benefited if they receive 5 dB(A) or more of noise reduction (insertion loss) from a barrier. To meet PennDOT's reasonableness criteria, a barrier must achieve at least a 7 dB(A) of noise reduction at one receptor.

Based on the locations of the proposed Alternatives, all four (4) NSA's were evaluated for the Brown Alternatives, NSA's 1 and 2 were evaluated for the Yellow Alternatives, and NSA's 1, 2, and 3 were evaluated for the Gray Alternatives.

No Build Alternative

The No Build Alternative would not increase the existing noise levels experienced at the Allegheny Tunnel or immediate vicinity.

Brown Cut Alternative

NSA 1: One (1) of the two (2) receptors evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 1. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 2: None of the receptors within this NSA were predicted to have levels at or above 66 dB(A), thus consideration of noise abatement within this NSA was not warranted.

NSA 3: One (1) receptor evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 3. Two (2) of the options were determined to be not feasible, and one (1) was determined feasible, but not reasonable.

NSA 4: Seven (7) of the eight (8) receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A) or 10 dB increase over existing. As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 3. One (1) of the options was determined to be not feasible, and two (2) were determined feasible, but not reasonable.

Brown Tunnel Alternative

NSA 1: One (1) of the two (2) receptors evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 1. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 2: None of the receptors within this NSA were predicted to have levels at or above 66 dB(A), thus consideration of noise abatement within this NSA was not warranted.

NSA 3: One (1) receptor evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 3. Two (2) of the options were determined to be not feasible, and one (1) was determined feasible, but not reasonable.

NSA 4: Seven (7) of the eight (8) receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A) or 10 dB increase over existing. As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 3. One (1) of the options was determined to be not feasible, and two (2) were determined feasible, but not reasonable.

Yellow Cut Alternative

NSA 1: One (1) of the two (2) receptors evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 1. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 2: Three (3) of the six (6) receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Four (4) abatement options

were considered for NSA 2. One (1) of the options was determined to be not feasible. The remaining three (3) options were determined to be feasible, but not reasonable.

Yellow Tunnel Alternative

NSA 1: One (1) of the two (2) receptors evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 1. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 2: Two (2) of the six (6) receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Four (4) abatement options were considered for NSA 2. All four (4) of the options were determined to be feasible, but not reasonable.

Gray Cut Alternative

NSA 1: One (1) of the two (2) receptors evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 1. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 2: Three (3) of the six (6) receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 2. One (1) of the options was determined to be not feasible. Two (2) of the options were determined to be feasible, but not reasonable.

NSA 3: One (1) receptor evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 3. Two (2) of the options were determined to be not feasible, and one (1) was determined feasible, but not reasonable.

Gray Tunnel Alternative

NSA 1: One (1) of the two (2) receptors evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 1. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 2: All six (6) receptors evaluated within this NSA were predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 2. All three (3) of the options were determined to be feasible, but not reasonable.

NSA 3: One (1) receptor evaluated within this NSA was predicted to have levels at or above 66 dB(A). As such, consideration of noise abatement within this NSA was warranted. Three (3) abatement options were considered for NSA 3. Two (2) of the options were determined to be not feasible, and one (1) was determined feasible, but not reasonable.

Based on the evaluation of the noise levels associated with the preliminary alternatives described above, noise abatement features were determined to be feasible, but not reasonable for all four (4) NSAs. Therefore, based on the noise evaluation conducted during this preliminary engineering phase, noise abatement will not be included as a component of this Project.

6.11 Surface Water and Wetland Resources

All the proposed Alternatives, except for the No Build Alternative, would involve impacts to Project area streams and wetlands. These resources are protected under Section 404 of the Clean Water Act (CWA) that was established to protect the integrity of the existing surface water supplies across the U.S. The CWA is jointly administered by the USACE and the EPA. The USACE is responsible for the day-to-day administration and permit review and EPA provides program oversight. The CWA instituted several means of water preservation to restore and maintain high water quality standards. Due to the creation of the Act, any development action with Federal authorization, which impacts Waters of the U.S., requires a permit. To ensure that an action will meet the criteria established by the CWA, a permitting process must be followed before a project can be completed.

Furthermore, an action must also comply with state and local regulations regarding water protection and conservation. In PA, the Clean Streams Law was enacted in 1937 to preserve and improve the purity of the waters of the Commonwealth for the protection of public health, animal and aquatic life, industrial consumption and recreation. Impacts to stream channels and wetlands are also regulated under PA Code 25, Chapter 105, Dam Safety and Waterway Management, which provides for the comprehensive regulation and supervision of dams, reservoirs, water obstructions and encroachments in the Commonwealth in order to protect the health, safety, welfare and property of the people; assure proper planning, design, construction, maintenance, monitoring and supervision of dams and reservoirs, including preventive measures necessary to provide an adequate margin of safety; assure proper planning, design, construction, maintenance and monitoring of water obstructions and encroachments, in order to prevent unreasonable interference with water flow and to protect navigation; and protect the natural resources, environmental rights and values secured by PA. CONST. art. I, § 27 and conserve and protect the water quality, natural regime and carrying capacity of watercourses.

Separate permits will be submitted to the USACOE for Section 404, and the PADEP for Chapter 105 clearances.

The proposed Project will also involve earthwork and stormwater runoff. Therefore, a complete NPDES permit application with Erosion and Sediment Pollution Control (E&SPC) plan will be required to prevent or minimize effects to water quality. Post-construction stormwater management (PCSM) plans will be included as a component of the NPDES and will be adhered to prevent or minimize the effects of the Project's stormwater runoff to the area waterways.

6.11.1 Surface Water Resources

A total of 153 surface waters comprised of 165 stream sections (some streams contained multiple classification types) were identified within the Project study area, which totaled 88,604 linear ft. This included 71 perennial streams for a total of 50,977 linear ft., 42 intermittent streams for a total of 13,169 linear ft., and 52 ephemeral streams for a total of 24,458 linear ft.

Impact numbers can be referenced within the text for each Alternative within this section or within the comprehensive Alternative Comparison Matrix (Table 6.15). Figures F-3A to F-3G show the surface water resource impacts for the proposed build alternatives.

Impacts were calculated for each stream channel identified within the proposed Project study area. This impact number is what would be used for waterway permitting. The permitted impacts are broken down into the length of stream proposed to be relocated, the length of stream proposed to be culverted, and the length of stream that would be considered a loss. The stream loss category incorporates both direct stream loss, and indirect stream loss. Indirect stream loss includes portions of streams that would not continue post-construction due to loss of upstream hydrology or other similar factors. Of the proposed build alternatives, the Gray Tunnel alternative would impact the greatest length of stream channel and the Brown Tunnel

alternative would impact the least amount of stream length.

No Build Alternative

The No Build Alternative would impact 1,094 feet of stream channel as a result of the slide remediation. The stream impacts would be considered total loses.

Brown Cut Alternative

The Brown Cut Alternative will impact 2,704 ft. of stream channel. Impacts are anticipated to include 2,561 ft. of stream loss and 143 ft. of stream relocation.

Brown Tunnel Alternative

The Brown Tunnel Alternative will impact 1,937 ft. of stream channel. Impacts are anticipated to include 1,794 ft. of stream loss and 143 ft. of stream relocation.

Yellow Cut Alternative

The Yellow Cut Alternative will impact 5,702 ft. of stream channel. Impacts are anticipated to include 2,816 ft. of stream loss, 2,810 ft. of stream relocation, and 76 ft. of culverted stream.

Yellow Tunnel Alternative

The Yellow Tunnel Alternative will impact 5,057 ft. of stream channel. Impacts are anticipated to include 1,472 ft. of stream loss, and 3,585 ft. of stream relocation.

Gray Cut Alternative

The Gray Cut Alternative will impact 8,483 ft. of stream channel. Impacts are anticipated to include 6,117 ft. of stream loss, 1,564 ft. of stream relocation, and 802 ft. of culverted stream.

Gray Tunnel Alternative

The Gray Tunnel Alternative will impact 11,017 ft. of stream channels. Impacts are anticipated to include 3,427 ft. of stream loss, 7,344 ft. of stream relocation, and 246 ft. of culverted stream.

In addition to impact lengths, a comparison of impacted streams by Alternative was conducted by looking at the Level 1 Rapid Assessment Protocol (RAP) scores of the impacted streams. This was done by breaking the Level 1 RAP's into quartiles. RAP scores run from 0.00 to 1.00, with 0.00 being a completely degraded stream, and 1.0 being a high-quality stream. Therefore, quartile 1 was designated as streams with scores between 0.00 and 0.25, quartile 2 was designated as streams with scores between 0.26 and 0.50, quartile 3 was designated as streams with scores between 0.51 and 0.75, and quartile 4 was designated as streams with scores between 0.76 and 1.00. Table 6.11.1 shows the number of streams impacted in each quartile by Alternative.

Table 6.11.1
Level 1 RAP Impacts

Alternative	Number of Streams Impacted According to Level 1 RAP Quartile Rankings			
	First Quartile Level 1 RAP Score of 0.00 to 0.25	Second Quartile Level 1 RAP Score of 0.26 to 0.50	Third Quartile Level 1 RAP Score of 0.51 to 0.75	Fourth Quartile Level 1 RAP Score of 0.76 to 1.0
No Build	0	2	1	0
Brown Cut	0	2	2	4
Brown Tunnel	0	2	2	3
Yellow Cut	1	4	8	4
Yellow Tunnel	1	4	8	2
Gray Cut	2	6	11	6
Gray Tunnel	1	5	15	5

Of the proposed build alternatives, the Gray Tunnel Alternative would impact the greatest number of streams with third and fourth quartile rankings at 20 streams. The Brown Tunnel would impact the lowest number of streams with third and fourth quartile rankings at five (5) streams. Third and fourth quartile rankings are indicative of a higher quality stream channel.

6.11.2 Wetland Resources

A total of 112 wetlands were identified within the Project study area, totaling 77.81 acres. The impacts to these wetlands can be referenced within the individual tables for each Alternative within this section or within the comprehensive Alternative Comparison Matrix (Table 6.15). Figures F-3A to F-3G show the wetland resource impacts for the proposed build alternatives.

Direct and indirect impacts to individual wetlands were determined for each Alternative under consideration. Direct impacts were calculated using the cut / fill limits for each Alternative, probable stormwater basin locations and 20-ft. buffer. Indirect impacts were calculated by determining the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s). Of the proposed build alternatives, the Brown Cut alternative would impact the greatest acreage of wetlands and the Brown Tunnel alternative would impact the least acreage. A discussion of impacts for each alternative is found below.

A comparison of impacted wetlands by Alternative was also conducted using the Level 1 RAP scores. This was done by breaking the Level 1 RAP's into quartiles. RAP scores run from 0.00 to 1.00, with 0.00 being a severely degraded wetland, and 1.0 being a high functioning wetland. Therefore, quartile 1 was designated as wetlands with scores between 0.00 and 0.25, quartile 2 was designated as wetlands with scores between 0.26 and 0.50, quartile 3 was designated as wetlands with scores between 0.51 and 0.75, and quartile 4 was designated as wetlands with scores between 0.76 and 1.00. Table 6.11.2-G shows the number of wetlands impacted in each quartile by Alternative.

No Build Alternative

The No Build Alternative would impact 0.02 acres of one (1) PEM wetland as a result of the slide remediation.

Brown Cut Alternative

The Brown Cut Alternative would result in 3.84 ac. of total wetland impact. This includes direct wetland impacts of 1.25 ac. and indirect wetland impacts of 2.59 ac. The large acreage of indirect impacts for the Brown Cut Alternative is a result of the proposed alignment being located between two (2) wetland systems near the top of the ridge that are believed to be hydrologically connected. It is anticipated that the proposed roadway would remove at least one (1) hydrology source to the downslope wetland, resulting in an indirect impact to a portion of that wetland. A shift in the Brown Cut Alternative to the north or south was not deemed practical at this location, as it would result in greater direct wetland impacts and/or still result in the indirect impacts. The area in question can be found on Sheet 4 of 7 of Figure No. F-3B in Appendix F.

Table 6.11.2-A below has a summary of the wetland impacts proposed by the Brown Cut Alternative.

Table 6.11.2-A
Wetland Impact Summary
Brown Cut Alternative

Wetland Classification [1]	Total Area Identified Within Project Study Area ac.	Acreage Within the Limit of Disturbance ac.	
		Direct Impacts ac. [2, 3]	Indirect Impacts ac. [2, 4]
PEM	32.43	0.44	0.00
PSS	16.14	0.00	0.00
PFO	27.70	0.81	2.59
POW	1.54	0.00	0.00
TOTAL	77.81	1.25	2.59

Notes:

1. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
2. Wetland impact areas are provided to the nearest 0.01 ac. Impacts <0.01 ac., are included as 0.01 ac.
3. Direct impacts were determined by the area of wetland within the limits of disturbance for the proposed highway alignments.
4. Indirect impacts were determined by the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s).

Brown Tunnel Alternative

The Brown Tunnel Alternative would result in 0.97 ac. of total wetland impact. This includes direct wetland impacts of 0.95 ac. and indirect wetland impacts of 0.02 ac.

Table 6.11.2-B below has a summary of the wetland impacts proposed by the Brown Tunnel Alternative.

Table 6.11.2-B
Wetland Impact Summary
Brown Tunnel Alternative

Wetland Classification [1]	Total Area Identified Within Project Study Area ac.	Acreage Within the Limit of Disturbance ac.	
		Direct Impacts ac. [2, 3]	Indirect Impacts ac. [2, 4]
PEM	32.43	0.47	0.00
PSS	16.14	0.00	0.00
PFO	27.70	0.48	0.02
POW	1.54	0.00	0.00
TOTAL	77.81	0.95	0.02

Notes:

1. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
2. Wetland impact areas are provided to the nearest 0.01-ac. Impacts <0.01 ac., are included as 0.01 ac.
3. Direct impacts were determined by the area of wetland within the limits of disturbance for the proposed highway alignments.
4. Indirect impacts were determined by the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s).

Yellow Cut Alternative

The Yellow Cut Alternative would result in 1.89 ac. of total wetland impact. This includes direct wetland impacts of 1.89 ac. with no indirect impacts identified for this alternative.

Table 6.11.2-C below has a summary of the wetland impacts proposed by the Yellow Cut Alternative.

Table 6.11.2-C
Wetland Impact Summary
Yellow Cut Alternative

Wetland Classification [1]	Total Area Identified Within Project Study Area ac.	Acreage Within the Limit of Disturbance ac.	
		Direct Impacts ac. [2, 3]	Indirect Impacts ac. [2, 4]
PEM	32.43	1.57	0.00
PSS	16.14	0.23	0.00
PFO	27.70	0.09	0.00
POW	1.54	0.00	0.00
TOTAL	77.81	1.89	0.00

Notes:

1. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
2. Wetland impact areas are provided to the nearest 0.01-ac. Impacts <0.01 ac., are included as 0.01 ac.
3. Direct impacts were determined by the area of wetland within the limits of disturbance for the proposed highway alignments.
4. Indirect impacts were determined by the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s).

Yellow Tunnel Alternative

The Yellow Tunnel Alternative would result in 2.04 ac. of total wetland impact. This includes direct wetland impacts of 1.99 ac. and indirect wetland impacts of 0.05 ac.

Table 6.11.2-D below has a summary of the wetland impacts proposed by the Yellow Tunnel Alternative.

Table 6.11.2-D
Wetland Impact Summary
Yellow Tunnel Alternative

Wetland Classification [1]	Total Area Identified Within Project Study Area ac.	Acreage Within the Limit of Disturbance ac.	
		Direct Impacts ac. [2, 3]	Indirect Impacts ac. [2, 4]
PEM	32.43	1.50	0.02
PSS	16.14	0.35	0.02
PFO	27.70	0.14	<0.01
POW	1.54	0.00	0.00
TOTAL	77.81	1.99	0.05

Notes:

1. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
2. Wetland impact areas are provided to the nearest 0.01-ac. Impacts <0.01 ac., are included as 0.01 ac.
3. Direct impacts were determined by the area of wetland within the limits of disturbance for the proposed highway alignments.
4. Indirect impacts were determined by the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s).

Gray Cut Alternative

The Gray Cut Alternative would result in 0.70 ac. of total wetland impact. This includes direct wetland impacts of 0.67 ac. and indirect wetland impacts of 0.03 ac.

Table 6.11.2-E below has a summary of the wetland impacts proposed by the Gray Cut Alternative.

Table 6.11.2-E
Wetland Impact Summary
Gray Cut Alternative

Wetland Classification [1]	Total Area Identified Within Project Study Area ac.	Acreage Within the Limit of Disturbance ac.	
		Direct Impacts ac. [2,3]	Indirect Impacts ac. [2, 4]
PEM	32.43	0.46	0.03
PSS	16.14	0.20	0.00
PFO	27.70	<0.01	0.00
POW	1.54	0.00	0.00
TOTAL	77.81	0.67	0.03

Notes:

1. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
2. Wetland impact areas are provided to the nearest 0.01-ac. Impacts <0.01 ac., are included as 0.01 ac.
3. Direct impacts were determined by the area of wetland within the limits of disturbance for the proposed highway alignments.
4. Indirect impacts were determined by the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s).

Gray Tunnel Alternative

The Gray Tunnel Alternative would result in 0.85 ac. of total wetland impact. This includes direct wetland impacts of 0.85 ac. and indirect wetland impacts of 0.00 ac.

Table 6.11.2-F below has a summary of the wetland impacts proposed by the Gray Tunnel Alternative.

Table 6.11.2-F
Wetland Impact Summary
Gray Tunnel Alternative

Wetland Classification [1]	Total Area Identified Within Project Study Area ac.	Acreage Within the Limit of Disturbance ac.	
		Direct Impacts ac. [2, 3]	Indirect Impacts ac. [2, 4]
PEM	32.43	0.64	0.00
PSS	16.14	0.21	0.00
PFO	27.70	0.00	0.00
POW	1.54	0.00	0.00
TOTAL	77.81	0.85	0.00

Notes:

1. Cowardin Wetland Classification:
   - PEM – Palustrine Emergent
   - PSS – Palustrine Scrub Shrub
   - PFO – Palustrine Forested
   - POW – Palustrine Open Water
2. Wetland impact areas are provided to the nearest 0.01-ac. Impacts <0.01 ac., are included as 0.01 ac.
3. Direct impacts were determined by the area of wetland within the limits of disturbance for the proposed highway alignments.
4. Indirect impacts were determined by the area of wetland that is anticipated to be either permanently converted to upland (removal of hydrology source) or exhibit a loss of functions as a result of the proposed activity. Indirect loss of wetland functions was determined on a case-by-case basis and determined by size of the remaining wetland and/or changes to the surrounding land cover(s).

Table 6.11.2-G
Level 1 RAP Impacts

Alternative	Number of Wetlands Impacted According to Level 1 RAP Quartile Rankings			
	First Quartile Level 1 RAP Score of 0.00 to 0.25	Second Quartile Level 1 RAP Score of 0.26 to 0.50	Third Quartile Level 1 RAP Score of 0.51 to 0.75	Fourth Quartile Level 1 RAP Score of 0.76 to 1.0
No Build	0	1	0	0
Brown Cut	1	1	1	1
Brown Tunnel	1	1	1	0
Yellow Cut	1	8	3	1
Yellow Tunnel	3	11	3	2
Gray Cut	4	4	4	0
Gray Tunnel	4	5	0	0

Of the proposed build alternatives, the Yellow Tunnel Alternative would impact the greatest number of wetlands with third and fourth quartile rankings at five (5) wetlands. The Gray Tunnel would impact the lowest number of wetlands with third and fourth quartile rankings, with no impacted wetlands in these categories. Third or fourth quartile rankings are indicative of a higher quality wetland system.

6.12 Threatened and Endangered Species

Through continued coordination with the appropriate State and Federal agencies as detailed in Section 5.12, it was determined that the Project study area contains habitat for several protected species. Additional information detailing potential impacts to all the identified species can be referenced below, and potential impact locations can be seen on Figures F-9A to F-9G in Appendix F.

6.12.1 Federally-Listed Species

Indiana Bat

In a letter dated January 5, 2012, the USFWS identified the proposed Project is located within the range of the Indiana bat, a species that is federally listed as endangered. A copy of this letter and subsequent USFWS correspondence can be referenced in Appendix E, Agency Correspondence. Hibernacula and migration routes are known to exist within the Project study area as a result of previous studies detailed in Section 5.12. It has been documented that most of the tracked Indiana bats associated with the South Penn Railroad Tunnel hibernaculum migrate to summer habitat north of the existing Turnpike.

Regardless of the specific alignment, USFWS requested that the anticipated direct and indirect effects of the Project's Preferred Alternative be fully evaluated in a biological assessment, pursuant to the Section 7 consultation regulations (50 CFR 402.12 and 402.14).

With regards to this EA, impacts to the Indiana bat were evaluated based on known travel routes, as well as proposed forest and hibernacula impacts. Forested impacts were calculated using the cut / fill limits for each Alternative, probable stormwater basin locations and a 20-ft. buffer. These impacts are discussed below and are detailed in Table 6.12.1.

Northern Long-Eared Bat

The 4(d) Rule developed for the northern long-eared bat deemed that a critical habitat determination was not prudent (April 27, 2016). However, documented habitat includes caves and mines for hibernation and wooded areas for summer habitat. Therefore, with regards to this EA, impacts to the northern long-eared bat were evaluated utilizing proposed forest and hibernacula impacts. Forested and hibernacula impacts were calculated using the cut / fill limits for each Alternative, probable stormwater basin locations and a 20-ft. buffer. These impacts are discussed below and are detailed in Table 6.12.1.

Potential measures to reduce impacts to the northern long-eared bat that are being considered for the Project include: minimization of forest habitat loss, time of year restrictions for timber clearing, and coordination of blasting requirements.

No Build Alternative

The No Build Alternative slide remediation would result in impacts to one (1) known hibernaculum and one potential hibernaculum. It would also impact 66.64 acres of forest.

Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives (northern alternatives)

It is anticipated the Alternatives to the north of the existing Turnpike (Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives) would result in a greater impact to the Indiana bat than the Alternatives to the south of the existing Turnpike. The reasoning for the increased impact identified during previous agency coordination includes:

- Tracked Indiana bats (associated with the South Penn Railroad Tunnel hibernaculum) appear to be migrating to summer habitat north of the existing Turnpike according to past surveys. These surveys are listed in Section 5.12.1 and can be found in the Project technical files.

- The proposed Alternatives would cross spring and fall travel corridors. This is anticipated to increase the risk of isolating the hibernating population from its established summer habitats to the north of the existing Turnpike and would place those bats that do attempt to migrate between winter and summer habitats at an increased risk of mortality via collisions with traffic.

In short, alignments to the north of the Turnpike are anticipated to have a greater likelihood to compromise the hibernating population at the South Penn Railroad Tunnel, as well as the associated maternity colony in the valley nearby Shawnee State Park. In addition to the impacts to a known travel corridor, the northern alternatives would also impact the Indiana bat in the form of the loss, degradation, and fragmentation of summer habitat.

The Project area is also within the fall swarming, winter hibernacula, and summer maternity habitat of northern long-eared bats. Due to habitat similarities, impacts to the Indiana bat and the northern long-eared bat were also evaluated utilizing proposed forest and hibernacula impacts. None of the northern alternatives would directly impact any of the hibernacula located within the Project study area. Of the northern alternatives, the cut alternatives have the greater forested impacts, with the Brown Cut Alternative proposed to impact 136.88 ac. of forest and the Yellow Cut Alternative proposed to impact 152.32 ac. of forest.

The tunnel options also have to take into consideration the bat's well-developed search behavior to explore and find roosts. This behavior can be detrimental when associated with human activities and should be addressed. Bats will explore and utilize mines and tunnels as roosts. Another attractant for the bats may include the tunnel lighting which naturally attracts insects (a food source for bats). Intorduction of a new tunnel location may trigger their natural exploratory behavioe which may cause un-wanted bat / vehicle collisions.

Gray Cut and Gray Tunnel Alternative (southern alternatives)

It is anticipated the Alternatives to the south of the existing Turnpike, including the Gray Cut Alternative and Gray Tunnel Alternative would result in a lesser impact to the Indiana bat compared to the Alternatives to the north of the existing Turnpike due to the reasons discussed above for the northern alternatives. The Gray Cut and Tunnel Alternatives would still impact the Indiana bat in the form of the loss, degradation, and fragmentation of summer habitat.

The Project area is also within the fall swarming, winter hibernacula, and summer maternity habitat of northern long-eared bats. Due to habitat similarities, impacts to the Indiana bat and the northern long-eared bat were also evaluated utilizing proposed forest and hibernacula impacts. The Gray Cut and Tunnel Alternatives would directly impact one (1) known hibernaculum and one potential hibernaculum located within the Project study area. The proposed impacts were determined unavoidable due to the over-

excavation required on a portion of the Gray alignments for safety reasons of a geotechnical nature. Of the southern alternatives, the Gray Cult Alternative has the greater forested impacts, with 211.81 ac.

A tunnel may also have a unique potential to impact bats, due to their well developed search behavior and curiosity of openings (Butchkoski, 2019), as well as, the lighting required for tunnels. Lighting could attract the bat's food source resulting in direct and indirect negative effects to their reproductive, foraging and roosting opportunities. Fast flying species such as Pipistrellus are attracted to lighting for feeding; while slow flying species such as Myotis could be indirectly affected by the reduction in food source within the immediate surroundings (due to the insects being attracted to the light) (Bat Conservation Trust and Institution of Lighting Professionals, 2018).

Table 6.12.1
Summary of Federally-Listed Threatened, and Endangered Species Impacts By Project Alternative[1]

Species	No Build			Brown Cut			Brown Tunnel			Yellow Cut			Yellow Tunnel			Gray Cut			Gray Tunnel		
	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low	Forested Habitat Clearing ac.	Hibernacula Impact #	Travel Corridor Impact High / Low
Indiana Bat (*Myotis sodalis*)	66.64	1 Known 1 Potential	Low	136.88	0	High	102.33	0	High	152.32	0	High	86.47	0	High	211.81	1 Known 1 Potential	Low	179.71	1 Known 1 Potential	Low
Northern Long-Eared Bat (*Myotis septentrionalis*)	66.64	1 Known 1 Potential	Low	136.88	0	N/A	102.33	0	N/A	152.32	0	N/A	86.47	0	N/A	211.81	1 Known 1 Potential	N/A	179.71	1 Known 1 Potential	N/A

6.12.2 State-Listed Species

There are multiple state-listed Rare, Threatened and Endangered (RTE) species and associated habitat located within the Project study area, under the jurisdiction of the DCNR, PGC, and PFBC. The state-listed species that were identified within the Project study area and the respective agency that has jurisdiction over the species of concern can be found in Section 5.12.2

The following section provides a listing of state-listed RTE species or RTE species habitat impacts by Project Alternative. Impacts were calculated using the cut / fill limits for each Alternative, probable stormwater basin locations and a 20-ft. buffer. Table 6.12.2 provides a summary of state-listed RTE species impacts by Project Alternative.

No Build Alternative

The No Build Alternative slide remediation would result in the following impacts to state-listed RTE species:

- Mountain Bellwort – 0.96 acres
- Allegheny Woodrat – 4.81 acres of habitat
- Little Brown and Tri-Colored Bats – 66.64 acres of forest and one (1) known hibernaculum and one (1) potential hibernaculum
- Eastern Small-footed Myotis – seven (7) low quality and one (1) high quality habitats and one (1) known hibernaculum and one (1) potential hibernaculum.

Build Alternatives

Appalachian Blue Violet – Of the proposed build alternatives, the Brown Cut, Gray Cut and Gray Tunnel Alternatives are the only alternatives that impact Appalachian blue violet habitat, with the Gray Tunnel Alternative impacting the largest area at 4.95 acres.

Mountain Bellwort – Of the proposed build alternatives, the Brown Cut Alternative impacts the greatest area of mountain bellwort habitat at 5.91 acres and the Yellow Tunnel Alternative the least with no impacts.

Thick-Leaved Meadow Rue - Of the proposed build alternatives, the Yellow Cut Alternative impacts the greatest area of thick-leaved meadow rue habitat at 1.61 acres and the Gray Cut and Gray Tunnel Alternatives the least with no impacts.

Bog Goldenrod - Of the proposed build alternatives, only the Yellow Cut and Yellow Tunnel Alternatives impact individual bog goldenrod populations (not associated with stiff cowbane) at 0.04 acres and 0.03 acres respectively.

Stiff Cowbane / Bog Goldenrod – It should be noted that the populations of stiff cowbane identified within the Project study area were only identified in conjunction with Bog Goldenrod. Of the proposed build alternatives, the Gray Tunnel Alternative impacts the greatest area of stiff cowbane / bog goldenrod habitat at 0.20 acres and the Yellow Cut and Yellow Tunnel Alternatives the least with no impacts.

Allegheny Woodrat - Of the proposed build alternatives, the Gray Cut Alternative impacts the greatest area of potential Allegheny woodrat habitat at 1.61 acres and the Yellow Cut Alternative the least with less than 0.01 acres of impact.

Little Brown Bat and Tri-colored Bat – All alternatives are within the fall swarming, winter hibernacula, and summer maternity habitat of these bats. Impacts were also evaluated utilizing proposed forest and

hibernacula impacts. None of the northern alternatives would directly impact any of the three (3) hibernacula located within the Project study area. Of the northern alternatives, the cut alternatives have the greater forested impacts, with the Brown Cut Alternative proposed to impact 136.88 acres of forest and the Yellow Cut Alternative proposed to impact 152.32 acres of forest. The Gray Cut and Tunnel Alternatives would directly impact one (1) known hibernaculum and one (1) potential hibernaculum located within the Project study area. The proposed impacts were determined unavoidable due to the over-excavation required on a portion of the Gray alignments for safety reasons of a geotechnical nature. Of the southern alternatives, the Gray Cult Alternative has the greater forested impacts, with 211.81 acres. A tunnel may also have a unique potential to impact bats, due to their well developed search behavior and curiosity of openings (Butchkoski, 2019), as well as, the lighting required for tunnels. Lighting could attract the bat's food source resulting in direct and indirect negative effects to their reproductive, foraging and roosting opportunities. Fast flying species such as Pipistrellus are attracted to lighting for feeding; while slow flying species such as Myotis could be indirectly affected by the reduction in food source within the immediate surroundings (due to the insects being attracted to the light) (Bat Conservation Trust and Institution of Lighting Professionals, 2018). Introduction of a new tunnel location may trigger their natural exploratory behavior which may cause un-wanted bat / vehicle collisions.

Timber Rattlesnake - Of the proposed build alternatives, the Brown Cut and Brown Tunnel Alternatives are the only two (2) alternatives that impact timber rattlesnake habitat, with the Brown Cut Alternative impacting the largest area at 2.35 acres.

Eastern Small-footed Myotis – Of the proposed build alternatives, the Gray Cut and Gray Tunnel Alternatives impact the greatest amount of Eastern small-footed myotis habitat including one (1) known and one (1) potential hibernaculum, and one (1) low quality, two (2) medium, and one (1) high quality habitats.

Table 6.12.2
Summary of State-Listed Threatened and Endangered Species Impacts By Project Alternative

Common Name	Species Name	Current Status [1]	Jurisdictional Agency	Habitat Acreage Impacts [2] ac. Additional Populations [3] #						
				No Build	Brown Cut	Brown Tunnel	Yellow Cut	Yellow Tunnel	Gray Cut	Gray Tunnel
Appalachian Blue Violet	*Viola appalachiensis*	PA Rare	DCNR	0.00 0	0.01 0	0.00 0	0.00 0	0.00 0	0.23 1	4.95 1
Mountain Bellwort	*Uvularia pudica*	PA Rare	DCNR	0.96 0	5.91 0	1.88 0	1.07 0	0.00 0	1.21 0	0.96 0
Thick-leaved Meadow-rue [4]	*Thalictrum coriaceum*	PA Threatened	DCNR	0.00 0	0.62 0	0.54 0	1.61 0	0.86 0	0.00 0	0.00 0
Bog Goldenrod [4]	*Solidago ulignosa*	PA Threatened	DCNR	0.00 0	0.00 0	0.00 0	0.04 0	0.03 0	0.00 0	0.00 0
Stiff Cowbane / Bog Goldenrod [4, 5]	*Oxypolis regidor*	PA Rare	DCNR	0.00 0	0.15 0	0.17 0	0.00 0	0.00 0	0.18 0	0.20 0
Allegheny Woodrat	*Neotoma magister*	PA Threatened	PGC	4.81 N/A	1.04 N/A	0.66 N/A	<0.01 N/A	0.95 N/A	1.61 N/A	1.02 N/A
Little Brown Bat	*Myotis lucifugus*	PA Endangered	PGC	66.64 2 Hibernacula (1 known, 1 potential)	136.88 0 Hibernacula	102.33 0 Hibernacula	152.32 0 Hibernacula	86.47 0 Hibernacula	211.81 2 Hibernacula (1 known 1 potential)	179.71 2 Hibernacula (1 known, 1 potential)
Tri-colored Bat	*Perimyotis subflavus*	PA Endangered	PGC	66.64 2 Hibernacula (1 known, 1 potential)	136.88 0 Hibernacula	102.33 0 Hibernacula	152.32 0 Hibernacula	86.47 0 Hibernacula	211.81 2 Hibernacula (1 known 1 potential)	179.71 2 Hibernacula (1 known, 1 potential)
Timber Rattlesnake [6]	*Crotalus horridus*	PA Candidate	PFBC	0.00 N/A	2.35 N/A	0.46 N/A	0.00 N/A	0.00 N/A	0.00 N/A	0.00 N/A
Habitat Quality Type Impacts [7]										
Eastern Small-footed Myotis	*Myotis Leibii*	PA Threatened	PGC	7 Low 0 Medium 1 high 2 Hibernacula (1 known, 1 potential)	3 Low 2 Medium 2 High 0 Hibernacula	1 low 2 Medium 0 High 0 Hibernacula	1 Low 2 Medium 0 High 0 Hibernacula	4 Low 1 Medium 0 High 0 Hibernacula	1 Low 2 Medium 1 High 2 Hibernacula (1 known, 1 potential)	1 Low 2 Medium 1 High 2 Hibernacula (1 known, 1 potential)

Notes:
1. PA DCNR's regulation for plant species of concern uses the Proposed PA Status.
2. Acreage impact based upon species/species habitat information collected from field surveys, incorporated into the proposed limits of disturbance for each Project Alternative.
3. Additional population # refers to a small population of an identified plant species that was too small to be determined by acreage.
4. The DCNR indicated in a letter dated December 16, 2019 that this species is one of the priority species for this Project.
5. Populations of Stiff Cowbane were identified only in conjunction with Bog Goldenrod. These combination populations were counted as separate impacts from the populations of Bog Goldenrod that occurred individually.
6. Timber rattlesnake habitat includes potential hibernacula and gestation critical habitats.
7. Impacts were tabulated based on if an alternative alignment intersected one of the potential habitats identified for *Myotis Leibii* per 2013 and 2016 surveys.

6.13 Weather

In considering improvement Alternatives, questions were raised during the original studies (1996-2001) as to whether some of the Alternatives would be more subject to adverse weather conditions than others. The implication was that cut Alternatives would cross the mountain at higher elevations than the tunnel Alternatives, which would take the Turnpike into more severe weather conditions, particularly during the winter months. A more detailed summary of the original studies can be found in Section 5.13.

The 2000 Safety Analysis study conducted by Don Jacobs showed that the Turnpike has eliminated two (2) tunnels in past years and replaced them with By-Pass sections. The safety performance of the By-Passes is comparable to other sections of the Turnpike that experience similar weather conditions. The analysis showed the tunnels, which offer drivers a short amount of protection from the weather, have the same accident rates as their approaches which do not offer that protection. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. It was therefore concluded that protection from adverse weather is not a sufficient reason to construct a tunnel in lieu of a cut, and the weather that is expected to occur at the alternatives should not be a primary factor in determining which alternative is selected. Therefore, weather conditions will not be evaluated in determination of a Preferred Alternative.

6.14 Wildlife and Vegetation

The Project would have both direct and indirect impacts to Project area wildlife and vegetation through impacts to habitat. Direct impacts to the various habitat types within the Project study area have been calculated for each alternative and are indicated within Tables 6.14 B-H near the end of this section. Impacts to wildlife and vegetation were calculated based on impacts to the different habitat types located within cut / fill limits for each Alternative, potential stormwater management locations and a 20 ft. buffer.

Indirect impacts to wildlife and vegetation due to the Project are more difficult to quantify. The Project study area contains a significant area that is considered interior or core forest. Interior forest is a special form of habitat that is preferred by many plant and animal species and is often defined as the area of forest at least 300 feet from the forest edge. Interior forest is an important landscape characteristic because the environmental conditions, such as light, wind, humidity, and exposure to predators, within the interior forest are very different from areas closer to the forest edge. Interior forest habitat is related to the size and distribution of forest patches and is closely tied to the concept of forest or habitat fragmentation, or the alteration of habitat into smaller, less functional areas. Forest fragmentation has become a recognized concern in Pennsylvania in recent years, largely due to the infrastructure related to gas development. Forest fragmentation can result in the following five effects; reduction in total area of habitat, decrease of the interior to edge ratio, isolation of one habitat fragment from other areas of habitat, breaking up one patch of habitat into several smaller patches, and decrease in the average size of each patch of habitat.

The proposed Project would result in a high occupancy, limited access highway crossing an area of interior / core forest. This would result in some degree of fragmentation of that forest area. The degree of fragmentation would vary by each proposed alternative given the distance to the existing Turnpike and the length of proposed open cut/highway within currently forested land. Because of the extent of the existing interior forest present, a cut through this area would result in two (2) forest patches, but regardless of alternative chosen, these patches would remain large enough (greater than 1000 acres) to each contain interior / core forest. Additional issues that may be more significant for the Project area would be the creation of additional edge habitat, and the potential to isolate the forest habitat patches and the wildlife species that utilized these areas. Studies have shown that the development of highways may alter the movement of wildlife within their home range while producing habitat and eventually home ranges for other species. Home range is generally defined as the area established as home or nest, which is traversed by an animal in its normal activities of food-gathering, mating, and caring for its young.

The following sections will address wildlife movement and habitat fragmentation with regards to the Project. This section is divided into three (3) parts; mammals, birds, and reptiles and amphibians. This section will also discuss how wildlife movement will be impacted and what effects habitat fragmentation will have on each wildlife class.

Effect of Habitat Fragmentation on Mammals

Home range and dispersal patterns for common mammals must be considered and established to determine which, if any, would be affected by the Project. An animal's home range is defined as dispersal of young adult mammals to establish their own home range, which is commonly close to the natal home range. However, some young animals possess an innate tendency to travel long distances to establish their own home range. Home range size varies within and among species. Variance of home range size within a species is related to sex (males usually have larger home ranges than females), and resource availability (the scarcer or more dispersed the required species resources, the larger the home range).

Home range variance among species is also related to an animal's body size. Small mammals tend not to have home ranges that straddle interstate highways due to the small amount of area required. Development of a home range straddling a four-lane highway is unlikely. In most cases, small rodents have been found to avoid roadways, but some will cross highways if needed, and have been known to use culverts when available.

Medium sized mammals (i.e. raccoons, opossum, striped skunk, gray squirrel, and foxes) may also be repelled by an active multi-lane highway but may make use of its ROW. Medium sized mammals will also utilize available culverts to cross highways.

Large size mammals have different home range patterns among various species. Male white-tailed deer have been observed to have home ranges approximating one square mile in Pennsylvania. The size of the home range is dependent upon vegetation, temperature, and deer population density. White tailed deer have been found on occasion to use culverts and can be directed away from highways with wildlife fencing and to a lesser extent with underpasses.

Male American black bears may have large home ranges estimated from 40 to 100 square miles. Bears may react to increases in road density by shifting the locations of their home ranges to areas of lower road density. Bears have been documented utilizing both overpasses and underpasses in Banff National Park.

It should be noted that there are no true migrating terrestrial mammals present within the Project area. While larger mammals such as the white-tailed deer and the American black bear have large home ranges that could encompass an area that would extend to both sides of a four-lane highway, they do not truly migrate from one area to another due to seasonal changes or life cycle necessities. In general, seasonal movements are not widespread among terrestrial species of mammals, because walking speed is relatively slow and energy consumption great. The only North American terrestrial mammals that are known to migrate include caribou, American bison, elk, mule deer, and dall sheep. None of these species are located within the Project study area.

For the reasons noted above, some mammal populations may decline while others may increase within the vicinity of the constructed alignment, although major population changes are not anticipated. The proposed tunnel alternatives would allow for a larger section of contiguous forest land along the ridgeline when compared to the cut alternatives and would minimize potential impacts to wildlife and vegetation due to forest fragmentation. However, all the proposed build alternatives include bridges, culverts, and in some cases wildlife crossings that will facilitate wildlife movement across the highway. Section 10.0, Avoidance, Minimization, Mitigation, and Permitting, details the potential avenues for wildlife movement across the highway for the Preferred Alternative.

Effect of Habitat Fragmentation on Birds

The USFWS are the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) prohibits the taking, killing, possession, transportation, and importation of migratory birds, or any part, nest or egg of any such bird, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the USFWS recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

Pennsylvania is home to a number of forest songbirds that are known as area-sensitive or forest-interior species because they reach their highest abundance within interior / core forests. For some of these species, Pennsylvania is a keystone state providing habitat to a significant proportion of the population. For example, more than 19% of the global population of scarlet tanagers (*Piranga olivacea)* and 9% of the global population of wood thrush (*Hylocichla mustelina*) breed within Pennsylvania forests. These types of neotropical migratory bird populations are known to be sensitive to habitat fragmentation. Both a lack of sufficient interior forest area and the impact of additional forest edge habitat is known to have an effect on forest interior dwelling birds.

Fragmentation can reduce the size of forest patches, reducing the total area of contiguous habitat available and increase the isolation of habitat, reducing the quality of the remaining habitat. The direct loss of forest habitat results in smaller forest tracts that may no longer be adequate to accommodate a bird's territory, to provide an ample supply of food, or to provide the necessary forest structure for breeding. Certain species, such as the red-shouldered hawk, barred owl and pileated woodpecker have large breeding territories. For example, a breeding pair of red-shouldered hawks require from 250-625 acres to sustain them. In addition to area requirements, many bird species have additional habitat requirements for nesting. Reduction of forest size often results in the loss of specialized habitats/microhabitats. Small forests cannot sustain the same environmental conditions that larger forests can, such as higher humidity and complex vegetative structure. The vegetative structure (amount of canopy and lower and midstory vegetation) may be missing or inadequate in smaller forests.

The creation of additional forest edge habitat can also impact forest songbirds. For a variety of reasons, nest predators that feed on eggs and nestlings, and brown-headed cowbirds (*Molothrus ater*), an obligate brood parasite that lays its eggs in the nests of other species, tend to be more abundant close to edges and openings than within the forest interior. As a result, songbirds nesting near edges and openings are much less likely to successfully raise young than individuals that nest away from edges and openings. As fragmentation increases, there is less forest interior and more forest edge. Consequently, more individuals nest near edges where nest success is low. Fewer young are produced and eventually populations decline. The most rapid population declines are likely to occur in species that depend entirely on native vegetation, those that require large territories, and those that exist at low densities. A 1995 study by Villard on the effects of forest fragmentation on the wood thrush (*Hylocichla mustelina*), black-and-white warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapillus*), and Scarlet Tanager (*Pianga olivacea*) reported the abundance of these species in forest fragments decreased with their isolation from surrounding woodland, except for the Wood Thrush, whose abundance actually increased with fragment isolation. Wood Thrushes nest in the sapling layer and forage on or close to the ground. Ovenbirds and black-and-white warblers are ground nesters. Scarlet Tanagers are canopy nesters and forage at various heights in the canopy or subcanopy. It is believed that edge species will prosper from forest fragmentation due to highway development while ground and canopy nester (forest interior) populations will decrease.

Table 6.14-A provides a list of edge and forest interior species that are typically found within the habitat types of the Project study area.

Table 6.14-A
Typical Bird Species Found Within the Project Study Area[1,2]

Common Name	Scientific Name	Edge	Forest Interior
Acadian flycatcher	*Empidonax virescens*		X
Alder Flycatcher	*Empidonax alnorum*	X	
American Crow	*Corvus brachyrhyncos*	X	
American Goldfinch	*Cardueli tristis*	X	
American Kestrel	*Falco sparverius*	X	
American Robin	*Turdus migratorius*	X	
American Tree Sparrow	*Spizella arborea*	X	
Barred Owl	*Strix varia*		X
Black-Billed Cuckoo	*Coccyzus erythropthalmus*		X
Blackburnian Warbler	*Dendroica fusca*		X
Black-and-White Warbler	*Mniotilta varia*		X
Black-Throated Blue Warbler	*Dendroica caerulescens*		X
Black-Throated Green Warbler	*Dendroica virens*		X
Blue-Gray Gnatcatcher	*Polioptila caerulea*		X
Blue-Headed Vireo	*Vireo solitarius*		X
Blue Jay	*Cyanocitta cristata*	X	
Broad-winged Hawk	*Butea platypterus*		X
Brown-Headed Cowbird	*Molothrus ater*	X	
Brown Thrasher	*Toxostoma rufum*	X	
Canada Warbler	*Wilsonia canadensis*		X
Cerulean Warbler	*Dendroica cerulea*		X
Chestnut-Sided Warbler	*Dendronica pensylvanica*	X	
Chipping Sparrow	*Spizella passerina*	X	
Common Grackle	*Quiscalus quiscula*	X	
Common Yellowthroat	*Geothlypis trichas*	X	
Cooper's Hawk	*Accipiter cooperii*		X
Eastern Phoebe	*Sayornis phoebe*	X	
Eastern Screech Owl	*Megascops asio*	X	
Eastern Towhee	*Pipilo erythrophthalmus*	X	
Eastern Wild Turkey	*Meleagris gallopavo*		X
Eastern Wood Pewee	*Contopus virens*		X
European Starling	*Sturnus vulgaris*	X	
Golden-Winged Warbler	*Vermivora chrysoptera*	X	
Gray Catbird	*Dumetella carolinensis*	X	
Great Crested Flycatcher	*Myiarchus crinitus*		X
Great Horned Owl	*Bubo virginianus*	X	
Hairy Woodpecker	*Picoides villosus*		X
Hermit Thrush	*Catharus guttatus*		X
Hooded Warbler	*Wilsonia citrina*		X
Horned Lark	*Eremophila alpestris*	X	
House Finch	*Carpodacus mexicanus*	X	

Table 6.14-A
Typical Bird Species Found Within the Project Study Area[1,2]

Common Name	Scientific Name	Edge	Forest Interior
House Sparrow	*Passer domesticus*	X	
House Wren	*Troglodytes aedon*	X	
Indigo Bunting	*Passerina cyanea*	X	
Kentucky Warbler	*Oporornis formosus*		X
Least Flycatcher	*Empidonax minimus*		X
Louisiana Waterthrush	*Parkesia motacilla*		X
Magnolia Warbler	*Dendroica magnolia*		X
Mourning Dove	*Zenaida macroura*	X	
Northern Cardinal	*Cardinalis*	X	
Northern Flicker	*Colaptes auratus*		X
Northern Parula Warbler	*Parula americana*		X
Northern Waterthrush	*Parkesia noveboracensis*		X
Ovenbird	*Seiurus aurocapillus*		X
Pileated Woodpecker	*Dryocopus pileatus*		X
Red-Breasted Nuthatch	*Sitta canadensis*		X
Red-Eyed Vireo	*Vireo olivaceus*		X
Red-Shouldered Hawk	*Buteo lineatus*		X
Red-Tailed Hawk	*Buteo jamaicensis*	X	
Rose-Breasted Grosbeak	*Pheucticus ludovicianus*		X
Ruffed Grouse	*Bonasa unbellus*	X	
Scarlet Tanager	*Piranga olivacea*		X
Sharp-Shinned Hawk	*Accipiter striatus*		X
Song Sparrow	*Melospiza melodia*	X	
Veery	*Catharus fuscescens*		X
White-Breasted Nuthatch	*Sitta carolinensis*		X
Winter Wren	*Troglodytes hiemalis*		X
Wood Thrush	*Hylocichia mustelina*		X
Worm-Eating Warbler	*Helmitheros vermivorus*		X
Yellow Warbler	*Dendroica petechia*	X	

Notes:
1 Compiled by USFWS.

2 Based on behavior of the species identified in USFWS surveys and L.R. Kimball observations of bird habitat usage during Project field surveys (2012, 2013, and 2014).

Reptiles and Amphibians

Many amphibians have annual life cycles causing migratory patterns during the breeding season along streambed corridors to breeding pools. After the breeding, pre-metamorphosed juveniles confine themselves to isolated aquatic habitats. Due to their relatively small size and slow movement, most adult amphibians are not known to travel long distances to summer habitat. These physiological factors have been noted to cause amphibians to be especially sensitive to the abrupt transitions created by roads impacting their microclimate and microhabitat. As noted, most amphibian movement and habitat are found along streams. Stream impacts are associated with all alternatives for the proposed Project. It is anticipated that any necessary culverts would be depressed, to minimize impacts to the natural stream channel, and to minimize impacts to amphibian movement.

Reptiles do not have similar movement and breeding habits as amphibians. Reptiles do not metamorphose from a juvenile stage that would require a breeding habitat such as ponds; therefore, large-scale migration to such habitat is not necessary for reptiles. The majority of reptiles noted within the study area do not require large home ranges. Major population changes to reptiles are not anticipated.

In general, the tunnel alternatives are anticipated to have fewer effects on wildlife movements and habitat than the cut alternatives. However, all proposed alternatives will result in some degree of habitat fragmentation along their alignments, as the tunnel alternatives will still involve sections of open roadway along their length. Additionally, habitat fragmentation has already occurred within the vicinity of the proposed Alternatives due to the existing Turnpike, strip mining, a temporarily fragmented area (reverting clear-cut area north of the existing Allegheny Tunnel), and several electrical utility line ROWs that cross the Project study area. Large un-fragmented habitat located north and south of the proposed Alternatives will remain undisturbed by the Project and will continue to provide significant amounts of interior / core forest habitat for wildlife use. The use of culverts, wildlife crossings, tunnels and bridges would reduce impacts from fragmentation by preserving connectivity to similar habitat types that may be bisected by the proposed Project. The potential for habitat fragmentation is discussed for each alternative and Tables 6.14-B through H provide impacts per habitat types for each alternative.

The habitats utilized by a greater variety of species and likely by RTE species noted for the Project study area include the Bottomland Wetland and Forested Wetland Habitats (Habitat 1 and 10), the various Forest Habitats (Habitats 2, 3, 4, 6, 7 & 8) and the Exposed Rock Outcrop and Cliffs Habitat (Habitat 5). Of the proposed build Alternatives, none impact the Forested Wetland Habitat (Habitat 10) and the Yellow Cut Alternative impacts the greatest amount of Bottomland Wetland (Habitat 1). Of the Forest habitat types, the Brown Cut alternative impacts the greatest amount of the Sugar Maple – Black Cherry Forest (Habitat 2), Red Oak – Red Maple – Black Cherry Forest (Habitat 3), and Chestnut Oak – Red Maple – Black Cherry – Blueberry Forest (Habitat 7). The Yellow Cut Alternative impacts the greatest amount of Calcareous Mixed Hardwood Forest (Habitat 4) and Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest (Habitat 8). The Gray Tunnel Alternative impacts the largest amount of Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest (Habitat 6). Because of its location to the south of the existing Turnpike, the Exposed Rock Outcrop and Cliffs are not impacted by the northern alternatives (Brown Cut and Tunnel and Yellow Cut and Tunnel) but are impacted by the No Build, Gray Cut and Gray Tunnel Alternatives.

No Build Alternative

The No Build Alternative would include the remediation of an ancient landslide area south-east of the existing Turnpike and would minimally impact wildlife movement or habitat fragmentation beyond existing conditions. The largest impact would occur to forested habitats with the greatest impact to Habitat 8, the Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest Habitat at 27.88 acres. Figures F-10A to F-10G in Appendix F show the impacted habitat types by Alternative, and Table 6.14-B details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-B
Habitat Type Impacts
No Build Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.00
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	0.00
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	0.00
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	0.00
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	11.00
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	25.09
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	2.87
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	27.88
Habitat 9	Reverting Meadow	2.42	0.00
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	0.00
Habitat 12	Miscellaneous	169.42	1.92

Brown Cut Alternative

The Brown Cut Alternative begins to the west along the existing Turnpike and travels the furthest north of the proposed alternatives. It travels through partially disturbed and residential lands in the west, until it crosses Bluebird Lane. From this point, the Brown Cut Alternative cuts through largely undisturbed forest land until it connects back to the Turnpike at the eastern end of the Project area. This alternative will impact an area of contiguous forest land that has been previously disturbed by the existing Turnpike, utility ROW, and clear-cut areas.

The largest impact would occur to forested habitats with the greatest impact to Habitat 3, the Red Oak – Red Maple – Black Cherry Forest Habitat at 73.39 ac. Table 6.14-C details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-C
Habitat Type Impacts
Brown Cut Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.14
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	2.92
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	73.39
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	13.01
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	0.00
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	27.44
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	11.78
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	7.33
Habitat 9	Reverting Meadow	2.42	0.01
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	21.31
Habitat 12	Miscellaneous	169.42	19.56

Brown Tunnel Alternative

The Brown Tunnel Alternative begins to the west along the existing Turnpike and travels north of the existing Turnpike. It travels through partially disturbed and residential lands in the west, until it crosses Bluebird Lane. From this point, the Brown Tunnel Alternative cuts through largely undisturbed forest land until it connects back to the Turnpike at the eastern end of the Project area. This alternative involves a 4,118 ft. long tunnel that would be located under a portion of Bluebird Lane and the existing utility ROW line cut. The use of a tunnel in this location would leave a section of unfragmented forest land above the tunnel in the area of the existing ridge line. This alternative would still require an open roadway to the east of the proposed tunnel resulting in a break in contiguous forest in this area.

The largest impact would be to forested habitats with the greatest impact to Habitat 6, the Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest at 37.93 ac. Table 6.14-D details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-D
Habitat Type Impacts
Brown Tunnel Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.17
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	2.73
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	37.09
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	4.80
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	0.00
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	37.93
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	0.00
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	9.92
Habitat 9	Reverting Meadow	2.42	0.02
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	21.55
Habitat 12	Miscellaneous	169.42	21.51

Yellow Cut Alternative

The Yellow Cut Alternative begins to the west along the existing Turnpike to the north, and travels in a roughly straight line from the western end of the Project to the eastern end. Along most of its length it travels through forest land until it connects back to the Turnpike at the eastern end of the Project area. This alternative will impact an area of contiguous forest land that has been previously disturbed by the existing Turnpike, utility ROW, and clear-cut areas.

The largest impact would be to forested habitats with the greatest impact to Habitat 8, the Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest at 75.42 ac. Table 6.14-E details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-E
Habitat Type Impacts
Yellow Cut Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.30
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	0.00
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	30.82
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	17.60
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	0.00
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	31.24
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	2.40
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	75.42
Habitat 9	Reverting Meadow	2.42	0.00
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	0.00
Habitat 12	Miscellaneous	169.42	25.58

Yellow Tunnel Alternative

The Yellow Tunnel Alternative begins to the west along the existing Turnpike to the north, and travels in a roughly straight line from the western end of the Project to the eastern end. Along most of its length it travels through forest land until it connects back to the Turnpike at the eastern end of the Project area. This alternative involves a 4,803 ft. long tunnel that would begin near the existing utility ROW line cut and continue to the ridgeline above the Raystown Branch of Juniata River. The use of a tunnel in this location would leave a section of unfragmented forest land above the tunnel in the area of the existing ridge line and eastward. As the proposed alternative would emerge almost into the proposed structure over the Raystown Branch of Juniata River, there would be a minimal break in the existing forest land to the east of the proposed tunnel.

The largest impact would be to forested habitats with the greatest impact to Habitat 6, the Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest at 50.37 ac. Table 6.14-F details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-F
Habitat Type Impacts
Yellow Tunnel Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.26
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	0.00
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	28.36
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	9.20
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	0.00
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	50.37
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	1.44
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	1.55
Habitat 9	Reverting Meadow	2.42	0.00
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	0.00
Habitat 12	Miscellaneous	169.42	26.64

Gray Cut Alternative

The Gray Cut Alternative begins to the west along the existing Turnpike and travels south of the existing Turnpike. It travels through partially disturbed lands in the west, until it reaches the approximate location of the existing western portal of the Tunnel. From this point, the Gray Cut Alternative dips south passing thorugh utility corridors and forest land for the length of the existing Allegheny Tunnel. Once it passes the Raystown Branch of Juniata River, this alignment is located adjacent to the existing roadway of the Turnpike. This alternative will impact an area of contiguous forest land that has been previously disturbed by the existing Turnpike, utility ROW, and clear-cut areas. The Gray Cut alternative design is the closest in proximity to the existing Turnpike roadway. It utilizes previously disturbed area and the edge habitat created by the existing Turnpike thus reducing the amount of interior forest impacts as much as possible.

The largest impact would be to forested habitats with the greatest impact to Habitat 6, the Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest at 80.55 ac. Table 6.14-G details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-G
Habitat Type Impacts
Gray Cut Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.15
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	0.87
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	60.16
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	3.78
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	11.00
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	80.55
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	3.41
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	59.60
Habitat 9	Reverting Meadow	2.42	0.00
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	0.00
Habitat 12	Miscellaneous	169.42	45.34

Gray Tunnel Alternative

The Gray Tunnel Alternative begins to the west along the existing Turnpike and travels south of the existing Turnpike. It travels through partially disturbed lands in the west, until it reaches the approximate location of the existing western portal of the Tunnel. From this point, the Gray Tunnel Alternative cuts through utility corridors and forest land until it connects back to the Turnpike at the eastern end of the Project area. This alternative involves a 3,045 ft. long tunnel that would begin near the center of the existing Tunnels and continue to the ridgeline above the Raystown Branch of Juniata River. The use of a tunnel in this location would leave a section of unfragmented forest land above the tunnel in the area near the Raystown Branch of Juniata River and westward.

The largest impact would be to forested habitats with the greatest impact to Habitat 6, the Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest at 84.25 ac. Table 6.14-H details the proposed impacts to the noted habitat types within the Project area.

Table 6.14-H
Habitat Type Impacts
Gray Tunnel Alternative

Habitat ID	Habitat Name	Total Habitat Area w/in the Project Study Area ac.	Area of Impact ac.
Habitat 1	Bottomland Wetland	25.33	0.20
Habitat 2	Sugar Maple – Black Cherry Forest	29.49	0.87
Habitat 3	Red Oak – Red Maple – Black Cherry Forest	651.57	34.71
Habitat 4	Calcareous Mixed Hardwoods Forest	96.61	1.22
Habitat 5	Exposed Rock Outcrop and Cliffs	11.18	10.53
Habitat 6	Tulip Poplar – Sugar Maple – Red Oak – Black Cherry Forest	248.59	84.25
Habitat 7	Chestnut Oak – Red Maple – Black Cherry Blueberry Forest	61.20	3.65
Habitat 8	Red Oak – Red Maple – Black Cherry – Mountain Laurel Forest	320.63	49.97
Habitat 9	Reverting Meadow	2.42	0.00
Habitat 10	Forested Wetland	19.53	0.00
Habitat 11	Modified Upland Field	129.14	0.00
Habitat 12	Miscellaneous	169.42	48.01

6.15 Alternative Comparison Matrix

The following table lists a summary of potential impacts for each of the resource categories where measurable impacts are anticipated for the No Action alternative and the six build Alternatives.

TABLE 6.15
ALTERNATIVE COMPARISON MATRIX

DESCRIPTION	NO BUILD	BROWN CUT	BROWN TUNNEL	YELLOW CUT	YELLOW TUNNEL	GRAY CUT	GRAY TUNNEL
WETLAND IMPACTS TOTAL (DIRECT + INDIRECT) – AC.	0.02	3.84	0.97	1.89	2.04	0.70	0.85
WETLAND IMPACTS TOTAL (DIRECT) - AC.	0.02	1.25	0.95	1.89	1.99	0.67	0.85
PALUSTRINE EMERGENT (PEM) – AC.	0.02	0.44	0.47	1.57	1.50	0.46	0.64
PALUSTRINE SCRUB-SHRUB (PSS) – AC.	0.00	0.00	0.00	0.23	0.35	0.20	0.21
PALUSTRINE FORESTED (PFO) – AC.	0.00	0.81	0.48	0.09	0.14	<0.01	0.00
WETLAND IMPACTS TOTAL (INDIRECT) - AC.	0.00	2.59	0.02	0.00	0.05	0.03	0.00
PALUSTRINE EMERGENT (PEM) – AC.	0.00	0.00	0.00	0.00	0.02	0.03	0.00
PALUSTRINE SCRUB-SHRUB (PSS) – AC.	0.00	0.00	0.00	0.00	0.02	0.00	0.00
PALUSTRINE FORESTED (PFO) – AC.	0.00	2.59	0.02	0.00	<0.01	0.00	0.00
STREAM IMPACTS TO BE PERMITTED: TOTAL – FT.	1,094	2,704	1,937	5,702	5,057	8,483	11,017
STREAM IMPACTS: STREAM LOSS (INCLUDES INDIRECT) - FT.	1,094	2,561	1,794	2,816	1,472	6,117	3,427
STREAM IMPACTS: CULVERTED STREAMS - FT.	0	0	0	76	0	802	246
STREAM IMPACTS: RELOCATED STREAMS – FT.	0	143	143	2,810	3,585	1,564	7,344
100 YEAR FLOOD PLAIN – AC.	0.00	0.03	0.02	1.37	1.62	0.20	0.29
ACTIVE AGRICULTURAL LAND	--	--	--	--	--	--	--
ACT 100/43 PROPERTIES: #	0	2	2	2	2	5	5
ALPP LANDS – AC.	0.00	3.08	3.08	0.00	0.00	1.27	1.25
FOREST (DECIDUOUS/EVERGREEN/MIXED) – AC.	66.64	136.88	102.33	154.56	88.76	211.81	178.07
NOISE IMPACT (YES/NO)	N/A	YES	YES	YES	YES	YES	YES
NOISE ABATEMENT FEASIBLE AND REASONABLE (YES/NO)	N/A	NO	NO	NO	NO	NO	NO
PUBLIC WATER SUPPLY (YES/NO)	NO	NO	NO	NO	NO	NO	NO
PRIVATE WELLS: #	0	0	0	0	0	1	2
CULTURAL RESOURCES:	--	--	--	--	--	--	--
NATIONAL REGISTER ELIGIBLE/LISTED PROPERTIES PRESENT: #	2	2	2	2	2	2	2
EFFECTS DETERMINATION FOR NR ELIGIBLE/LISTED PROPERTIES	2 NO EFFECT	1 NO EFFECT 1 ADVERSE EFFECT	1 NO EFFECT 1 ADVERSE EFFECT	1 NO EFFECT 1 ADVERSE EFFECT	1 NO EFFECT 1 ADVERSE EFFECT	1 NO EFFECT 1 ADVERSE EFFECT	1 NO EFFECT 1 ADVERSE EFFECT
POTENTIAL ARCHEOLOGICAL IMPACTS: AC. OF LOW, MEDIUM, & HIGH AREAS	--	--	--	--	--	--	--
LOW – AC.	54.39	93.10	84.45	127.62	93.36	192.26	159.86
MEDIUM – AC.	14.33	64.16	38.04	39.03	13.44	45.32	47.58
HIGH – AC.	0.00	14.95	15.68	18.98	13.31	25.99	24.27
DISPLACEMENTS: #	--	--	--	--	--	--	--
RESIDENTIAL: #	0	0	0	0	0	0	1
THREATENED OR ENDANGERED PLANT SPECIES IMPACTS:	--	--	--	--	--	--	--
APPALACHIAN BLUE VIOLET (*VIOLA APPALACHIENSIS*) – AC. # OF ADDITIONAL POPULATIONS (AREAS TOO SMALL TO BE DETERMINED BY ACREAGE)	0.00 0	0.01 0	0.00 0	0.00 0	0.00 0	0.23 1	4.95 1
BOG GOLDENROD (*SOLIDAGO ULIGINOSA*) – AC.	0.00	0.00	0.00	0.04	0.03	0.00	0.00
BOG GOLDENROD/STIFF COWBANE (*SOLIDAGO ULIGINOSA/OXYPOLIS RIGIDIOR*) – AC.	0.00	0.15	0.17	0.00	0.00	0.18	0.20
THICK-LEAVED MEADOW-RUE (*THALICTRUM CORIACEUM*) – AC.	0.00	0.62	0.54	1.61	0.86	0.00	0.00
MOUNTAIN BELLWORT (*UVULARIA PUDICA*) – AC.	0.96	5.91	1.88	1.07	0.00	1.21	0.96
THREATENED OR ENDANGERED SPECIES IMPACTS:	--	--	--	--	--	--	--
TIMBER RATTLESNAKE (*CROTALUS HORRIDUS*) HABITAT IMPACT – AC.	0.00	2.35	0.46	0.00	0.00	0.00	0.00

TABLE 6.15
ALTERNATIVE COMPARISON MATRIX

DESCRIPTION	NO BUILD	BROWN CUT	BROWN TUNNEL	YELLOW CUT	YELLOW TUNNEL	GRAY CUT	GRAY TUNNEL
ALLEGHENY WOODRAT (*NEOTOMA MAGISTER*) HABITAT IMPACT – AC.	4.81	1.04	0.66	<0.01	0.95	1.61	1.02
LITTLE BROWN BAT (MYOTIS LUCIFUGUS) AND TRI-COLORED BAT (PERIMYOTIS SUBFLAVUS) FORESTED HABITAT IMPACT – AC.	66.64	136.88	102.33	154.56	88.76	211.81	178.07
LITTLE BROWN BAT (MYOTIS LUCIFUGUS) AND TRI-COLORED BAT (PERIMYOTIS SUBFLAVUS) HIBERNACULA IMPACT – #	1	0	0	0	0	2	2
SMALL-FOOTED MYOTIS (*MYOTIS LEIBII*) BAT ROCKY HABITAT IMPACT – # OF LOW, MEDIUM, HIGH QUALITY AND HIBERNACULA SITES	--	--	--	--	--	--	--
LOW - #	7	3	1	1	4	1	1
MEDIUM - #	0	2	2	2	1	2	2
HIGH - #	1	2	0	0	0	1	1
HIBERNACULA - #	2 (1 known, 1 potential)	0	0	0	0	2 (1 known, 1 potential)	2 (1 known, 1 potential)
INDIANA BAT (*MYOTIS SODALIS*) TRAVEL CORRIDOR IMPACT – HIGH POTENTIAL OR LOW POTENTIAL	Low	HIGH	HIGH	HIGH	HIGH	LOW	LOW
INDIANA BAT (*MYOTIS SODALIS*) AND NORTHERN LONG-EARED BAT (*MYOTIS SEPTENTRIONALIS*) FORESTED HABITAT IMPACT – AC.	66.64	136.88	102.33	154.56	88.76	211.81	178.07
INDIANA BAT (*MYOTIS SODALIS*) AND NORTHERN LONG-EARED BAT (*MYOTIS SEPTENTRIONALIS*) HIBERNACULA IMPACT – #	2 (1 known, 1 potential)	0	0	0	0	2 (1 known, 1 potential)	2 (1 known, 1 potential)
PARCELS CONTAINING AREAS OF POTENTIAL HAZARDOUS MATERIALS CONCERN - #	1	5	5	4	4	7	7
CLASS 1 EXCAVATION – C.Y.	6,163,075	10,807,729	4,198,969	26,247,454	1,746,514	13,496,804	9,419,405
OVEREXCAVATION – C.Y.	N/A	N/A	N/A	N/A	N/A	6,163,075	7,050,974
EXCESS EXCAVATION – C.Y.	N/A	9,767,392	3,786,127	25,399,084	969,547	12,286,557	9,043,958
OVERALL ALIGNMENT LENGTH – FT.	N/A	18,500	18,632	13,865	13,837	19,870	20,205
STRUCTURES – FT.	N/A	3,805	3,602	2,501	1,930	1,510	1,270
MAXIMUM VERTICAL GRADE - %	N/A	5.00	5.00	5.00	4.50	5.00	5.00
MAXIMUM DEGREE OF CURVATURE: (DEGREE - MINUTES)	N/A	3-10	3-10	3-00	3-00	3-09	3-10
MAXIMUM DEPTH OF CUT – FT.	N/A	199	148	400	196	249	207
ESTIMATED COSTS:	--	--	--	--	--	--	--
ESTIMATED TOTAL PROJECT COST	$94,700,000	$384,900,000	$761,100,000	$378,000,000	$702,100,000	$332,400,000	$627,900,000
ESTIMATED CONSTRUCTION COST (includes an estimated $400,000 for Utility Costs for each alternative)	$85,800,000	$348,900,000	$691,000,000	$341,200,000	$637,600,000	$300,800,000	$569,300,000
ESTIMATED RIGHT-OF-WAY COSTS	$240,000	$1,100,000	$1,000,000	$2,600,000	$700,000	$1,500,000	$1,600,000
DESIGN COST	$8,600,000	$34,900,000	$69,100,000	$34,200,000	$63,800,000	$30,100,000	$57,000,000
ESTIMATED OPERATION & MAINTENANCE COSTS / YEAR	$2,200,000	$1,000,000	$3,700,000	$800,000	$3,900,000	$1,100,000	$3,300,000

7.0 Evaluation of Alternatives

As discussed in the previous sections, six (6) Alternatives were developed and studied in detail as part of the environmental review process for the proposed Project. The Alternatives include the Brown Cut, Brown Tunnel, Yellow Cut, Yellow Tunnel, Gray Cut and Gray Tunnel Alternatives. The Yellow and Brown Cut and Tunnel Alternatives follow alignments located to the north of the existing Allegheny Tunnel, while the Gray Cut and Gray Tunnel Alternatives follow alignments to the south of the existing Tunnel. The development of the Gray Cut and Gray Tunnel Alternatives was initiated by comments from the USFWS. The USFW recommended evaluation of alignments to the south of the existing Turnpike, and removal of the Yellow and Brown Alternatives from further consideration due to the potential adverse effects the northern Alternatives may have on the regional Indiana bat population. Although the potential for increased adverse impacts to the Indiana bat was acknowledged, the Yellow and Brown Alternatives were retained for a thorough and complete study and, also due to the preference for these alignments from the initial studies (1996-2000). Following completion of field investigations that occurred from 2010 to 2014, the Project study area was expanded to the north to evaluate the potential to reduce environmental impacts associated with the Brown Cut and Brown Tunnel Alternatives. The study area was also expanded to the south to address geotechnical issues that were identified along a portion of the proposed alignment for the Gray Cut and Gray Tunnel Alternatives. The alignment shifts and additional avoidance and minimization measures are discussed below.

Avoidance and Minimization Measures

Efforts were pursued to avoid impact to environmental features while maintaining a safe and quality design for all the action alternatives. Areas that were previously disturbed were utilized to the fullest extent possible. In the areas where avoidance was not possible, minimizing impacts was a priority. This was accomplished primarily through horizontal and vertical alignment shifts, as well as increasing structure lengths to reduce aquatic resource impacts. Below is a brief overview of the most significant design efforts to avoid and minimize resource impacts for the proposed alternatives.

Brown Cut and Brown Tunnel Alignments

The Brown Cut Alternative was initially laid out to utilize a large area of previously cleared forest while maintaining current design standards. However, this alignment resulted in impacts to a number of headwater tributaries to the Raystown Branch Juniata River and a large number of direct and indirect impacts to wetlands. In 2015, the alignment of this Alternative was re-evaluated to determine if impacts to the noted streams and other environmental resources could be reduced. This Alternative was revised to incorporate a multi-span bridge over SR 0160 and the Tributary to Stonycreek River to minimize impacts to a large wetland system in this location. The alternative was also shifted north in the location of the headwaters to the Raystown Branch Juniata River to avoid impacts to these resources. The profile was raised in elevation at the ridge top to minimize direct impacts to two adjoining wetlands. However, it is anticipated that the proposed roadway would remove at least one (1) hydrology source to the downslope wetland, which will still result in an indirect impact to a portion of that wetland. A shift in the Brown Cut Alternative to the north or south was not deemed practical at this location, as it would result in greater direct wetland impacts and/or still result in the indirect impacts. Two (2) wildlife crossing structures were also incorporated into the design. These crossings, in conjunction with proposed highway bridges designed as part of the alternative, will provide opportunity for wildlife movement across and under the proposed roadway.

The Brown Tunnel Alternative's initial alignment was similar to the Brown Cut Alternative, in that it resulted in impacts to a number of headwater tributaries to the Raystown Branch Juniata River. In 2015, the alignment of this Alternative was re-evaluated to determine if impacts to the noted streams and other

environmental resources could be reduced. This Alternative was revised to incorporate a multi-span bridge over SR 0160 and the Tributary to Stonycreek River to minimize impacts to a large wetland system in this location. The alternative was also shifted north in the location of the headwaters to the Raystown Branch Juniata River to avoid impacts to these resources.

Yellow Cut and Yellow Tunnel Alignments

The Yellow Cut and Yellow Tunnel Alignments were initially designed to provide the most direct alignment for the alternatives to the north of the existing Turnpike. To preserve that direct alignment, these alternatives have seen few revisions beyond those necessary to meet current design standards. One (1) wildlife crossing structure has been incorporated into the design for the Yellow Cut Alternative. This crossing, in conjunction with proposed highway bridges designed as part of the alternative, will provide opportunity for wildlife movement across and under the proposed roadway. The wildlife crossing is proposed as a multi-use overpass to provide safe crossing over the Turnpike for wildlife and members of a private sportsman club that own property on both sides of the existing Turnpike.

Gray Cut and Gray Tunnel Alignments

The Gray Cut and Tunnel Alternatives were developed in 2010 as alternatives south of the existing Turnpike to avoid potential impact to the travel corridor of the federally-endangered Indiana bat. These Alternatives initially included alignments further to the south at the location near the existing western portal of the Allegheny Tunnel. Environmental investigations identified a large wetland system in this area. To avoid significant impacts to this system and other resources, the alignments were shifted north, closer to the existing Turnpike. A higher profile over the ridge was also incorporated in the cut alternative design to minimize stream impacts along the ridge. One (1) wildlife crossing structure was incorporated into the design for the Gray Cut Alternative. This crossing, in conjunction with proposed highway bridges designed as part of the alternative, will provide opportunity for wildlife movement across and under the proposed roadway. During geotechnical investigations for the Project, an ancient landslide was discovered southeast of the tunnel's eastern portal, affecting the Gray Cut and Tunnel alternatives. It was determined remediation of the landslide would require over-excavation of a larger area extending beyond the original study area. The revised alternative, incorporating the area of over excavation, results in additional forest impacts as well as impacts to one (1) known bat hibernaculum and one (1) identified potential hibernaculum. However, to ensure the safety of the proposed roadway and public, the area of over-excavation is a requirement for the alternative.

After the conclusion of the studies for all the alternatives, a thorough examination of the northern alignments (the Brown Cut, Brown Tunnel, Yellow Cut, and Yellow Tunnel Alternatives) was conducted, and it was determined that these four (4) Alternatives would not become the preferred alternative for the proposed Project. It was determined no definitive benefits resulting from these Alternatives exist that outweigh the substantial adverse impacts to the federally-listed Indiana bat population. The positive and negative aspects for each of the four (4) northern alternatives are discussed below for reference.

<u>Brown Cut Alternative</u>

The Brown Cut Alternative is 3.6 mi. long and is located approximately 2,067 ft. north of the existing tunnel. Two (2) structures are proposed for this Alternative. The first is a 1,675 ft. long structure over SR 0160 and an UNT to Stonycreek River. The second proposed structure crosses the headwaters of the Raystown Branch of the Juniata River on a 2,130 ft. long, 256 ft. high structure. There are also two (2) wildlife overpasses proposed for this alternative. The section of deepest cut for this alternative is 199 ft. It will have a total cost of $384,900,000. This total cost includes $348,900,000 for construction and utility costs, $1,100,000 for right-of-way costs, and $34,900,000 for design costs. The operation and maintenance costs

of this Alternative would be approximately $1,000,000 per year.

The Brown Cut Alternative would not impact known bat hibernacula located in the Project vicinity but is anticipated to adversely impact a known travel corridor for the federally-endangered Indiana bat. This alternative would also impact a total of seven (7) potential small-footed myotis bat habitat sites, critical habitat of the timber rattlesnake, and four (4) state-listed plant species noted by DCNR as species of most concern for the Project. The Brown Cut Alternative has the lowest forested impacts of the Cut Alternatives at 136.88 ac.

The Brown Cut Alternative proposes a lengthy structure over the UNT to Stonycreek River and the large wetland system in this location to minimize wetland impacts. This structure helps minimize direct wetland impacts to 1.25 ac. However, there is an existing hydrologic connection between wetland systems near the ridgeline that is not anticipated to be maintained, resulting in a total wetland impact of 3.84 ac., once indirect impacts are considered. The Brown Cut Alternative avoids a large percentage of the numerous headwater streams to the Raystown Branch Juniata River, resulting in stream impacts of 2,704 linear feet. This is the second lowest stream impact for the Project build alternatives, behind the Brown Tunnel Alternative.

The Brown Cut Alternative is anticipated to have the least amount of excess excavation of the three (3) proposed Cut Alternatives at 9,767,392 cubic yards. This amount of excess excavation could be accommodated within the excess excavation area currently proposed for the Project. The total cost of the Brown Cut Alternative is $384,900,000, which is the highest cost of the proposed Cut alternatives.

Brown Tunnel Alternative

The Brown Tunnel Alternative utilizes a different horizontal alignment than the Brown Cut Alternative and is 3.6 mi. long with a 0.78 mi. long tunnel and 0.5 mi. long approaches. It is located approximately 2,067 ft. north of the existing tunnel. Two (2) structures are proposed for this Alternative. The first is a 1,675 ft. long structure proposed over SR 0160 and an UNT to Stonycreek River. The second proposed structure crosses the headwaters of the Raystown Branch of the Juniata River on a 1,927 ft. long, 277 ft. high structure. The proposed tunnel will extend for 4,118 ft. under the top of the mountain. After the eastern portal, a cut is required through the next portion of the alignment, with the deepest cut being 148 ft. The Brown Tunnel Alternative will have a total cost of $761,100,000, which includes construction costs, and utility costs of $691,000,000, right-of-way costs of $1,000,000, and design costs of $69,100,000. This Alternative is expected to have an annual operation and maintenance cost of $3,700,000 per year. With regard to operation and maintenance, the lighting and operation aspects required for a tunnel option would result in greater energy usage as compared to a cut option.

The Brown Tunnel Alternative would not impact known bat hibernacula located in the Project vicinity but is anticipated to adversely impact a known travel corridor for the federally-endangered Indiana bat. This alternative would impact a total of three (3) potential small-footed myotis bat habitat sites. It has the second lowest forested impacts of all the build Alternatives at 102.33 ac. A tunnel also has a unique potential impact of attracting bats due to their well-developed search behavior and curiosity of openings, as well as, the lighting required for tunnels that would attract the bat's food source. This would increase the potential for a vehicle / bat collision. This Alternative and the Brown Cut Alternative propose the only impact to the critical habitat of the timber rattlesnake. It would also impact four (4) state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project.

The Brown Tunnel Alternative proposes a lengthy structure over the UNT to Stonycreek River and the large wetland system in this location to minimize wetland impacts. This structure helps minimize direct wetland

impacts to 0.95 ac., and total impacts including indirect impacts at 0.97 ac. Stream impacts for the Brown Tunnel Alternative are also the lowest of the build alternatives at 1,937 linear feet.

The Brown Tunnel Alternative would also inlcude the current restrictions on hazardous materials carriers traveling through the Allegheny Tunnel. Hazardous material haulers utilize SR 0031, SR 0030, and SR 0219 as a bypass to the tunnel, traveling through small communities. SR 0031 travels through the Borough of Berlin's (Well #9) wellhead protection zones 1, 2, and 3, resulting in an increased risk of hazardous materials spilling within the wellhead protection zones; thereby, increasing the risk of potential water contamination for the Borough.

The Brown Tunnel Alternative is anticipated to have the second smallest amount of excess excavation of the proposed build alternatives at 3,786,127 cubic yards. This amount of excess excavation could be accommodated within the excess excavation area currently proposed for the Project. The total cost of The Brown Tunnel Alternative is the highest of all the proposed alternatives at $761,100,000.

Yellow Cut Alternative

The Yellow Cut Alternative is 2.7 mi. long and is located approximately 670 ft. north of the existing tunnel. Two (2) structures are proposed for this Alternative. The first is a 555 ft. long structure proposed over an UNT to Stonycreek River. The second proposed structure crosses the headwaters of the Raystown Branch of the Juniata River on a 1,946 ft. long, 218 ft. high structure. There is one (1) multi-use overpass proposed for this alternative, and it will be a shared use crossing to allow members of the MFSC access to their property. The section of deepest cut for this alternative is 400 ft. The Yellow Cut Alternative will have a total cost of $378,000,000, which includes $341,200,000 for construction, and utility costs, $2,600,000 for right-of-way costs, and $34,200,000 for design costs. This Alternative is anticipated to have an annual operation and maintenance cost of $800,000 per year.

The Yellow Cut Alternative would not impact known bat hibernacula located in the Project vicinity but is anticipated to adversely impact a known travel corridor for the federally-endangered Indiana bat. This alternative would impact a total of three (3) potential small-footed myotis bat habitat sites. It has forested impacts of 154.56 ac. This Alternative would also impact three (3) state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project, with the proposed impacts to thick-leaved meadow-rue being the highest of all the alternatives at 1.61 ac.

Wetland impacts for the Yellow Cut Alternative are in the middle range of the build alternatives at 1.89 ac., with no indirect impacts anticipated. Stream impacts for the Yellow Cut Alternative are also in the middle range of the build alternatives at 5,702 linear feet.

As noted, the Yellow Cut Alternative also includes the deepest cut of the proposed Alternatives, at approximately 400 ft. This extensive cut results in the greatest excess excavation quantities of all the alternatives at 25,399,084 cubic yards. This is more than double that of the next greatest amount of excess waste. This amount could not be accommodated within the excess excavation area currently proposed for the Project, and additional areas would be required.

Yellow Tunnel Alternative

The Yellow Tunnel Alternative is 2.7 mi. long with a 0.91 mi. long tunnel and 1.63 mi. long approaches. It is located approximately 670 ft. north of the existing tunnel. Two (2) structures are proposed for this Alternative. The first is a 555 ft. long structure proposed over an UNT to Stonycreek River. The second proposed structure crosses the headwaters of the Raystown Branch of the Juniata River on a 1,375 ft. long

and 205 ft. high structure. The proposed tunnel will extend for 4,803 ft. under the top of the mountain. The Yellow Tunnel Alternative will have a total cost of $702,100,000. The total cost includes $637,600,000 for construction and utility costs, $700,000 for right-of-way costs, and $63,800,000 for design costs. The operation and maintenance costs of this Alternative would be approximately $3,900,000 per year. With regard to operation and maintenance, the lighting and operation aspects required for a tunnel option would result in greater energy usage as compared to a cut option.

The Yellow Tunnel Alternative would not impact known bat hibernacula located in the Project vicinity but is anticipated to adversely impact a known travel corridor for the federally-endangered Indiana bat. This alternative would impact a total of five (5) potential small-footed myotis bat habitat sites. It has forested impacts of 88.76 ac. A tunnel also has a unique potential impact of attracting bats due to their well-developed search behavior and curiosity of openings, as well as, the lighting required for tunnels that would attract the bat's food source. This would increase the potential for a vehicle / bat collision. This Alternative would also impact two (2) of the four (4) state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project.

Wetland impacts for the Yellow Tunnel Alternative are the second highest for the build alternatives at 2.04 ac. including 0.05 ac. of indirect impacts. Stream impacts for the Yellow Tunnel Alternative are in the middle range of the build alternatives at 5,057 linear feet.

The Yellow Tunnel Alternative would also inlcude the current restrictions on hazardous materials carriers traveling through the Allegheny Tunnel. Hazardous material haulers utilize SR 0031, SR 0030, and SR 0219 as a bypass to the tunnel, traveling through small communities. SR 0031 travels through the Borough of Berlin's (Well #9) wellhead protection zones 1, 2, and 3, resulting in an increased risk of hazardous materials spilling within the wellhead protection zones; thereby, increasing the risk of potential water contamination for the Borough.

The Yellow Tunnel Alternative is anticipated to have the least amount of excess excavation of the proposed build alternatives at 969,547 cubic yards. This amount of excess excavation could be accommodated within the excess excavation area currently proposed for the Project. The total cost of The Yellow Tunnel Alternative is the second highest of all the proposed alternatives at $702,100,000.

Given the substantial adverse impacts the Brown and Yellow Alternatives would have on the regional population of the federally and state-endangered Indiana bat, as well as the additional impacts to sensitive species/resources and/or increased costs of these Alternatives, they have been determined not reasonable for further consideration.

In a comparison of all the practicable alternatives for purposes of a USACE 404(b)(1) analysis, the Brown Tunnel alternative would be considered to have the least adverse impact on the aquatic ecosystem of the build alternatives, as it has the least amount of stream impacts, and a comparable amount of wetland impacts. However, given the significant adverse impact the Brown Tunnel alternative would have on the federally endangered Indiana bat and other species of special concern, this alternative was determined not to be a viable option for this Project.

Additionally, it should be noted that based on comments provided by the public, most people who left comment forms preferred the Yellow Tunnel and Cut Alternatives. It was noted by some of the public that this was due to the Yellow Corridor providing the most direct route between the proposed eastern and western termini of the Project study area. Even though the Yellow Corridor Alternatives have the shortest overall alignments at approximately 2.7 mi., they were determined not reasonable. The Yellow Tunnel Alternative has been determined not reasonable due to the combination of impacts to the Indiana bat and the high construction and

maintenance cost. In a similar fashion, the Yellow Cut Alternative was determined to be not reasonable for further consideration due to the impacts to the Indiana bat, and the depth of the cut that would be required for the Alternative, which results in an amount of excess excavation material that cannot be placed in the Project vicinity.

7.1 Comparison of Gray Tunnel and Gray Cut Alternatives

The two (2) Gray Alternatives have also been evaluated to determine if they are reasonable for further consideration and to determine a Preferred Alternative for the Project. The two (2) Gray Alternatives are located south of the existing Turnpike and would not impact the known travel corridor for the federally-endangered Indiana bat. Both alternatives follow a roughly similar alignment, which are discussed in detail in Section 3.5, Gray Alternatives. The positive and negative aspects of the two (2) southern alternatives are discussed below for reference.

Gray Cut Alternative

The Gray Cut Alternative is 3.8 mi. long and is located approximately 470 ft. south of the existing tunnel. Three (3) structures are proposed for this Alternative. The first is a 170 ft. long structure proposed over SR 0160. The second is a 240 ft. structure proposed over an UNT to Stonycreek River. The third proposed structure crosses the headwaters of the Raystown Branch of the Juniata River on a 1,100 ft. long, 256 ft. high structure. There is one (1) wildlife overpass proposed for this alternative, which would be solely for wildlife usage. The section of deepest cut for this alternative is 249 ft. A section of this Alternative, located east of the proposed structure over the Raystown Branch Juniata River, is through a slope that has evidence of sliding movement. The remediation plan will be performed similar to the successful New Baltimore Slide Remediation, which is located further east along the PA Turnpike. The plan to stabilize the slope includes over-excavation of the slide by removing the existing earthwork along the hillside, in a "stepped" fashion, down to the source of the landslide or "failure plane", which is most likely a mud seam. This mud seam will be excavated out and benches will be constructed into competent rock. This will occur starting at the top of the hillside and working down the slope. The excavated material from the down slope "step" will be hauled to the top of the over-excavated area, used as fill and compacted to cover the benches from the top down. This process is repeated as construction continues down the slope. Drainage measures will be placed in and around the area to ensure that the reconstructed slope remains stabilized. The Gray Cut Alternative will have a total cost of $332,400,000. This total cost includes $300,800,000 for construction and utility costs, $1,500,000 for right-of-way costs, and $30,100,000 for design costs. The operation and maintenance costs of this Alternative would be approximately $1,100,000 per year.

The over-excavation required for the safety and stabilization of the Gray Cut Alternative would impact the small cave hibernaculum, as well as the near-by potential hibernaculum through excavation of the area soils to a depth of the existing failure plane. However, it would not adversely impact a known travel corridor for the federally-endangered Indiana bat. This alternative would also impact a total of four (4) potential small-footed myotis bat habitat sites. It has the highest forested impacts of the proposed alternatives at 211.81 ac. This alternative avoids impact to the critical habitat of the timber rattlesnake, and has the lowest impact to the state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project at 0.18 ac. It would impact three (3) of the four (4) state-listed plant species noted as species of most concern but avoids impacts to the thick-leaved meadow-rue.

The Gray Cut Alternative has the lowest wetland impacts (direct and indirect) of the build alternatives at 0.70 ac. Stream impacts for this alternative are 8,483 linear feet, which is the second highest of the Project build alternatives, behind the Gray Tunnel Alternative.

The Gray Cut Alternative is anticipated to have 12,286,557 cubic yards of excess excavation. This amount of excess excavation could be accommodated within the excess excavation area currently proposed for the Project. The total cost of the Gray Cut Alternative is the lowest of the Project build alternatives at $332,400,000.

Gray Tunnel Alternative

The Gray Tunnel Alternative is 3.9 mi. long with a 0.62 mi. tunnel. It is located approximately 390 ft. south of the existing tunnel. Three (3) structures are proposed for this Alternative. The first structure is a 170 ft. long structure proposed over SR 0160. The second is a 275 ft. structure proposed over an UNT to Stonycreek River. The third proposed structure crosses the headwaters of the Raystown Branch of the Juniata River on an 825 ft. long, 135 ft. high structure. The proposed tunnel will extend for 3,045 ft. under the top of the mountain. A section of this Alternative, located east of the proposed structure over the Raystown Branch Juniata River, is through a slope that has evidence of sliding movement. To ensure the area is safe for use, over-excavation of the slide to the failure plane will take place to stabilize the slope. The remediation plan will be performed similar to the successful New Baltimore Slide Remediation, which is located further east along the PA Turnpike. The plan to stabilize the slope includes over-excavation of the slide by removing the existing earthwork along the hillside, in a "stepped" fashion, down to the source of the landslide or "failure plane", which is most likely a mud seam. This mud seam will be excavated out and benches will be constructed into competent rock. This will occur starting at the top of the hillside and working down the slope. The excavated material from the down slope "step" will be hauled to the top of the over-excavated area, used as fill and compacted to cover the benches from the top down. This process is repeated as construction continues down the slope. Drainage measures will be placed in and around the area to ensure that the reconstructed slope remains stabilized. The Gray Tunnel Alternative will have a total cost of $627,900,000. This total cost includes $569,300,000 for construction and utility costs, $1,600,000 for right-of-way costs, and $57,000,000 for design costs. The operation and maintenance costs of this Alternative would be approximately $3,300,000 per year. With regard to operation and maintenance, the lighting and operation aspects required for a tunnel option would result in greater energy usage as compared to a cut option.

The over-excavation required for the safety and stabilization of the Gray Tunnel Alternative would impact the small cave hibernaculum, as well as the near-by potential hibernaculum through excavation of the area soils to a depth of the existing failure plane. However, it would not adversely impact the known travel corridor for the federally-endangered Indiana bat. This alternative would also impact a total of four (4) potential small-footed myotis bat habitat sites. It has the second highest forested impacts at 178.07 ac. This alternative avoids impact to the critical habitat of the timber rattlesnake, and has the second lowest impact to the state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project at 0.20 ac. It would impact three (3) of the four (4) state-listed plant species noted as species of most concern but avoids impacts to the thick-leaved meadow-rue.

The Gray Tunnel Alternative proposes 0.85 ac. of wetland impacts. This alternative has the highest stream impacts for the Project build alternatives at 11,017 linear feet.

The Gray Tunnel Alternative is anticipated to have 9,076,488 cubic yards of excess excavation. This amount of excess excavation could be accommodated within the excess excavation area currently proposed for the Project. The total cost of The Gray Tunnel Alternative is the lowest of the tunnel alternatives at $627,900,000.

The major differences between the two (2) Alternatives is the utilization of a tunnel versus a cut through the highest elevations located along the proposed alignment, as well as the modifications in alignment caused by the

curvature limitations created by the tunnel alignment. The discussion below compares the advantages and disadvantages of the Gray Tunnel and the Gray Cut Alternatives.

One (1) of the most obvious differences between the two (2) alternatives is the ability of the Gray Tunnel alternative to retain undisturbed land above the tunnel section. This allows the Gray Tunnel Alternative to keep a roughly 3,000 ft. stretch of contiguous terrestrial habitat intact, thereby reducing the impacts of habitat fragmentation on the wildlife that utilize the Project study area. To mitigate the effects on wildlife movement, the Gray Cut Alternative proposes a wildlife crossing designed to provide an avenue for wildlife travel. The proposed location of the crossing is south of the existing tunnel, where contiguous forest still exists. This crossing, in combination with the structure over the UNT to Stonycreek River and the structure over the Raystown Branch Juniata River, will provide avenues for wildlife to cross the proposed Gray Cut alignment. The crossing will be designed with the purpose of providing a safe avenue of travel for both terrestrial animals as well as bat and avian species. Details of the proposed conceptual wildlife overpass design can be referenced in Section 8.0, Permitting and Mitigation.

The two (2) alternatives have relatively similar impacts to most environmental resources. Both avoid the known travel corridor of the Indiana bat, both impact the small cave hibernaculum and the nearby potential hibernaculum, and both impact the same number of small-footed myotis rocky habitat locations. A tunnel may also have a unique potential to impact bats, due to their well developed search behavior and curiosity of openings (Butchkoski, 2019), as well as, the lighting required for tunnels. Lighting could attract the bat's food source resulting in direct and indirect negative effects to their reproductive, foraging and roosting opportunities. Fast flying species such as Pipistrellus are attracted to lighting for feeding; while slow flying species such as Myotis could be indirectly affected by the reduction in food source within the immediate surroundings (due to the insects being attracted to the light) (Bat Conservation Trust and Institution of Lighting Professionals, 2018).

Due to the over-excavation required for both the Gray Cut and Gray Tunnel alignments, forested impacts for these alternatives are the greatest of all the proposed alternatives, with the Gray Cut impacting approximately 33 ac. more than the Gray Tunnel. However, the area of over-excavation for both alternatives would be revegetated as much as possible following construction. The impact numbers are also similar for the plant species noted by DCNR as primary concern species for the Project.

The Gray Tunnel Alternative impacts a greater amount of both wetlands and streams when compared to the Gray Cut Alternative. The Gray Tunnel would result in an additional 0.15 acres of wetland impacts and over 2,500 linear feet of additional stream impacts. The stream impacts for the Gray Tunnel are significant at 11,025 ft. in total impacts. Because of this disparity of stream impacts, the Gray Cut alternative would be considered to have the least adverse impact on the aquatic ecosystem of the two (2) gray alternatives for the purposes of a USACE 404(b)(1) analysis. The difference in stream impacts between the Gray Cut and Tunnel Alternatives is due to an alignment that is slightly more northern in the Tunnel Alternative, resulting in impacts to the entire length or almost the entire length of stream channels in this vicinity that flow roughly parallel to the alignment. The proposed tunnel alignment cannot be shifted south at this location as it would result in impacts to Deeter Gap Road, cause several displacements along this road, impact a near-by privately owned cabin, and move within closer proximity to the Borough of Berlin's wellhead protection zones. The shifted alignment would also fall directly within the center of the existing ridge, resulting in extensive excavation. The design would include a substandard curve to tie back into the existing Turnpike roadway, not meeting design and safety requirements. The required design standards would push the alignment farther away from the existing Turnpike requiring the tie-in point to be much further east. This would result in even greater forested impacts, as well as a longer and more expensive tunnel.

The Gray Tunnel is also the only alternative with a residential displacement. The Gray Tunnel alignment is located slightly south of the Gray Cut alignment, resulting in the displacement of a residential home along SR 0160. The Gray Cut would result in an impact to the garage associated with the residential home to be displaced by the Gray Tunnel alternative, but it would not take the residential structure. Both alternatives would also impact a mobile home that is currently vacant but utilized by the neighboring home owner as storage and a workshop. Another consideration between a cut or tunnel alternative involves the restrictions on hazardous materials carriers traveling through the Allegheny Tunnel, although not considered a critical or substantial project need. Currently, hazardous material haulers utilize SR 0031, SR 0030, and SR 0219 as a bypass to the Allegheny Tunnel, traveling through small communities. SR 0031 travels through the Borough of Berlin's (Well #9) wellhead protection zones 1, 2, and 3, resulting in an increased risk of hazardous materials spilling within the wellhead protection zones; thereby, increasing the risk of potential water contamination for the Borough. This restriction and present bypass route for hazardous materials would extend to any proposed tunnel Alternative including the Gray Tunnel Alternative.

Another distinct difference between the two (2) alternatives is the increased cost of the Gray Tunnel. At $627,900,000, the estimated total Project cost for the Gray Tunnel is nearly double that of the Gray Cut at $332,400,000. The Gray Tunnel Alternative also has yearly operational and maintenance costs of $3,300,000, compared to $1,100,000 for the Gray Cut Alternative.

7.2 Determination of the Preferred Alternative

Following the evaluation of the Project Alternatives, the Gray Cut Alternative has been determined as the Preferred Alternative, as it meets the Project purpose and needs, while providing the most balanced combination of minimization/avoidance measures for environmental impacts, meeting design standards and project costs of the Alternatives evaluated. The northern Alternatives of the Brown Cut, Brown Tunnel, Yellow Cut and Yellow Tunnel were determined as unreasonable. This is primarily due to the anticipated adverse effects that would result to a known Indiana bat travel route, and subsequently to the Indiana bat population. As an Alternative south of the existing Allegheny Tunnel, the Gray Cut Alternative minimizes, although does not avoid, impacts to the federally-listed Indiana bat. Table 6.15, Alternative Comparison Matrix details the remaining impacts to RTE species as well as the additional environmental resources located within the Project Alternatives' study areas. These impacts have been minimized and/or avoided where possible.

In comparison to the Gray Tunnel Alternative, the Gray Cut option results in additional habitat fragmentation and potential impacts to wildlife movement. However, the Gray Cut Alternative would have the least adverse impact on the aquatic ecosystem of the two (2) gray alternatives for the purposes of a USACE 404(b)(1) analysis, it does not involve residential displacements, and it has a total cost and yearly operation / maintenance fees that are significantly less than the Gray Tunnel Alternative.

There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. As noted, the Gray Cut Alternative is not without environmental impacts; therefore, federal and state permits will be required. The permits required for the Project and the proposed efforts to mitigate these impacts are detailed in Section 8.0, Permitting and Mitigation.

7.3 Indirect Effects Evaluation of the Preferred Alternative

As the proposed Project involves the relocation of a portion of an existing limited access toll roadway, with no interchanges present within the Project study area, there is little to no potential for future development resulting from the Project. As noted, the majority of land use within the vicinity of the Gray Cut Alternative is rural in nature and consists mainly of forest land, wetland, agriculture, and a few residential properties. Infrastructure conducive to development such as public water and sewer services are not located in the area. Land use is

mainly controlled through building codes and permits in Somerset County. Zoning ordinances have not been adopted by the County or surrounding municipalities within the study area.

To determine a radius of potential development resulting from the proposed Project, a review of the area in the vicinity of the Gray Cut Alternative was conducted. This area was reviewed utilizing historic aerial photographs from 1936, 1986, 1994, 2005, 2013, 2015, 2017 and 2019. The following is a summary of that review:

Existing Development:

Existing development within the vicinity of the Gray Cut Alternative is sparse. Two-thirds of the area is dominated by forest land. The largest roadway through the area is the Turnpike, which is a limited access highway with no interchanges located within this portion of the highway. As such, there is no associated development with this roadway. The next largest roadway is SR 0160, which travels primarily north/south near the western end of the alignment. There are scattered residences along this roadway, with a small cluster of houses located south of the Turnpike crossing. Several private access roads are also found throughout the area. The only other sign of infrastructure is the presence of several utility lines. The largest is an approximately 150 ft. wide utility line corridor that travels roughly northeast to southwest across the alignment and the existing Allegheny Tunnels. A review of the historical aerial photographs dating back to 1936, show nearly the same land uses as current day. In the 1936 photograph, the South Pennsylvania Railroad is present with the Turnpike apparent in the 1967 photograph. The large utility line corridor can first be seen in the 1967 aerial photograph as well. Although not obviously visible in the historical aerial photographs that were obtained for the Project, significant areas to the west and northwest of the Project area are known to have been mined previously.

Anticipated Development:

The overall Project study area was used for consideration of anticipated development as it contains the cut/fill limits for the Gray Cut Alternative and a significant surrounding area. The Project study area was reviewed to determine if it contained “Not developable”, “Unlikely to be developed” and/or “Developable” lands. The definition of each category is as follows:

Not developable land: Lands that meet any of the following conditions:

- Over 75% of area is already developed;
- Land is owned by a conservation entity (i.e. PA Game Commission or Somerset County Conservancy); or
- Topography limits the potential to develop the land (i.e. steep grades, flood prone area, etc.).

Unlikely to be developed: Land that is unlikely to be developed is based upon one or more of the following:

- No existing roadway infrastructure;
- Over 50% of the area is already developed;
- Land area is not suitable for large developments (i.e. relatively small acreage or shape limits development potential); or
- Other known environmental constraints exist that pose an obstacle to development.

Potentially developable land: Land that is likely to be developed based upon current land cover / land use and existing roadway infrastructure.

- Contains an existing network of roadways in an area of a proposed interchange(s)
- Land use / land cover is suitable for development, or

- Area has been identified within the Somerset County Comprehensive Plan as an area planned for development.

The Project study area was identified to contain "unlikely to be developed" lands as well as not developable land. Unlikely to be developed lands are found throughout the Project study area primarily due to the lack of existing roadway infrastructure. The only accessible roadways within the study area are SR 0160, Big Rock Road, and Bluebird Lane. The homes along these roads have private water and sewer, and large-scale development is not anticipated. Not developable land is located in the eastern section of the Project study area from the area of the Allegheny Ridge to the eastern end of the study area. This area is considered not developable land due to the steep topography of the area which prevents organized development. In addition, there is one large property owner found within the study area who, independently of the project, could control development of a large area within and surrounding the project study area.

Summary

Because the Turnpike is a limited access highway with no access points within the Project vicinity, and because existing infrastructure such as public water and sewer are lacking, it is unlikely that significant development would occur within the Project study area. The potential for project-related growth in regards to growth pressure is considered very low. The Project is not anticipated to cause indirect or secondary growth in the region, as a result indirect effects to wildlife and habitat are not anticipated, including the RT&E species noted within the Project study area.

8.0 Permitting and Mitigation

The Gray Cut Alternative has been selected as the Project Preferred Alternative as it best balances the operational, safety, cost, and environmental considerations that are components of this Project. However, despite avoidance and minimization efforts, this Alternative will have environmental impacts. Therefore, federal state, and local permits will be required. The impact numbers used to determine the probable mitigation and permitting efforts required for the Gray Cut Alternative were calculated based on the cut / fill limits, including probable stormwater basin locations and a 20-ft. buffer. These impacts will be addressed more thoroughly as the final design for the Project progresses.

Permitting requirements may be revised as the final design for the Project continues, but it is anticipated that an Individual National Pollution Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Construction Activities will be required to ensure compliance with the Clean Water Act. The NPDES Permit will include an Erosion and Sediment (E&S) Pollution Control Plan as well as a Post Construction Stormwater Management (PCSM) Plan. A U.S. Army Corps of Engineers' Section 404 Permit will be required for the placement of fill into Waters of the U.S. Also a PADEP Chapter 105 – Water Obstruction and Encroachment Permit will be required for activities located in, along, across or projecting into a watercourse, floodway or body of water, including wetlands and Section 401 Water Quality Certification. There is also the potential need for a PADEP Soil Waste Management Permit, should it become necessary to store acid bearing soil on-site.

Environmental resources that are proposed to be impacted by the Gray Cut Alternative will be mitigated for as necessary. The anticipated mitigation required for the project has been identified below.

Historic / Archaeological Resources

Two (2) NRHP-eligible properties are located within the APE for the Allegheny Tunnel Transportation Improvement Project: 1) a portion of the Pennsylvania Turnpike Main Line Historic District and 2) the South Pennsylvania Railroad Tunnel. It was determined that the Gray Cut Alternative would have an adverse effect on the Pennsylvania Turnpike Main Line Historic District, as it would result in abandonment and destruction or deterioration of a contributing section of the Turnpike. The Gray Cut Alternative would not have an effect on the South Pennsylvania Railroad Tunnel.

The Allegheny Tunnel Transportation Improvement Project is part of the Pennsylvania Turnpike Capital Plan for which a Programmatic Agreement was executed by PTC and the SHPO in March 2014. The Programmatic Agreement includes stipulations to mitigate adverse effects on the Pennsylvania Turnpike Main Line Historic District, excluding adverse effects to individually eligible historic properties, service plazas, NRHP eligible archaeological resources, or historic properties that might be affected by future right-of-way acquisitions. The Allegheny Tunnel Transportation Improvement Project's adverse effect on the Pennsylvania Turnpike Main Line Historic District, as described above, is covered under the Programmatic Agreement.

As stipulated in the Programmatic Agreement, mitigation will consist of PTC funding to the Pennsylvania Historical and Museum Commission (PHMC) for an Education and Communications Coordinator (EEC) limited term position. The ECC and PHMC will work with the PTC to form a public outreach team that shall mutually develop and implement public outreach to support this mitigation. The public outreach will focus on the history and significance of the Turnpike with regards to the history of PA, transportation history overall, and the local history of the communities along the Turnpike. A copy of the Programmatic Agreement and the 2017 Amendment can be found in the Project technical files.

As identified from the preliminary archaeology studies conducted for the Project, the Gray Cut Alternative lies within 25.99 ac. of high prehistoric archaeology probability area, 45.32 ac. of medium prehistoric archaeology probability area, and 192.26 ac. of low prehistoric archaeology probability area. The alternative will also impact one (1) potential historic archaeology resource, and one (1) area of rock faces / overhangs that may result in prehistoric archaeology findings. Upon identification of the Preferred Alternative, a refined APE will be defined, and more

detailed archaeology studies will occur to determine specific impacts to archaeological resources. Appropriate mitigation in coordination with the PHMC would then be developed dependent upon findings and proposed impacts.

Surface Water and Wetland Resources

Surface Waters

The Gray Cut Alternative will impact 8,483 ft. of stream channel. This includes 4,861 ft. of perennial streams, 523 ft. of intermittent streams, and 3,099 ft. of ephemeral channel. These impacts would result in the need for compensatory mitigation, as defined in the CWA Section 404 Compensatory Mitigation Requirements. A site-specific surface water mitigation plan will be developed and coordinated with the USACE and PADEP during final design. The approved mitigation plan will be implemented prior to, or concurrent with, construction of the highway.

Best Management Practices (BMPs) such as sequencing the construction to expose the minimum area of erodible soil necessary, applying temporary seed and mulch, watering or applying dust palliatives to disturbed areas, use of covered haul trucks, etc. would also be utilized during construction to prevent or minimize erosion and sedimentation associated with the construction of the proposed Project. As part of the NPDES for the proposed Project, a site-specific E&S pollution control plan will be developed, implemented, and maintained during construction and up to and including permanent stabilization as an effort to prevent sediment laden runoff from entering Waters of the U.S. and Commonwealth.

Wetlands

The Gray Cut Alternative would also impact 0.70 ac. of wetlands. The total acreage of direct wetland impact would be 0.67 ac., with an additional 0.03 ac. of indirect wetland impacts. The direct impact includes 0.46 acres of impact to PEM wetlands, 0.20 acres of impact to PSS wetlands, and less than 0.01 acres of impact to PFO wetlands. The indirect impact includes 0.02 acres of impact to PEM wetlands and 0.01 acres of impact to PSS wetlands. These impacts would result in the need for compensatory mitigation, as defined in the CWA Section 404 Compensatory Mitigation Requirements. A site-specific wetland mitigation plan will be developed and coordinated with the USACE and PADEP as a part of permit application requirements. It will be prepared to comply with the 2008 33 CFR Chapter II Part 332 – Compensatory Mitigation for Losses of Aquatic Resources (2008 Final Mitigation Rule) and PADEP Chapter 105 Dam Safety and Waterway Management requirements. As such, an investigation of the following mitigation options will be conducted: approved wetland mitigation bank, payment into a compensatory fund, and on-site / off-site wetland restoration and/or creation. Once approved by the appropriate agencies, the site-specific wetland mitigation plan will be implemented prior to or concurrent with construction of the proposed Project.

Threatened and Endangered Species Mitigation

Federally Listed Species:

The Gray Cut Alternative will avoid the adverse effects on the federally endangered Indiana bat maternity colony near Shawnee State Park and avoid adverse effects on the male Indiana bats whose summer ranges occur north of the existing Turnpike. However, this Alternative would still impact the Indiana bat in the form of the loss, degradation, or fragmentation of summer habitat, and impact one small cave hibernaculum and one additional potential hibernaculum, as well as increased risk of mortality due to bat collisions with vehicles. The Project area is also within the fall swarming, winter hibernacula, and summer maternity habitat of the federally threatened northern long-eared bat. The 4(d) Rule developed for the northern long-eared bat deemed that a critical habitat determination was not prudent (April 27, 2016). However, documented habitat includes caves and mines for hibernation and wooded areas for summer habitat. The Gray Cut Alternative will impact 211.81 ac. of forested habitat, and a small cave hibernaculum and another potential hibernaculum.

A Biological Assessment (BA) will be prepared and submitted to USFWS. Upon review of the BA, USFWS will issue a Biological Opinion (BO) regarding the impacts to the Indiana and northern long-eared bats. This document will

determine the appropriate mitigation measures to compensate for any impact to the Indiana and northern long-eared bat populations and/or habitat. Potential measures to reduce impacts to the bats under considered include time of year restrictions for timber clearing, coordination of blasting requirements, and the construction of a wildlife crossing designed to encourage bat and avian usage. It is anticipated that mitigation measures may be in the form of various conservation measures, reforestation efforts, and utilization of mitigation banks. The USFWS also recommends temperature and humidity data be collected in the hibernacula for several seasons prior to earthmoving activities as well as monitored post construction to determine whether the hibernacula microclimate has been altered.

The USFWS has also noted the risk to migratory birds as a component of their correspondence regarding the Project, including their most recent letter dated February 7, 2019. Over half of the proposed Project study area is located within the Important Bird Area (IBA) known as the Allegheny Front, and as such, has been identified as a critical region for conserving bird diversity and abundance. The Allegheny Front has been designated as an IBA partly due to the high concentration of raptors and songbirds that utilize this area during fall and spring migration. The proposed wildlife crossing for the Project will be designed with consideration of usage by avian species. Additionally, to avoid and minimize impacts to migratory birds within and around the project area the following measures will be utilized where possible:

- Where disturbance is necessary, clear natural or semi-natural habitats and perform maintenance activities between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, implementation of this seasonal restriction will avoid take of most breeding birds, their nests, and their young (i.e. eggs, hatchlings, fledglings).
- Minimize land and vegetation disturbance during project design and construction. To reduce habitat fragmentation, co-locate roads, fences, lay down areas, staging areas, and other infrastructure in or immediately adjacent to already disturbed areas.
- Because over half of the Project study area is located within an Audubon IBA, impacts to the IBA cannot be completely avoided, but will be minimized to the greatest extent possible. Additionally, the large wetland system to the west of the existing west portal of the Allegheny Tunnel will be bridged to minimize impacts to this unique habitat.
- Only plant species that are native to the local area will be used for revegetation of the project area.

State Listed Species

DCNR

The Gray Cut Alternative would impact 0.18 ac. of habitat supporting both the bog goldenrod and stiff cowbane, 1.21 ac. of mountain bellwort habitat, and 0.23 ac. and one (1) additional population (too small to determine by acreage) of Appalachian blue violet habitat.

The DCNR indicated in a letter dated December 16, 2019, that the priority species for this Project are thick-leaved meadow rue, bog goldenrod, stiff cowbane, and mountain bellwort. Minimization of impacts to Appalachian blue violet is recommended, but not the highest priority, since this species can tolerate disturbance. The DCNR suggested avoiding the population of thick-leaved meadow-rue and bog goldenrod if at all possible, and noted that if avoidance is not feasible, mitigation and monitoring will be required. They also recommended avoidance and/or minimizing impacts to mountain bellwort and stiff cowbane.

The Gray Cut Alternative would not impact the identified thick-leaved meadow rue populations. Coordination will continue with DCNR to work at avoidance and minimization of impacts to the plant species identified as potentially impacted by the Gray Cut alternative. If necessary, mitigation of these species would likely be in the form of relocating impacted plant populations, and other measures the DCNR deems appropriate.

PGC

The Gray Cut Alternative would impact approximately 1.61 ac. of potential Allegheny woodrat habitat. In addition, two (2) potential hibernacula and 211.81 acres of forest would be impacted for the little brown and tri-colored bats. With regard to the small-footed bat, 1 low quality, 2 medium quality, and 1 high quality habitat locations would be impacted by the proposed Gray Cut Alternative.

Since the listing of the little brown and tri-colored bats, the PGC requested additional mist-netting and telemetry studies, hibernacula investigations, roost habitat assessments and bat roost emergence counts be conducted by a USFWS qualified surveyor for the newly listed species. A copy of this letter can be found in Appendix E, Agency Correspondence. A teleconference meeting was held on March 24, 2020 with the PGC and USFWS to discuss additional bat surveys (Appendix I, Special Agency Meetings). It was noted the bat species listed above are present within the study area given the results of past hibernaculum and mist-net surveys (all species listed were present in the South Penn Railroad Tunnel Surveys and/or captured during previous mist-net surveys). The determination to conduct additional surveys on the preferred alternative in the near future was reached. A new PNDI search will be conducted for the preferred alternative giving the agencies a chance to update their information for one specific area as opposed to the very large study area used in this Environmental Document.

In addition to the studies already performed for the small-footed myotis, the PGC has requested bat roost emergence counts to be conducted prior to construction, to determine how much mitigation is necessary to offset impacts to eastern small-footed bat roost habitat. The emergence counts are to be conducted by a qualified bat consultant at all potential roost sites to be impacted by the selected alignment for a minimum of three nights per year: one night in mid-June, one night the second week of July, and a third night during the last week in July. The surveys are to begin ½-hour before sunset and continue for two hours each night and PGC datasheets must be completed for each roost and night that a survey is conducted. Results of all surveys requested are to be submitted to the PGC by December 31 of the year the survey(s) were conducted.

The PGC has also requested the following to avoid and/or minimize impacts to RTE species under their jurisdiction:

- The overall footprint of the project should be minimized to the greatest extent possible to avoid any unnecessary impacts.
- The previously identified potential Allegheny woodrat habitat areas and potential eastern small-footed roost areas identified within the project area be avoided to the greatest extent possible.
- Other rocky habitat within the project area that may be used by wildlife be avoided and minimized to the greatest extent possible.
- Fragmentation of the large continuous forest blocks found within the project area be avoided and minimized to the greatest extent possible.
- Habitat removal and/or disturbance within 1,000 feet (1/4 mile for blasting) of all identified hibernacula be avoided and minimized to the greatest extent possible.
- Tree removal within the project area be avoided and minimized to the greatest extent possible. If any tree removal is necessary, it shall be removed between November 15 and March 31, when bats are hibernating.
- All eastern small-footed bat roost habitat that needs to be removed to facilitate the construction of this project be removed when the bats are not using it, between November 15 and March 31.
- Adverse impacts to wetlands and other aquatic resources be avoided and minimized to the greatest extent possible and where possible, riparian buffers of at least 50 feet are maintained.

The noted PGC recommendations will be followed to the greatest extent possible. Potential mitigation measures may include stockpiling of removed rocky habitat and placement within other suitable habitat. Additionally, project-specific blasting plans will be submitted to the PGC and USFWS for review once they are developed. Coordination with the PGC will be on-going throughout the remainder of the Project to ensure avoidance and minimization of harm, and to ensure proper mitigation of any unavoidable impacts, including placement and design of wildlife crossings.

PFBC

The Gray Cut Alternative would not impact any of the identified timber rattlesnake habitat within the Project study area. Therefore, specific mitigation is not anticipated. However, due to the known presence of the timber rattlesnake in the Project area, all Project workers will be advised that timber rattlesnakes may be encountered and that avoidance is the best means of minimizing risks to personal safety. These workers will also be advised that the timber rattlesnake is a state-protected species and is not to be harmed. If any timber rattlesnakes are observed on-site, the PFBC will be notified.

Wildlife and Vegetation

The development of highways through forested areas has various effects on wildlife. The most significant effect is generally believed to be caused by the fragmentation of the forested habitat, which may alter the movement of wildlife within their home range while creating habitat and eventually home ranges for different species. The Gray Cut Alternative would impact a total of 264.86 ac. of differing habitat types, with the largest impacts to forested habitats.

Habitat disturbance and fragmentation has already occurred within the vicinity of the Gray Cut Alternative due to the existing Turnpike, strip mining, a reverting clear-cut area north of the existing Allegheny Tunnel, and several electrical utility line ROWs and access roads that cross the Project study area. The Gray Cut Alternative has been designed to follow the existing Turnpike roadway as close as possible utilizing previously disturbed area as much as possible. Contiguous habitat located north and south of the Gray Cut will remain undisturbed by the Project and will continue to provide large areas of forested habitat for wildlife use. To help compensate for the forest fragmentation that will occur because of the Gray Cut Alternative, and to provide a safe avenue of movement across the highway, a wildlife overpass crossing will be constructed as a component of the Project. Landscape design and the planting of the proposed wildlife overpass crossing will be developed in consultation with resource agencies to provide a crossing usable to bats and avian species as well as terrestrial animals. At Milepost 122.61, a wildlife crossing bridge will be constructed (Appendix B, Figure B-11, Wildlife Crossings). The bridge crossing is in 26 ft. of cut, is 200 ft. long and 100 ft. wide and will be constructed over the Alternative to allow wildlife to cross over the Turnpike. The crossing will be south of the existing Allegheny Tunnel. This location was chosen as it provides a crossing point for wildlife that is in line with the existing section of contiguous forest area that is found over the Allegheny Tunnel. This crossing, in conjunction with the structures over the UNT to Stonycreek River and the Raystown Branch Juniata River, are intended to provide locations along the new section of highway that will allow for the safe movement of wildlife.

The preliminary design of the wildlife crossing incorporates a 100 ft. wide structure that will stretch 200 feet across the proposed Turnpike, with a center pier located between eastbound and westbound lanes. Fencing will be placed on the parapets of the structure and will extend outward from the crossing towards the undisturbed forest line with the intent of guiding bats and avian species to utilize the crossing. The crossing itself will include a water-proof membrane, a layer of rock, a layer of an embankment incorporating rock and soil, as well as a layer of topsoil to allow for plantings on top of the structure. The primary vegetation is anticipated to be a mixture of native shrubs and small trees to encourage use by terrestrial animals as well as provide cover for bat and avian species. It is intended that the typical section of the crossing would consist of a small maintenance path vegetated with herbaceous plants located next to the parapets, with shrubs planted next, and finally taller trees located in the center of the crossing. It is anticipated that the proposed landscaping and planting designs may be revised as the Project progresses based on guidance from the appropriate resource agencies.

Conclusion

It is anticipated no significant impacts will occur with the incorporation of avoidance, minimization and mitigation measures.

9.0 Proposed Excess Excavation Area

The Project is anticipated to generate excess excavation material during the construction process. Therefore, a location for a proposed excess excavation site and associated temporary excess excavation access road was identified to determine the environmental impacts that may occur. The location of the proposed excess excavation area and temporary access road was chosen based on the site's ability to handle the capacity of generated excess excavation from a majority of the proposed alternatives, distance from the site, and the minimization of anticipated environmental impacts. The excess excavation area capacity is estimated at approximately 13,200,000 cy of waste and is considered sufficient for any of the proposed alternatives, except for the Yellow Cut Alternative, which proposes 25,399,084 cy of excess earth.

The proposed excess excavation area and temporary access road is located to the northwest of the Project study area. The excess excavation area and access road is subject to change if site, ownership, or Project circumstances change. The study area associated with the proposed excess excavation area and temporary access road consists of approximately 110.8 ac. The proposed excess excavation area, covered with perennial herbaceous vegetation, is a reclaimed Corsa Coal (formerly PBS Coals) strip mine called the Magneto Strip mine with a PADEP Site ID number of 242882. PADEP notes the site as reclaimed with chemical treatment and is in compliance. Also, during a meeting with PBS Coals in February of 2014, it was noted the only active permit area associated with the Magneto Strip mine was two treatment ponds southwest of the site. The proposed temporary access road contains upland, deciduous forest, scrub-shrub, and herbaceous land cover. The scrub-shrub and herbaceous land covers located in the northern portion of the temporary access road experiences routine maintenance associated with power line ROWs, gravel/dirt access trails, and wildlife food plots. Surface rock is also present within the portion of the temporary access road that follows the electrical power line ROW.

The study area associated with the proposed excess excavation area and temporary access road is shown on Figures G-1, G-2 and G-3. Figures G-1 and G-2 are presented on United States Geological Survey (USGS) topographic and aerial backgrounds, respectively. The USGS quadrangle coverage for the proposed excess excavation area and temporary access road study area consists of the New Baltimore and Berlin, PA USGS Quadrangles. The approximate center of this area is located at Latitude 39° 58' 49" North and Longitude -78° 51' 15" West. Field investigations were conducted on April 29 and May 1, 2014. Figure G-3 identifies environmental resources within the proposed excess excavation area and access road.

Active agricultural lands, residents, residential wells or community facilities are not located within the proposed excess excavation area and temporary access road areas. Field investigations did not note any potential areas of hazardous materials concern. Soils within the proposed excess excavation and temporary access road area include:

UDA – Udorthents, mine spoil, 0 to 8 percent slopes – hydric inclusions in wet spots
UDD – Udorthents, mine spoil, 8 to 25 percent slopes – hydric inclusions in wet spots
BrB – Brinkerton silt loam, 3 to 8 percent slopes – hydric
HbB – Hazleton very stony sandy loam, 3 to 8 percent slopes
UDF – Udorthents, mine spoil, 25 to 70 percent slopes
RpD – Rayne-Gilpin very stony silt loams, 8 to 25 percent slopes
CaB – Cavode silt loam, 3 to 8 percent slopes – hydric / Farmland of Statewide Importance
CbB – Cavode very stony silt loam, 0 to 8 percent slopes - hydric
HzB – Hazelton very boulder sandy loam, 0 to 8 percent slopes

The proposed excess excavation area is comprised primarily of reclaimed mine lands and is not targeted for further extraction of coal or other mineral resources as indicated in a meeting with Corsa Coal, formerly PBS Coals, on February 4, 2014 (please see Section 11.0 of this EA).

Four (4) streams, including one (1) perennial stream, one (1) intermittent stream, and two (2) ephemeral streams were identified crossing the proposed access road. The streams are UNTs to the Stonycreek River (CWF); and are considered Waters of the U.S. Stonycreek River is not identified by the PA Fish and Boat Commission (PFBC) as an Approved Trout Water (ATW), nor is it classified as a Class A Wild Trout Stream or a Stream Section that Supports Natural Reproduction of Trout by the PFBC, therefore, the UNT's identified do not carry those classifications. The temporary access road will impact 499 feet of stream channel, including 79 linear feet of perennial channel, 168 feet of intermittent channel, and 252 feet of ephemeral channel. Due to the length of time the access road will be in place (greater than one year), the impacts to these streams are considered permanent.

Five (5) palustrine wetland resources were also identified within the area of the proposed excess excavation area and temporary access road, including four (4) PEM wetlands and one (1) PSS/PEM wetland. Three (3) of the identified PEM wetlands are located within the proposed excess excavation area. One additional PEM wetland and one PSS/PEM wetland were identified along the temporary access road. Impacts to the wetlands within the potential excess excavation area would be avoided. A total of 0.05 acres of wetlands would be impacted by the proposed temporary access road (less than 0.01 acres PSS/PEM and 0.04 acres PEM). These wetlands will be considered permanently impacted for permitting purposes, as the temporary access road will be in place for greater than one (1) year. Additional details on wetland and surface water delineation conducted for the excess excavation area and access road can be found in the July 2014 *Wetlands and Waters of the United States Findings Addendum Report,* within in the Project technical file.

Rare, threatened and endangered (RTE) species coordination occurred with the appropriate regulatory agencies in the Winter of 2019-2020, which included the proposed excess excavation area and temporary access road. Each response referred to their respective agency's previous letter for the species of concern located within the Project study area, with the exception of the PGC which listed two additional bat species. A summary of agency correspondence regarding RTE species can be found in Section 11.3.4 RTE Species Correspondence, and copies of all correspondence letters can be found in Appendix D – Agency Correspondence.

Historic and archaeological resource studies for the excess excavation area and access road were conducted in 2011, 2012, and 2016 by Heberling Associates, Inc. The studies revealed no National Register listed or eligible historic properties within the excess excavation site and proposed access road as documented as part of the September 2016 *Addendum to Historic Resources Update*. The PHMC concurred with these findings in a letter dated November 21, 2016. The archaeological predictive model used for the rest of the Project study area indicates the excess excavation and access road contain 0.53 acres of high probability area.

Both the excess excavation area and much of the proposed access road have experienced previous disturbance. The topography of the excess excavation area will be permanently altered due to the amount of excess excavation to be placed, but the area will be revegetated according to an approved E&S Control plan and is expected to accommodate the same wildlife species that currently exist in the area. The temporary access road will also be re-vegetated as appropriate. The area, currently maintained as powerline ROW, will remain as it is following the construction of the Project.

Temporary impacts to noise and traffic may occur as a result of the work associated with the proposed excess excavation area and access road. Three (3) residential homes are located within approximately 500 feet from the proposed excess excavation and access road. The noted receptors may experience increased noise levels during certain periods of construction. If identified during the final design noise analysis, a more detailed consideration of construction noise and associated abatement/mitigation will be undertaken, consistent with the availability and detail of anticipated construction scheduling and operations. Construction of temporary noise barriers will be considered as will the possibility of developing construction noise specifications and/or special provisions related to construction time periods, duration of construction activities, types of construction equipment, and/or equipment noise levels.) Significant traffic related issues are not anticipated as a result of the location of the proposed excess excavation area

and temporary access road. Traffic related impacts would be considered temporary in nature, as the duration of construction is anticipated to take place over a two (2) year timeframe. Coordination with MFSC will occur as the Project progresses should a crossing of Bluebird Lane be necessary for the proposed access road.

The above noted impacts are not included in the Alternative Comparison Matrix (Section 6.15) completed for the Project, or in the overall impact total for the Gray Cut Alternative. The impacts noted above will be included in the permitting and mitigation for this project. However, depending on the yet to be identified contractor's means and methods they may choose to utilize a different access route and/or excess excavation area at the time of construction. Should the selected contractor decide not to use the above noted access road and/or the proposed excess excavation area, they will be required to obtain all environmental clearance for any selected alternative(s) before they are needed.

10.0 Public Involvement

Public involvement has been and continues to be a critical part of the Allegheny Tunnel Transportation Improvement Project. It includes special interest group meetings, public official debriefs, and general public plans displays. Public involvement began as early as November 1996 for the project and continued through 1999. The project was then placed on hold in early 2001. The public involvement process commenced once again when the project was re-initiated in 2010. The PTC has and will continue to incorporate public and agency input into their Project decisions. The following is a summary of meetings since the Project's re-initiation in 2010. Please see Appendix H – Public Involvement for the respective meeting minutes or meeting summaries. Public involvement summaries for meetings prior to 2010 can be referenced in the *Preliminary Alternatives Analysis* (February 1999) and the *DRAFT Detailed Alternatives Analysis and Environmental Studies* (September 1999, Revision August 2001) that were completed for the Project, which are located within the Project technical file.

MFSC July 2011 Meeting
July 25, 2011
6:00pm
Mountain Field and Stream Club, Berlin, PA

At the July 25, 2011 meeting, the Project was re-introduced to the MFSC. Nine (9) MFSC members attended the meeting along with six (6) Project team members. The attendees were informed of the status of the Project and updates that had occurred since the previous stoppage of the Project in 2001, including the addition of the southern Gray Alternatives. A discussion was then held with MFSC members, who had an opportunity to voice their questions and concerns. MFSC noted a revision was needed on a map of their property that was presented at the meeting. It was also indicated that the Club is concerned about their property being cut in half and that a southern tunnel might be a favorable option for them. MFSC also asked if the completion of SR 0022 and SR 0219 was included in the most recent traffic study, and they requested notification prior to start of field work on their property. A copy of the meeting minutes and sign-in sheet can be referenced in Appendix H.

MFSC October 2013 Meeting
October 10, 2013
6:30pm
Mountain Field and Stream Club, Berlin, PA

At the October 10, 2013 meeting, a presentation was given to provide project-specific information such as project timeline, needs and corridors, environmental constraints, existing conditions, cultural resources, alternatives, and MFSC access based on alternative. The meeting was attended by seven (7) MFSC members, and seven (7) Project team members. After the presentation, a question and answer period was held to address any concerns that the MFSC members had. In addition, each attendee was provided a comment form to complete at the meeting or complete and return later. A response letter dated November 25, 2013 was received from the MFSC that expressed a preference for a tunnel option, as a cut option would bisect the club's property and associated function and value. A copy of the meeting minutes and sign-in sheet can be referenced in Appendix H, as well as a copy of the November 25, 2013 letter.

Public Officials 2013 Meeting
October 16, 2013
4-5pm
Quality Inn Banquet Room, Somerset, PA

A presentation was given at the Public Officials Meeting which addressed the project needs, timeline, corridors, existing conditions, and alternatives for the Allegheny Tunnel Transportation Improvement Project. Seven (7) Project

team members and two (2) public official representatives were in attendance. After the presentation, a question and answer period was opened to the attendees. An Allegheny Township Supervisor asked what alternative was preferred by the PTC. The Project team noted that there was no preferred alternative at the time of the meeting. A Somerset County Commissioner asked it the PTC was trying to eliminate all tunnels on the Turnpike system. The Project team explained that this Project was a stand-alone project based on the age and condition of the existing Allegheny Tunnels as well as current traffic studies. The Somerset County Commissioner expressed a preference for a tunnel option. A copy of the meeting minutes and sign-in sheet can be referenced in Appendix H.

Public Plans 2013 Display
October 22, 2013
5-7pm
Quality Inn Banquet Room, Somerset, PA

The meeting was held to gather input from the public about the Project. The public was informed of the meeting by advertisement in the Somerset Daily American on October 5th and 19th, 2013 and in the Bedford Gazette on October 6th and 20th, 2013. Thirty-five (35) attendees and eleven (11) Project team members were in attendance. The plans display included 10 stations which provided information for the public. The public was also provided a comment form to address their concerns about the Project. They were able to discuss the project with members of the Project team. A copy of the meeting summary with attachments can be referenced in Appendix H, and a summary of verbal and written comments is listed below.

Summary of Verbal Comments:

- Some alternatives may have the potential to landlock properties. Need to further investigate how properties are being accessed.
- The Borough of Berlin's public water supply is located south of the Turnpike and members of the water authority would like to see further analysis concerning potential impacts from the southern alternatives.
- Higher design speeds are required as trucks approaching the tunnel westbound constantly ride on the rumble strips.
- It seems the bats are given more priority than humans.
- The Yellow Corridor is the most logical because it has the straightest alternatives.
- Tunnel alternatives are very expensive.
- Residents of New Baltimore have concerns over potential flooding and impacts to drinking water as a result of the project.
- One resident along SR 160 has a wastewater treatment system very close to the existing Turnpike. They are concerned about potential impacts from the project.
- Abandoned tunnels could be utilized as fallout shelter, storage facility or military installation.

Summary of Written Public Comments:

- The location of the Berlin Borough water supply is of concern regarding the southern alternatives. The Yellow Tunnel option appears to be the best for Berlin. Casselberry Associates should be contacted for input concerning the wells. The Borough needs proof of no impact to their water supply.
- The primary source of Berlin Borough's water supply comes from the Mauch Chunk aquifer. The Berlin Water Authority is against any alternative that will diminish the quantity and/or quality of their water supply. Hydrologists must be consulted in advance of any decision. Contact the Municipal Authority's Office for more information on the location of the wells.
- A request for the alternatives' matrix was made. This person preferred the cut alternatives to eliminate the diversion of prohibited vehicles from the Turnpike. Of the cut options, the Yellow Cut provides a long and high bridge for wildlife crossing.

- The Yellow Cut is favored to remove the tanker trucks from SR 31.
- Access to a cabin property may be cut off with all alternatives.
- Eliminate tunnels, remove gas trucks from SR 31, Yellow Cut preferred.
- The wildlife crossings are not enough. What will be done for property owners affected?
- The Yellow alternatives are preferred, as they remove the curve.

PBS Coals, Inc. 2014 Meeting
February 4, 2014
1:30PM
PBS Coals Office, Friedens, PA

The meeting with PBS Coals, Inc. was held in regards to a potential excess excavation area being proposed for the Project. PBS Coals has a mining permit for this area known as Magneto and has an active treatment system on it (several ponds). Further discussion revealed the permit PBS Coals holds on the potential excess excavation area may be limited to the ponds. The active permits PBS Coals hold are located north of this area. However, the Augusts deep mine may also have been in this area. PBS Coals indicated that they would conduct a review of their active permits to verify the boundaries. The PBS Coals representatives did not think the placement of excess excavation on the identified site would impact active operations of PBS Coals. It was noted that the information would need reviewed with their supervisors.

Public Officials 2020 Briefing
January 16, 2020
4-5pm
Quality Inn Banquet Room, Somerset, PA

A presentation was given at the Public Officials Meeting which addressed the project needs, timeline, corridors, existing conditions, project impacts, and preferred alternative for the Allegheny Tunnel Transportation Improvement Project. Fifteen (15) Project team members and nine (9) public official representatives were in attendance. After the presentation, a question and answer period was opened to the attendees.

The following questions and comments were taken throughout the presentation and after.

- Question: Are there additional property impacts or just Mountain Field and Stream Club (MFSC)?
    - Response: All alternatives have additional partial takes. The Gray Tunnel Alternative has one displacement.
- Question: What crossing would MFSC have if the shared use wildlife crossing was denied by the agencies?
    - Response: A connection road will be provided under the crossing of the Raystown Branch of Juniata River and across the existing tunnel.
- Question: Who owns the property proposed as the excess excavation area?
    - Response: PBS Coals owns this property and previous coordination occurred.
- Question / Statement: It appears the Gray Cut Alternative still includes a curve within the eastern portion of the alignment. How is this fixing the substandard curve? What is determined as acceptable today (in engineering criteria) will not be acceptable within the next couple of years. There is a constant labeling of substandard on the roadways that requires some fix.
    - Response: The curve proposed at the eastern end of the alignment is flatter and designed for a 70 MPH speed.
- Statement: It appears the Pennsylvania Turnpike Commission (PTC) does not take into account any of the public comments and does what they want.

  - Response: All projects follow a process and public comments are included in the environmental document. The comment forms that are completed are included as exact reproductions of what was submitted. Everyone is invited to provide written comment.
- Question: What process is being followed?
  - Response: The U.S. Army Corps of Engineers (USACOE) is the lead federal agency. There is no federal funding involved in this project, but there is a federal action of acquiring a permit. The project environmental document will be advertised as available for public comment for 30 days. All comments received here and during the 30-day comment period become part of the environmental document. The USACOE will also advertise the project in the Federal Register for comment when the permit is in the review process.
- Question: What papers were the plans display advertised in? Were the affected property owners notified?
  - Response: The advertisement was included in the Somerset Daily American and Bedford Gazette. The project is not in the phase of property acquisition negotiations yet. An alternative is being proposed to move forward in design. Property owners were notified of the meeting. *(This statement was later retracted as specific meeting notices were not sent, only intent to enter letters were sent to property owners during past years.)*
- Question: What was submitted? You (PTC) stated you submitted something and now are saying you did not.
  - Response: Nothing has formally been submitted. The project is following the USACOE process. Sharing of information with agencies has occurred as necessary to meet the imposed State and Federal regulations. The environmental document will include public comment prior to submission to the USACOE.
- Statement: There is no concern for people, only animals and plants. The Townships will be losing property tax revenue as the PTC does not pay anything when they acquire the land. The Yellow option is a straight line that would impact less properties and should be the obvious choice. Also, engineering design 40 years ago was deemed as acceptable, but now is substandard. How long until the new roadway will be outdated?
  - Response: The Yellow Cut results in a very large cut within the ridge area creating a huge amount of excess excavation that would require multiple waste areas. This becomes costly and the environmental impacts are much larger because of it. Design of the alternatives is required to follow current day criteria.
- Question: The Gray Cut Alternative will result in the roadway being very close to residents' homes. Should a take be considered?
  - Response: The moving of the roadway does not require a take, but the PTC has worked with residents in the past that wanted to be taken as a result of the roadway moving closer to their residences.
- Statement: The Yellow option is the best. Cannot understand why so much consideration is given to environmental resources. It is not more important than people.
  - Response: The project is required to follow State and Federal regulations.
- Statement: The County would be willing to house the environmental document for public review.
- Question: What timeframe are we looking at for construction?
  - Response: Once an alternative is chosen, the project will move through preliminary and final design and permitting. That can take two to three years and construction will take two to three years. Best case scenario is 2025 or later.

A copy of the meeting notes and sign-in sheet can be referenced in Appendix H.

Public Plans 2020 Display
January 16, 2020
6-8pm
Quality Inn Banquet Room, Somerset, PA

The meeting was held to gather input from the public about the Project. The public was informed of the meeting by advertisement in the Somerset Daily American and in the Bedford Gazette on January 6, 2020. Forty-six (46) attendees and fifteen (15) Project team members were in attendance. The plans display included 11 stations which provided information for the public. The public was also provided a comment form to address their concerns about the Project. They were able to discuss the project with members of the Project team. A copy of the meeting summary with attachments can be referenced in Appendix H. The comment forms received from the meeting and responses follow.

ALLEGHENY tunnel
PENNA TURN PIKE
Transportation Improvement Project

Public Plans Display – January 16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

Tunnel only !!

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15131

Fax: 814-472-7712

All responses must be received by February 6, 2020

Comment form received at the January 16, 2020 meeting
Response

Tunnel Only: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative.

While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a full width shoulder that provides multiple benefits:
    - a recovery area exists if a driver errantly departs from a lane,
    - should a vehicle become disabled the shoulder provides an area of refuge
    - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:
    - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
    - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

ALLEGHENY tunnel
PENNA TURN PIKE
Transportation Improvement Project

Public Plans Display – January 16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

In my opinion the gray alternative looks to be the optimal solution. It would appear impacts are minimal and would provide a safe alternative to the current roadway alignment.

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15131

Fax: 814-472-7712

All responses must be received by February 6, 2020

Comment form received at the January 16, 2020 meeting
Response

Gray alternative looks to be optimal solution: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible.

While tunnels are safe, an open cut has additional safety advantages:

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    - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:
    - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
    - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

Somerset County Conservancy

Box 241, Somerset PA 15501

PA Turnpike Commission

27 January 2020

Dear Commissioner

The Somerset County Conservancy would like to express its opposition to the proposed "cut" alternatives for the Allegheny Mountain project. Allegheny Mountain is the longest continuous ridge in the Eastern United States running from New York to West Virginia and forms the Eastern Continental Divide separating watersheds heading into the Mississippi River and Gulf of Mexico from those flowing into the Atlantic Ocean. It also contains nearly contiguous forested lands along its spine providing important wildlife habitat and migration corridors. Creating one of the largest transportation cuts in the country through this mountain would have many devastating environmental impacts.

The mammoth cut would in itself directly destroy hundreds of acres of forested mountaintop in addition to creating many more acres of new edge habitat which is detrimental to interior forest breeding birds. The waste rubble would then again destroy hundreds more acres of forest and potentially headwater streams depending on the location of the "disposal site". The Allegheny Mountain contains important aquifers which would be daylighted including some such as the Mauch Chunk which contains large quantities of the highest quality water in the region. Surface streams including the Stonycreek River and Raystown Branch of the Juniata River would be directly impacted by the large quantities of ice melting chemicals which will be necessary to deal with the worst overall weather conditions on the Turnpike to which travelers can be exposed.

The elevation of Allegheny Mountain results in some of the worst weather conditions along the entire mainline turnpike. High snowfall, frequent ice storms, high wind and especially excessive fog (which is essentially low cloud cover at all seasons) is encountered much more frequently on the mountaintop than in the rest of the notoriously snowy Somerset County. The fog and ice line is frequently just above the west portals of the Allegheny Tunnels. A large cut will also serve as a cold "drain" allowing the 5 to 10 degree colder air of Somerset County to sink down along the Turnpike corridor towards Bedford County. The weather conditions on the very high elevation Allegheny Mountain are worse than the already problematic mountain crossing areas of the Turnpike on Laurel Mountain and Sideling Hill.

Somerset County Conservancy

This project has been studied for over 20 years and the PA Turnpike appears to steadfastly refuse to look at an option that would optimize environmental concerns, traveler safety, and cost. The idea of building a single (possibly 3-tube) west to east tunnel aligned to ease the east side curve (possibly the "Gray Tunnel Alternative") while sequentially rehabbing both of the existing tunnels for west bound traffic (possibly separating trucks and passenger cars) could result in a beautiful alternative.
Modern, LED lit; spacious tunnels are enjoyed by travelers in many U.S. states and overseas countries—why not in Pennsylvania?

Copies of your consultant's complete report on the alternatives needs to be available for review by concerned parties—can they be made available? The informational type of public meeting where concerned citizens are isolated around a room is not sufficient to share comments and concerns on such an important topic. A public hearing, perhaps sponsored by our local state elected officials, would best have issues and answers freely discussed. Can this request be arranged?

Sincerely,

James Moses, President SCC

Cc: Gov. Wolf
Sen. Stefano
Rep. Metzgar
PA DEP
PA FBC
PAGC
US FWS
US Sen. Casey & Sen.Toomey
US Rep. Joyce

Somerset County Conservancy Letter January 27, 2020
Responses to issues identified

Contiguous forested habitat and migration corridors will be impacted: Wildlife movement will be impacted by a cut alternative. The project team has proposed one dedicated overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

Project would create one of the largest transportation cuts in the country: While 249 feet of cut is large, it is dwarfed by the "Pikeville Cut-Through" near Pikeville, KY with a depth of over 520 feet, and another larger cut in closer proximity (34 miles southeast) is the I-68 cut through Sideling Hill with depth of 340 feet.

Gray Cut Alternative would destroy hundreds of acres of forested mountaintop and create more edge habitat: The Gray Cut alternative impacts 211.8 Acres of forest. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing the edge habitat created by the existing turnpike and thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative.

The waste rubble (excess excavation) would destroy hundreds more acres of forest: The proposed excess excavation area is 98.5 acres and located on an area of a reclaimed strip mine. Forest impacts are not anticipated.

The waste rubble would potentially destroy headwaters: The excess excavation area is located in an area of a reclaimed strip mine with no headwater streams present.

Important aquifers will be daylighted: There will be localized ground water impacts by all of the alternatives. There were 2 hydrogeologic reports prepared to evaluate the impacts to the aquifer for the Berlin Water Authority (located approximately 8,000 ft south of the project). Both reports conclude there will not be adverse effects to the Berlin water supply. The project team will continue coordination with the Water Authority and conducted additional studies locally throughout the design and construction of the project to ensure water sources are not interrupted.

Adverse effects to surface waters from deicing chemicals: The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River. The Turnpike currently uses deicing agent on the roadway over both waterways. All alternatives (cut and tunnel) will cross these same waterways and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions.

Bad weather: The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of

weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

A large cut will serve as a cold "drain" towards Bedford County: There are natural gaps in the Allegheny Ridge where geologic formations are interrupted. Ten natural gaps exist in the ridge within a 20-mile radius of the project site. They range from 132 ft to 640 ft in depth and an average width of approximately 3,000 ft. One of the existing gaps in the Allegheny Ridge is the location where SR 0031 crosses over the ridge. That location is just 1.7 miles south of the project and has a depth of 294 ft. The Gray cut has very similar depth but much narrower top width to the natural gaps in the ridge and thus not expected to impact weather patterns further east of the project area.

PA Turnpike appears to steadfastly refuse to look at options that would optimize environmental concerns, traveler safety, and cost: The project team has evaluated many alternatives. There were 12 preliminary alternatives and 8 detailed alternatives (with numerous variations of the detailed alternatives, in addition to multiple alignment shifts and evaluation of reusing and/or widening the existing tunnels). The major rehabilitation of the existing tubes for westbound traffic and constructing a new 3-lane tunnel for eastbound traffic did reduce the overall construction cost slightly compared to the proposed tunnel alternatives, but there is an added increased operation and maintenance cost due to the addition of another tunnel. This option also has additional safety concerns of requiring westbound traffic to diverge prior to entering the tunnel and then merge upon exit. In addition to safety concerns, the reuse of the existing tubes would also need to address the substandard horizontal curves on the east end of the tunnels. The current curves have a design speed of 50 MPH. To upgrade to the current design standards of 70 MPH, the excavation associated with the cut necessary to correct the curves and the area needed for geotechnical remediation due to the presence of an ancient landslide would impact the vast majority of the north facing hill side of the area east of the Raystown Branch Juniata River. This would likely result in greater impacts and a substantially higher cost compared to the Gray Cut alternative.

- Look at options to minimize environmental concerns: The project team has evaluated many alternatives as discussed above. No one alternative is lowest in all the environmental resources impact categories, but the Gray Cut has lower wetland impacts compared to the Gray Tunnel and does not impact the travel corridor of the Federally and State listed threatened and endangered bats that all of the northern alternatives impact. The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain a permit including PA Code 25 Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species Act and the National Historic Preservation Act to mention a few.
- Look at options for traveler safety concerns: While tunnels are safe, an open cut has additional safety advantages:
    - The cut alternative has a full width shoulder that provides multiple benefits:
        - a recovery area exists if a driver errantly departs from a lane,
        - should a vehicle become disabled the shoulder provides an area of refuge
        - drivers have additional space if they are adjacent to a distracted driver
    - Tunnels require periodic maintenance including:
        - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
        - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
    - Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

- Look at options to minimize cost: The Turnpike strives to be a good steward of the environment, they also work to be financially responsible to the facility users and the State. The Gray Cut Alternative is the most cost-effective alternative.

Rehabilitation of existing tunnel with construction of additional tunnel south of the existing tunnel: Multiple hybrid variations of using one or both of the existing tubes were evaluated. Several of the variations included performing major rehabilitation on the existing tubes for use of westbound traffic, build a new 3-lane tube for eastbound traffic and address the substandard curve to the east of the existing tunnel, or rehabilitating just the southern 2-lane tube, abandon the northern tube, build an additional 2-lane and a 3-lane tube and flatten the substandard curve. Both variations have two issues. The first is the 4-lane westbound traffic would be required to diverge east of the new tunnels and then merge west of the tunnels, while this is possible it creates a less than desirable traffic pattern. Second and more critical issue is that both variations require the revising of the existing curve east of the tunnel to meet the minimum curve radius. The required minimum radius and maintaining the elevation of the existing tunnel would have a major impact to the area of geotechnical remediation associated with the Gray Cut Alternative. The impacted area of the ancient landslide would be substantially larger for the alternatives using the existing tube(s)than compared to the Gray Cut Alternative. This would result in increased forest removal and potentially additional aquatic resource impacts.

Copies of the complete report on the alternatives needs to be available for review by concerned parties: The environmental document will be made available for public comment at multiple locations.

Public hearing requested: The project has had multiple public plans displays where the project team has solicited public comment. The Allegheny Tunnel Transportation Improvement Project is fully funded by Turnpike funds with no federal funds involved. The only federal action of the project is the requirement of a Clean Water Act Section 401 and 404 permit from the U.S. Army Corps of Engineers (USACE). This action places the USACE as the lead federal agency. The USACE will afford additional opportunity for public comment during the permit review process.

Mountain Field and Stream Club
363 Lincoln Street
Somerset, PA 15501

January 29, 2020

Pennsylvania Turnpike Commission
P.O. Box 676767
Harrisburg, PA 17106-7676

Re: Allegheny Tunnel Transportation Improvement Project

Ladies and Gentlemen

The Mountain Field and Stream Club has reviewed the information provided at the public open house the Pennsylvania Turnpike Commission (Commission) and it's consultant L. R. Kimball (Kimball) held in Somerset on January 16,2020. The presentation indicated that the Commission had chosen the Gray Cut as its preferred alternative for improving traffic needs through the portion of the highway near the Allegheny Tunnel. The Gray Cut option, as well as the other cut options, create a permanent chasm through the Allegheny Mountain that will have a devastating effect on the land, water, aquatic and wildlife resources of the area. Motorists traveling the cut options will be subject to the adverse weather conditions found on the Allegheny Mountain such as fog, freezing rain and snow subjecting them to unnecessary risk. For these reasons and many others the Mountain Field and Stream Club does not believe that any of the cut options provide the best solution for the traveling public, the residents of Somerset County, the impacted landowners and the natural resources of the area.

The exhibits presented, while informative, did not provide enough information for the public to review and analyze the assumptions, raw data, technical analysis, cost information and other scientific and engineering reports that led to the selection of the Gray Cut as the preferred option. Without access to that information, it is impossible to formulate an independent opinion as to the conclusions reached by Kimball and the Commission. Therefore we here by request, under the Freedom of Information Act, a copy of the above referenced information that was prepared for this project by Kimball and or the Commission. Please advise as to how this information may be obtained.

Finally, after receipt of the information requested above and some time for review the Mountain Field and Stream Club believes a public hearing is appropriate so the stakeholders can provide constructive comments and opinions regarding the Allegheny Tunnel Transportation Improvement Project.

Thank you for your cooperation in this matter. As a club focused on conservation it is very important to us that an option is selected that meets the needs of the traveling public but also conserves the irreplaceable natural resources of the Allegheny Mountain.

Sincerely,

Randall L. Musser P.E. P.L.S.
Chair, MFS Club Turnpike Committee

cc: Pennsylvania Turnpike Commission, New Stanton Office
Somerset County Commissioners
MFS Club file

Mountain Field and Stream Club
363 Lincoln Street
Somerset, PA 15501

February 18, 2020

LR Kimball
615 West Highland Av.
Ebensburg, PA 15931
Attention: Ms. Tammy Sherwin

Re: Allegheny Tunnel Transportation Improvement Project

Dear Ms. Sherwin

The Mountain Field and Stream Club is opposed to any of the cut options proposed to improve transportation on the turnpike in the vicinity of the Allegheny Tunnel. For obvious reasons, the cut options ruin the hunting ground that the Club has work for so many years to acquire and preserve. Please insert the attached letter, which was mailed to the Turnpike Commission, into the record.

As the letter requests, the Club needs a copy of the environmental and engineering reports that formed the basis for the decisions reached by Kimball and the Commission. As you know, the Club has always provided access to our land and cooperated with Kimball and their consultants as they studied this area. I would expect Kimball and the Commission would extend the same courtesy to the Club as we both work to reach the best solution. Please contact me at 814-233-0351 to arrange for the transfer of this information.

Thank you for your cooperation in this matter. As a club focused on conservation it is very important to us that an option is selected that meets the needs of the traveling public but also conserves the irreplaceable natural resources of the Allegheny Mountain.

Sincerely,

Randall L. Musser P.E. P.L.S.
Chair, MFS Club Turnpike Committee

cc: Somerset County Commissioners, via email
MFS Club file

Mountain Field and Stream Club Letter January 29, 2020
Response to issues identified

The Gray Cut option, as well as the other cut options, create a permanent chasm through the Allegheny Mountain that will have a devastating effect on land, water, aquatic and wildlife resources of the area: The project team has evaluated many alternatives over the course of the project. There were no Project action alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one dedicated wildlife overhead crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of the wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including 25 PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

Motorists traveling the cut options will be subject to adverse weather: The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected the Gray Cut Alternative will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for

sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

Request project information used to make the decision the Gray Cut Alternative is selected as the preferred under the Freedom of Information Act: The PTC will comply with a request under the State Right to Know Act and release final documents dated December 16, 1999 and later completed for the study.

A public hearing is appropriate so the stakeholders can provide constructive comments and opinions: The project has had multiple public plans displays where the project team has solicited public comment. The Allegheny Tunnel Transportation Improvement Project is fully funded by Turnpike funds with no federal funds involved. The only federal action of the project is the requirement of a Clean Water Act Section 404 /401 permit from the U.S. Army Corps of Engineers (USACE). This action places the USACE as the lead federal agency. The USACE will afford additional opportunity for public comment during the permit review process.

ALLEGHENY TURNPIKE tunnel
Transportation Improvement Project

Public Plans Display – January 16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

CLARKE ROMESBERG 650 GILMOUR RD SOMERSET PA 15501
AS A SOMERSET COUNTY CONCERNED CITIZEN.
I FEEL THE 01/16/2020 MEETING WAS POORLY PUBLISIZED.
ANOTHER MEETING SHOULD BE SCHEDULED AT BERLIN
COMMUNITY BUILDING. CLOSER TO PEOPLE EFFECTED.
LANDOWNERS CLOSE TO PROJECT WERE TO BE CONTACTED
AND WERE NOT.
I FEEL ANY SOLUTION SHOULD ALSO TAKE OUT
TWO ~~FERN~~ CURVES EAST OF TUNNEL. IT ALSO SHOULD
BE DONE AS CHEAPLY AS POSSIBLE.
THEREFORE I FEEL THE YELLOW CUT SOLUTION
AT AN ESTIMATED COST OF $378,000,000 WOULD
BE THE BEST PLAN TO PROCEED WITH
THANK YOU! Clarke Romesberg
814-443-3941

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15131

Fax: 814-472-7712

All responses must be received by February 6, 2020

Clark Romesberg Comment Form January 31, 2020
Response to issues identified

The meeting was poorly publicized and another one should be held at Berlin Community Building: The plans display was advertised in the Somerset Daily American and Bedford Gazette. Federal, State and local government offices were also notified of the plans display. Since the project inception in 1996 the public plans displays/meetings have been held at the Somerset Quality Inn. Future meeting locations will be evaluated.

Land owners close to the Project were to be contacted and were not: The project is currently in the planning or environmental stages and does not include the task of right of way acquisition. Once the project progresses into final design, right of way acquisition negotiations will occur with property owner notifications.

Any solution should take out the two curves east of the tunnel: Each alternative evaluated eliminates the sub-standard curves to the east of the existing Allegheny Tunnels. Correcting substandard geometry was identified as a project need and must be met for any alternative to move forward.

Project should be done as cheaply as possible: The Turnpike strives to be a good steward of the environment, they also work to be financially responsible to the facility users and the State. The Gray Cut Alternative is the most cost-effective alternative at $332,400,000 (least expensive of all the considered design alternatives).

Yellow Cut Alternative is the best plan to procced with: The project team has evaluated many alternatives over the course of the project including the Yellow Cut Alternative. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Yellow Cut Alternative would adversely impact a known travel corridor for Federal and State listed threatened and endangered bats. This alternative would impact 154.56 acres of forest and three (3) state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project. The Yellow Cut Alternative includes the deepest cut of the proposed Alternatives, at approximately 400 ft. This extensive cut results in the greatest excess excavation quantities of all the alternatives at 25,399,084 cubic yards. This is more than double that of the next greatest amount of excess excavation produced by an alternative. This amount of excess excavation could not be accommodated within the excess excavation area currently proposed for the Project, and additional areas would be required, likely resulting in addition property and environmental impacts. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. As noted, the Gray Cut Alternative is not without environmental impacts; therefore, federal and state permits will be required.

ALLEGHENY tunnel
PENNA TURN PIKE
Transportation Improvement Project

RECEIVED
FEB 03 2020
CDI - L. R. KIMBALL
EBENSBURG, PA

Public Plans Display – January 16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

① Yellow cut is straighter with no curves and would be deeper saving 300 thousand every year for other projects.
② Water concerns for cabin well and pond (disturbance of natural water supply)
③ Structure of cabin during construction with it being in the middle of project
④ Road access to cabin
⑤ Dust, dirt, noise from project.
⑥ Lessen the value of property.
⑦ Notification of drilling when on property and just compensation for road to drill sites on my property and adjoining lands. Compensation for tree removal if needed for drilling rig.
⑧ Reclaim land that was disturbed by drilling with seed (grass)

Patrick J. Krupper
814-267-4161 - H
814-289-9685 - C
Property - 259 Turnpike RD.

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15131

Fax: 814-472-7712

All responses must be received by February 6, 2020

Tammy,
Please add to my other letter I sent.
Thanks,
Patricia Kuppe

LETTER TO THE EDITOR

Building a killer bypass

After attending Allegheny tunnel Improvement project meeting Jan. 16, it sounds like LR Kimball has plans for the Pennsylvania Turnpike Commission to build the gray option bypass (cut) south of exciting tunnels. I believe a bypass would become a killer for many reasons:

1. Loss of life — A PTC study shows no significant difference in safety between tunnels and a bypass (not sure if this takes in Somerset county weather.) With treacherous weather, a cut would be affected by high winds, white outs, and freezing rain. A dense fog and freezing ice line forms above 2,300 feet. The design calls for a dangerous 2,000 foot long bridge built on a 7% downhill grade and on a sweeping curve. East morning sun would bring out black ice and create a skating rink.

2. Flooding — By removing hundreds of acres of forest land (nature natural sponge) and replacing it with 3.8 miles of blacktop, the run off from 3,000 foot elevation to 1,400 feet would flood Raystown Branch and New Baltimore with every hard rain.

3. No access across top of mountain except for one small game crossing of 600 feet. This could hurt wildlife as predators would close in on this area.

4. Acid mine run off (could we see another I-99 disaster) — Removing 18 million cubic yard of overburden, this would require a several hundred acre dump site. Once unearthed and exposed to air and rain it would create a toxic run off that would affect Lake Stonycreek and Stonycreek River.

5. Hazardous water — Under the mountain is a pocket of high iron water that has over 100 ppm. We still see the effects of 50-year-old bore holes that are artesian wells leaking out orange water. Could a cut bring more problems like this?

6. Pollute a public drinking supply — Berlin's drinking water could become contaminated from hazardous spills, chemicals and salt runoff leaching into its water sources.

7. Destroying an eco system which has beauty and balance of a forested mountain.

8. Cost — I don't believe cost estimates are accurate. In 2000 the cut costs were $91 million and tunnel was $140 million. In 2014 the cut was $300 to $694 million. Today a cut is $332 million and $702 million for the tunnel. Why is cost so different? PTC says tunnels need to be replaced because of their age.

It was built in 1940 and 1965 comparing to Squirrel Hill Tunnel that was built in 1953 and it's being used every day and has a lot more traffic. There's no talk of tearing them out.

PTC has created this problem by not taking care of them over the past 25 years. PTC has said the tunnels ability to protect motorist in adverse weather is not a sufficient reason to choose a tunnel option. What cost does PTC put on loss of human life, flooding, water contamination, habit changes, and eco system? It seems like $400 million. Once a cut is built there's no going back. Damage is done — forever.

Here's another option

Make Route 219 south a turnpike extension, could put exits onto 219, no need for toll booths with EZ pass. The system interchange would remain in Somerset. This would relieve congestion at tunnels and also in Breezewood with Route 30.

John Fox
Stonycreek Township

All responses must be received by February 27, 2020

Patrick Krupper Comment Form February 3, 2020
Responses to issues identified

Support for Yellow Cut Alternative (straight and cheaper): The project team has evaluated many alternatives over the course of the project including the Yellow Cut Alternative. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Yellow Cut Alternative would adversely impact a known travel corridor for Federal and State listed threatened and endangered bats. This alternative would impact 154.56 acres of forest and three (3) state-listed plant species under the jurisdiction of the DCNR that were noted as species of most concern for the Project. The Yellow Cut Alternative includes the deepest cut of the proposed Alternatives, at approximately 400 ft. This extensive cut results in the greatest excess excavation quantities of all the alternatives at 25,399,084 cubic yards. This is more than double that of the next greatest amount of excess excavation produced by an alternative. This amount of excess excavation could not be accommodated within the excess excavation area currently proposed for the Project, and additional areas would be required, likely resulting in addition property and environmental impacts. The Turnpike strives to be a good steward of the environment, they also work to be financially responsible to the facility users and the State. The Yellow Cut Alternative has the lowest operation and maintenance cost but does not present the least environmentally damaging practical alternative as noted above. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project.

Disturbance of water supply: There will be localized ground water impacts for all of the alternatives. The project team will continue to conduct additional studies locally throughout the design and construction of the project to ensure water sources are not interrupted.

Concern for structure of cabin during construction: The contractor will be required to analyze blasting impacts on the surrounding environment. Further investigations and property owner meetings will occur as the project moves forward.

Road access to cabin: The design of the Gray Cut Alternative includes an access road to the Cabin.

Dust, dirt, noise from project: Once under construction the contractor will implement best management practices to control noise, dust and dirt. They may include working during certain times, applying water to dusty areas, and sweeping roads clean.

Lessen value of property: The PTC will hold property owner meetings as the project progresses to discuss the project's affect to property.

Notification when drillers enter property: The drilling company is to notify property owners prior to entering property.

Restore disturbed land by drilling: The drilling company is to restore land upon disturbance.

Please add Opinion Editorial "Building a Killer Bypass" to my other letter: The article was attached to the comment form.

Public Plans

Ms. Hazel Romesberg
940 Humbert School Rd
Rockwood, PA 15557

Please Provide Your Comments or Suggestic

The plans for turnpike construction needs to include work on these horrible curves near the current Allegheny tunnel. Drivers are not able to negotiate those S curves.

The speed limits and curves put drivers at risk.

Thank You.
Hazel Romesberg
Mrs. Hazel Romesberg, Jr.

L.R Kimball
Attn Tammy Sherwin
615 West Highland Ave.
Ebensburg PA. 15131
Fax 814-472-7712

Three injured

Three people were hurt in a two-vehicle crash Jan. 16 on the Pennsylvania Turnpike in Allegheny Township.

State police said a car driven by Hannah Boyer, 19, of Mantua, Ohio, was disabled from a previous accident and was blocking the left lane. A second driver, Mary Stamy, 67, of Pittsburgh, was driving west and was unable to avoid Boyer's vehicle, whose lights were no longer functioning.

After impact, Boyer's car rotated counterclockwise and came to rest in the left lane. The car sustained disabling damage.

Boyer and passengers in both vehicles — Erick Kengni, 19, of Silver Spring, Maryland, and Marion Fisher, 54, of Pittsburgh — sustained suspected minor injuries but were not taken to a hospital, according to police. Stamy and passenger Jennifer Muse, 52, of Pittsburgh, were not hurt. Police were assisted by Berlin EMS.

Five vehicles collide on turnpike

No one was hurt in a five-vehicle, chain-reaction accident Jan. 16 on the Pennsylvania Turnpike in Allegheny Township.

State police said the crash happened as drivers attempted to avoid an earlier accident near Tunnel Road. All vehicles were traveling in the left lane. The first vehicle, an SUV driven by Julie Lepere, 30, of Harrisburg, came to a controlled stop in the left lane and was struck by an SUV driven by Samuel Johnson, 25, of Idaho Falls, Idaho.

The crash also involved vehicles driven by Jack Johnson, 51, of Idaho Falls, Idaho, Richard Weidman, 41, of Seven Valleys, and Kyle Johnson, 23, of Fairfax, Virginia.

Four of the drivers were cited for failing to drive at a safe speed, according to police.

Tractor-trailer involved in crash

Coleman Coles, 40, of Lenoir, North Carolina, was driving west on the Pennsylvania Turnpike in Allegheny Township Jan. 18 when he encountered ice and slush on the roadway.

His rig jackknifed and slid across three lanes, striking a concrete barrier with its front end, according to state police. After impact, the tractor-trailer slid west, its front end still in contact with the center barrier for approximately 210 feet.

Coles was not injured. Police said he was driving too fast for the conditions.

ALLEGHENY tunnel
PENNA TURN PIKE
Transportation Improvement Project

Public Plans Display – January 16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

Dear Allegheny Project: Please work on Curves near The tunnel. The curves are very dangerous and by straightening the highway + then using the best route to replace the tunnel this would be the best solution to the problem.

The 5 Curves and necessary Signs for slowing down are the problem. Reroute the tunnel for safety and best use of less + less land construction.

Thank you for listening.

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15131

Fax: 814-472-7712

All responses must be received by ~~February 6, 2020~~

Hazel Romesberg Comment Form February 3, 2020
Response to issues identified

Work on curves east of the tunnel: Each alternative evaluated eliminates the sub-standard curves to the east of the existing Allegheny Tunnels. Correcting substandard geometry was identified as a project need and must be met for any alternative to move forward. The Gray Cut alternative incorporates horizontal curves that meet or exceed the minimum radius of 1,818.9 ft, the current horizontal curve east of the existing tunnel has a radius of only 954.9 ft which is approximately half of the allowable minimum radius as defined by AASHTO.

Straighten the highway and reroute the tunnel for safety: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Each of the design alternatives eliminates the sub-standard curves east of the tunnel. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project.

While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a full width shoulder that provides multiple benefits:
    - a recovery area exists if a driver errantly departs from a lane,
    - should a vehicle become disabled the shoulder provides an area of refuge
    - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:
    - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
    - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

ALLEGHENY tunnel
PENNA TURN PIKE
Transportation Improvement Project

RECEIVED
FEB 05 2020
CDI - L. R. KIMBALL
EBENSBURG, PA

Public Plans Display – January 16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

The more than 5,200 men and women of the Somerset County Sportsmen's League wish to go on record as being totally opposed to any form of Allegheny Mountain bypass on the Pennsylvania Turnpike.

A bypass would be a eternal monument to environmental and aesthetic disaster. Generations to come would be amazed at the callousness of any organization responsible for such environmental irresponsibility.

The financial numbers presented at the meeting in Somerset, January 16, 2020 are questionable. We would have to see numbers from other institutions, not connected with the Pennsylvania Turnpike, for the identical project to be convinced of their accuracy.

We understand the needs of the Turnpike and are open to a new tunnel project. We feel that the environmental and aesthetic impacts would be far less by drilling a new tunnel.

Sincerely
Richard Berkley
President - Somerset County Sportsmen's League

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15131

Fax: 814-472-7712

Richard L. Berkley
904 Stewart St.
Berlin, PA 15530

All responses must be received by February 6, 2020

Somerset County Sportsmen's League February 5, 2020
Response to issues identified

Opposed to any form of a bypass for environmental and aesthetic reasons: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one dedicated overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including 25 PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge.

There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut

will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

Financial numbers presented at the meeting are questionable: The Turnpike strives to be a good steward of the environment, they also work to be financially responsible to the facility users and the State. The Gray Cut Alternative is the most cost-effective alternative.

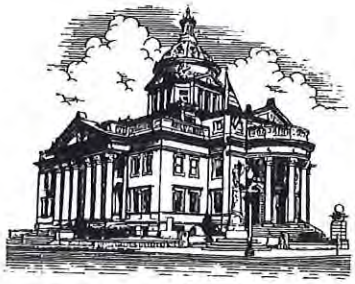
Construction cost estimates have substantially increased over the duration of this project. RSMeans Construction Cost Index provides ways to review historical trends with construction costs and can be utilized to assist with developing trend lines to estimate future construction cost increases. The RSMeans Index starts with a base year in January 1993 has a value of 100. At the time the first construction cost estimates were developed for the Allegheny Tunnel Project, in July of 1997, the index was 112.8. The last updated index was in July 2019 and had a value of 239.1. Averaging the annual increases between 1997 to 2019 yields an average annual increase of 3.31%. Using the average construction cost increase over the last 22 years, the projected cost index for the anticipated bid year would be 320.5. Based on a comparison of the cost index at the start of the project of 112.8 compared to the projected index of 320.5 at the proposed time the project would be bid, it would be expected to see costs increase by a factor in the general range of 250% to 310%. However, the best method of estimating costs is to compare unit costs for recent similar projects.

The first construction cost estimates published in 1997 were based on unit cost of major items at that time with a small factor for escalation of costs. As the project progressed the unit cost of items were updated based on more current information. One of the major updates occurred after US 219 Somerset to Meyersdale was bid, unit costs from this project were used to update earthwork, pavement and bridge unit costs. Additionally, the bid date for this Turnpike Project was extended well beyond the originally anticipated bid date which caused a larger escalation factor to account for inflation of construction cost.

The original cost estimates for the tunnel options were based on constructed costs of older tunnels in the United States with adjustments to account for cost increases due to time and other factors and were also based on construction techniques from other locations including Europe. The tunnel construction cost was updated later in the project by comparing the proposed tunnel to the Caldecott Tunnel constructed near Oakland, California, this project was bid in 2009 and included the addition of one new tube 50 ft wide and 32 ft high. The Caldecott Tunnel is of similar dimension to the proposed tunnels and used construction techniques that were considered for both tubes required for the Allegheny Tunnel. Based on the Caldecott Tunnel costs for items specific to the tunnel construction excluding pavement and barrier in the tunnel, an overall cost of $115.8 million was calculated for the construction of the Caldecott Tunnel. The Caldecott Tunnel is 3,400 feet in length which yields a $34,058 cost per linear foot of the tunnel. The Caldecott Tunnel costs were adjusted based on the RSMeans Catalog city cost index (a regional factor used to adjust cost in different locations) for Oakland, CA. (116.2) and Pittsburgh, PA. (99.6). The Costs in Pittsburgh are 86% of the costs in Oakland. A 25% increase to these costs was applied to account for unidentified work. This results in an Allegheny Tunnel Linear Foot Adjusted Cost of $36,500 per linear foot of tunnel. To account for inflation of construction cost (an annual increase in cost since 2009 to time of the estimate yielded) a Linear Foot Adjusted cost of $42,778 was applied per linear foot of tunnel for the updated cost used in 2017.

Open to a new tunnel project due to less environmental and aesthetic impacts: Please see the first response above.

SOMERSET COUNTY COMMISSIONERS



300 North Center Avenue, Suite 500 • Somerset, PA 15501
(814) 445-1400 • (814) 445-7991 Fax
www.co.somerset.pa.us

February 3, 2020

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Gentlemen:

The Somerset County Commissioners stand in solidarity with and in full support of the stance of our constituents in opposition to the Pennsylvania Turnpike - Allegheny Tunnel Transportation Improvement Project. According to the PTC website, "The Gray Cut Alternative has been selected as the Project Preferred Alternative by the Commission and it's consultant, L.R. Kimball, as it best balances the environmental, engineering, operational, cost, and safety considerations that are components of this Project." We respectfully disagree with the findings of the Commission.

In our opinion, the proposed cut will have a devastating impact on the environment of both Somerset and Bedford Counties. Groundwater loss will impact the wetland and water sources of the region. Stormwater runoff, and the addition of roadway materials, will impact streams, rivers and public water sources.

High on our priority, as elected officials, is the safety of our residents and that of the public traveling through our area. The weather on the top of the Allegheny Ridge is unique. No one understands the patterns better than the local residents. Many tell of the fog line just above the entrance to the tunnel and of the unpredictability of snow and ice. The addition of the bridge contributes adversely to the icing concerns. We have another ridge in our county, the Laurel Ridge, on top of which was constructed a bypass for the Laurel Hill Tunnel. The bypass area is a safety concern for all who travel the turnpike on a regular basis. The conditions at the top of the ridge are, quite often, treacherous, while the condition of the roadway just a few hundred feet lower is acceptable.

Perhaps the most significant argument in opposition to the cut is that of history, beauty and quality of life. Many of our ancestors crossed the Allegheny Mountain and settled in the beauty of Somerset County. This mountain ridge is a part of our heritage. We have a responsibility to our children and grandchildren to preserve this beauty of nature at its finest. The ridge serves as the Continental Divide in Pennsylvania, with waters from the eastern side draining into the Atlantic Ocean and waters from the western side draining into the Gulf of Mexico. The flora and fauna of the ridge is unique. What impact does this cut have on it, not just directly, but indirectly. The wildlife is abundant. Many species use the ridge as a travel corridor. In addition, many local hunters, hikers, youth groups and historians walk this ridge. This ridge is a mountain. You can't "make" a mountain, and it is our responsibility to preserve it.

This Board of Commissioners will remain opposed to any cut of the Allegheny Mountain for transportation purposes, just as those Boards before us.

In closing, we would ask that you hold a public forum where you can hear and address our constituents. We will gladly serve as facilitators for this and look forward to your anticipated cooperation.

Sincerely yours,

SOMERSET COUNTY BOARD OF COMMISSIONERS

GERALD WALKER, Chair

COLLEEN R. DAWSON, Vice Chair

PAMELA A. TOKAR-ICKES, Secretary

SCBC/ska

pc: Pennsylvania Turnpike Commission

Somerset County Commissioners Letter February 3, 2020
Responses to issues identified

The proposed cut will have a devastating impact on the environment: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower aquatic resource impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing the edge habitat created by the existing turnpike and thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one dedicated overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of the wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

Safety of our residents and public traveling through the area: While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a shoulder that provides multiple benefits:
    - a recovery area exists if a driver errantly departs from a lane,
    - should a vehicle become disabled the shoulder provides an area of refuge
    - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:

  - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
  - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

Weather: The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

Responsibility to preserve the mountain: It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge.

There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

Also, a majority of the land within the project is private property and the owner can choose to clear cut or alter the land as they see fit at any time. The PTC will make every attempt to produce an aesthetically pleasing project.

Public forum requested: The project has had multiple public plans displays where the project team has solicited public comment. The Allegheny Tunnel Transportation Improvement Project is fully funded by Turnpike funds with no federal funds involved. The only federal action of the project is the requirement of a Clean Water Act Section 404 / 401 permit from the U.S. Army Corps of Engineers (USACE). This action places the USACE

as the lead federal agency. The USACE will afford additional opportunity for public comment during the permit review process.

Transportation Improvement Project

COMMENT FORM

Please Provide Your Comments or Suggestions:

The PA Turnpike Commission attempt to limit comment on this project is sickening. Insisting on a specific form and not allowing it to be submitted electronically is a wonderfully Orwellian method to control what is received. Like your execution of the turnpike interchange at Somerset, your plan for the Allegheny Tunnel suits you and no one else. It will prevent an uncrossable barrier for wild-life that will not be solved by a thirty foot wide bridge in over a mile of cut. The cut goes straight through a hunting club that was in existence prior to the turnpike. The Turnpike Commission apparently thinks as little about private property as it does about public comment. Everywhere else in the world countries are building tunnels to limit environmental damage and avoid taking private land. Not in PA where the Turnpike Commission believes in doing as little as possible for the public good. Re-do the tunnels. Stop designing solutions that destroy habitat and steal private land.

Jim Bowers

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Fax: 814-472-7712

All responses must be received by February 27, 2020

Messages » Results » Contact ID# 199091

jim bowers

Address from CRM:
Street1: 1765 GEIGER RD
Street2:
City: FRIEDENS
State: PA
Zip: 15541
Zip2:
Country:

General | Messages (2) | Outreach (0) | Services (0) | Events (0) | Boards (0) | Log (2)

Home Address

1765 Geiger Road
Friedens, PA 15541-7603
PA13 Somerset County

Business Address

1765 GEIGER RD
FRIEDENS, PA 15541

Online Info

Email: jeb1958@gmail.com

Phone Numbers

Hm Phone: (181) 444-3972
(181) 444-3972

Household Members

None

Organization Contacts

None

Attachments

Affiliations

CORRESPONDENCE - Correspondence Tracking Contact

Discussion (0)

Email Viewer

Message | Details | Attachments | Headers | Source

HTML

From: "PA Web Forms" <forms@pa.gov>
Date: 2/6/2020 6:16:43 AM
To: "pagov@iq.pa.gov" <pagov@iq.pa.gov>
Cc:
Subject: Contact Form

The PA Turnpike Commissions plan to bulldoze part of the Allegheny Front is a terrible idea. Their method of public comment is designed to limit comment, not invite it. You must use their form, it can't be electronically submitted, and must be mailed or faxed. The PA Turnpike Commission has long ago outlived it's usefulness. I'm not in favor of the state taking private land to make messes. The hunting club that owns the property impacted by the Allegheny Tunnel project was in existence prior to the turnpike. The Turnpike Commission wants to take over a mile of land, replace it with a thirty foot wide animal bridge and call it a day. Let's replace the Turnpike Commission instead.

Close

James Bowers Comment Form February10, 2020
Responses to issues identified

PTC attempt to limit comment: The PTC accepts multiple forms of comment including mail, fax, website, and emailing. The comment form provided did not specifically mention email submissions. It was not the PTC's intent to limit comment and all forms of comment are accepted.

Un-crossable barrier for wildlife that will not be solved by a 30-foot wide bridge: The project team has proposed one dedicated overhead wildlife crossing 100 feet wide and 200 feet long and two large bridges over stream valleys to serve as underpasses to facilitate north south wildlife movement. The wildlife crossing is located south of the existing Allegheny Tunnel. This location was chosen as it provides a crossing point for wildlife that is in line with the existing section of contiguous forest area that is found over the Allegheny Tunnel. This crossing, in conjunction with the structures over the Unnamed Tributary to Stonycreek River and the Raystown Branch of Juniata River, are intended to provide multiple locations along the new section of highway that will allow for the safe movement of wildlife. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

The cut goes straight through a hunting club that was in existence prior to the Turnpike: The Project will impact several private property owners and it is understood the Mountain Field and Stream Club owns a large amount of property affected by the Project. The PTC is required to follow their acquisition process and provide fair compensation for impacts to property. The design of the Gray Cut alternative includes creating an access road to connect the MFSC property and additional discussions will be held during the right of way acquisition process.

The Turnpike Commission thinks little about private property: The Project will impact private property owners. The PTC and its designers make every attempt to minimize right away takes as much as possible. However, if unavoidable, the PTC is required to follow their acquisition process and provide fair compensation for impacts to property. Once the project progresses into final design, right of way acquisition negotiations will occur with property owners. The PTC will notify and meet with each affected property owner.

The Turnpike Commission thinks little about public comment: The PTC will take into account public comment. All comments received as a result of the public involvement process are documented in the Environmental Document. The environmental process requires the PTC to avoid, minimize and mitigate environmental impacts to natural, cultural and social resources. Several permits are required to be obtained prior to construction and public comment is incorporated into the decision to issue or deny a permit.

Re-do the tunnels: A conceptual design and cost estimate was developed by Paul C. Rizzo Associates, Inc. for widening both the east bound and west bound tunnels. An evaluation of the available geologic and geotechnical information was presented and the suitability of various types of excavation equipment was evaluated.

Based on the existing information and time constraints imposed on the construction, widening of the existing Allegheny Tunnel was determined not practical for the following reasons:

- Disturbance to the South Penn Railroad Tunnel, directly or indirectly due to construction activities, has the potential to affect the federally endangered Indiana bat, and other bat species that utilize this known hibernaculum.
- Potential failure to provide adequate ventilation during construction activities will reduce traffic visibility due to dust.

- The cost of widening the existing Allegheny Tunnel and associated roadway improvements is nearly $500 million.
- The progress of the project is affected by maintenance of traffic, low production rates of excavation and seasonal restrictions, resulting in an unacceptable construction duration of up to twenty (20) years.
- Traffic cannot be in a tunnel during the installation or disassembly of the tunnel shield, resulting in bi-directional traffic in the one tunnel that is not being worked on. The sequential closings of the tunnels, or reduction to one lane of traffic for a day or two, occurs for a total of two hundred thirteen (213) intermittent days. Numerous traffic stoppages will also be associated with blasting. The traffic control measures required with the widening of the existing tunnels are not practical due to the interruption of traffic flow, increased potential of accidents and substantial congestion generated by these operations.
- The contractor will have reasonable and appropriate safety measures in place; however, due to the nature of the construction activities and confined working space adjacent to traffic, there is a substantially increased risk of a major incident occurring during the widening of the existing tunnels.

Additionally, multiple hybrid variations of using one or both of the existing tubes were evaluated. Several of the variations included performing major rehabilitation on the existing tubes for use of westbound traffic, build a new 3-lane tube for eastbound traffic and address the substandard curve to the east of the existing tunnel, or rehabilitating just the southern 2-lane tube, abandon the northern tube, build an additional 2-lane and a 3-lane tube and flatten the substandard curve. Both variations have two issues. The first is the 4-lane westbound traffic would be required to diverge east of the new tunnels and then merge west of the tunnels, while this is possible it creates a less than desirable traffic pattern. Second and more critical issue is that both variations require the revising of the existing curve east of the tunnel to meet the minimum curve radius. The required minimum radius and maintaining the elevation of the existing tunnel would have a major impact to the area of geotechnical remediation associated with the Gray Cut Alternative. The impacted area of the ancient landslide would be substantially larger for the alternatives using the existing tube(s)than compared to the Gray Cut Alternative. This would result in increased forest removal and potentially additional aquatic resource impacts.

ALLEGHENY TUNNEL
PENNA TURNPIKE
Transportation Improvement Project

Public Plans Display – January16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions: Hello Tammy

After the meeting I really didn't have any comments. I understand the need for the project.

But recently I talked to my TWP. SUP. On his meeting he was shown a map with my ground on it. They plan on useing my ground to put the fill on that comes out of the Cut.

Cand have a meeting with someone who can explain how is this work. Do the take my ground? Or do they just pay me to place it there? How much ground do they need Ect.?

Thank You Very Much !!

Mark D. Creamer

#814-233-5305

P.O. BOX 288
Berlin, PA.
15530-0288

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Fax: 814-472-7712

All responses must be received by February 27, 2020

Mark Creamer Comment Form February 12, 2020
Response to issues identified

Requested a meeting to discuss the placement of fill on his property: The PTC contacted Mr. Creamer on February 14, 2020 via phone to discuss the project.

ALLEGHENY TUNNEL
PENNA TURNPIKE
Transportation Improvement Project

Public Plans Display – January16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

I am adamantly opposed to any of the cut options. The grey cut is particularly bad as it is longer than the others and will increase the dangerous curve on the eastern side. The cuts will have a much more detrimental effect on the environment than any of the tunnel options.

Thank you
John W. Harvey
167 Oak Hill Drive
Friedens, PA 15541

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Fax: 814-472-7712

All responses must be received by February 27, 2020

John Harvey Comment Form February12, 2020
Responses to issues identified

Opposed to a cut. Cuts will have more detrimental effects on environment than tunnels: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike and thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one dedicated overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of the wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

Increase the dangerous curve on the east side: The Gray Cut alternative incorporates horizontal curves that meet or exceed the minimum radius of 1,818.9 ft, the current horizontal curve east of the existing tunnel has a radius of only 954.9 ft which is approximately half of the allowable minimum radius as defined by the American Association of State Highway Transportation Officials (AASHTO).

Somerset County Chamber of Commerce
601 North Center Avenue
Somerset, PA 15501
814.445.6431 FAX 814.443.4313
info@somersetcountychamber.com

February 21, 2020

LR Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA. 15931

To whom it may concern,

The Somerset County Chamber of Commerce supports the stance of the Somerset County Commissioners in opposition to the PA Turnpike – Allegheny Tunnel Transportation Improvement Project. The identified Gray Cut Alternative; selected by the commission and L.R. Kimball will create a definitive hardship on our county in many ways that would have a lasting devastating impact on our environment in both Somerset and Bedford Counties. The chamber supports the interests of over 700 businesses and organizations and we feel confident that they all oppose this project for its negative impact on our environment and the lives of their employees and families.

Somerset County, part of the beautiful Laurel Highlands region is well known as an outdoor recreation venue that draws millions of visitors a year to our mountains, streams and outdoor recreation destinations. This project would have a severe long-term financial impact on our local hospitality/tourism sector and other support businesses. The Allegheny Tunnel area is the postcard entrance into Somerset County and the beauty of the pristine mountains and forests are all a part of what attracts visitors to the county. To spoil that view is just impossible to comprehend. Plus, the ridge serves as the Continental Divide, which separates two distinct water basins, flowing to the Gulf of Mexico and the Chesapeake Bay.

We, again, support the wishes of the County Commissioners to hold a public forum so you can hear from our residents and others who would be impacted from this project and would be happy to assist the commissioners in promoting the forum.

We strongly oppose any cut to the Allegheny Mountains, as it will have a devastating impact on our region and one that we can never get back.

Respectfully,

Ron Aldom
Executive Director
Somerset County Chamber of Commerce

Somerset County Chamber of Commerce February 21, 2020
Response to issues identified

Opposed to Gray Cut Alternative for environmental and aesthetic reasons: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one overhead and two structures over stream valleys to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of the wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

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It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge.

There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut

will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

Public forum requested: The project has had multiple public plans displays where the project team has solicited public comment. The Allegheny Tunnel Transportation Improvement Project is fully funded by Turnpike funds with no federal funds involved. The only federal action of the project is the requirement of a Clean Water Act Section 404 / 401 permit from the U.S. Army Corps of Engineers (USACE). This action places the USACE as the lead federal agency. The USACE will afford additional opportunity for public comment during the permit review process.

LR Kimball ATTN: Tammy Sherwin Feb. 21, 2020

Building a KILLER BYPASS

After attending Allegheny tunnel improvement project meeting January 16, 2020

Sounds like LR Kimball has summit plans to Pa Turnpike Commission for a

Gray bypass (cut) south of exciting tunnels. I believe a Bypass would

Become a killer for many reasons

1) Loss of life

A PTC study shows no significant difference in safety between tunnels and a by pass

(not sure if this takes in Somerset county weather) with treacherous weather a cut

Would be affected by high winds, white outs, and freezing rain. A dense fog and

Freezing ice line forms above 2300'. The design calls for a dangerous 2000' long

Bridge built on a 7% downhill grade and on a sweeping curve. East morning sun

Would bring out black ice and create a skating rink.

2) Flooding

By removing hundreds of acres of forest land (nature natural sponge) and replacing

it with 3.8 miles of blacktop, run off from 3000' evelation to 1400' would flood

Raystown Branch & New Baltimore with every hard rain.

3) No access across top of mountain except for one small game crossing of 600'

This could hurt wildlife as predators would close in on this area

4) Acid mine run off (could we see another I -99 disaster)

Removing 18 million cubic yard of overburden this would require a several hundred

Acre dump site. Once unearthed and expose to air & rain it would create a toxic run off

That would affect Lake Stonycreek & Stonycreek River

5) Hazardous water

Under mountain is a pocket of high iron water over 100 ppm, we still see effects of 50 year old

Bore holes that are artesian wells leaking out orange water. Could a cut bring more problems like this?

6) Pollute a public drinking supply

Berlin's drinking water could become contaminated from hazardous spills, chemicals & Salt runoff leaching into its water sources

7) Destroying an ego system, beauty & balance of a forested mountain

8) Cost

I don't believe cost estimates are accurate In 2000 cut cost were 91 million & Tunnel was 140 million In 2014 cut was 300 to 694 today a cut is 332 tunnel 702 million. Why is cost so different? TPC says tunnels need replace Because of age built In 1940 & 1965 comparing to squirrel hill tunnel built in 1953 its being used Every day & lot more traffic, no talk of tearing them out. TPC has created this problem by not taking care of them the past 25 years. TCP has said tunnels ability to protect motorist in adverse weather is not a sufficient reason to choose a tunnel option. What cost does TPC put on loss of Human life, flooding, water contamination, Habit changes, & ego system, seems like 400 million. Once a cut is built there no going back Damage is done – Forever

Other option

Make Rt 219 south a TP extension, could put exits onto 219 no need for toll booths with EZ pass System interchange would remain In Somerset this would relieve congestion at tunnels & also In Breezewood, traveling Rt 30 It can take 20 minutes to go 1 mile with trucks blocking 3 lanes & missing light cycles Tunnels could be refurbish and still are money ahead for decades of Maintenance

John Fox

John & Kathy Fox
426 Big Rock Road
Berlin PA 15530

John Fox Comment Article February 21, 2020
Responses to issues identified

Loss of life – safety and weather: While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a full width shoulder that provides multiple benefits:
  - a recovery area exists if a driver errantly departs from a lane,
  - should a vehicle become disabled the shoulder provides an area of refuge
  - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:
  - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
  - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

Flooding: The alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions. As a part of the National Pollutant Discharge Elimination System (NPDES) permit the PTC is required to complete a Post - Construction Stormwater Analysis that assures there will not be an adverse impact to downstream waters and property owners.

No access across mountain top for wildlife: The project team has proposed one dedicated overhead wildlife crossing 100 feet wide and 200 feet long and two large bridges over stream valleys to serve as underpasses to facilitate north south wildlife movement. The wildlife crossing is located south of the existing Allegheny Tunnel. This location was chosen as it provides a crossing point for wildlife that is in line with the existing section of contiguous forest area that is found over the Allegheny Tunnel. This crossing, in conjunction with the structures over the Unnamed Tributary to Stonycreek River and the Raystown Branch of Juniata River, are intended to provide locations along the new section of highway that will allow for the safe movement of wildlife. As the project continues, the

project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of the wildlife crossings.

Acid mine run off (could we see another I-99 disaster): Water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

Hazardous water and pollute a public drinking supply: Water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. Additional studies will be conducted during final design to identify areas of concern regarding groundwater. Two (2) preliminary analyses were conducted regarding potential project impacts to the Berlin Borough public water supply. The first was conducted by Casselberry and Associates in 2000. The report analyzed the Orange, Brown, Yellow and Red corridors. The Red Tunnel alternative was in close proximity to the location of Gray Corridor. As noted in the 2000 report, the major conclusions of C&A's study are as follows:

- The closest public water supply source to the Allegheny Mountain Tunnels is the Berlin Borough Well Field. The capture zone for this well field lies some two miles up-gradient of the project area. Therefore, none of the potential Turnpike improvement scenarios pose any threat of contamination or diminution to Berlin's water supply.
- The aquifer systems local to the area, affected by the Turnpike improvement options, have extremely small, mountain-slope, recharge areas and contain limited groundwater resources. Therefore, none of the improvement scenarios have the potential to impact a regional drinking water source. At this point and time, use of the aquifer systems located in close proximity to the existing and future-potential Turnpike corridors is limited to a low density of rural residential and agricultural groundwater supplies.
- A comprehensive groundwater supply study of Somerset County was completed to identify potential groundwater sources for municipal use. The closest potential well field to the Turnpike project study area lies on the Stoney Creek valley floor some 8000 feet west of the existing tunnels. This potential well field targets an aquifer unit that would not be disturbed by the proposed roadway improvements. Therefore, none of the roadway construction scenarios contemplated in this project pose a threat to aquifer systems that could be utilized in the future for the development of regional groundwater sources.
- The potential impacts of the proposed project will be limited to local-scale problems involving:
    - Interception of shallow groundwater systems that provide base flow to small perennial streams, wetlands and domestic water supply sources.
    - Groundwater and surface water contamination resulting from construction activities (siltation) and the eventual application of deicing compounds.

The second study was conducted in 2016 by L.R. Kimball to evaluate the Gray Corridor. The following areas were assessed:

- Well quantity
- Water quality

- Contamination of recharge area
- Infiltration of surface contaminants
- Impacts to well field aquifer

Contamination to the Borough water supplies is not likely; as ground and surface water flow directions do not traverse or migrate from the Project area to the wells or springs. In addition, the Borough wells are situated south of a wind gap between ridges that define the Allegheny Front. This "break" or gap in the ridge complex creates a topographic barrier, which will provide protection from potential acid contamination resulting from construction of a selected alternative. Water encountered from the excavation will be captured and treated as necessary prior to release to surface water systems. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The thin section analysis confirmed that most of the pyrite occurs as microscopic grains, some of which is framboidal. The nature of the framboidal pyrite will deteriorate at a faster rate for large grains. The thin section work also produced images that confirm the rock type, sulfidic type and depositional characteristics.

The wells and Project area share geologic rock/units associated with the Mauch Chunk / Burgoon sequence. Based on previous well reports (Casselberry, 2000); capture zones associated with the wells and these geologic units are not within the study limits of the Gray Corridor. As for the immediate Allegheny Front, regional groundwater flow is in part controlled by the fracture network associated with the Raystown Branch of the Juniata River valley. Where flow is directed to the Raystown Branch of the Juniata River Valley (both surface and subsurface). A component of groundwater flow associated with this fracture system flows to the northeast in a similar flow direction of the river away from the Borough water supplies.

Topographically the springs lie southwest of the Project and reside in a different ridge complex than the Project. The springs are situated "up gradient" and are located 3.5 miles southwest of the Project area. In consideration of the proposed Project Corridors, existing site and geologic characteristics, contamination resultant of the Project to the Borough water supplies is not likely.

The 2016 report also notes the following recommendations should be considered as the project progresses to alleviate concerns and have a mitigation plan in place for unforeseen circumstances:

- The blasting plan to be used in construction must take into consideration the distance to the recharge area of the Berlin well field and springs. There are approximately 1.6 miles of separation distance between the Gray Corridor and the Berlin well field which provides some barrier/space between the wells and Project with regards to blasting and excavation. A full analysis of blasting impacts will be evaluated on the selected alternative as design progresses.
- Implementation of a monitoring program (prior to, during and after construction) to define if a groundwater relationship exists between the Berlin water supplies and selected alternative. This information will serve as a base line of water quality and quantity and provide a basis of comparison to evaluate if impacts have occurred to water resources resultant of construction activities.
- Development of a program that facilitates the exchange of technical information (between PTC and Borough) as it relates to the quality and quantity of the Berlin water supplies before, during and after construction.
- Development of a plan for implementation of an alternate water supply that could be timely executed should adverse unforeseen effects to the Berlin water supplies occur.

Destroying an eco-system: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of the wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge.

There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

Cost: The Turnpike strives to be a good steward of the environment, they also work to be financially responsible to the facility users and the State. The Gray Cut Alternative is the most cost-effective alternative.

Construction cost estimates have substantially increased over the duration of this project. RSMeans Construction Cost Index provides ways to review historical trends with construction costs and can be utilized to assist with developing trend lines to estimate future construction cost increases. The RSMeans Index starts with a base year in January 1993 with a value of 100. At the time the first construction cost estimates were developed for the Allegheny Tunnel Project, in July of 1997, the index was 112.8. The last updated index was in July 2019 and had a value of

239.1. Averaging the annual increases between 1997 to 2019 yields an average annual increase of 3.31%. Using the average construction cost increase over the last 22 years, the projected cost index for the anticipated bid year would be 320.5. Based on a comparison of the cost index at the start of the project of 112.8 compared to the projected index of 320.5 at the proposed time the project would be bid, it would be expected to see costs increase by a factor in the general range of 250% to 310%. However, the best method of estimating costs is to compare unit costs for recent similar projects.

The first construction cost estimates published in 1997 were based on unit cost of major items at that time with a small factor for escalation of costs. As the project progressed the unit cost of items were updated based on more current information. One of the major updates occurred after US 219 Somerset to Meyersdale was bid, unit costs from this project were used to update earthwork, pavement and bridge unit costs. Additionally, the bid date was extended well beyond the originally anticipated bid date which caused a larger escalation factor to account for inflation of construction cost.

The original cost estimates for the tunnel options were based on constructed costs of older tunnels in the United States with adjustments to account for cost increases due to time and other factors and were also based on construction techniques from other locations including Europe. The tunnel construction cost was updated later in the project by comparing the proposed tunnel to the Caldecott Tunnel constructed near Oakland, California, this project was bid in 2009 and included the addition of one new tube 50 ft wide and 32 ft high. The Caldecott Tunnel is of similar dimension to the proposed tunnels and used construction techniques that were considered for both tubes required for the Allegheny Tunnel. Based on the Caldecott Tunnel costs for items specific to the tunnel construction excluding pavement and barrier in the tunnel, an overall cost of $115.8 million was calculated for the construction of the Caldecott Tunnel. The Caldecott Tunnel is 3,400 feet in length which yields a $34,058 cost per linear foot of the tunnel. The Caldecott Tunnel costs were adjusted based on the RSMeans Catalog city cost index (a regional factor used to adjust cost in different locations) for Oakland, CA. (116.2) and Pittsburgh, PA. (99.6). The Costs in Pittsburgh are 86% of the costs in Oakland. A 25% increase to these costs was applied to account for unidentified work. This results in an Allegheny Tunnel Linear Foot Adjusted Cost of $36,500 per linear foot of tunnel. To account for inflation of construction cost (an annual increase in cost since 2009 to time of the estimate yielded) a Linear Foot Adjusted cost of $42,778 was applied per linear foot of tunnel for the updated cost used in 2017.

Make Rt 219 south a TP extension: U.S. 219 is a north south route and the I-76 PA Turnpike is an east west route, directly connecting U.S. 219 to I-76 will not have a substantial impact to the congestion at the project location and does not address the substandard geometric or safety concerns.

The current ADT on the new 11-mile section of U.S. 219 between Somerset and Meyersdale is approximately 3,500 vehicles per day. The majority of the traffic on U.S. 219 is diverted from parallel north south routes such as Garrett Shortcut Road and old SR 219 (Berlin Plank Road). An example is the traffic on the Garrett Shortcut Road (SR 2031) prior to completion of the new portion of U.S. 219 was over 2,000 vehicles per day and following completion the traffic was approximately 500 vehicles per day. Completion of U.S. 219 or providing for a direct connection to the PA Turnpike will not address congestion or safety issues at the tunnel. Converting the southern portion of U.S. 219 to a Turnpike facility would require FHWA approval and would likely not be granted.

Sherwin, Tammy

From: Ken Martin <unitedfireybride@yahoo.com>
Sent: Friday, February 21, 2020 6:20 AM
To: Bednar, P
Subject: Don't reduce the number of tunnels on the turnpike

To Gregory,
I am disappointed that you are planning on bypassing the tunnel with a cut. The PA Turnpike is unique that it has those tunnels. When I drive the PA turnpike out that way, I just always love going through the tunnels. I am sadden that your want to eliminate another tunnel.
Ken Martin

Ken Martin email February 21, 2020
Response to issues identified

Disappointed planning on bypassing the tunnel with a cut: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. As noted, the Gray Cut Alternative is not without environmental impacts; therefore, federal and state permits will be required. The safety performance of a cut or by-pass is comparable to other sections of the Turnpike that experience similar weather conditions. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists a short time of protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. Tunnels also require around the clock maintenance and staffing. The following are examples:

- removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
- equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)

These items equate to an increased yearly cost the cut options do not have.

New Baltimore Sportsmen's Club
P.O. Box 9
New Baltimore, PA 15553
February 20, 2020

L. R. Kimball

Attn: Tammy Sherwin

615 West Highland Avenue

Ebensburg, PA 15931

RE: Allegheny Tunnel Public Comment

Ladies and Gentlemen

I was representing the New Baltimore Sportsmen's Club at the open house, the turnpike commission held January 16, 2020 in Somerset. The tone of the meeting was that the only solution was the grey cut. The brochure provided at the meeting stated, **The Turnpike Commission selected the grey cut as the projected preferred alternative as it best balances the environmental, engineering, operational, cost, and safety considerations of the project.**

According to the brochure under **"Next Step"** After gathering input about the proposed alternative from the public and permitting agencies the turnpike will complete the environmental document in winter 2020. This document will be advertised as available for public review for a 30 day period in which time public comments will be gathered. The commission will then proceed with the section 404 permitting of the grey cut alternative while moving in the design process.

Let's start with the environmental impact addressing a cut through the mountain:

- Will destroy undetermined acres of forest land
- It will require another several hundred acres of additional land to dump the material removed
- Approximately 3 more miles of paved roadway dealing with drainage water and chemicals used to treat the ice and snow during the winter season
- The silt from all this work added to the drainage water will be going into the Raystown Branch of the Juniata River or The Stony Creek River.
- The wildlife will continue to cross any place they can find. They will not be looking for a safe place that was designated for them.

New Baltimore Sportsmen's Club
P.O. Box 9
New Baltimore, PA 15553
February 20, 2020

- The possibility of pollution from acid mine water located in the area of the cut being disturbed. This could result in polluting area streams and a public water supply.

Let's focus on the safety factor addressing a cut through the mountain:

- The unbroken mountain has been a migratory route for many animals. If a cut is made they will still continue to migrate north and south, thus crossing the highway. How many accidents will this cause?
- Weather (a cut through the mountain will be subject to heavy fog, wind, freezing rain and snow in the winter, a tunnel is not subject to the weather as a cut would be)

In conclusion the New Baltimore Sportsmen's Club with a membership of over 2450 members prefer that the Turnpike Commission reviews the options of rehabilitating the tunnels instead of the grey cut. We believe this will have the least impact on environment and will provide a safer ride for the traveling public. A cut through the mountain can never be replaced.

Thank you for the opportunity to address this matter.

Sincerely,

Edward C. Will, Secretary

New Baltimore Sportsmen's Club

Edward C Will

Cc: Representative Carl Metzgar

Senator Patrick Stefano

Somerset Co Comm. Gerald Walker

New Baltimore Sportsmen's Club letter February 20, 2020
Response to issues identified

The Gray Cut Alternative will destroy undetermined acres of forest land: The Gray Cut alternative is proposed to impact 211.8 acres of forest. This area includes approximately 40.2 acres of forest removal required to remediate an ancient landslide east of the Raystown Branch of Juniata River. The slide area was incorporated in the impact acreage for each of the Gray Alternatives (cut and tunnel). The slide area will require remediation for either of the Gray Alternatives or if the project does not move forward at all. The Project is currently in the planning / environmental phase and the next phase of the project will finalize the design. It is anticipated impacts will be reduced at that time.

It will require another several hundred acres of additional land to dump material removed: The proposed excess excavation area is 98.5 acres and located on land that is a reclaimed strip mine.

Approximately 3 more miles of paved roadway dealing with drainage and chemical treatments: The existing Turnpike roadway cross over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. The Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists.

The silt from the work added to the drainage water will be going into the Raystown Branch Juniata River or the Stonycreek River: A National Pollution Discharge Elimination Systems Permit will be required for the project to address stormwater runoff and drainage. The alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists.

The wildlife will continue to cross any place they can find: The project team has proposed one overhead wildlife crossing 100 feet wide and 200 feet long and two large bridges over stream valleys to serve as underpasses to facilitate north south wildlife movement. The wildlife crossing is located south of the existing Allegheny Tunnel. This location was chosen as it provides a crossing point for wildlife that is in line with the existing section of contiguous forest area that is found over the Allegheny Tunnel. This crossing, in conjunction with the structures over the Unnamed Tributary to Stonycreek River and the Raystown Branch of Juniata River, are intended to provide locations along the new section of highway that will allow for the safe movement of wildlife. Fencing will also be utilized to guide the wildlife to safe crossings as much as possible. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

Possibility of pollution from acid mine water may pollute area streams and a public water supply: Water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk. Additional studies will be conducted during final design to identify areas of concern regarding groundwater.

Two (2) preliminary analyses were conducted regarding potential project impacts to the Berlin Borough public water supply. The first was conducted by Casselberry and Associates in 2000. The report analyzed the Orange, Brown, Yellow and Red corridors. The Red Tunnel alternative was in close proximity to the location of Gray Corridor. As noted in the 2000 report, the major conclusions of C&A's study are as follows:

- The closest public water supply source to the Allegheny Mountain Tunnels is the Berlin Borough Well Field. The capture zone for this well field lies some two miles up-gradient of the project area. Therefore, none of the potential Turnpike improvement scenarios pose any threat of contamination or diminution to Berlin's water supply.
- The aquifer systems local to the area, affected by the Turnpike improvement options, have extremely small, mountain-slope, recharge areas and contain limited groundwater resources. Therefore, none of the improvement scenarios have the potential to impact a regional drinking water source. At this point and time, use of the aquifer systems located in close proximity to the existing and future-potential Turnpike corridors is limited to a low density of rural residential and agricultural groundwater supplies.
- A comprehensive groundwater supply study of Somerset County was completed to identify potential groundwater sources for municipal use. The closest potential well field to the Turnpike project study area lies on the Stoney Creek valley floor some 8000 feet west of the existing tunnels. This potential well field targets an aquifer unit that would not be disturbed by the proposed roadway improvements. Therefore, none of the roadway construction scenarios contemplated in this project pose a threat to aquifer systems that could be utilized in the future for the development of regional groundwater sources.
- The potential impacts of the proposed project will be limited to local-scale problems involving:
    - Interception of shallow groundwater systems that provide base flow to small perennial streams, wetlands and domestic water supply sources.
    - Groundwater and surface water contamination resulting from construction activities (siltation) and the eventual application of deicing compounds.

The second study was conducted in 2016 by L.R. Kimball to evaluate the Gray Corridor. The following areas were assessed:

- Well quantity
- Water quality
- Contamination of recharge area
- Infiltration of surface contaminants
- Impacts to well field aquifer

Contamination to the Borough water supplies is not likely; as ground and surface water flow directions do not traverse or migrate from the Project area to the wells or springs. In addition, the Borough wells are situated south of a wind gap between ridges that define the Allegheny Front. This "break" or gap in the ridge complex creates a topographic barrier, which will provide protection from potential acid contamination resulting from construction of a selected alternative. Water encountered from the excavation will be captured and treated as necessary prior to release to surface water systems. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The thin section analysis confirmed that most of the pyrite occurs as microscopic grains, some of which is framboidal. The nature of the framboidal pyrite will deteriorate at a faster rate for large grains. The thin section work also produced images that confirm the rock type, sulfidic type and depositional characteristics.

The wells and Project area share geologic rock/units associated with the Mauch Chunk / Burgoon sequence. Based on previous well reports (Casselberry, 2000); capture zones associated with the wells and these geologic units are not within the study limits of the Gray Corridor. As for the immediate Allegheny Front, regional groundwater flow is in part controlled by the fracture network associated with the Raystown Branch of the Juniata River valley. Where flow is directed to the Raystown Branch of the Juniata River Valley (both surface and subsurface). A component of groundwater flow associated with this fracture system flows to the northeast in a similar flow direction of the river away from the Borough water supplies.

Topographically the springs lie southwest of the Project and reside in a different ridge complex than the Project. The springs are situated "up gradient" and are located 3.5 miles southwest of the Project area. In consideration of the proposed Project Corridors, existing site and geologic characteristics, contamination resultant of the Project to the Borough water supplies is not likely.

The 2016 report also notes the following recommendations should be considered as the project progresses to alleviate concerns and have a mitigation plan in place for unforeseen circumstances:

- The blasting plan to be used in construction must take into consideration the distance to the recharge area of the Berlin well field and springs. There are approximately 1.6 miles of separation distance between the Gray Corridor and the Berlin well field which provides some barrier/space between the wells and Project with regards to blasting and excavation. A full analysis of blasting impacts will be evaluated on the selected alternative as design progresses.
- Implementation of a monitoring program (prior to, during and after construction) to define if a groundwater relationship exists between the Berlin water supplies and selected alternative. This information will serve as a base line of water quality and quantity and provide a basis of comparison to evaluate if impacts have occurred to water resources resultant of construction activities.
- Development of a program that facilitates the exchange of technical information (between PTC and Borough) as it relates to the quality and quantity of the Berlin water supplies before, during and after construction.
- Development of a plan for implementation of an alternate water supply that could be timely executed should adverse unforeseen effects to the Berlin water supplies occur.

The unbroken mountain has been a migratory route for many animals. The wildlife will continue to cross the highway. How many accidents will this cause: Please see response above concerning wildlife crossing.

Weather: The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather

conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

Prefers options of rehabilitating the tunnels: A conceptual design and cost estimate was developed by Paul C. Rizzo Associates, Inc. for widening both the east bound and west bound tunnels. An evaluation of the available geologic and geotechnical information was presented and the suitability of various types of excavation equipment was evaluated.

Based on the existing information and time constraints imposed on the construction, widening of the existing Allegheny Tunnel was determined not practical for the following reasons:

- Disturbance to the South Penn Railroad Tunnel, directly or indirectly due to construction activities, has the potential to affect the federally endangered Indiana bat, and other bat species that utilize this known hibernaculum.
- Potential failure to provide adequate ventilation during construction activities will reduce traffic visibility due to dust.
- The cost of widening the existing Allegheny Tunnel and associated roadway improvements is nearly $500 million.
- The progress of the project is affected by maintenance of traffic, low production rates of excavation and seasonal restrictions, resulting in an unacceptable construction duration of up to twenty (20) years.
- Traffic cannot be in a tunnel during the installation or disassembly of the tunnel shield, resulting in bi-directional traffic in the one tunnel that is not being worked on. The sequential closings of the tunnels, or reduction to one lane of traffic for a day or two, occurs for a total of two hundred thirteen (213) intermittent days. Numerous traffic stoppages will also be associated with blasting. The traffic control measures required with the widening of the existing tunnels are not practical due to the interruption of traffic flow, increased potential of accidents and substantial congestion generated by these operations.
- The contractor will have reasonable and appropriate safety measures in place; however, due to the nature of the construction activities and confined working space adjacent to traffic, there is a substantially increased risk of a major incident occurring during the widening of the existing tunnels.

Additionally, multiple hybrid variations of using one or both of the existing tubes were evaluated. Several of the variations included performing major rehabilitation on the existing tubes for use of westbound traffic, build a new 3-lane tube for eastbound traffic and address the substandard curve to the east of the existing tunnel, or rehabilitating just the southern 2-lane tube, abandon the northern tube, build an additional 2-lane and a 3-lane tube and flatten the substandard curve. Both variations have two issues. The first is the 4-lane westbound traffic would be required to diverge east of the new tunnels and then merge west of the tunnels, while this is possible it creates a less than desirable traffic pattern. Second and more critical issue is that both variations require the revising of the existing curve east of the tunnel to meet the minimum curve radius. The required minimum radius and maintaining the elevation of the existing tunnel would have a major impact to the area of geotechnical remediation associated with the Gray Cut Alternative. The impacted area of the ancient landslide

would be substantially larger for the alternatives using the existing tube(s)than compared to the Gray Cut Alternative. This would result in increased forest removal and potentially additional aquatic resource impacts.

ALLEGHENY TUNNEL
PENNA TURNPIKE
Transportation Improvement Project

Public Plans Display – January16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

The Allegheny Township Supervisors of Somerset County, have the following concerns for the proposed tunnel improvement project:

1. Water flow disturbance
2. Water runoff problems
3. Water contamination
4. Loss of real estate tax dollars

Allegheny Township Supervisors
10122 Glades Pike, Berlin, PA 15530
814-267-3111 nancy.metzgar.alleghenytwp@verizon.net

Nancy Metzgar, Secretary

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Fax: 814-472-7712

All responses must be received by February 27, 2020

Allegheny Township Supervisors Comment Form February 24, 2020
Response to issues identified

Water flow disturbance, water runoff and water contamination problems: There will be localized ground water impacts for all of the alternatives. The project team will continue to conduct additional studies locally throughout the design and construction of the project to ensure water sources are not interrupted.

A National Pollutant Discharge Elimination Systems (NPDES) Permit will be required for the project to address stormwater runoff and drainage. The alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists.

Water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk. Additional studies will be conducted during final design to identify areas of concern regarding groundwater.

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- The potential impacts of the proposed project will be limited to local-scale problems involving:
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Topographically the springs lie southwest of the Project and reside in a different ridge complex than the Project. The springs are situated "up gradient" and are located 3.5 miles southwest of the Project area. In consideration of the proposed Project Corridors, existing site and geologic characteristics, contamination resultant of the Project to the Borough water supplies is not likely.

The 2016 report also notes the following recommendations should be considered as the project progresses to alleviate concerns and have a mitigation plan in place for unforeseen circumstances:

- The blasting plan to be used in construction must take into consideration the distance to the recharge area of the Berlin well field and springs. There are approximately 1.6 miles of separation distance between the Gray Corridor and the Berlin well field which provides some barrier/space between the wells and Project with regards to blasting and excavation. A full analysis of blasting impacts will be evaluated on the selected alternative as design progresses.
- Implementation of a monitoring program (prior to, during and after construction) to define if a groundwater relationship exists between the Berlin water supplies and selected alternative. This information will serve as a base line of water quality and quantity and provide a basis of comparison to evaluate if impacts have occurred to water resources resultant of construction activities.

- Development of a program that facilitates the exchange of technical information (between PTC and Borough) as it relates to the quality and quantity of the Berlin water supplies before, during and after construction.
- Development of a plan for implementation of an alternate water supply that could be timely executed should adverse unforeseen effects to the Berlin water supplies occur.

Loss of real estate tax dollars: This comment has been noted.

The Municipal Authority of the Borough of Berlin

700 North Street
Berlin, PA 15530
Telephone: 814-267-3837
Fax: 814-267-3017

February 25, 2020

MAR 3 2020

Mr. Mark Compton, CEO
P. Gregory Bednar, P.E., Project Manager
Pennsylvania Turnpike Commission
P.O. Box 67676
Harrisburg, PA 17106-7676

Dear Mr. Compton and Mr. Bednar:

The Municipal Authority of the Borough of Berlin located in Somerset County owns and operates a public water supply system that is the sole source of water for 1,020 metered residential customers serving between 2,650 and 2,700 people. In addition, the system provides water to 73 commercial customers (including an elementary school, a middle school, and a high school), one nursing care home, one industrial facility, and one wastewater treatment facility. The industrial customer is Snyder of Berlin (owned by Utz), a producer of snack foods. Snyder of Berlin alone depends on our Municipal Water System to provide up to 150,000 gallons of quality water per workday. The remaining customers require up to an additional 350,000 gallons of potable water per day.

The source of the great majority of the water provided by the Municipal Authority to the above-referenced customers is from three water wells located approximately 5 miles northeast of Berlin, Pennsylvania, adjacent to the south side of Pennsylvania State Route 0031. The wells draw water from the Mauch Chunk aquifer, which, according to hydrogeologist James Casselberry, is an aquifer that contains excellent quality water. Should the quality and/or quantity of water produced by these wells be negatively affected, the Municipal Authority would no longer be able to meet the water needs essential to its customers.

That brings us to address our very serious concerns about the potential impact that a new Allegheny Mountain turnpike tunnel or a tunnel bypass construction project would have on our primary water supply wells. We believe it is imperative that you and the Pennsylvania Turnpike Commission have an independent in-depth study and analyses of the impacts that any alternative being considered could have on our municipal public water supply sources. We implore you and the Commission to do so. Furthermore, if there is any possibility of detriment to our public water supply sources, the corresponding alternative(s) must be dropped and no longer pursued.

Kindly respond with your intentions and the intentions of the Pennsylvania Turnpike Commission on this matter.

Sincerely,

THE MUNICIPAL AUTHORITY OF
THE BOROUGH OF BERLIN

C. Scott Miller
Chairman

pc Governor Thomas W. Wolf
Lieutenant Governor John Fetterman
DEP Secretary Patrick McDonnell
Senator Patrick J. Stefano
Representative Carl Walker Metzgar

Pennsylvania Turnpike Commission
PO Box 67676
Harrisburg PA 17106-7676
717.939.9551

March 9, 2020

The Municipal Authority of the Borough of Berlin
700 North Street
Berlin, PA 15530
Attention: Chairman Miller

RE: Allegheny Tunnel Transportation Improvement Project
Preliminary Analysis of Impacts to Berlin Borough Water Supply

Dear Chairman Miller:

The Pennsylvania Turnpike Commission (PTC) would like to thank you for participating in the public involvement process associated with the Allegheny Tunnel Transportation Improvement Project. Participation of stakeholders like the Municipal Authority of the Borough of Berlin (Borough) are key to developing a successful project that provides the most balanced alternative. We understand the concerns of the Authority and want to assure you the design team has proactively evaluated the possibility of this project adversely impacting the Borough's water supply.

As you are aware, two (2) preliminary analyses were conducted regarding potential project impacts to the Borough's public water supply. The first was conducted by Casselberry and Associates in 2000. The report analyzed the Orange, Brown, Yellow and Red corridors. The Red Tunnel alternative was in close proximity to the location of Gray Corridor. As noted in the 2000 report, the major conclusions of C&A's study are as follows:

- The closest public water supply source to the Allegheny Mountain Tunnels is the Berlin Borough Well Field. The capture zone for this well field lies some two (2) miles up-gradient of the project area. Therefore, none of the potential PTC improvement scenarios pose any threat of contamination or diminution to the Borough's water supply.

- The aquifer systems local to the area, affected by the PTC improvement options, have extremely small, mountain-slope, recharge areas and contain limited groundwater resources. Therefore, none of the improvement scenarios have the potential to impact a regional drinking water source. At this point and time, use of the aquifer systems located in close proximity to the existing and future-potential PTC corridors is limited to a low density of rural residential and agricultural groundwater supplies.

- A comprehensive groundwater supply study of Somerset County was completed to identify potential groundwater sources for municipal use. The closest potential well field to the PTC project study area lies on the Stoney Creek valley floor some 8000 feet west of the existing tunnels. This potential well field targets an aquifer unit that would not be disturbed by the proposed roadway improvements. Therefore, none of the roadway construction scenarios contemplated in this project pose a threat to aquifer systems that could be utilized in the future for the development of regional groundwater sources.

- The potential impacts of the proposed project will be limited to local-scale problems involving:

    - Interception of shallow groundwater systems that provide base flow to small perennial streams, wetlands and domestic water supply sources.

    - Groundwater and surface water contamination resulting from construction activities (siltation) and the eventual application of deicing compounds.

The second study was conducted in 2016 by L.R. Kimball to evaluate the Gray Corridor. The following areas were assessed:

- Well quantity
- Water quality
- Contamination of recharge area
- Infiltration of surface contaminants
- Impacts to well field aquifer

Contamination to the Borough water supplies is not likely; as ground and surface water flow directions do not traverse or migrate from the Project area to the wells or springs. In addition, the Borough's wells are situated south of a wind gap between ridges that define the Allegheny Front. This "break" or gap in the ridge complex creates a topographic barrier, which will provide protection from potential acid contamination resulting from construction of a selected alternative. Water encountered from the excavation will be captured and treated as necessary prior to release to surface water systems. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The thin section analysis confirmed that most of the pyrite occurs as microscopic grains, some of which is framboidal. The nature of the framboidal pyrite will deteriorate at a faster rate for large grains. The thin section work also produced images that confirm the rock type, sulfidic type and depositional characteristics.

The wells and Project area share geologic rock/units associated with the Mauch Chunk / Burgoon sequence. Based on previous well reports (Casselberry, 2000); capture zones associated with the wells and these geologic units are not within the study limits of the Gray Corridor. As for the immediate Allegheny Front, regional groundwater flow is in part controlled by the fracture network associated with the Raystown Branch of the Juniata River valley. Where flow is directed to the Raystown Branch of the Juniata River Valley (both surface and subsurface). A component of groundwater flow associated with this fracture system flows to the northeast in a similar flow direction of the river away from the Borough's water supplies.

Topographically the springs lie southwest of the Project and reside in a different ridge complex than the Project. The springs are situated "up gradient" and are located 3.5 miles southwest of the Project area. In consideration of the proposed Project Corridors, existing site and geologic characteristics, contamination resultant of the Project to the Borough's water supplies is not likely.

The 2016 report also notes the following recommendations should be considered as the project progresses to alleviate concerns and have a mitigation plan in place for unforeseen circumstances:

- The blasting plan to be used in construction must take into consideration the distance to the recharge area of the Berlin well field and springs. There are approximately 1.6 miles of separation distance between the Gray Corridor and the Berlin well field which provides some barrier/space between the wells and Project with regards to blasting and excavation. A full analysis of blasting impacts will be evaluated on the selected alternative as design progresses.

- Implementation of a monitoring program (prior to, during and after construction) to define if a groundwater relationship exists between the Berlin water supplies and selected alternative. This information will serve as a base line of water quality and quantity and provide a basis of comparison to evaluate if impacts have occurred to water resources resultant of construction activities.

- Development of a program that facilitates the exchange of technical information (between PTC and Borough) as it relates to the quality and quantity of the Berlin water supplies before, during and after construction.

- Development of a plan for implementation of an alternate water supply that could be timely executed should adverse unforeseen effects to the Berlin water supplies occur.

Both reports were supplied (as requested at the Public Plans Display on January 16, 2020) to a Municipal Authority member via email on January 23, 2020. The PTC can provide additional copies upon request.

The concern exhibited by the Berlin Municipal Authority is understandable. The PTC will evaluate the preferred alternative as noted above and will continue coordination with the Authority. Based on the existing studies and the planned future coordination with the Borough, the PTC intends to move forward with design of the Gray Cut Alternative.

Sincerely,

Matthew R. Burd, PE
Interchange / Special Projects Unit Manager

Sherwin, Tammy

From: Bednar, P <gbednar@paturnpike.com>
Sent: Tuesday, February 25, 2020 7:23 AM
To: Jones, Ed; Sherwin, Tammy
Cc: Graham, Gary; Burd, Matthew; Lutz, Andrew
Subject: [External Mail] FW: Allegheny Tunnel improvement
Attachments: Allegheny Mtn. 1-29-20.jpg; Allegheny Mtn. 2-1-20.jpg

Received late last night.

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: Bell & Dickey <bellanddickey@comcast.net>
Date: 2/24/20 11:57 PM (GMT-05:00)
To: "Bednar, P" <gbednar@paturnpike.com>
Subject: Allegheny Tunnel improvement

Mr. Bednar,

I write with comments concerning the proposed update of the Allegheny Tunnel and, moreover, in strenuous opposition to any alternative that would substitute a "cut" for an upgrade and/or addition to the present tunnel on the Pennsylvania Turnpike.

Notwithstanding the horrible environmental damage a cut option would cause, not the least of which is the forest degradation from the endless saline spray – viz., the wide corridor of dead trees and the mutated, stunted growth of the still living trees lining the current Laurel Mountain bypass section of the Turnpike – the overriding concern is what I believe to be, in fact, the reckless disregard for safety that would be caused by regular weather on that section of highway over the Allegheny ridge if the tunnel were to be bypassed.

My home is located along the Brotherton Road in Brothersvalley Township and looks out, to the East, upon the Allegheny Mountain. As such, I am a daily observer of the weather affecting that ridge. With great frequency, from a line routinely between the elevations of 2,400 and 2,500 feet to the top of that mountain, fog / clouds, obscure the view and, in winter, even when precipitation has ceased at lower elevations, snow and sleet occur. As just two examples of those weather phenomena, I have attached photos taken of the Allegheny Mountain in the direction of the tunnel and proposed bypass. The January 29 photo shows snow on the mountain and the February 1 photo shows the mountain enveloped in fog at those altitudes and above.

I am also a frequent traveler on Route 31 over the Allegheny Mountain (known here as the White Horse). That location is not too far distant to the South from the Allegheny Tunnel location. Again, at those elevations, fog is a regular occurrence, particularly in the autumn, with visibility reduced to distances measured in feet, not even tens of feet. Local people travelling that section of road often speak of times when the only way to determine location of the lane of travel is to look beside the vehicle to spot the painted centerline.

It behooves you at the very least, out of concern for safety, to do a day-to-day study of the unique and very local weather in the intended bypass location, over a considerable period of time, to accurately observe these conditions of ice and snow and reduced visibility that cannot be ascertained simply by looking at weather observation statistics form other areas of Somerset and Bedford Counties or of the area in general.

Further, I would suggest you look at an analogous section of I-68 as it crosses the mountain ridges in the areas of Frostburg and Keyser's Ridge, Maryland. Both of those areas have been the sites of multi-vehicle pileup collisions when sudden, altitude-related weather caused exceedingly low visibility, sometimes combined with low traction road conditions.

Douglas Bell

Post Office Box 65
Berlin, Pennsylvania 15530
Telephone (814) 267-4490

Douglas Bell Email February 24, 2020
Responses to issues identified

Oppose a cut alternative. Would cause horrible environmental damage: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one overhead wildlife crossing and two structures over stream valleys to sever as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

Disregard for safety and weather: While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a shoulder that provides multiple benefits:
    - a recovery area exists if a driver errantly departs from a lane,
    - should a vehicle become disabled the shoulder provides an area to be out of the travel lane
    - drivers have additional space if they are adjacent to a distracted driver
- tunnels require periodic maintenance including:
    - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)

    - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- standard speed reduction required for tunnels (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

ALLEGHENY tunnel
PENNA TURN PIKE
Transportation Improvement Project

RECEIVED
FEB 26 2020
CDI - L. R. KIMBALL
EBENSBURG, PA

Public Plans Display – January 16, 2020

Jon Lape
645 Deeter Gap Rd.
Berlin, PA 15530

COMMENT FORM

Please Provide Your Comments or Suggestions:

As a resident of the mountain I oppose any of the cut options ?

Reasons why *1 - Heavy fog for days at a time
*2 - Heavy ice storms
*3 - Heavy snowfall
*4 - Flood potential down stream
*5 - major disruption to wildlife travel
*6 - Destroy the beauty of the mountain

The only option that I approve of is the yellow tunnel option, as this would be the safest for travelers and least impact on the enviroment !!!

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA ~~15131~~ 15931
Fax: 814-472-7712

All responses must be received by February ~~8~~ 22, 2020

Jon Lape Comment Form February 26, 2020
Responses to issues identified

Tunnel is safest option for travelers and weather: While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a full width shoulder that provides multiple benefits:
    - a recovery area exists if a driver errantly departs from a lane,
    - should a vehicle become disabled the shoulder provides an area of refuge
    - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:
    - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
    - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

Flooding: The alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions. As a part of the National Pollutant Discharge Elimination System (NPDES) permit the PTC is required to complete a Post - Construction Stormwater Analysis that assures there will not be an adverse impact to downstream waters and property owners.

No access across mountain top for wildlife: The project team has proposed one dedicated overhead wildlife crossing 100 feet wide and 200 feet long and two large bridges over stream valleys to serve as underpasses to facilitate north south wildlife movement. The wildlife crossing is located south of the existing Allegheny Tunnel. This location was chosen as it provides a crossing point for wildlife that is in line with the existing section of contiguous forest area that is found over the Allegheny Tunnel. This crossing, in conjunction with the structures over the Unnamed Tributary to Stonycreek River and the Raystown Branch of Juniata River, are intended to provide locations

along the new section of highway that will allow for the safe movement of wildlife. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

Destroying an eco-system: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. The gap created will be similar in size to other existing gaps in the ridge. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge. In addition, there are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

ALLEGHENY TUNNEL
PENNA TURN PIKE
Transportation Improvement Project

RECEIVED
FEB 28 2020
CDI - L. R. KIMBALL
EBENSBURG, PA

Public Plans Display – January16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

(1st) complete RT 219 to address hasard Truck Traffic, Last 7+9 miles has been proposed since 50yrs ago.

(2nd) Complete 1 new Tunnel because to not upset water Table sources for Juniata waterways and Stoney creek basin waterways

(3rd) Safety issues a cut will causes more accidents to complete Water will flow in cut, 3/4 of mile wide, Wind chill factors from cut will freeze.

(4th) Will affect farming by way of water, climate due to cut Look at Western cut from Donegal to Somerset (No reaccidents in this section

(5th) Why cannot your company see the environmental, esthetic wildlife and safety issues, and cannot use 1940's technology and reasons, with new 2020 technowlege for new tunnel?

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Fax: 814-472-7712

All responses must be received by February 27, 2020

Comment Form February 28, 2020
Responses to issues identified

Complete RT 219: U.S. 219 is a north south route and the I-76 PA Turnpike is an east west route. Completing U.S. 219 to I-76 will not have a substantial impact to the congestion at the project location and does not address the substandard geometric or safety concerns.

The current ADT on the new 11-mile section of U.S. 219 between Somerset and Meyersdale is approximately 3,500 vehicles per day. The majority of the traffic on U.S. 219 is diverted from parallel north south routes such as Garrett Shortcut Road and old SR 219 (Berlin Plank Road). An example is the traffic on the Garrett Shortcut Road (SR 2031) prior to completion of the new portion of U.S. 219 was over 2,000 vehicles per day and following completion the traffic was approximately 500 vehicles per day. Completion of U.S. 219 or providing for a direct connection to the PA Turnpike will not address congestion or safety issues at the tunnel.

Complete new tunnel to not upset water table sources: There will be localized ground water impacts for all of the alternatives. The project team will continue to conduct additional studies locally throughout the design and construction of the project to ensure water sources are not interrupted.

Tunnel is safest option for travelers and weather: While tunnels are safe, an open cut has additional safety advantages:

- The cut alternative has a full width shoulder that provides multiple benefits:
    - a recovery area exists if a driver errantly departs from a lane,
    - should a vehicle become disabled the shoulder provides an area of refuge
    - drivers have additional space if they are adjacent to a distracted driver
- Tunnels require periodic maintenance including:
    - removal of snow buildup in the tunnel that requires traffic to be stopped (potential for rear end collision)
    - equipment maintenance like replacing lights that may require bidirectional traffic in one tube (potential of head on collision)
- Standard speed reduction required for tunnels, 70 MPH to 55 MPH (potential for rear end collision).

The tunnel options do provide a short duration where the driver is not exposed to adverse weather conditions, 31 seconds for the Gray Tunnel for example, but the previously discussed issues have a larger impact on driver safety. The overall crash rate for the Turnpike while approaching or departing the Allegheny Tunnels is more than two times greater than the statewide crash rate for similar interstate segments in PA. It was noted the safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation.

The elevation difference between the existing Turnpike roadway and the proposed gray cut is approximately 224 feet. It is expected that either option (Rehabilitation/new tunnel or Gray Cut alternative) will experience very similar weather conditions for the area. Based on the Gray Tunnel length (3,045') and increased length of the Gray Tunnel alternative (335') as compared to the Gray Cut, drivers will only experience 31 seconds less of adverse weather in a tunnel. The safety advantage that tunnels gain by offering motorists protection from adverse weather is offset by the increased number of accidents that are unique to a tunnel and/or its operation. The PTC is continually updating its systems to include the most modern facilities for sensing weather conditions across the Turnpike. This would include a variety of methods for sensing weather conditions and changing operations in response, such as the use of changeable message signs and traveler advisory radio in the vicinity of the Allegheny Mountains. Weather related accidents are not completely avoidable, but today's technologies allow for monitoring of weather and road conditions and alerting travelers to those conditions in real time. Traditional methods continue to be used to mitigate for severe

weather conditions as they occur. For snow and freezing roadway conditions, the PTC regularly applies deicing and antiskid materials, as well as plowing. These conditions including fog can also be mitigated in part by warning systems or the posting of mandatory lower speeds.

Will affect farming by way of water, climate: The Gray Cut Alternative will impact approximately 1 acre of farmland directly. A National Pollution Discharge Elimination Systems Permit will be required for the project to address stormwater runoff and drainage. The alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width. The project is not anticipated to affect the regional weather patterns. Please see response above concerning weather.

Environmental, aesthetic and wildlife issues: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one overhead wildlife crossing 100 feet wide and 200 feet long and two large bridges over stream valleys to serve as underpasses to facilitate north south wildlife movement. The wildlife crossing is located south of the existing Allegheny Tunnel. This location was chosen as it provides a crossing point for wildlife that is in line with the existing section of contiguous forest area that is found over the Allegheny Tunnel. This crossing, in conjunction with the structures over the Unnamed Tributary to Stonycreek River and the Raystown Branch of Juniata River, are intended to provide locations along the new section of highway that will allow for the safe movement of wildlife. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. The gap created will be similar in size to other existing gaps in the ridge. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge.

There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

Why doesn't your company use 1940's technology and reason with new 2020 technology for a new tunnel:
The project team has evaluated many alternatives and construction techniques over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project.

Carl Walker Metzgar, Member
69th Legislative District

Harrisburg Office:
111 Ryan Office Building
P.O. Box 202069
Harrisburg, PA 17120-2069
Phone: (717) 783-8756
Fax: (717) 782-2911

Somerset Office:
301 Georgian Place
Somerset, PA 15501
Phone: (814) 443-4230
Fax: (814) 443-3866

House of Representatives
Commonwealth of Pennsylvania
Harrisburg

Hyndman Office:
158 Washington Street
Hyndman, PA 15545
Phone: (814) 842-3362
Fax: (814) 842-3367

Windber Office:
1605 Graham Ave.
Windber, PA 15963
Phone: (814) 467-4011
Fax: (814) 467-4012

February 26, 2020

Pennsylvania Turnpike Commission,

I'm writing in opposition to the Allegheny Tunnel Transportation Improvement Program proposal creating an "open cut". This cut would be one of the largest transportation cuts in the country and would have many devastating impacts to wildlife and the environment generally. It would destroy hundreds of acres of forested mountaintop, and irreparably damage the eastern divide.

This mountain is a treasure and has been part of the heritage of our people for generations. There is no less value to this geographic feature than any other acre in this great nation. To assail it is to assail the very spirit of our people. The original builders of the Turnpike did their best to conform symbiotically with the terrain and I ask that you continue that same tradition by maintaining the existing tunnels and adding another if necessary.

Sincerely,

Carl Walker Metzgar
Representative 69th Legislative District

House of Representatives
COMMONWEALTH OF PENNSYLVANIA
HARRISBURG
CARL WALKER METZGAR, MEMBER
P.O. BOX 202069
HARRISBURG, PA 17120-2069

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Kimballs

Pennsylvania Turnpike
Attn: Allegheny Tunnel Project
615 West Highland Avenue
Ebensburg, PA 15931-1048

AH 2/28/20
3-4
3-14

Carl Walker Metzgar Letter February 26, 2020
Responses to issues identified

Project would create one of the largest transportation cuts in the country: While 249 feet of cut is large, it is dwarfed by the "Pikeville Cut-Through" near Pikeville, KY with a depth of over 520 feet, and another larger cut in closer proximity (34 miles southeast) is the I-68 cut through Sideling Hill with depth of 340 feet.

Gray Cut Alternative would destroy hundreds of acres of forested mountaintop: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative. The project team has proposed one overhead wildlife crossing and two structures over stream valleys to serve as underpasses to facilitate north south wildlife movement. As the project continues, the project team will coordinate with U.S. Fish and Wildlife Service and Pennsylvania Game Commission to improve the design of wildlife crossings.

The existing Turnpike roadway crosses over both the Raystown Branch of the Juniata River and the Unnamed Tributary to the Stonycreek River (including multiple tributaries of each), as well as several wetland systems. For example, the Turnpike currently uses deicing agent on the roadway that crosses the above noted aquatic resources. All alternatives (cut and tunnel) will cross these same resources and require the use of deicing material in the winter. However, the alternatives developed for the study will utilize new stormwater systems that will collect runoff from large portions of the roadway directing it into stormwater facilities that will be required to meet MS4 provisions, providing greater protection than currently exists. Also, water encountered from excavation will be captured and treated as necessary prior to release to surface water systems. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

The project team will continue coordination with the environmental agencies throughout the design and construction of the project. Additionally, the Turnpike Commission is responsible to follow state and federal environmental regulations necessary to obtain permits prior to construction including PA Code Chapter 105, Section 401 and 404 of the Clean Water Act, Section 7 of the Endangered Species act and the National Historic Preservation Act to mention a few.

It is the PTC's intent to revegetate as much disturbance as is feasible and possible. The steeper area of cut will be left as exposed rock. There is a parallel ridge 4,000 ft to the east of the Allegheny Ridge in the location of the project. The eastern ridge in the area of the cut is approximately the same elevation as the Allegheny Ridge at the location of the cut. This eastern ridge will limit the view from the east to the limits of this project. The impacts to the view of the ridge line from the west will be minimized by the parallel eastern ridge.

There are ten natural gaps in the Allegheny Ridge within a 20-mile radius of the project. The average depth of the natural gaps is approximately 265 ft and have an average top width of 3,200 ft. The gap created by the cut will have a slightly smaller depth compared to other existing gaps in the ridge with a substantially narrower top width.

Rehabilitation of existing tunnel with construction of additional tunnel south of the existing tunnel: Multiple hybrid variations of using one or both of the existing tubes were evaluated. Several of the variations included performing major rehabilitation on the existing tubes for use of westbound traffic, build a new 3-lane tube for eastbound traffic and address the substandard curve to the east of the existing tunnel, or rehabilitating just the southern 2-lane tube, abandon the northern tube, build an additional 2-lane and a 3-lane tube and flatten the substandard curve. Both variations have two issues. The first is the 4-lane westbound traffic would be required to diverge east of the new tunnels and then merge west of the tunnels, while this is possible it creates a less than desirable traffic pattern. Second and more critical issue is that both variations require the revising of the existing curve east of the tunnel to meet the minimum curve radius. The required minimum radius and maintaining the elevation of the existing tunnel would have a major impact to the area of geotechnical remediation associated with the Gray Cut Alternative. The impacted area of the ancient landslide would be substantially larger for the alternatives using the existing tube(s)than compared to the Gray Cut Alternative. This would result in increased forest removal and potentially additional aquatic resource impacts.

ALLEGHENY TUNNEL
PENNA TURN PIKE
Transportation Improvement Project

Public Plans Display – January16, 2020

COMMENT FORM

Please Provide Your Comments or Suggestions:

The exhibits for each of the alternatives were very well done and the CDI-Kimball and PTC personnel were very knowledgeable of the project and impacts.

As a former Kimball geologist who worked on this project back in the 1990's, I understand some of these issues. I prefer the "yellow Tunnel alternative". I understand that it is expensive; however, mitigating the landslide risk at the gray alternative is also very costly and have to be done prior to the roadway work. Which alternative will expose acid producing strata? and how thick is it? Will AMD potential be the same for a cut or tunnel option?

All the best on this project. -Joan Hawk

Please mail or fax this form to:

L.R. Kimball
Attn: Tammy Sherwin
615 West Highland Avenue
Ebensburg, PA 15931

Fax: 814-472-7712

All responses must be received by February 27, 2020 oops! I apologize.

Joan Hawk Comment Form March 5, 2020
Response to issues identified

Prefer the Yellow Tunnel Alternative: The project team has evaluated many alternatives over the course of the project. There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. Every alternative studied includes areas of cut. The tunnel alternatives consist of a noticeably shorter length of tunnel as compared to the existing Allegheny Tunnel. The intact ridge length will not be the same as today with any of the alternatives. With regard to environmental impacts, the Gray Cut has lower wetland impacts compared to the other alternatives and does not impact the travel corridor of federal and state threatened and endangered bats that all of the northern alternatives, including the Yellow Tunnel, impact. One of the reasons the Gray Cut is proposed to move forward is the proximity to the existing Turnpike utilizing previously disturbed area and the edge habitat created by the existing turnpike thus reducing the amount of interior forest impact as much as possible. Each tunnel alternative consists of cut and fill along with a shorter length of tunnel (compared to the existing Allegheny Tunnel). Each of the tunnel alternatives are located within more of the interior forest, further away from the existing Turnpike. While each alternative contains a tunnel that keeps a smaller length of contiguous forest intact (than the existing tunnel) it is creating additional edge habitat deeper within the forest than the Gray Cut alternative.

Mitigating the landslide risk at the gray alternatives is also very costly and has to be done prior to roadwork: The cost of the slide remediation is already included in the cost of the gray alternatives (both cut and tunnel). The Gray cut still remains the most cost effective compared to the remaining alternatives. The PTC is intending to complete the slide remediation in phases and not all at once due to removal of forest area (bat habitat). The phasing of the remediation will allow for tree removal in smaller areas over two years giving the bats a chance to acclimate to the situation.

Which alternative will produce acid producing strata: From the preliminary analysis, it is expected that all alternatives will produce acid bearing strata. A thin section analysis on limited borings confirmed the presence of pyrite. Most of the pyrite occurs as microscopic grains, some of which is framboidal. It should be noted the pyrite evaluated via Scanning Electron Microscope (SEM) does not originate from hydrothermal solutions as secondary depositions as was the case in the Sky-Top Investigation near State College regarding the I-99 corridor. Appropriate studies will be completed as the project moves forward into final design to identify acidic problematic area such that design can minimize or eliminate the risk.

Will Acid Mine Drainage (AMD) potential be the same for a cut or tunnel option: Each type of alternative includes cut and fill. The extent of cut associated with a tunnel option would be less than an open cut option. All alternatives contain the potential for AMD. Additional studies will be conducted as the project moves into final design to identify areas of concern. Water encountered from excavation will be captured and treated as necessary prior to release to surface water systems.

Draft Environmental Document Review

The Allegheny Tunnel Transportation Improvement Project Draft Environmental Document was made available for public review on November 5, 2020. The Federal, State and County Officials were notified via letters dated October 22, 2020, the document would become available for public review. The Township Supervisors were contacted via phone on October 27, 2020, to inquire if they would be willing to house the document at their office locations for public viewing. Property owners within the study area were notified via postcard dated November 3, 2020, the report was available for review and the locations it was found. Public notices were placed in the Somerset Daily American and Bedford Gazette newspapers on November 5, 2020 indicating the report was available for public review at the Mary S. Biesecker Library in Somerset, the Stonycreek Township Municipal Building in Friedens, the Allegheny Township Municipal Building in Fairhope and via the project website. Notifications are located in Appendix H.

A total of 15 responses were received.

John W. Seanor, Jr & Linda A. Seanor
2730 Huckleberry Hwy
Berlin, PA 15530

Gregory Bednar, P.E.
Project Manager
Pennsylvania Turnpike Commission
2200 North Center Avenue
New Stanton, PA 15672-9602

November 10, 2020

RE: Allegheny Tunnel Improvement Project

Our choice would be the Gray Cut

To Whom It May Concern;

I have received and reviewed the information provided by PA Turnpike Commission Notice of Availability for Allegheny Tunnel Transportation Improvement Project. The Project directly affects our property at 2730 Huckleberry Hwy (rte 160), especially if you use the Yellow or Brown routes. The noise pollution we endure already, is unbearable at our residence. It is impossible to sit outdoors and enjoy our back porch and yard due to the unbelievable noise pollution that encompasses the whole area. The evenings we try to sit on our back porch and have a conversation are just about impossible. And we realize something has to be done regarding the Allegheny Tunnel which is more conducive to the safety of travelers on the turnpike.

My husband and I feel that the lesser of the evils for all involved in this project would be the Gray Cut. It is the least costly for the Turnpike Commission; and has less impact on the surroundings. However we, in the close vicinity of the turnpike traffic, still have the problem of constant noise pollution, etc. It would be nice to figure in some noise barrier walls as you do the planning.

Please keep us informed with updates as to what transpires. You can either send mail to above address or to my email: Jaclin.rn@gmail.com Thank you so much. I am sending this letter to both L.R. Kimball, Engineering Consultant and Gregory Bednar, P.E. Project Manager Pennsylvania Turnpike Commission.

Sincerely,

John W. Seanor, Jr. _____

Linda A. Seanor _____

John and Linda Seanor Letter Dated November 10, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. Your comments have been noted. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: cbakeraak@aol.com
To: Allegheny Tunnel
Subject: [External Mail] turnpike tunnel comments
Date: Friday, December 4, 2020 3:17:09 PM

Hello,

I have heard suggestions in the past to bypass the tunnel on the turnpike in Somerset County, and in today's Tribune Democrat, read another article about building a bypass. Building a bypass basically is a lack of common sense.

I live in Johnstown and have traveled through the Somerset turnpike tunnel at times. Being in the mountains, the area can become quite treacherous during winter months, and in rain and fog the rest of the year. If the tunnel is bypassed, removing a chunk of the mountain and creating a new road, possibly even a higher elevation, could create even more havoc driving in nasty weather along with requiring more repairs on the highway. At least the tunnel brings a brief reprieve when driving on the road in bad weather.

I am not a hunter/sportsperson, but do cherish the environment. Since the basic source of some valuable streams/rivers begin in this designated area, like the Juniata branch, it would be appalling if some streams would be destroyed/damaged, let alone the wildlife and basic ecosystems. We need these ecosystems even more today with the climate changing. Slashing a chunk from a mountain could only create more havoc, not necessarily safety for travelers. Falling rocks and erosion could occur, too. Also, if migration or movement of animals would be disturbed, more may end up on the highways causing accidents.

With the extreme cost of highway projects, among other things, there are many other areas of roads/infrastructure which need the money instead of destroying this mountain area. I realize plenty of red tape is involved in today's world, but if there is money available for this insane bypass project, then focus the money towards completing 219 North. A greater chance for creating more jobs would come from having 219 completed compared to building a tunnel bypass, which would be only temporary jobs. In addition, if a tunnel bypass would be built, it does not mean there would be more usage and/or more permanent jobs come to the area.

Being older, I have seen the loss of jobs in our area and now the tourist groups try to promote the beauty and neat features around here. My four children and their families live elsewhere. I have seen areas chopped down, without re using and improving upon what we have. Change is not always progress. Why mess with 'Mother Nature'? Messing with 'Mother Nature' has created problems through the years, including the 1889 flood.

Otherwise, the tunnel should remain. Move on to necessary projects.

Cheryl Baker

Cheryl Baker Email Received December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. SR 219 is a PennDOT managed roadway and is not part of the Pennsylvania Turnpike System. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: Leanna Bird
To: Allegheny Tunnel
Subject: [External Mail] Environmental study
Date: Friday, December 4, 2020 10:57:13 AM

Hello,

I have read that public comments on the draft environmental report for the tunnel are open until Monday. Can you please provide me with the link to the Kimball study so that I can share and comment on it?

As a Cambria County resident and a former employee of the Cambria County Conservation and Recreation Authority who has worked with Kimball on several environmental remediation and trail projects, I am deeply disappointed in Kimball's involvement in such an environmentally invasive project.

Sincerely,
Leanna Bird
Upper Yoder Twp.

Leanna Brid Email Received December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. A link to the report was sent December 4, 2020. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: barrylampel
To: Allegheny Tunnel
Subject: [External Mail] FW: Allegheny Tunnel Comments
Date: Friday, December 4, 2020 10:49:00 PM

Subject: Allegheny Tunnel Comments

Berlin Tunnel Turnpike Proposal:

The proposal to alter a mountain top by carving a revine across it can only spell disaster.

Like all user-paid-for construction, the 1/3 billion dollar price tag will far overrun this estimate.

There will be permanent issues created including rain/snow water runoff rerouted into a manmade revine, decade long deer migration routes altered forever ending in certain deer slaughter, and extreme man-made landscaping creating the perfect storm for winter and rain disasters including flooding, snow drifting and road closures, not to mention treacherous road conditions and certain deaths associated.

Yearly maintenance on an exposed mountain highway of this magnitude will be a financial burden on the Turnpike Commission passed on to users who will see an abundance of toll cost increases in true Turnpike fashion.

The smart thing to offer is work with the existing tunnel that served us well for over eighty years. You can alter traffic like other turnpike tunnel maintenance work. The inconvenience will be short lived over "continued repeat" headaches, repair, closures associated with altering an exposed mountain environment that's been there forever.

Bottom-line, make the project environmentally safe and financially sound for all.

Barry Lampel
Johnstown , PA
Cel717-676-8403
Home 814-410-3066

Barry Lampel Email Received December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. The PTC's goal is to be financially responsible and appreciates your comments. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

ifaw

protecting habitats

IFAW protects animals, people, and this beautiful place we call home. Through habitat restorations and tree planting initiatives, the support you provide improves the health of our planet and gives the animals we care for a safe home to return to after they've been released back to the wild.

www.ifaw.org

To L. R. Kimball

Dec. 4, 2020

For the Record,

I Favor a Tunnel through the Allegheny Front Mountain instead of a cut due to the environmental ~~damage~~ disruption to land, water and air currents in that area that a cut would cause

Anthony J Marich

Anthony Marich
PO Box 7
Markleton, PA 15551

814 926 4139

Anthony Marich Letter Dated December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: Daryl Restly
To: Allegheny Tunnel
Subject: [External Mail] Rainfall Runoff - Allegheny Tunnel Bypass in New Baltimore, PA
Date: Friday, December 4, 2020 7:02:33 AM

Hello,

Is the Pennsylvania Turnpike Commission doing anything about the additional rainfall runoff especially through New Baltimore (widen and / or clean out stream) and maintain it in the future? I can be reached at frestly@comcast.net

Francis T. Restly

Francis T. Restly Email Received on December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The project is in the planning stages and stormwater management will be assessed in more detail as the project moves through Final Design. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From:	James Moses
To:	Allegheny Tunnel
Cc:	Richard Berkley; Roger Latuch; lenny Lichvar; musserrandall@gmail.com; tresh4438@gmail.com; Colleen Dawson; Gerald Walker; Jeff Payne; rduppstadt@highlandtank.com; cramerconstruction@hotmail.com; Pamela Tokar-Ickes
Subject:	[External Mail] Allegheny Tunnel Comments
Date:	Friday, December 4, 2020 1:45:45 PM
Attachments:	Allegheny Tunnel Letter December 4 2020.doc

Attached are the Somerset County Conservancy's comments on the proposed Tunnel Cut Project.

Somerset County Conservancy

Box 241, Somerset PA 15501

Allegheny Tunnel Comments
L.R. Kimball
615 West Highland Ave.
Ebensburg, PA 15931

December 4, 2020

Dear Sir,

The Somerset County Conservancy would like to express its opposition to the proposed "cut" alternatives for the Allegheny Mountain project. Allegheny Mountain is the longest continuous ridge in the Eastern United States running from New York to West Virginia and forms the Eastern Continental Divide separating watersheds heading into the Mississippi River and Gulf of Mexico from those flowing into the Atlantic Ocean. It also contains nearly contiguous forested lands along its spine providing important wildlife habitat and migration corridors. Creating one of the largest transportation cuts in the country through this mountain would have many devastating environmental impacts.

The mammoth cut would in itself directly destroy hundreds of acres of forested mountaintop in addition to creating many more acres of new edge habitat which is detrimental to interior forest breeding birds. The waste rubble would then again destroy hundreds more acres of forest and potentially headwater streams depending on the location of the "disposal site". The Allegheny Mountain contains important aquifers which would be daylighted including some such as the Mauch Chunk which contains large quantities of the highest quality water in the region. Surface streams including the Stonycreek River and Raystown Branch of the Juniata River would be directly impacted by the large quantities of ice melting chemicals which will be necessary to deal with the worst overall weather conditions on the Turnpike to which travelers can be exposed.

The elevation of Allegheny Mountain results in some of the worst weather conditions along the entire mainline turnpike. High snowfall, frequent ice storms, high wind and especially excessive fog (which is essentially low cloud cover at all seasons) is encountered much more frequently on the mountaintop than in the rest of the notoriously snowy Somerset County. The fog and ice line is frequently just above the west portals of the Allegheny Tunnels. A large cut will also serve as a cold "drain" allowing the 5 to 10 degree colder air of Somerset County to sink down along the Turnpike corridor towards Bedford County. The weather conditions on the very

Somerset County Conservancy

high elevation Allegheny Mountain are worse than the already problematic mountain crossing areas of the Turnpike on Laurel Mountain and Sideling Hill.

This project has been studied for over 20 years and the PA Turnpike appears to steadfastly refuse to look at an option that would optimize environmental concerns, traveler safety, and cost. The idea of building a single (possibly 3-tube) west to east tunnel aligned to ease the east side curve (possibly the “Gray Tunnel Alternative”) while sequentially rehabbing both of the existing tunnels for west bound traffic (possibly separating trucks and passenger cars) could result in a beautiful alternative.
Modern, LED lit; spacious tunnels are enjoyed by travelers in many U.S. states and overseas countries—why not in Pennsylvania?

Sincerely,

James R. Moses

James R. Moses, President SCC

Somerset County Conservancy Email Received December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. Your comments have been noted both here and previously after the January 2020 public plans display. The PTC continues to perform studies and work with resource agencies to minimize project impacts. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: Shannon Joy Telenko
To: Allegheny Tunnel
Subject: [External Mail] Oppose Gray Cut Alternative
Date: Friday, December 4, 2020 10:27:55 AM

Greetings! I wanted to let you know as a Pennsylvania resident that I oppose the Gray Cut Alternative. At a time in which our planet is warming we need to protect our trees and wilderness. Thank you!

Dr. Shannon Telenko

Dr. Shannon Telenko email received December 4, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: David Folan
To: Allegheny Tunnel
Subject: [External Mail] The Allegheny Tunnel
Date: Saturday, December 5, 2020 10:31:38 AM

I have no personal interest in this project, but have several objections as seen from a distance.
First, the PA Turnpike is already ridiculously expensive; it's hard to see how spending the money the bypass requires will make it any cheaper. The cost is already pushing heavy trucks off the 'Pike, not to mention private vehicles.
Second, I have witnessed the mess these projects make in otherwise undisturbed regions. When Pinkerton Tunnel became Big Cut, it created a woeful mess. Tons of spoil, a gash in the mountain reminiscent of a strip mine, graves disturbed and game movement interrupted, all in an effort to spend 'shovel ready' money. *Lots* of money as it turns out. Pinkerton Horn has been, rightly, compared to Ohiopyle Peninsula, lacking only the armies of tourists.
The Mountain Field and Stream Club has ably managed this unimproved wilderness for many years, and wilderness gets in shorter supply all the time.
Curves are a fact of life on mountain highways, and running on ridgetops not without its problems of wind and snow... especially in the highest county in the state.
Leave the current alignment alone, perhaps making some improvements at known problem areas. Preserve the mountain as it is.
Dave Folan

David Folan email received December 5, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. One of the PTC's goal is to be financially responsible. Future design of any component of the Turnpike will be in accordance with current design standards to provide a safe travel area. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From:	Randall Musser
To:	Allegheny Tunnel
Cc:	Tim Resh; Shelly Shultz; Keith Kimmel
Subject:	[External Mail] Allegheny Tunnel Transportation Improvement Project
Date:	Sunday, December 6, 2020 10:48:13 AM
Attachments:	MFS Club Allegheny Tunnel DED Comments.pdf

Ladies and Gentlemen

Attached you will find Mountain Field and Stream Club comments for the above referenced project.

Randall L Musser, Chairman, MFS Club Turnpike Committee

Mountain Field & Stream Club
363 Lincoln Street
Somerset, PA 15501

December 5, 2020

Allegheny Tunnel Comments
L. R. Kimball
615 West Highland Avenue
Ebensburg, PA 15931

RE: Allegheny Tunnel Transportation Improvement Project

Ladies & Gentlemen:

Attached are comments from the Mountain Field & Stream Club regarding the Draft Environmental Document for the above referenced project.

Sincerely,

Randall L. Musser
Chairman MFSC Turnpike Committee

Attachment

Mountain Field & Stream
Comments on the Allegheny Tunnel Transportation Improvement Project
October 2020 Draft Environment Document

Safety:

Traffic safety is a priority for any option. No roadway is 100% accident free. Human error, vehicular malfunction, animal crossings, and weather conditions are often root causes for highway crashes.

The Draft Environmental Document (DED) examines design concerns for this stretch of highway. The major issues are the degree of curvature for the road at the east portal and the reduction from three lanes of travel to two lanes of travel for west bound traffic as it approaches the east portal. These issues, as well as some other minor issues are given as reasons the interstate crash rate for this section of the turnpike is "considerably higher" than state wide averages. As a result of the crash analysis, the study concludes that removal of the tunnels and replacing them with a bypass would reduce the number of crashes. However, reaching this conclusion based on the data analyzed is flawed. The analysis needs to compare crash rates for sections of the turnpike where tunnels have been removed and replaced by bypasses.

Both the Laurel Hill Bypass and the Sidling Hill Bypass should be evaluated for crash rates and these rates compared to the rates within the environs of the Allegheny Tunnels. The document must be revised to include this revised analysis in order to understand if the proposed bypass will reduce crashes as currently claimed, especially since traffic safety is such an often cited reason for utilizing a bypass rather than tunnels to cross the Allegheny Mountain.

Traffic volume is another factor effecting safety. The current projections for traffic volumes are based on an exponential increase of 1.53% for west bound traffic and 2.09% for east bound traffic. Nothing in the DED describes on what these increases were based. Did they include considerations for completion of US 219? A complete US 219 will provide an alternate toll free limited access highway from Somerset to Interstate 70 via Interstate 68. The completion of US 219 is very near and the effect this highway will have on traffic volume needs to be considered in the DED. An improved alternant route will likely reduced traffic volume growth rates on the Turnpike. If growth rates do not materialize, the projected reductions in Level of Service will not occur.

The other safety factor that has not been evaluated is the rapidly evolving crash avoidance systems being installed in modern automobiles. These features are likely to result in fewer crashes and improved LOS without changes to the geometry of highway layout.

Weather conditions play a significant factor in highway safety. Rain, sleet, freezing rain, snow, blowing snow and wind are all factors in highway crashes and fatalities. As anyone who lives on the Allegheny Plateau can testify our weather is definitely harsher and more unpredictable than most other areas of Pennsylvania. If travel safety is a concern, then weather must be considered in highway design. The Allegheny Mountain, with elevations nearing 3,000 feet M.S.L., is subject to some of the most severe weather within Somerset County. The public comments from people who live in the area and witness the weather on a daily basis indicate, according to the DED that, "the issue of weather effects on roadway safety in the Project vicinity was of importance to the public". Unfortunately, the DED attempts to

minimize the concerns of life long residents of the area by citing data that attempts to minimize weather related concerns.

To accomplish this, they utilize weather data collected at the west portal of the Allegheny Tunnel. This data indicates that the weather at that location is no worse and in many cases better than other weather monitoring stations to the east and west of the Allegheny Tunnel. The point they make is valid. Travelers entering the west portal have not been subject to the weather of the Allegheny Mountain. It may be one of the reasons the original highway engineers decided to go through the mountain, rather than over it. However, as local residents can testify, the weather conditions deteriorate quickly as you start up the mountain. The photos attached to this report provide the proof. These photos represent common occurrences, not isolated events. Until the PTC gathers actual weather data at different elevations on the mountain, it is impossible to support any claim that the weather along the gray cut will not present major safety issues for highway travelers. The photographic evidence proves otherwise. The reviewing agencies must insist the PTC collect actual weather data at various elevations along the proposed cut options!

Road alignment and grade are significant factors in highway safety. The current alignment has a curve at the east portal of the tunnel, but the approach grade west bound is 5% and the speed limit is 55 mph. Motorists traveling the speed limit should have no trouble safely negotiating the curve. However, if a Gray Cut bypass is built, the east bound grade will descend the east slope of the mountain on a 5% grade for 8,200 feet. Then it continues 6,200 feet on a nearly 3% grade into a 3 degree right curve. Cars and trucks descending the mountain will pick up speed. The first curve east of the Gray Cut will likely be the site of vehicular crashes. Those

crashes, with the resulting spills of fuel and hazardous substances, will occur along a naturally reproducing wild trout stream. One only needs to look at the crash history of the Turnpike as it descends the Laurel Mountain bypass to know that this prediction is valid. A tunnel option will significantly reduce the grade to 0.75% for 3,045 feet, and then increased to 5% before tying into the existing alignment. Because the speed limit is reduced in a tunnel, traffic will likely be traveling slower as it approaches the curve to the right, resulting in fewer crashes.

Considering all the factors, a tunnel option will provide a much safer route for motorist traveling through the Allegheny Mountain.

Resources:

The Mountain Field and Stream Club (MFSC) has spent decades acquiring and preserving land on the Allegheny Mountain. The land we have acquired is not preserved for use by a few wealthy members. The lands held by the MFSC are open to use by over 600 members. MFSC land is in many ways similar to a public park. Our members are mostly local residents who want a place to hunt, fish, hike, bird watch, ride horses, picnic, and generally enjoy the outdoors. Some of our members are elderly but maintain their membership to preserve for the next generation what they have spent a lifetime enjoying. Family memberships extend back six generations in some cases. Dues are only $30 per year, so membership is very affordable. This year the club will likely accept as new members all who applied.

Our primary resource is the land. The land supports all the other resources studied by the Draft Environmental Document (DED). It supports wildlife and it supports trees that help clean our air. It also filters rainfall that recharges our groundwater, springs, and streams.

As the DED has done, resource impacts can be sliced and diced many different ways. However, common sense says the option that destroys the least amount of land is the most environmentally friendly. According to Table 6.15 the Gray Cut has the largest impact at 192 acres. The Brown Tunnel has the least impact at 84 acres. Common sense should weigh heavily on the decision making process. Tunnel options will destroy far fewer acres than cut options. If tunnel options are designed to minimize land impacts, the number of acres destroyed can be reduced even further.

An option that has been suggested for many years would accomplish many of the project goals while minimizing land disturbance. That option would consist of one three lane east bound tunnel oriented in a way that minimizes the degree of curvature as vehicles exit the tunnel. The existing tunnels would serve west bound traffic. It is unacceptable that an environmental impact document be produced without a detailed analysis of this option. West bound traffic which is coming up the mountain and is traveling at 55 mph can easily negotiate the curve as it approaches the tunnel heading west. The crash analysis in the DED indicates that the curve is not a problem for west bound traffic. Crashes involving west bound traffic are primarily the result of the lane reduction from three lanes to two lanes approaching the tunnel. Using both existing tunnels for west bound traffic would alleviate this restriction and reduce crashes on the west bound approach to the tunnel. The proposed east bound tunnel would be three lanes. It would protect motorist from the mountain weather, reduce the descending grade and speed heading east, eliminate the severe curve east of the tunnel, and reduce tunnel entrance congestion. All these improvements would also reduce crash rates for east bound traffic.

The PTC has always dismissed this option without serious study. One wonders if this dismissal is justified because this Gray Optimized Tunnel Option (GOTO) would satisfy so many of the PTC concerns while protecting the environment to the greatest extent possible by minimizing the area of land disturbance. The Draft Environmental Document for the Allegheny Tunnel Improvement Project must thoroughly evaluate the GOTO for comparison to the other proposed options. The Mountain Field and Stream Club believes utilizing the Gray Optimized Tunnel Option will provide the safest, most environmentally friendly option, all at a reasonable cost.

Closing Comments

The South Penn Tunnel is considered a historical resource. Just to the south of the east portal lies a cut stone preparation area that reportedly was the site for the cutting and shaping of the stone used for the South Penn Tunnel. This area has stone of various stages of processing. The field provides a significant historical monument to the labor and skills utilized to build 19th century infrastructure. No mention of this historical relic was found in the DED. It's unclear if the Gray Cut Option will have an effect on this resource or not, but it should be located and documented as part of the historical resources evaluation.

Project cost is obviously a concern. Utilizing the Gray Optimized Tunnel Option will utilize to the maximum extent the existing highway. The existing tunnels need maintenance, but should not need to be widened. The proposed lane width for the Gray options is 12 feet. The existing tunnel lane width is reported at 11.5 feet. It seems unreasonable to bore a new west bound tunnel to gain an additional six inches of lane width. The GOTO would use the

existing tunnels for west bound traffic and then build a new 3 lane east bound tunnel. The GOTO would minimize permanent land disturbance and reduce the waste disposal area.

The Gray Tunnel Alternative has a project cost of $627.9 million. If just the east bound portion of this option is built, would the project cost be half? If so, it is less than the Gray Cut Alternative. Also, the cost of maintenance for the Gray Tunnel is said to be $3.3 million per year. Why is this tunnel option so much more than the existing tunnel maintenance cost of $1.5 million per year (page 25). Should not a new tunnel cost less to operate?

Remediation of the ancient slide area to the east of the tunnels creates a large earth disturbance. This portion of the project needs an alternative analysis. It is shocking to read that the slide plane "may" be associated with a mud seam. Have no geotechnical borings been completed to determine the precise cause of the ancient slide? The GOTO may minimize the need to repair this potential slide because the highway may be back to its current alignment by the time it reaches this point. What other geotechnical options have been explored to remediate this slide?

In conclusion, the regulatory agencies must fairly evaluate the proposed alternatives and let common sense prevail. Every cut option destroys the mountain and every tunnel option preserves the mountain. A tunnel is the only reasonable alternative.

DEC 2005

9-1-2020

A clear day — 9-5-2020

Mountain Field and Stream Club email and letter received December 6, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project.

Accident analysis of Sideling Hill and Laurel Hill bypasses – The timing of these projects (many years ago) and reasoning for these projects are not comparative to the current Allegheny Tunnel Transportation Improvement Project. The make-up or type of traffic was also different at those times and does not provide an "apples to apples" comparison when discussing accident analysis.

Traffic volume increase was based on historical data increases over a ____ year timeframe.

Weather – additional studies are not proposed as other sections of Turnpike are located at a higher elevation than what is proposed. The PTC uses real time warning systems and other traditional weather mitigation techniques to combat adverse weather.

Road alignments and grades - The design proposed incorporates current design standards accepted by state and federal transportation administrations.

Diminishing of environmental resources - The PTC continues to perform studies and work with resource agencies to minimize project impacts.

Gray Optimized Tunnel Option – Variations of this alternative have been studied throughout the project's history. The reasoning for not moving it forward includes:

- Constructability issues
- Environmental impacts
- Impact to slide area would be greater
- Excessive initial cost

South Penn Railroad Tunnel – the railroad tunnel is National Register eligible. Phase I archaeology studies were completed fall 2020. The data is being evaluated and will be coordinated with the Pennsylvania Historical and Museum Commission.

Operation and maintenance cost – The current number only includes routine operations and maintenance costs for each tunnel and not life cycle replacement cost which would negatively impact all the tunnel alternatives. It also does not include the operation and maintenance of the roadway approach.

Ancient Landslide and remediation – 8 borings were completed in 2018 and 10 more are proposed Spring 2021. The alignment cannot be tied into the existing turnpike prior to the landslide area while addressing the substandard curve east of the tunnel. On additional remediation method was analyzed. It included a wall of drilled caissons but was determined the potential force above the wall could shear them off causing frequent replacements.

Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From:	scott kennell
To:	Allegheny Tunnel
Subject:	[External Mail] Fwd: Gray Cut Alternative
Date:	Monday, December 7, 2020 2:19:35 AM

Begin forwarded message:

From: scott kennell <sfd5804@yahoo.com>
Date: December 7, 2020 at 2:14:11 AM EST
To: alleghenytunnel@lrkimball.com
Subject: Gray Cut Alternative

To whom it may concern about the Allegheny Tunnel “Gray Cut”:

I have been visiting the area in question for 35 years. I along with several family members, that have hunted, fished and have hiked on the area. All ways to enjoy the outdoors and appreciate all of Mother Nature’s creation. And spending family time in a safe manner away from traffic. We have even taken our family pets with us.

In my time spent in this area, I have personally seen and found areas that play a major role in stream feeding and local water sources. These areas can have running water all months of the year. Thus supplying all wildlife and humans as a water source for survival.

I, including several other family members and several hundred local sportsman club members have legally hunted and fished in this area of the Gray Cut. With license purchases, I and the several hundred others, have helped support our Commonwealths fish and game agencies. And respected all laws regarding those activities. And have taken conservation of these resources very seriously. Even to the extent of consulting forestry firms to assist in current and future cutting and planting of trees.

In this area, there are also other infrastructure. There is a electrical powerline running north and south across this mountain ridge that is set directly in the Gray Cut path.

More personally, I have witnessed weather pattern change rapidly on this mountain ridge. As just this past Saturday, I witnessed overcast sky’s, to a brief sun shine, to rain, to snow, to freezing rain to sleet, from calm winds to heavy winds...within a 2-2.5 hour time frame. The idea of a cut on this mountain will, in fact, without any doubt, cause motorists driving this area of the turnpike...serious and rapid road and driving condition changes if a cut into the mountain would

happen. Causing more potential for serious accidents. Which in turn will, put local fire, ems and state police and equally important turnpike employees in direct danger by working in these hazardous conditions.

More environmental impacts will also take place. With millions of cubic tons of earth and rock being removed, it must go somewhere. Then causing serious environmental damage to where it's placed.

In closing, the safety factors of motorists driving the Pa Turnpike will become worse by this Gray Cut. And in turn will put others at risk. The environmental damage and loss will never be recouped. And will certainly be affected at other locations. The property value of local residents will also be affected, surely in a negative way. And lastly, several species of wild life will be affected dramatically!

It's amazing that the Pa Turnpike raises tolls yearly but, feels this is a logical idea. Cost cutting measures to eliminate toll collectors was a slap in the face to those workers. Spending several million to basically cause more loss of natural resources, infrastructure and wild life all seem to be wasteful, mismanagement of funds and resources. With little to no repercussions or oversight.

Respectfully submitted,

Scott Kennell

Scott Kennel email received December 7, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. The design proposed incorporates current design standards accepted by state and federal transportation administrations. The PTC uses real time warning systems and other traditional weather mitigation techniques to address adverse weather. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From:	Thomas Schuster
To:	Allegheny Tunnel
Cc:	gbednar@paturnpike.com
Subject:	[External Mail] Comments on Allegheny Tunnel project
Date:	Monday, December 7, 2020 2:57:45 PM
Attachments:	Allegheny Tunnel TIP Comments 12-2020.pdf

Hello,

Please see the attached comments from the Pennsylvania Chapter of the Sierra Club for the project comment period that closes today.

Thank you,

photo

Tom Schuster
Clean Energy Program Director
Sierra Club Pennsylvania Chapter
PO Box 1621
Johnstown, PA 15907
(814) 262-8355 (office)
(814) 915-4231 (cell)
tom.schuster@sierraclub.org

December 7, 2020

Via email to: allegheny.tunnel@lrkimball.com

Cc: *Gregory Bednar, P.E.*
Project Manager
Pennsylvania Turnpike Commission
2200 North Center Avenue
New Stanton, PA 15672-9602
724-755-5182
gbednar@paturnpike.com

Re: Comments on Allegheny Tunnel Transportation Improvement Project

On behalf of its approximately 30,000 Pennsylvania members, the Sierra Club Pennsylvania Chapter respectfully but strongly opposes the Gray Cut Alternative, and urges the Pennsylvania Turnpike Commission to instead choose the No Build Alternative, which would result in repair and remediation of the existing Allegheny Tunnel.

Our concerns regarding the Gray Cut Alternative are twofold. First, “daylighting” the existing tunnel would result in significant environmental destruction that is completely unnecessary and avoidable. The Allegheny Front is our most iconic ridge, and this option would decimate land stewarded by the Mountain Field and Stream Club for the past century. This area contains vernal pools, cold springs and peatlands in higher numbers that is typical for a ridge, leading to uncommon plant communities. It is the headwaters of the Raystown Branch of the Juniata River. As one of the largest remaining unbroken forested ridges, it is a major north-south migration corridor for wildlife, particularly deer, which would be frequently struck by traffic on the newly exposed highway. It is home to an unusually high number of porcupine dens, and there are several hibernacula of the endangered Indiana bat. The additional water pollution and wildlife habitat destruction that would result from this, or any, cut across the top of the Allegheny Front is simply too great a cost.

Second, the enormous monetary cost of this project is not justified given the serious shortfalls we face to our public transportation system. Climate science tells us that we have to reduce our economy-wide greenhouse gas emissions by 45% by 2030, and eliminate them by 2050. In the transportation sector, this will require a fundamental shift in priorities away from highway extension and widening projects and toward expanding access to public transportation and electrifying the entire system. Regardless of which precise pot of money would pay for this

project, the ultimate source is the same - the traveling public - and there is very limited appetite for increasing taxes, tolls, fares, and fees.

With respect to transit, the COVID-19 pandemic has turned an unsustainable funding structure (with an estimated fiscal cliff of $400 million per year by 2022) into an immediate crisis. We need to first stabilize existing transit service, then significantly expand access to and quality of that service. This is necessary to ensure equity of opportunities for residents of the Commonwealth, and to start reducing our climate altering pollution.

We can no longer afford nine figure highway widening projects for a marginal and temporary increase in level of service. At the same time, the rapid emergence of autonomous vehicle technology calls into serious question any projections of highway level of service more than a decade in the future. Rather than cut a gaping hole into a beloved mountain, we call on the Turnpike Commission and its travelers (ourselves included) to simply continue to slow down slightly for a mere mile or two.

Respectfully,

Thomas Schuster
Clean Energy Program Director
Sierra Club Pennsylvania Chapter
PO Box 1621
Johnstown, PA 15907
(814) 262-8355
tom.schuster@sierraclub.org

Sierra Club email and letter received December 7, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The No Build option does not meet the project purpose and need. The existing tunnel will remain intact and is not proposed to be daylighted by this project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. In accordance with Act 44, the PTC continues to provide annual payments to PennDOT to help fund projects and transit operation in every county in the State. Improved transit will not address commercial use of roadway networks and correcting substandard design. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From:	saugustine@co.somerset.pa.us
To:	Allegheny Tunnel
Cc:	Colleen Dawson; Gerald Walker; Pamela Tokar-Ickes
Subject:	[External Mail] Allegheny Tunnel Comments
Date:	Monday, December 7, 2020 3:57:59 PM
Attachments:	Allegheny Tunnel Comments.pdf Corridor_N_Final_V6.pdf

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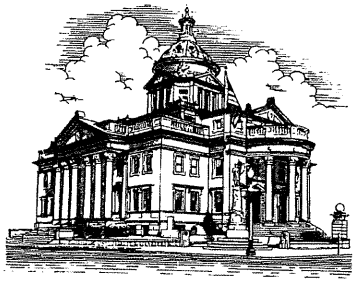
Please see the attached letter of comment from the Somerset County Board of Commissioners.

Sonya Augustine
Chief Clerk
Somerset County
(814) 445-1401
"*Kindness is the language which the deaf can hear and the blind can see*." -— Mark Twain

SOMERSET COUNTY COMMISSIONERS



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www.co.somerset.pa.us

Gerald Walker, Chair
Colleen R. Dawson, Vice Chair
Pamela A. Tokar-Ickes, Secretary

December 7, 2020

Allegheny Tunnel Comments
L.R. Kimball
615 West Highland Avenue
Ebensburg, PA 15931

To Whom It May Concern:

After reviewing the October 2020 Draft Environmental Document, the Somerset County Commissioners remain in full solidarity with our constituents in staunch opposition to the Pennsylvania Turnpike - Allegheny Tunnel Transportation Improvement Project. In our opinion, the Gray Cut Alternative will permanently scar the Allegheny Front in both Somerset and Bedford Counties, and create irreversible damage and disruption to this unique and fragile ecosystem.

Now with the benefit of nearly two decades of study, yet another alternative with the "least environmental impact," has been put forth by project engineers as the means to carry this major interstate highway over the mountain barrier that serves as the gateway to our home. Yet, the burden is once again on our community to refute the details of your analysis for which we currently do not have the internal resources or capacity to provide. Loss of agricultural land, flora and fauna, threatened and endangered species, wildlife and vegetation are all of the utmost concern to this board. Groundwater loss will impact the wetland and water sources of the region. Storm water runoff, and the addition of roadway materials, will impact streams, rivers and public water sources.

Although we have repeatedly aired legitimate environmental and safety concerns each time the project has surfaced in 1996, 2001 and 2010, the Commission has been persistent and unrelenting in its pursuit of a massive cut into the Allegheny Front. Any proposed cut to this mountain will greatly affect all of the items outlined in your document. However, one glaring omission of the Draft Environmental Study is the failure to consider the impact of the completion of an alternative route, U.S. Route 219, to address the issues of traffic congestion, safety and the need to route hazardous materials around the existing tunnel, all of which are outlined in the study's own executive summary.

Therefore, we formally request you consider the impact of a completed U.S. Route 219 on this turnpike corridor as a viable and environmentally responsible alternative to an open cut of the mountain. U.S. Route 219 is expected to be finished within the next 10 years. We anticipate many vehicles will use this alternate route due to its proximity to Maryland's Interstate-68 which will provide direct access to areas to the south. It is our belief that traffic, both passenger vehicles and commercial vehicles, through the tunnels will be reduced, affecting future traffic volume projections.

The Southern Alleghenies Planning and Development Commission recently conducted the *Pennsylvania-Maryland Corridor N Completion Analysis and Impact Study*, prepared by Metro Analytics and Skelly & Loy, which was finalized October 14, 2020 (attached). This study specifically references the Allegheny Mountain Tunnel on page 11 of the document. The important role a completed U.S. Route 219 plays in hazardous material routing along the PA Turnpike is outlined. The conclusion is that a completed U.S. Route 219 offers **an alternative route for diverted tunnel traffic as an economically cost-competitive option when compared to tunnel improvement options.** PennDOT has funded the preliminary project design and the project is currently being added to the state's TIP (Transportation Improvement Project) with a project engineer to be selected by spring 2021. This transportation improvement will offer a safe and reliable alternative route for those vehicles transporting hazardous materials. With the majority of highway construction funding allocated through federal transportation funding available to complete the critical Appalachian Development Highway System, the project could potentially save the Pennsylvania Turnpike Commission hundreds of millions of dollars. Savings could then be utilized to address deferred maintenance on the existing Allegheny Mountain Tunnel and address safety concerns created by the sharp S-curves on its eastern side.

Perhaps the most significant argument in opposition to the Allegheny Tunnel Project is that of history, and quality of life. Many of our ancestors crossed the Allegheny Mountain and settled in the beauty of Somerset County. This mountain ridge is a part of our heritage. We have a responsibility to our children and grandchildren to preserve this literal natural resource. The Allegheny Ridge serves as the Continental Divide in Pennsylvania, with waters from the eastern side draining into the Atlantic Ocean and waters from the western side draining into the Gulf of Mexico. This ridge is a mountain. You can't "make" a mountain, and it is our responsibility to preserve it.

There is now a viable alternative to a cut that will not only mitigate the environmental impact of the Allegheny Tunnel Transportation Improvement Project, but will address a long-term regional transportation need and avoid the duplication of public expenditures. We feel a serious look at this alternative is incumbent on the Commission and its consultants and implore you to take a look. As our predecessors, the Somerset County Board of Commissioners will remain opposed to any cut of the Allegheny Mountain.

In service,

SOMERSET COUNTY BOARD OF COMMISSIONERS

Sonya K. Augustine
Chief Clerk

Enclosure

CORRIDOR N

Pennsylvania-Maryland Corridor N Completion Analysis & Impact Study

Final Report

October 14, 2020

Prepared by Metro Analytics and Skelly & Loy

metro analytics

SAP&DC
SOUTHERN ALLEGHENY PLANNING & DEVELOPMENT COMMISSION

Table of Contents

Study Overview

Labor market access, traveler safety, system resilience and north-south connectivity between the communities in central Pennsylvania and Maryland are as essential for the southern Alleghenies economy today as they were when the Appalachian Development Highway System (ADHS) was first envisioned in 1965. The ADHS is a 3,090-mile network of highways linking the Region to national Interstates and is designed to promote economic development across Appalachia. ADHS's 33 corridors provide access to regional and national markets, contributing to growth opportunities and improved access to businesses and residents in the region. In the years since US Route 219 (US-219) was initially designated as Corridor N, the National Highway System (NHS), Interstate Highway system and much of the ADHS has been completed, leaving south central Pennsylvania and Western Maryland as one of the few areas not yet fully benefitting from the envisioned access, safety, and mobility benefits of the 21st century transportation system. This report explores the implications of satisfying the region's need for the completion of this facility, as well as the business and economic opportunities associated with achieving this outcome.

The study offers a comprehensive, qualitative analysis of the impact(s) to businesses, regional freight, economic development and other implications of completing the ADHS Corridor N (US-219), from Meyersdale, PA to Corridor E (I-68) in Grantsville, MD. Corridor N is 68.1 miles in length and stretches from Corridor M (US-22) at Ebensburg, PA to Corridor E (I-68) near Grantsville, MD. Currently there are 1.3 miles under construction at a cost of $63M. Approximately 8-miles remain unfinished between Corridor E and the area immediately south of Meyersdale, PA, including approximately 1.5-miles in Maryland and approximately 6-miles in Pennsylvania. In November 2018, an 11-mile section of four-lane roadway from Somerset, PA to just south of Meyersdale, PA (known as the Meyersdale Bypass) was completed. A 1.3-mile section starting at Corridor E is currently under construction and efforts are being made in Maryland to fund the approximately 1.5-mile remaining mileage. It is important to note that the entire Corridor from Somerset to the Maryland state line, including the recently completed 11-mile stretch and the proposed roadway, has been designated a Critical Rural Freight Corridor (CRFC). As a CRFC, it is a part of the National Highway Freight Network and is eligible for Federal funds apportioned to each state for freight projects as well as FASTLANE grant funds.

The current roadway (Meyersdale, PA to I-68 in Maryland) is a two-lane highway that impedes travel of all types of vehicles due to safety concerns and travel time. Completing this segment will increase the safety of all vehicles and offer a faster travel route that reduces overall transportation costs, as well as provides significant benefits to the region's economy. The current report is offered to provide detail about the economic and efficiency impacts the completion of Corridor N will provide to the businesses and residents in the region. Its findings are meant to build on past findings from the Appalachian

Regional Commission's 2017 ADHS Economic Impact Study and the Maryland State Highway Administration (SHA) US-219 Completion Benefit Cost Analysis (BCA). By gathering stakeholder input (including interviews with business leaders) and reviewing key data regarding job creation, this report will demonstrate the benefits and costs of completing US-219, as well as illustrate the project's potential for increased freight activity, improved transportation efficiency, safety, and increased economic opportunity for regional businesses.

Sponsorship and Regional Engagement

The Southern Alleghenies Planning and Development Commission (SAP&DC) was awarded funding from the Appalachian Regional Commission (ARC) to prepare an economic impact analysis for the completion of the remaining miles needed to connect US-219 (Corridor N of the Appalachian Development Highway System) south of Meyersdale with I-68 in Maryland.

There will still be an approximate 1.5-miles to complete in Maryland following the opening of the currently constructed section. The cost for the current section is $63M, the estimated cost for the remaining 1.5 miles in Maryland is $60-90M. The section connecting Somerset with Meyersdale was opened in November 2018 after five years of construction at the cost of $330 million. Construction of 1.3 miles remaining on the Maryland section from I-68 to the Pennsylvania border was begun in October 2018, leaving an approximate 1.5 miles in Maryland and a 6-mile unfunded section from the Pennsylvania border to Meyersdale. These are the final sections needed to complete the 4-lane link connecting I-68 with the Pennsylvania Turnpike and points north. The estimated cost to complete this final 6-mile section is $250 million. **Exhibit 1** illustrates five sections of US-219: The Somerset to Meyersdale section completed in 2018, the Meyersdale Bypass section that is complete, the Salisbury section where construction has not been funded, and the two Maryland sections that would complete the 4-lane roadway, one anticipated and one under construction.

Exhibit 1: Road Views – Completed, Not Started, Under Construction

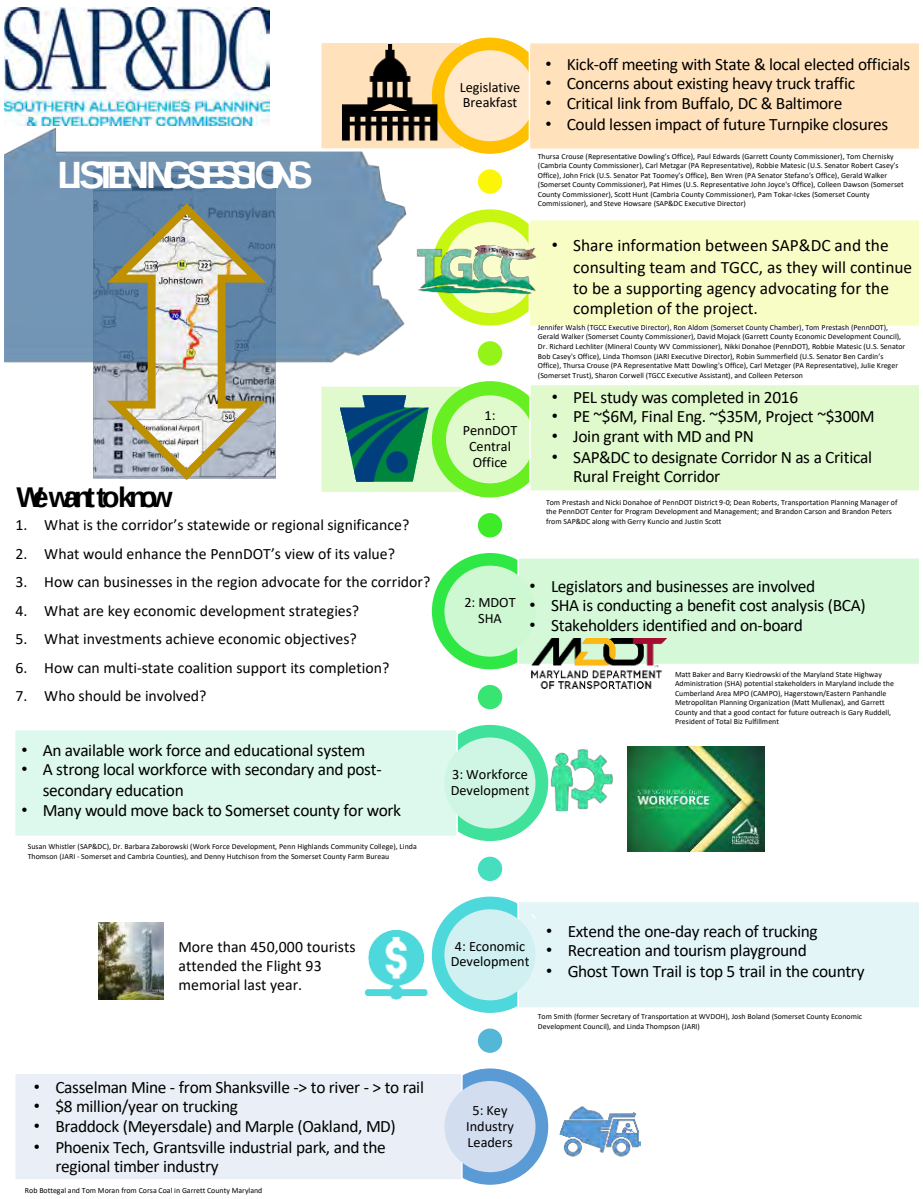
This study will provide a comprehensive, qualitative analysis of the economic and safety impacts of completing the roadway. A study of this type is essential for ensuring that the Corridor's needs and opportunities are appropriately represented when defining the purpose and need of future investment as well as meeting the criteria for programming.

The end goal of this report is to present a qualitative narrative of the study team's outreach efforts. The concept is to let the local business stakeholders and community organizations tell the story in their own words of how an incomplete US-219 has impacted their past and hinders their current operations in terms of efficiency, expansion potential, labor access, and safety. Business stakeholder views regarding the benefits that will accrue for their operations' costs and efficiency when US-219 is completed are also examined in detail. The outreach narrative is supplemented with quantitative modeling analysis and graphics to illustrate and support the outreach findings.

Project Kick-Off Meetings

The Project kick-off was begun on January 31, 2020 with a series of meetings and listening sessions. SAP&DC Leadership and the consultant project team met with key stakeholders from the region in Pennsylvania, Maryland, and West Virginia in several listening sessions. The sessions provided the first opportunity for regional stakeholders to share with the consultants their views on the importance of the project and the value of a completed US-219 corridor for local, regional, and statewide businesses. The study team's goal was to work closely with state DOTs, ARC, FHWA, and regional private sector stakeholders to define and illustrate the benefits of the completion of the incomplete approximate 6-mile section of US-219 that is not complete and not funded. Information garnered from the sessions, along with ongoing outreach from additional business owners, state and federal transportation officials, and other community leaders, guided the analysis and will form the basis for future state and federal funding applications.

The second phase of the Study involved regional business and stakeholder outreach; this effort was completed at the end of July 2020. Through the kick-off listening sessions, an initial list of regional businesses and community organizations were identified as potential candidates for interviews and site visits. These candidates were selected based on the size of their business, the generation of significant amounts of truck and auto traffic, and the potential impact of the



completion of Corridor N on

their operations. Site visits were initially planned to occur in late March and early April 2020. However, due to the COVID-19 lockdown, in-person meetings and site visits were postponed. To keep the project moving forward during the lockdown, an online survey and information gathering effort was initiated.

PublicInput.com Survey Effort

SAP&DC and the consultant team decided to expand the outreach to a larger pool of regional businesses and community organizations through an online survey effort. The survey is designed to allow the participant a platform to provide qualitative information as well as quantitative data regarding the Project. Survey participants were encouraged to provide their businesses' experiences and impacts regarding the current state of US-219, and how its completion will impact their future operations.

As of September 30, 2020, 129 participants contributed 1,328 responses and 505 comments through the www.PublicInput.com/US219 online survey website. The site is currently active (as of September 2020) and is continuing to gather public input about the project. This report includes a cross-section of responses that were submitted by the survey participants. All responses remain available through the survey website (publicinput.com/US219). The responses were universally in favor of completing US-219, with no responses that indicated opposition to the project.

Business and Stakeholder Site Visits

In July 2020 COVID-19 lockdown restrictions were lifted and scheduling of in-person meetings and site visits were initiated. These meetings were conducted and completed in late July and early August 2020.

A cross-section of the businesses identified in the stakeholder meetings were selected for site visits, including:

- Total Biz Fulfillment - Paul Ruddell
- Clapper's Industries - Jon Clapper
- Wheeler Brothers - Wendy Gianfrancsco
- Heritage Coal - Jason and Angela Svonavec
- J&J Truck Bodies/Riggs - Michael Riggs
- Corsa Coal - Tom Moran
- Bill Miller Equipment Sales - Joe Michaels and Lee Murdy
- Firefly Farms - Mike Koch
- Phenix Technologies - Frank Vitez
- Rocky Gap Casino Resort - Skylar Dice
- Beitzel Corporation - Shawn Bender

The site visit findings, coupled with the modeling and mapping effort, are presented in the following two sections of this document: Performance Profile: Infrastructure Conditions and Needs" and "Business and Economic Profile: Enhancements and Opportunities."

Performance Profile: Infrastructure Conditions and Needs

Completion of Corridor N does not merely address the potential traffic carried on the Corridor itself, but instead addresses more comprehensive network resilience, safety, and accessibility issues. While interstate highways I-68 and I-76 make fast, safe, and rapid access to points east and west available from south central Pennsylvania, none of the routes connecting these facilities in the north-south direction provide a similar quality of connection. All of the north-south routes connecting the region are of relatively low capacity, are faced with safety challenges, and, while carrying light traffic, are ill-equipped to provide resilient accessibility when incidents of any kind occur. The following sections will address the current performance of Corridor N within the study region and immediate surrounding areas. The focus will be on the following topics:

- North-South Connectivity and Resilience
- Allegheny Mountain Tunnel
- Safety of Available Routes
- Delivery and Trucking Considerations

Qualitative findings from the site visits and survey effort will form the core of the narrative from the perspective of the region's businesses and Corridor users, enhanced by spatial, statistical, and other descriptive detail from publicly available data sources. This narrative is supported by crash, speed, and mobility databases reporting historic average delay by route and areas of safety issues.

North-South Connectivity and Resilience

There is a distinct imbalance between east-west capacity and connectivity and that of north-south corridors within the study region. This leads to a lack of resilience on north-south routes (i.e., the ability to choose alternate routes if there is an incident). During the site visits, multiple firms have reported significant impacts on operations when there is an incident on the north-south routes including:

- Significant delays at loading docks as trucks are delayed leading to late shipments and longer shifts
- Increased overtime costs totaling an estimated $10,000 annually for one firm
- Reported per-mile costs of north-south trucking higher than east-west due to delays and slower speeds
- Difficulty obtaining drivers willing to service customers along the route

As network resilience has become an increasing focus of transportation planning and performance measurement, it has come to be accepted that average annual daily traffic and recurring delay often overlook significant losses of time and reliability occurring on rural corridors like US-219. Furthermore, given the sparse nature of the north-south roadways serving south-central Pennsylvania, it is notable that when non-recurring incident delays affect access to the region, there are not parallel interstate or principal arterial routes available to make such access possible.

FROM SITE VISIT INTERVIEW:
(Industry – Warehousing & Distribution)

Any snowstorm to the north will cause delays to shipments and deliveries. We are forced to wait, but still need to get shipments out. That causes about $10,000 per year in added overtime costs.

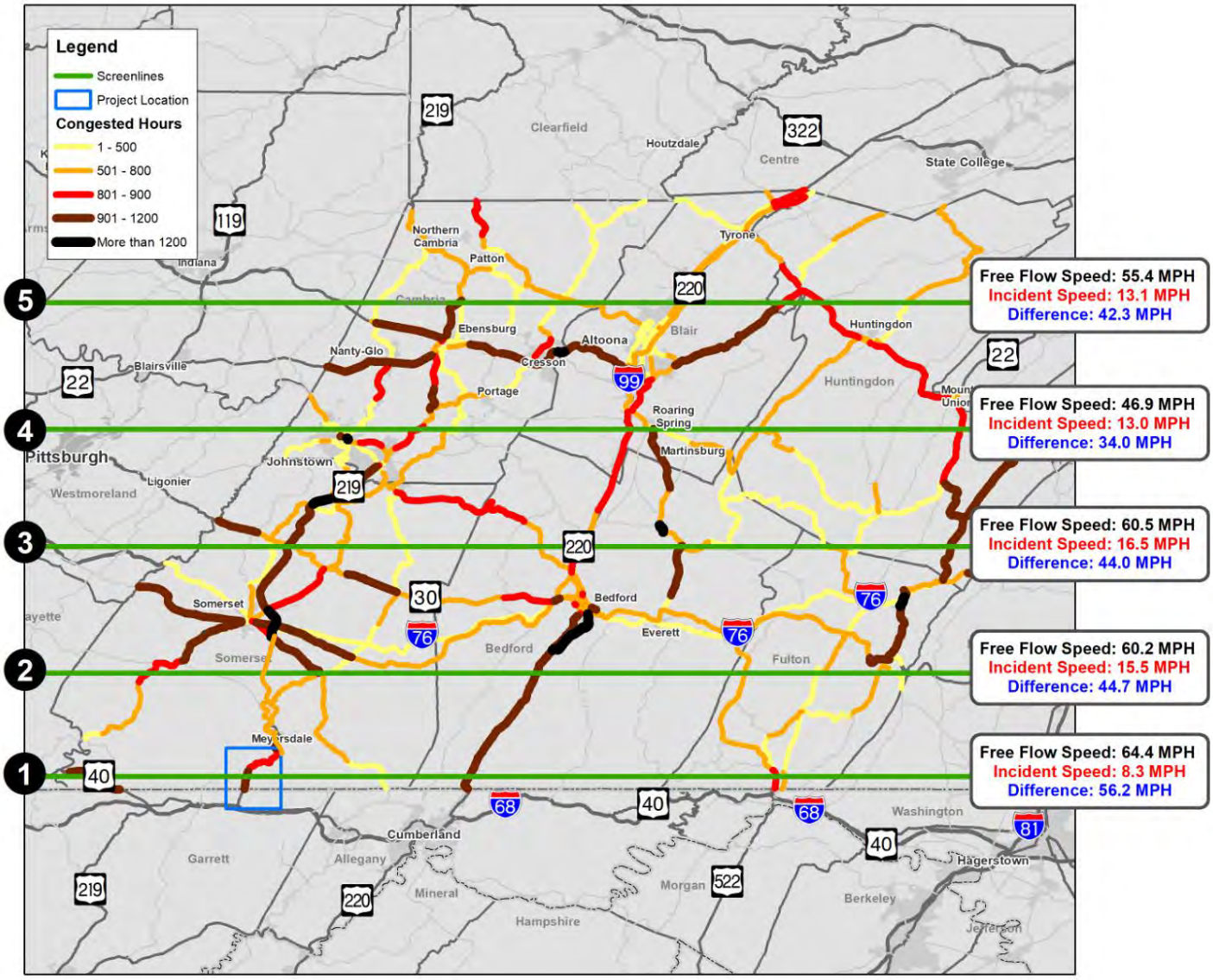
FROM PUBLIC INPUT SURVEY:

Route 219 south of Meyersdale is an unsafe, outdated rural 2 lane road. We avoid it when possible. Furthermore, lack of a limited access highway has hampered our efforts to recruit workers south of Meyersdale PA.

The historic incident delay for US-219 and its potential diversion routes can be observed and mapped to illustrate the impact of non-recurring delays on north-south routes versus east-west routes throughout in the Southern Alleghenies Region. For the delay mapping effort, INRIX data was used to estimate the non-recurring delay on roadway segments throughout the region in a 5-year period. The data revealed the loss of speed occurring during the most severe incidents on each segment by each hour of the day for five years, from 2015 to 2019. The process summed up all the congested hours in five years for each segment.

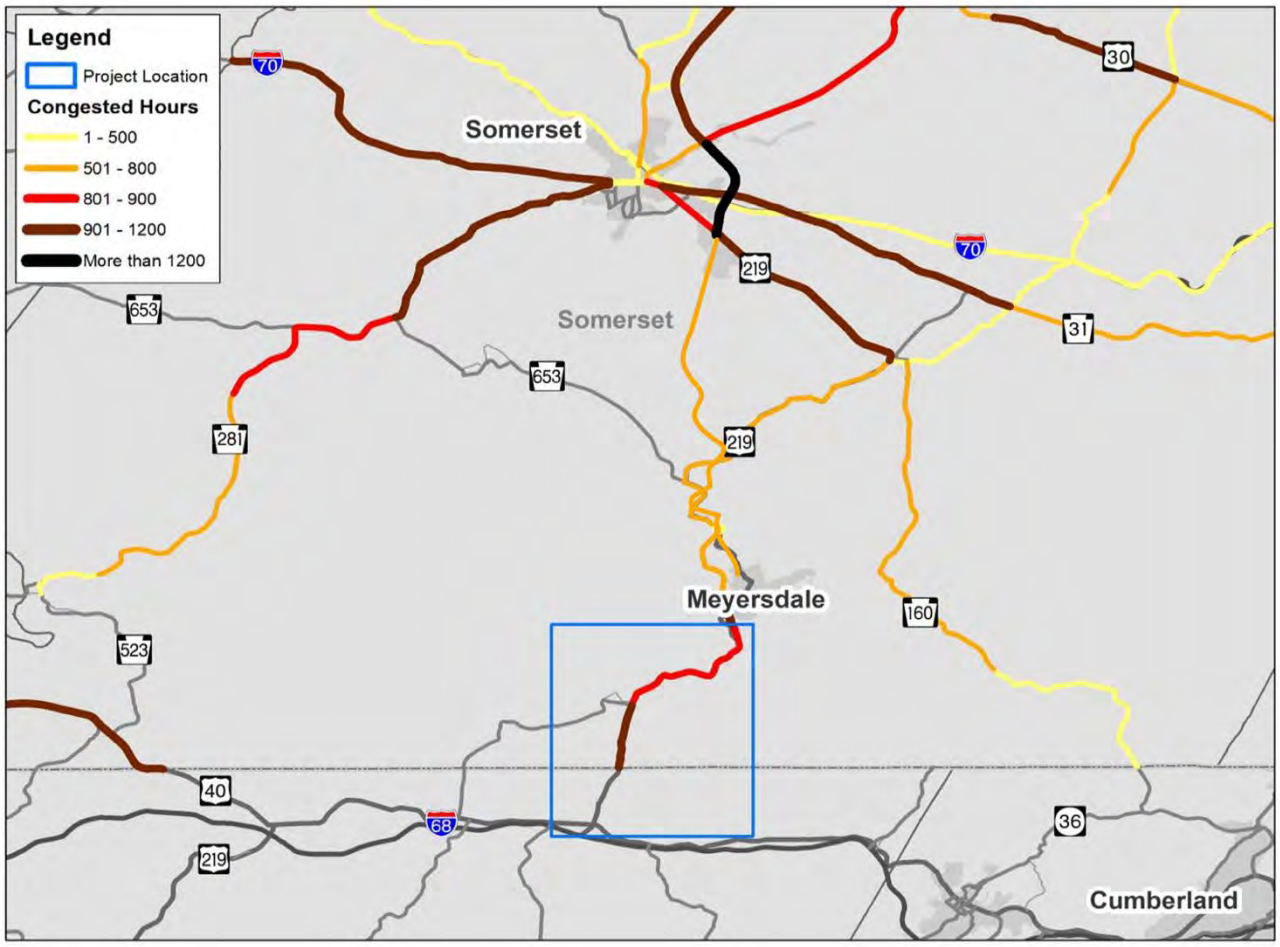
The results are shown in **Exhibit 2** and **Exhibit 3**. The two exhibits display the same area with Exhibit 3 zoomed in closer to the project location. Results show that there is more congestion on the north-south segments like US-219 and US-220 than on the east-west corridors. The results show that non-recurring incidents bring speeds on all of the north-south routes in the region from ranges of 45 to 65 miles per hour to speeds between 8 and 16 miles per hour. The average speed declines across the board for the entire north-south "screenline" (the cross-section of north-south routes – numbered in Exhibit 2 from 1 to 5). The screenline analysis shows that the lack of connectivity is pervasive throughout the region. In the absence of a viable US-219 route, travelers cannot simply divert to another north-south route (as no routes on the screenline have significantly more incident capacity than US-219). The darker shades on the map show the segments with the most significant losses of speed in non-recurring incidents. Notably, there is a far greater loss of speed overall in the north-south direction than in the east-west direction, pointing to the reality that completion of US-219 satisfies not only a need of existing recurring daily traffic, but has a role in serving non-recurring traffic which does not appear in average annual daily traffic (AADT) models or counts.

Exhibit 2: Total Number of Hours Congested in 5 Years



As can be seen in the above graphic, there are significantly more black, brown, and red segment indicators (higher congestion) on north-south routes than on east-west routes.

Exhibit 3: Total Number of Hours Congested in 5 Years – Zoomed View



The zoomed-in view of the delay map highlights the uncompleted section of US-219 and shows some of the highest levels of delay in the region.

FROM SITE VISIT INTERVIEW:

If I-76 shuts down for any reason (weather or accident) there are no options for us to get to I-68. Our shipments are shut down.

FROM PUBLIC INPUT SURVEY:

Speed limit and borough traffic causing lost time; Large commercial truckers do not like to use OLD Rt219 - too slow, too dangerous.

Pennsylvania Turnpike Tunnels

In addition to the overall network resilience benefits of making US-219 a viable and higher capacity north-south route, the facility could play an important role in hazardous material routing on Pennsylvania's transportation network. The four Pennsylvania Turnpike tunnels (Allegheny Mountain Tunnel, Blue Mountain Tunnel, Tuscarora Mountain Tunnel, and Kittatinny Mountain Tunnel) are located in Somerset, Franklin, and Cumberland Counties along the Pennsylvania Turnpike (I-70/76). While the design of the tunnels has been continually upgraded to allow for enhanced capacity and performance over the years, the tunnels still leave significant unmet needs. The Pennsylvania Department of Transportation is evaluating potentially costly environmental, engineering and construction requirements associated with enabling hazardous materials to safely and fully utilize the tunnel. Presently trucks carrying hazardous materials are unable to use the tunnels and are forced to exit the Turnpike and travel either North to US-22 or South to I-68 (relying on US-219). The use of the two-lane antiquated design of US-219 as a hazardous materials route in the absence of a tunnel improvement (which may be costly and take years to complete) can pose unique risks to both the environment and the general population. The envisioned four-lane design for US-219 can offer a safer and more efficient option for this traffic in the absence of the envisioned tunnel improvement for both the near and potentially longer term. It is also likely that the overall cost of improving US-219 as an alternative route for diverted tunnel traffic may prove an economically cost-competitive option when compared to other tunnel improvement options under consideration.

Safety of Available Routes

The three primary north-south routes through the study region are US-219, SR-160, and SR-669, and all provide challenges and safety issues to their respective users. While the focus has been on the US-219 section from I-68 in Maryland to the Meyersdale section, SR-160 and SR-669, which are common alternatives to US-219, also suffer from safety issues. For example, within a six-year span, the Mount Harmony United Methodist Church along SR-160 in Wellersburg was struck by five runaway trucks.[1] The Church was eventually moved to avoid any further safety incidents.

[1] Pittsburg Post-Gazette, "After one too many runaway truck crashes, this Somerset County church is no more" November 20, 2018

Safety issues on SR-160 and SR-669 have led to truck and weight restrictions that limit these routes as an alternative, which drives truck traffic onto US-219 through Salisbury. Network resilience has now been limited due to these safety issues. The lack of route options only exacerbates the traffic levels, safety impacts, and delays for businesses operating north-south in the region, particularly on US-219.

FROM PUBLIC INPUT SURVEY:

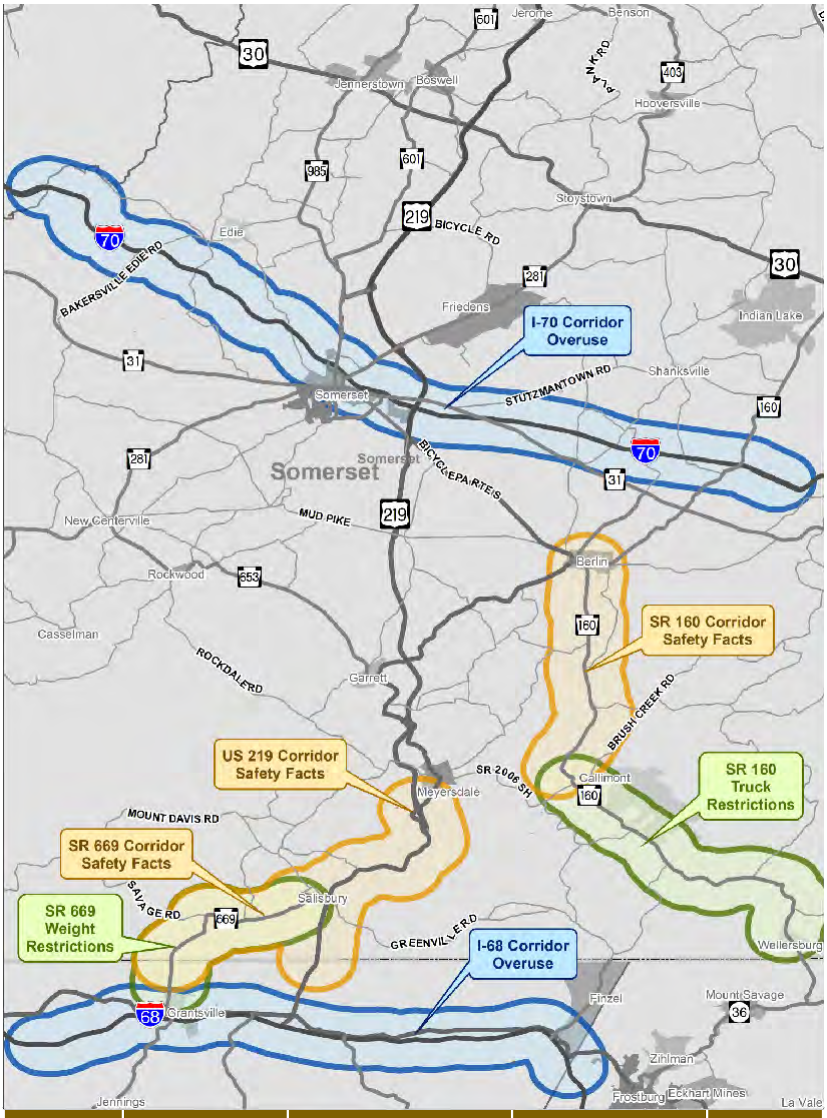
Our main issue is a safety concern when truck drivers avoid 219 due to various reasons. There have been numerous truck accidents in the Wellersburg area of our district. Many families have stressed their concerns about student risks factors related to transportation in that area.

FROM PUBLIC INPUT SURVEY:

I believe this is a vital corridor for medical and grocery supplies to the southern end of our county. Somerset County has many rural areas and travel time to the capital of the county is hampered by poor roads and low speed limits set for safety because most of the roads around here were designed for horse and buggy (1800's).

Exhibit 4 illustrates the primary north-south and east-west corridors in the study region. Note that east-west corridors are Interstates I-76 and I-68 while the north-south corridors are two-lane roads, or in the case of US-219, a partial two-lane road. The safety facts presented below the map focus on the north-south routes. As shown in the table, over the five-year period US-219 had 52 crashes, 13 of which resulted in injury or death. Of particular note is the percentage of trucks on US-219 compared to SR-160 and SR-669. Of total traffic on US-219, 17.1 percent is made up of truck traffic versus 7.8 percent on SR-160 and 3.0 percent on SR-669. This difference may be due to truck restrictions forcing regional north-south truck traffic onto US-219 since it is the only option. US-219's 17.1 percent truck traffic is nearly twice the Pennsylvania system average for its functional classification (8.7 percent), highlighting US-219's unique role as a sole north-south connection for trucks accessing communities in the region.

Exhibit 4: Safety Analysis



Segment	Total Crashes (5-year)	Cost of Crashes per 100M VMT	Total Crashes Fatal & Injury (5-year)	% Truck
US219	52	$2,430,753	13	17.1 %
SR160	33	$20,521,848	9	7.8 %
SR669	16	$1,596,289	9	3 %

FROM SITE VISIT INTERVIEW:
(Industry – Manufacturing)

We would be less inclined to use SR-160, even though it's a shorter route, and use US-219 if it was four-lanes to Somerset. It's dangerous going over Wellersburg Mountain.

Note: Interviewee also mentioned Mount Harmony Church being struck several times.

Delivery and Trucking Considerations

Though the safety of the two-lane section of US-219 was of universal concern for commuters and shippers involved in the study process, other key business issues included difficulty finding drivers/carriers to service the route, the additional costs for carriers willing to serve the route, and delays and lost time associated with the route. The difficulties associated with north-south routes, including truck and weight restrictions on SR-669 and SR-160, means businesses often use longer alternative routes or abandon markets all together. The delivery area for businesses north of Meyersdale is significantly reduced to the south, and likewise, businesses in Maryland limit suppliers and markets to the north.

Due to this situation, the businesses indicate that they limit the majority of their suppliers and markets to the east and west; those that can be accessed by I-76 and I-68. Not only does this eliminate a regional pool of suppliers and markets, but it also increases distances in which goods must be transported, putting unnecessary stress on the interstate system. The most mentioned location of suppliers that could be provided by regional businesses but instead are sought elsewhere are Pittsburgh and western Ohio.

FROM PUBLIC INPUT SURVEY:

The trucks that deliver/pick up to us lose time due to the need to jump onto local routes. This means that we are compressed to get them loaded and unloaded quickly. In addition, the lack of a clear "commuter" route into Somerset causes issues in attracting talent to our company. Potential employees prefer having a highway route to travel distance over.

FROM SITE VISIT INTERVIEW:
(Industry – Equipment Sales & Leasing)

The two-lane section has a direct impact on the business. Often, we cannot ship heavy equipment north on 219 because of the two-lane section or we have to remove parts to get it through Salisbury. Need to use more carriers, more escorts, and requires extra permits.

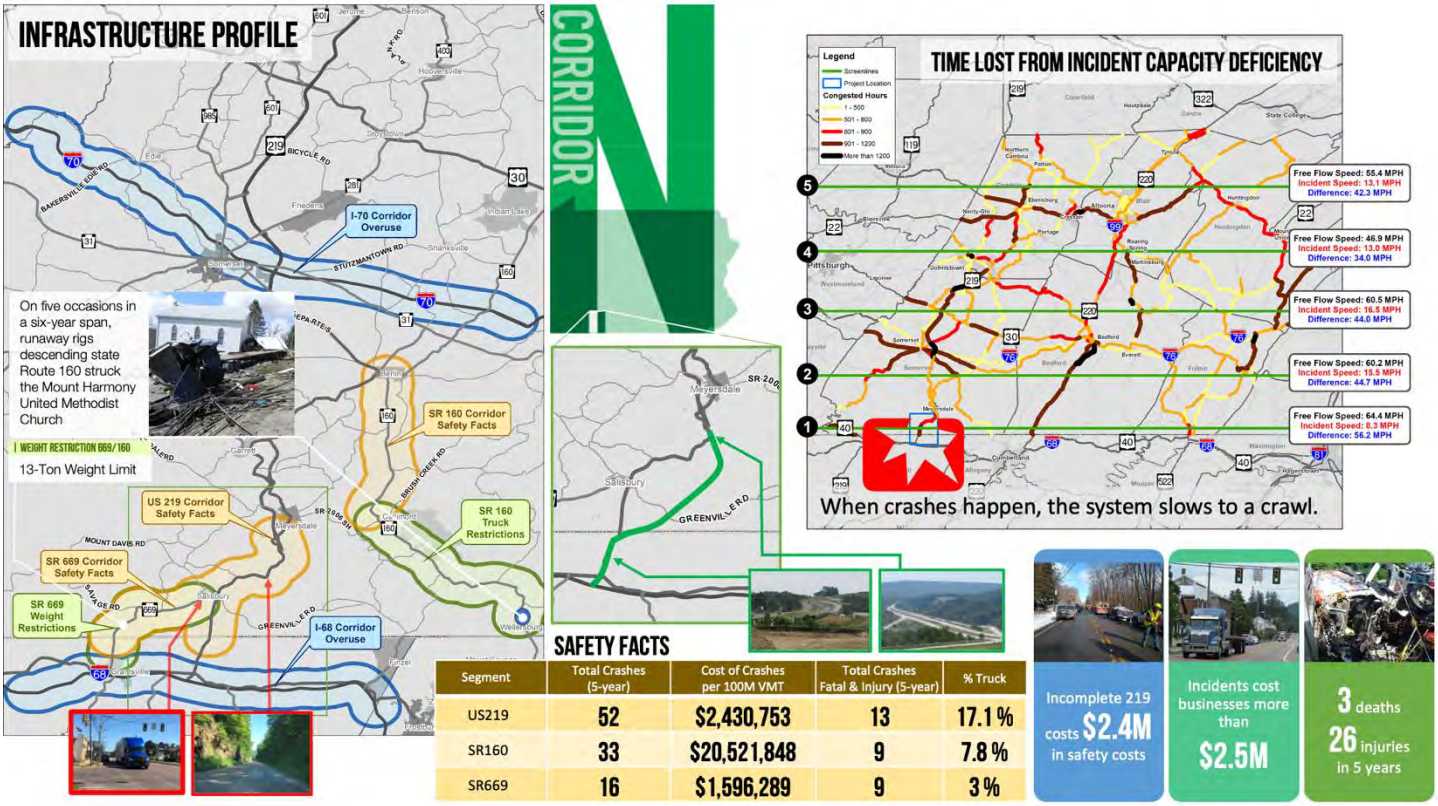
FROM PUBLIC INPUT SURVEY:

A completed 219 south to Md will allow more efficient, cost effective route to our facilities in WV and MD. It will also allow us to recruit from a greater geographic area as the commute will be shorter/ safer for workers from south of Meyersdale.

Infrastructure Performance Profile

Exhibit 5 presents a summary Infrastructure Profile infographic, which is a complete picture of highlights from the previous sections.

Exhibit 5: Infrastructure Profile Full Infographic



Business and Economic Profile: Enhancements and Opportunities

The completion of US-219 will provide significant benefits to the Somerset, Cambria, and Garrett County region's businesses, workers, and consumers, as well as the general economic competitiveness of the communities along the route. Among other benefits, the project will provide new business opportunities, access to expanded labor pools, access to new markets, increased transportation efficiency, lower transportation costs, and lower supplier costs. The completion of US-219 will not necessarily relocate businesses from other regions or states (though that is possible), but it is expected to enable existing businesses to serve markets within the region at lower costs and with higher quality goods and services than are currently available, while also employing a more diverse labor pool from throughout the region. These benefits are difficult to quantify through traditional modeling efforts because the quantitative data is based on growing the status quo. It is notable that existing commuting patterns (as shown in the trip tables by which AADT forecasts have been estimated) do not include any assumptions about relocation of commuting trip ends or redistribution of jobs, despite the fact that most businesses indicated new hiring and workforce patterns as a primary use of the Corridor. This issue will be further addressed in the conclusions. The following sections will cover the topics of:

> FROM SITE VISIT INTERVIEW:
> (Industry – Manufacturing)
>
> *The completion of US-219 is the single biggest factor that will promote economic growth along the I-68 corridor in western Maryland.*

- Workforce Availability
- Labor Market Implications
- Supply Chain and Consumer Implications

Workforce Access

Access to labor markets and labor mobility was a primary concern for the majority of businesses interviewed. Eight of the 11 firms interviewed indicated significant issues attracting the number and quality of employees needed to expand their businesses. The completion of US-219 will effectively expand the labor pool "catchment area" for all employers to the north and south of the two-lane section of US-219. Opportunities for employment for the residents of Somerset, Berlin, Meyersdale, Rockwood, Salisbury, Garrett, and Grantsville will all be expanded by the completion of US-219.

Exhibit 6: Workforce Access Drivetime

COMMUNITY	Businesses Brought within 30 Minutes	Employees Brought within 30 Minutes	Professional/ Tech Services Jobs Brought within 30 Minutes
Rockwood	92	1,183	69
Somerset	64	652	43
Salisbury	1,025	12,289	352
Meyersdale	295	3,393	149
Grantsville	101	983	69
Garrett	633	7,694	309
Berlin	152	1,650	145

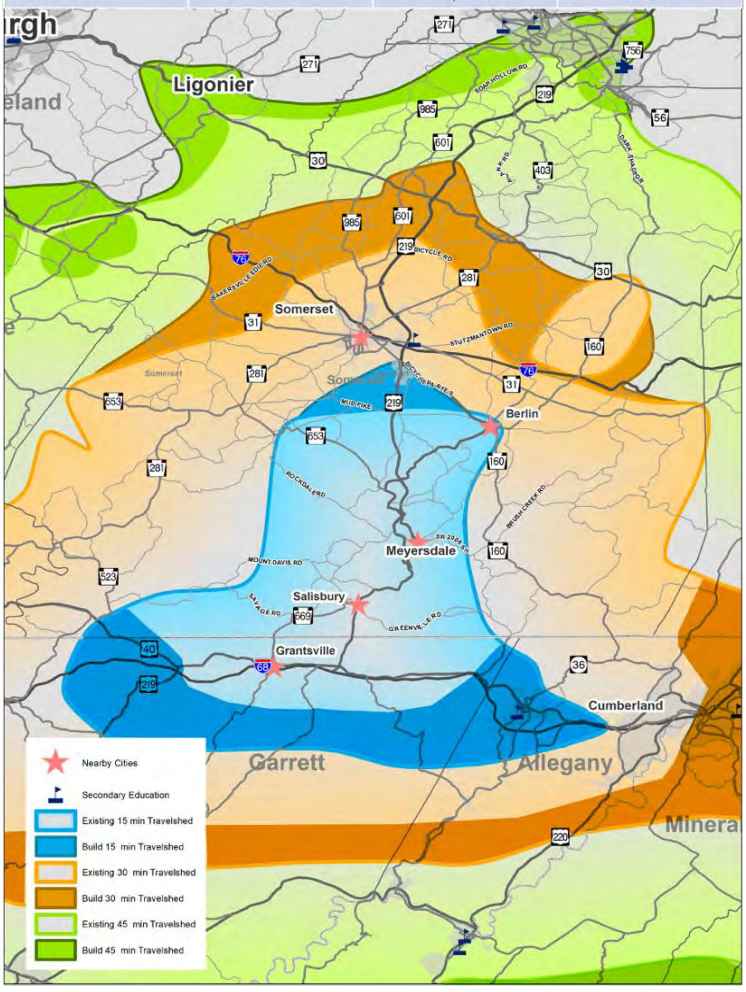


Exhibit 6 details the increased labor pool by town and the map shows the increased labor catchment area based on drive time analysis assuming the completion of US-219. The map is based on an analysis from ESRI Business enhanced by an analysis of additional mileage available in each direction given the available routes along the proposed improved Corridor. In the exhibit, the area shown in blue depicts a combined 15-minute travel-shed in each direction from the ends of the proposed improvement to US-219. The areas in light orange and green show the 30- and 45-minute radii, respectively. The darker shades of blue, orange, and green show the additional areas that can be accessed with the additional speed offered by the enhanced US-219. The table displays the additional businesses, employees, and services brought within the 30-minute (orange) radius, which enables easier trade with each other with the completion of US-219. The completed project adds significant reach to the commuting shed

along I-68 in Maryland for Meyersdale, Salisbury, and other Pennsylvania communities north of the improved segment. This allows employers to cast a wider net when looking for workers, and conversely, provides workers with an expanded pool of potential employers.

In total, 2,362 businesses are brought into a 30-minute drive time radius. An additional 27,844 employees and nearly 1,136 professional and tech services jobs will be accessible within 30 minutes that are currently not accessible. The actual market for the Corridor includes the additional new employees, businesses, and professional services as well as the core population and business markets of the six communities themselves.

Labor Market Implications

The increased labor catchment will create greater labor mobility, benefitting both regional businesses and workers. Multiple businesses have stated that additional shifts, production levels, and employment that have been planned or are possible are contingent on access to this wider labor pool provided by the completion of US-219. Simply put, the absence of the Maryland to Meyersdale US-219 segment has inhibited this potential economic growth. As well as access to general labor pools, many businesses discussed community colleges and technical schools they would like to recruit from. However, many of these facilities are currently outside of a reasonable drive time for the potential recruit to consider.

FROM PUBLIC INPUT SURVEY:

A completed 219 south to MD would give us greater access to markets and labor in MD and WV. For example, when 219 was completed to Meyersdale, the commute for our employees living in Meyersdale went from 30 minutes to 15 minutes...on a much safer road. Since this section of 219 opened up, we've hired more employees from Meyersdale because the commute is not nearly as difficult.

Benefits also accrue to the region's labor pool as competition for employees increases with more businesses competing for labor in markets that are currently not feasible. With the options for employment increasing due to greater access, a scenario where businesses will need to compete for skilled labor is possible. Workers taking newly accessible jobs can earn more per hour and be more productive due to less travel time.

FROM SITE VISIT INTERVIEW:
(Industry – Distribution)

We could add an additional distribution shift if we could find the workers. The completion of 219 would let us recruit further to south. 219 is a detriment to hiring new employees.

Note: Interviewee indicates a 15% to 17% increase in productivity.

FROM SITE VISIT INTERVIEW:
(Industry – Distribution)

An additional 90,000 SF of warehouse could be built. Demand is there, but the employees are not. We would like to recruit north into Pennsylvania.

FROM PUBLIC INPUT SURVEY:

This will provide a greater opportunity to recruit in areas that have a tremendous potential. Our greatest asset is finding young adults who have basic skills in working on farms. They are more apt to meet basic knowledge guidelines and be given credit towards our 4-year apprenticeship.

FROM SITE VISIT INTERVIEW:
(Industry – Manufacturing & Distribution)

There is a labor shortage. We need better access to labor and commute times reduced from the south (south of Meyersdale). We could hire an additional 40 employees if there was better access.

Note: Interviewee indicates a potential $100 million per month in additional sales if the labor shortage can be resolved.

Supply Chain and Consumer Implications

The completion of US-219 will greatly increase and expand the north-south supply chain by opening access to new markets and suppliers, as well increasing access for consumers. The uncompleted section of US-219 currently serves as an artificial divide for markets, suppliers, and consumers between Pennsylvania and Maryland, forcing each to look east-west along the interstate highways (I-76 in Pennsylvania and I-68 in Maryland) to meet their needs. Multiple firms indicated that this leads to longer than necessary supply chains, increased transport costs, and higher-priced suppliers. This leads to higher costs for the region's businesses. It is highly inefficient and puts additional strain on the interstate system.

Currently, the cost of labor and cost of living in this region is highly competitive compared to surrounding regions (though the increased labor pool catchment area is likely to put upward pressure on labor rates). The characteristics of the region's labor pool, coupled with the completion of US-219, will significantly increase the attractiveness of using intra-region suppliers and expanding the market to the north and south. Shipping costs can be greatly reduced by supplying markets locally and reliability is increased simultaneously.

FROM SITE VISIT INTERVIEW:
(Industry – Mining/Coal)

Our transportation costs are $15 per ton to ship our coal south; with 219 open we could reduce that cost to $13 per ton. That's on 500,000 tons annually. It would also open additional markets to the south and increase competition.

FROM PUBLIC INPUT SURVEY:
(Industry – Distribution)

We think it will make us more attractive to potential new employees because we'll be easy to get to. We also believe that certain customers will be swayed by improved infrastructure serving our distribution facilities. For certain large customers, they see the lack of complete infrastructure as a potential hindrance to on-time deliveries.

FROM SITE VISIT INTERVIEW:

We do not serve dealers to the south of Meyersdale. Markets to the south are underserved, but most customers are just in time and it is not worth the risk. Our regional business (8% to 12% percent of total) could increase by over 15% if there was better access to the south.

Consumer markets will also open when US-219 is completed in the same way the business supplier markets will. Consumers to the north and south will now have easier and wider access to goods and services along the Corridor, benefiting both the consumer and the business. One site visit interviewee commenting on the region, in general, stated that there is a sense of isolation in certain communities due to the lack of access to points north and south. The completion of the Corridor can help alleviate that sense of isolation by opening new markets for these residents for goods, services, and entertainment.

FROM PUBLIC INPUT SURVEY:

Our showroom is in Somerset, PA and it will make it easier for customers to stop in and see actual samples of products they are interested in buying. It will also make it easier for us to get to the customer more quickly for prospects and install appointments.

FROM SITE VISIT INTERVIEW:
(Industry – Agriculture & Food Products)

We potentially see more customers coming from Pennsylvania if there is an improved route from the PA Turnpike. There is also value in completing US-219 north to Canada, opening (wholesale) markets in Ontario.

FROM PUBLIC INPUT SURVEY:

Without the completion of the corridor, new economic opportunities are harder to come by since businesses will be harder to get to. Without 219, our client potential is limited.

Role of US-219 In Changing Tourism and Destination Markets

In addition to labor and supply chain markets, the existing constraints on US-219 are understood to play a role in how tourism, housing, and bi-state, inter-regional traffic utilize the transportation network. These dynamics are important both because they demonstrate potential areas of impact that US-219 may have on economic activity in the region and suggest seasonal, inter-regional, and origin-destination market dynamics that have not yet been captured by existing forecasting models.

Tourism in the Region

Pennsylvania Resorts: The overall destination traffic to the Seven-Springs mountain resort and related resorts (Hidden Valley and Laurel Mountain) as well as routing to these destinations are expected to be affected by the completion of US-219. This is because traffic exchanged between the resorts and the Baltimore/Washington, DC markets (including significant charter bus traffic) currently utilizes I-70 and I-76 and accesses the resort by the I-76 exit in Breezewood, PA. In the example of the Seven-Springs resort, the new US-219 is likely to represent approximately a 20-minute time savings each way through the use of I-68 (a more direct interstate route to the Baltimore/DC Markets) while also saving the tolls associated with I-70/I-76. While these resorts are open year-round, for golfing in spring, summer, and autumn, there is a significant peak during ski season. Of Somerset County's 4.5 million visitors per year, approximately 2-2.5 million are associated with resort traffic, which is not a trip purpose explicitly recognized in existing forecasting models. Because this tourist trip exchange is between the Baltimore, MD and Washington, DC areas and a key location in Pennsylvania, the out-of-state nature of the traffic could make it more difficult to quantify in existing state-level traffic projections. However, the magnitude of the destinations and the clear market for US-219 based on travel time and cost can be understood as instrumental to the 2-2.5 million resort visitors.

The combination of re-routing existing resort traffic from I-76 to I-68 and the potential growth in the resort market could easily account for the utilization of US-219 of 1,000-2,000 AADT vehicles (with higher actual counts due to seasonality) greater than what is shown in any existing forecast to date. For example, if 50% of the resort's 2.5 million trips (1.25 million annual person-trips) are re-routed to I-68/US-219 on account of lower travel times and toll-savings with an average vehicle occupancy of 2 people per vehicle (625,000 annual vehicle trips), this would average to an AADT market of 1,712 trips. If this market were enhanced by 15-20% with growth in the region's tourism market (and the fact that the new US-219 offers a net increase in proximity to DC/Maryland markets not only over the existing route, but also over other competing destinations), it is conceivable that US-219 resort traffic alone could exceed model projections by 2,000 AADT vehicles.

Additional and Growing Resort Market in Maryland: There is also a significant tourist market in Maryland which may experience a similar utilization of US-219 in attracting traffic from Pennsylvania.

Garrett County in Maryland currently attracts 1.4 million visitors per year to its state parks, Deep Creek Lake, and the Wisp Ski Resort with steady increases in resort activity in the post-COVID summer (approximately 15%-20%) as markets have discovered lower-density resort destinations in 2020.

In addition to ski and outdoor resort traffic, the Rocky Gap Casino in Flintstone, MD is a key "special generator" of regional and inter-regional traffic not fully accounted for in existing traffic projections. The completion of US-219 to Somerset, PA would improve access to the Rocky Gap Casino from Pittsburgh market areas, reducing the travel time from Pittsburgh from 2 hours to 1.5 hours. This would increase the appeal of Rocky Gap as a day-trip gaming destination, while also re-routing weekend and peak season traffic from the Somerset and Johnstown areas who currently avoid the existing US-219. It is also notable that in addition to US-219's potential market for tourist traffic, the labor market dynamics discussed earlier in this report are also highly pertinent to the development capacity of the resort industry, where staffing concerns are an ongoing concern. The ability to recruit workers and suppliers from beyond the region is essential to sustaining hospitality establishments.

Inter-Regional Commuting Between States

Consideration of destination tourist markets within the region surrounding US-219 further raises the wider topic of US-219's role in long-distance inter-regional personal travel outside of the region (whether for business or tourist purposes). Traffic projections to date have been based on models focusing on individual states (Pennsylvania and Maryland). A more qualitative assessment of inter-regional traffic dynamics suggests a potential inter-regional market for US-219 beyond what has yet been quantified.

Viability of Intermediate Stops on Business Travel Tours: Through interviewing business travel stakeholders in the region, it has been cited that the status of US-219 greatly affects the viability of making intermediate stops in the Southern Alleghenies Region when traveling between Pittsburgh, PA and Washington, DC. Travelers have noted that a typical drive from areas surrounding Pittsburgh, PA to areas surrounding Washington, DC can take approximately 4 hours when accounting for peak traffic (especially on the DC side of the trip). Prior to the completion of the northern section of US-219, it would take an additional 30 minutes to make a stop in Somerset (hence the DC-Pittsburgh trip was 4 and a half hours if making a stop in Somerset). However, once the northern section of US-219 was completed, it became possible to make the Somerset stop as part of the Pittsburgh-DC trip within the same 4-hour window (no longer losing the half-hour to access Somerset). The completion of a section of US-219 to date not only has allowed the viability of the Somerset stop without a significant loss of travel time, but it has also supported a routing that saves toll charges. Completion of the final miles of US-219 from Meyersdale to I-68 will reduce additional time from this trip, enhancing the viability of including towns in the Southern Alleghenies in business travel tours between Baltimore, DC, and

Pittsburgh. Tours of this type are beyond the dynamics available in existing forecast models and warrant consideration when assessing the market for a completed US-219.

Enhanced Resilience for Long-Distance Travel: It should also be noted that the longest segment of limited access roadway I-76 is the 35 miles from Somerset to Bedford. When there is a crash or inclement weather incident on that segment, there is not currently a viable detour route. In contrast, a viable US-219 option could add resilience and re-routing to avoid this long segment (re-routing to I-68 during incidents), supporting the network impacts described in this report.

Amazon and the Digital Economy: Amazon's current planning regarding a 50,000 person facility outside of Washington, DC and an associated fulfillment center in Virginia highlights the ongoing development and changes in truck traffic and warehousing markets that can extend well into Maryland and central Pennsylvania through the I-68/US-219 system. Opening warehousing capacity with access to I-68 by a larger access land market on US-219 has further potential to add to the US-219 market in the long-term.

New Business Attraction

In addition to its role in facilitating the market for long-distance tourist and business travel in the region, the completion of US-219 can have an impact on the region's capacity for new business attraction. Some firms have actually chosen not to locate in the county, citing a lack of a north-south corridor (most notably a recent decision by a cat-litter manufacturer reporting to economic development authorities the decisive role of this deficiency in a location decision). However, the most significant potential for impact can be observed in terms of the natural competitive advantages that are attracting businesses to the region, representing both growing demand and anticipated economic impact of US-219 completion.

Most notably, agribusiness is a core aspect of the region's economic base and a sector increasingly reliant on the accessibility of sites in the Southern Alleghenies Region to other sites within a same-day delivery radius. The completion of Route US-219 to I-68 would alleviate the strain placed upon Pennsylvania's rural roadways and allow large-scale agricultural producers to increase productivity, reduce costs, and secure the safety of their drivers (as well as local traffic) by offering a more direct divided lane interstate for their fleet to travel.

For example, a South Carolina-based kale grower has recently begun a commercial farming operation in Somerset County. The nationally recognized multi-generation agricultural company supplies several national chains on a 365 days per year basis. The company chose Somerset for its ideal late summer climate and soil conditions. Despite Somerset County representing the most efficient natural location for its business activity, the firm faces multiple hindrances to their growth in the county:

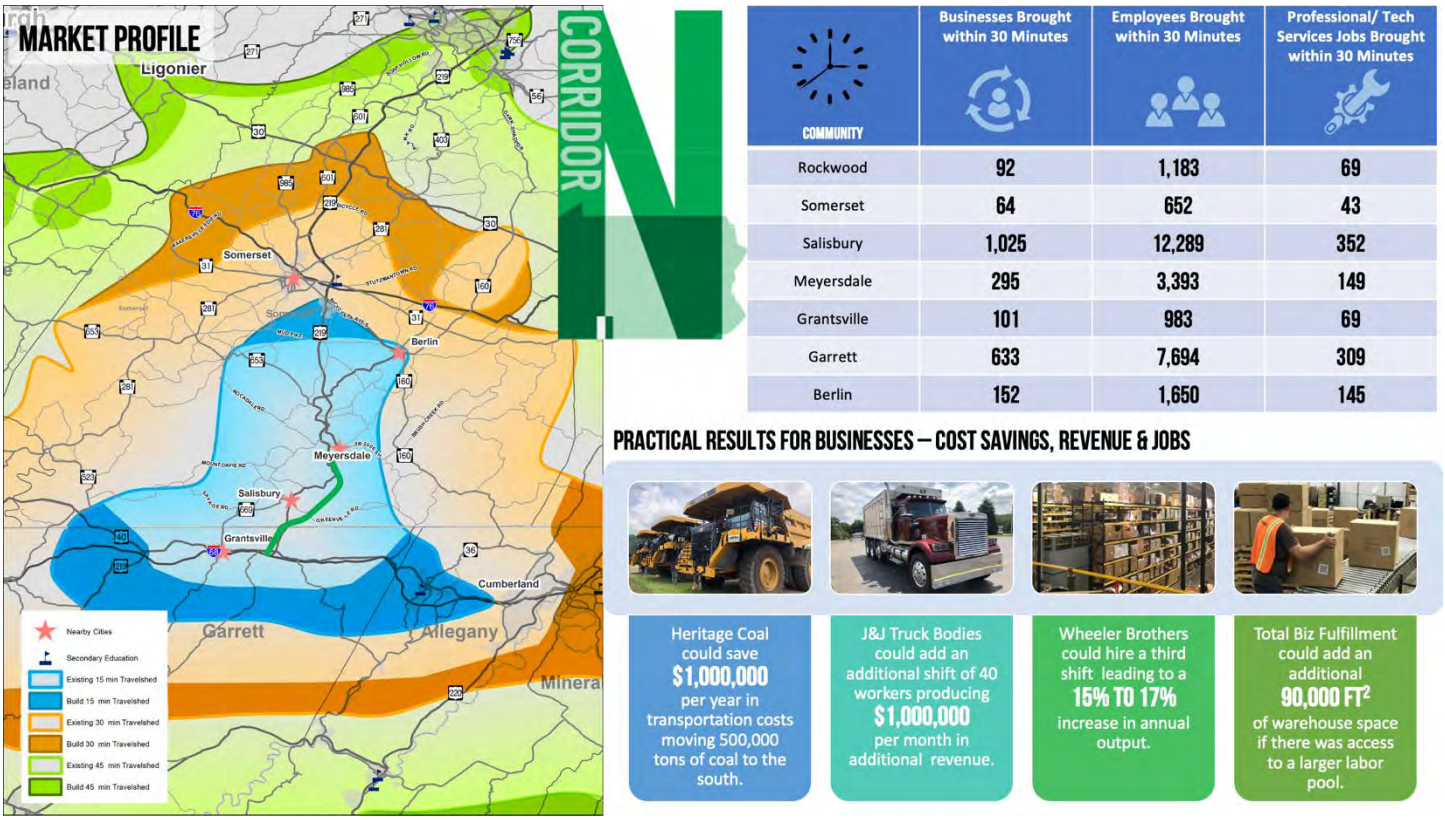
- Their current and most direct toll-free trucking route forces their drivers to travel upwards of 45 miles worth of mountainous two-lane PA roads.
- The current drive time between Somerset and their South Carolina headquarters puts their drivers at the upper levels set for daily long-haul truckers.
- The company would also like to expand their footprint in Somerset County by building a mid-Atlantic distribution center.
- As a supplier to grocery stores all along the East Coast, the completion of US-219 would be a significant factor in allowing Somerset based companies such as this quick, safe, and efficient ingress/egress to the Mid-Atlantic and beyond.

Housing, Development Capacity, and the Importance of Commuting Capacity: For all counties in the Southern Alleghenies Region, the workforce dynamics cited in the economic/market profile represent a significant development constraint that can be eased by more efficient commuting between communities. It is also notable that in addition to workforce constraints, the region is constrained in terms of its available housing to grow the local workforce. For example, in its 2018 housing study (conducted by Danther & Associates), the town of Grantsville found a net deficit of 262 housing units. 2020 real estate statistics for Alleghenies County, MD showed a 32 percent reduction in average days that houses were on the market in comparison to 2019. The housing crunch highlights the importance of commuting between labor markets to support the growing and diverse regional economy. The relationship between housing, new-business attraction, and commuting viability is a central dynamic in considering the need and viability of US-219.

Business and Economic Profile

Exhibit 7 presents the Market Profile infographic, which is a complete summary of highlights from the previous sections.

Exhibit 7: Business and Economic Full Profile



COMMUNITY	Businesses Brought within 30 Minutes	Employees Brought within 30 Minutes	Professional/ Tech Services Jobs Brought within 30 Minutes
Rockwood	92	1,183	69
Somerset	64	652	43
Salisbury	1,025	12,289	352
Meyersdale	295	3,393	149
Grantsville	101	983	69
Garrett	633	7,694	309
Berlin	152	1,650	145

PRACTICAL RESULTS FOR BUSINESSES – COST SAVINGS, REVENUE & JOBS

Heritage Coal could save **$1,000,000** per year in transportation costs moving 500,000 tons of coal to the south.

J&J Truck Bodies could add an additional shift of 40 workers producing **$1,000,000** per month in additional revenue.

Wheeler Brothers could hire a third shift leading to a **15% TO 17%** increase in annual output.

Total Biz Fulfillment could add an additional **90,000 FT²** of warehouse space if there was access to a larger labor pool.

FROM PUBLIC INPUT SURVEY:

Completion of the 219 corridor would make it easier and quicker for potential customers to travel here, as well as vendors. Any time you expand/complete a roadway, you greatly reduce time and expand efficiency.

FROM PUBLIC INPUT SURVEY:

Business expansion, added employees, a greatly expanded market, operational savings from expanded vendor options.

We would see increased revenue due to new businesses coming to the area that we can bring on as potential clients.

FROM PUBLIC INPUT SURVEY:

There are several ways - loss of opportunity for vendors and deliveries. Our options would be widely opened if that corridor were finished. We also stand to gain much additional tourism traffic from Altoona, Johnstown and even areas further North.

Conclusions (Q&A)

What is the statewide, regional, and national significance of completing US-219?

Completion of US-219 will provide the safest, most robust, and highest capacity route for essential north-south connectivity to Pennsylvania and Maryland's overall transportation system in south-central Pennsylvania region. No such route currently exists in the Southern Alleghenies Region, and none is likely to exist without the completion of US-219. In addition to saving lives and preventing costly loss to property, the route will support the resilience of the system to sustain the viability of the Southern Alleghenies economy during non-recurring incidents that are not reflected in average annual daily traffic estimates.

Completion of the route will enable businesses throughout the region to more efficiently utilize labor from within the region and areas along the I-68 corridor, providing better jobs and more skilled and affordable labor to Pennsylvania and Maryland businesses than they currently have. The labor market inefficiencies from the current lack of north-south connectivity have been observed in the current study in business-by-business detail. Specific examples have been given regarding how these inefficiencies impede business operations, affecting hiring, commuting patterns and the scale of business operations. In addition to the qualitative observations regarding the regional and national significance of completion US-219, the findings of this report suggest that additional unquantified sources of economic significance are likely to include:

(1) Latent demand for labor and commuting (i.e., satisfying labor needs due through an expanded labor pool) within the 15-, 30- and 45-minute travel-shed radius of the proposed US-219 improvement.
(2) Likelihood of redistribution of commuting and truck trip-ends, as well as potential new business expansion and attraction and new freight traffic generation associated with changes in labor and buyer-supplier access.
(3) Explicit service of non-recurring annual and multi-year deficiencies on screenline north-south routes in the Southern Alleghenies Region to quantify peak demand, delay, and user cost on not only a daily but peak incident basis with, versus without, US-219.
(4) Both growth in tourist markets supported by enhanced US-219's increased accessibility of Southern Alleghenies resort destinations as well as increased utilization of US-219 for inter-city traffic for both resort and business travel between Baltimore, Washington, DC, Pittsburgh and locations in the Southern Alleghenies Region.

For these reasons, one conclusion of the current study is significant evidence of travel demand for the Corridor that has yet to be fully documented through formal quantitative modeling of the Corridor's most likely traffic sources. Based on the findings presented in the current study, it is anticipated that scenarios representing the four elements of impact enumerated above can yield modeled forecasts representing benefits significantly above and beyond what is found in the 2019 Benefit/Cost Analysis. Further quantitative attention to the above four issues can match the qualitative findings of the current study, addressing considerations that: (1) the Corridor is of a low enough volume that a

statewide AADT model may not have the detail to capture the commuting patterns of such scenarios and a more refined analysis could better clarify the issues found in the current study, (2) a customized traffic analysis could capture truck movements between Maryland, Virginia and Pennsylvania treated as "external" by the state-level models currently in use, and (3) a better understanding of commuting patterns, tourist traffic and workforce implications of completing US-219 enable regional workforce and tourism accessibility strategies to further complement the investment in the completion of US-219.

Given the low volume of the existing corridor in relation to currently inaccessible commuting and delivery markets, it is likely that any forecasts overlooking latent demand could be off by a factor of anywhere from 1.5 to 2.5 or more, depending on the market scenario. For example, if 10 percent of the new employees rendered accessible in the market profile (see Exhibit 6) were to begin using the completed Corridor twice a day for a round-trip commute, that alone could readily double the current AADT forecast for the Corridor. Further changes in utilization depend on business travel, changes in business location, and overall business size or employment. While forecasting a future traffic volume is beyond the scope of the current study, a key finding is that there are critical sources of demand associated with the qualitative impacts of the Corridor which are likely to affect both the volume estimates and BCA if further explored within the context of this report.

Why is the Corridor completion important for businesses?

The completion of the US-219 Corridor is of immense importance to the sustainability, expansion, and profitability of businesses within the region. The region's businesses are anticipated to accrue the following benefits:

- Reduced transportation costs with increased safety
- Access to new and/or expanded markets
- Access to local suppliers – better service at lower costs
- Increased access to regional labor markets
- Ability to recruit from a larger pool of community colleges and technical schools
- The ability to provide higher-paying jobs to more qualified workers
- Increased responsiveness to critical downstream markets – ability to satisfy just in time requirements
- Additional new retail consumers due to reduced drive times along the Corridor

FROM PUBLIC INPUT SURVEY:

Completion of Rt219 would increase our labor pool substantially. If prospective employees could get here, they would be more likely be interested in our business!

What business strategies does the Corridor support?

Expansion and efficiency are the core themes of regional business strategies addressed regarding US-219 completion. These were the strongest recurring themes throughout the site visit meetings and survey responses.

What Expansion means:

- More jobs
- Competition for employees equaling higher wages
- New and expanded facilities
- New and expanded markets

What Efficiency means:

- Lower transportation costs
- Faster transportation times
- Utilization of regional suppliers
- Improved safety
- Less travel and labor time lost (network resiliency)

FROM SITE VISIT INTERVIEW:
(Industry – Manufacturing)

I can easily see a significant increase in manufacturing and logistics operations if 219 is finished: say 15% to 20% overall increase… to me that is significant.

FROM PUBLIC INPUT SURVEY:

Opportunities for construction can come from any region. Having a faster more reliable route to navigate provides a greater opportunity for construction workers to continue and live in this region and work elsewhere. As we see the area providing less large construction work opportunities, we will see workers who may decide to move closer to metropolitan areas for survival. This project would help to allow those who appreciate the beauty and simplicity of a rural area still afforded opportunities to travel regionally.

What other public assets will have greater public return on investment from completing the Corridor?

Multiple public assets within the region will benefit greatly from the completion of US-219 through increased access and efficiency, including:

- Efficient access the interstate system for business and commuters
- Increased access to markets and suppliers
- Ability to attend and recruit from a wider range of community colleges and technical schools
- Increased safety and quality of life along the route (particularly Salisbury, where 17.1 percent of traffic through the town is truck traffic)

Corridor N Community Perspective

A comprehensive qualitative overview of the Southern Alleghenies business environment, the role of the highway system in regional, statewide, and national economic vitality finds that US-219 is expected to significantly enhance workforce access, tourism access and volume, reduce the risk and resilience costs of transportation for the region and its trading partners. It is furthermore found that the market demand for the Corridor is comprised largely of demand associated with emergent commuting patterns, inter-state and inter-regional or seasonal business travel, and expanded business operations not yet quantified by formal models in the region.

Appendix

Accident Frequency

The five-year INRIX data was also used to identify the segments prone to incidents. This was done indirectly by identifying the time periods when the speeds were under certain thresholds. The criteria used to define accident was:

- Segment speed < 10 mph
- Median speed > 45 mph

Using the above criteria, the total number of hours with accidents were estimated for each segment. As can be seen from the above criteria, only corridors with a median speed greater than 45 miles per hour were evaluated. Also, the total number of days on which accidents occurred, regardless of the length of slowdowns, were estimated. **Exhibit 8** shows total number of day with accidents in five years and **Exhibit 9** shows the total number of hours with accidents in five years.

Exhibit 8: Total Number of Days with Accidents in 5 Years

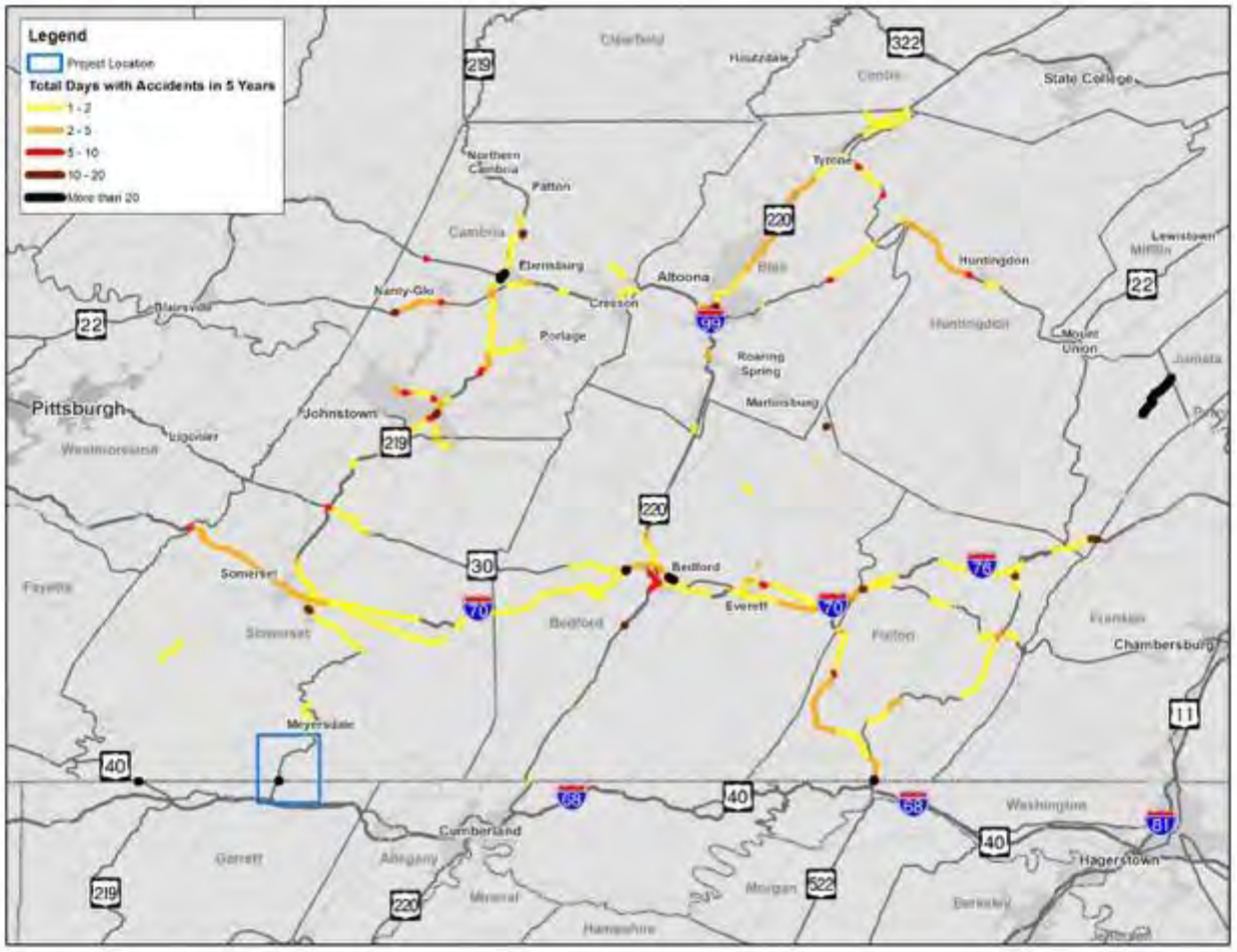
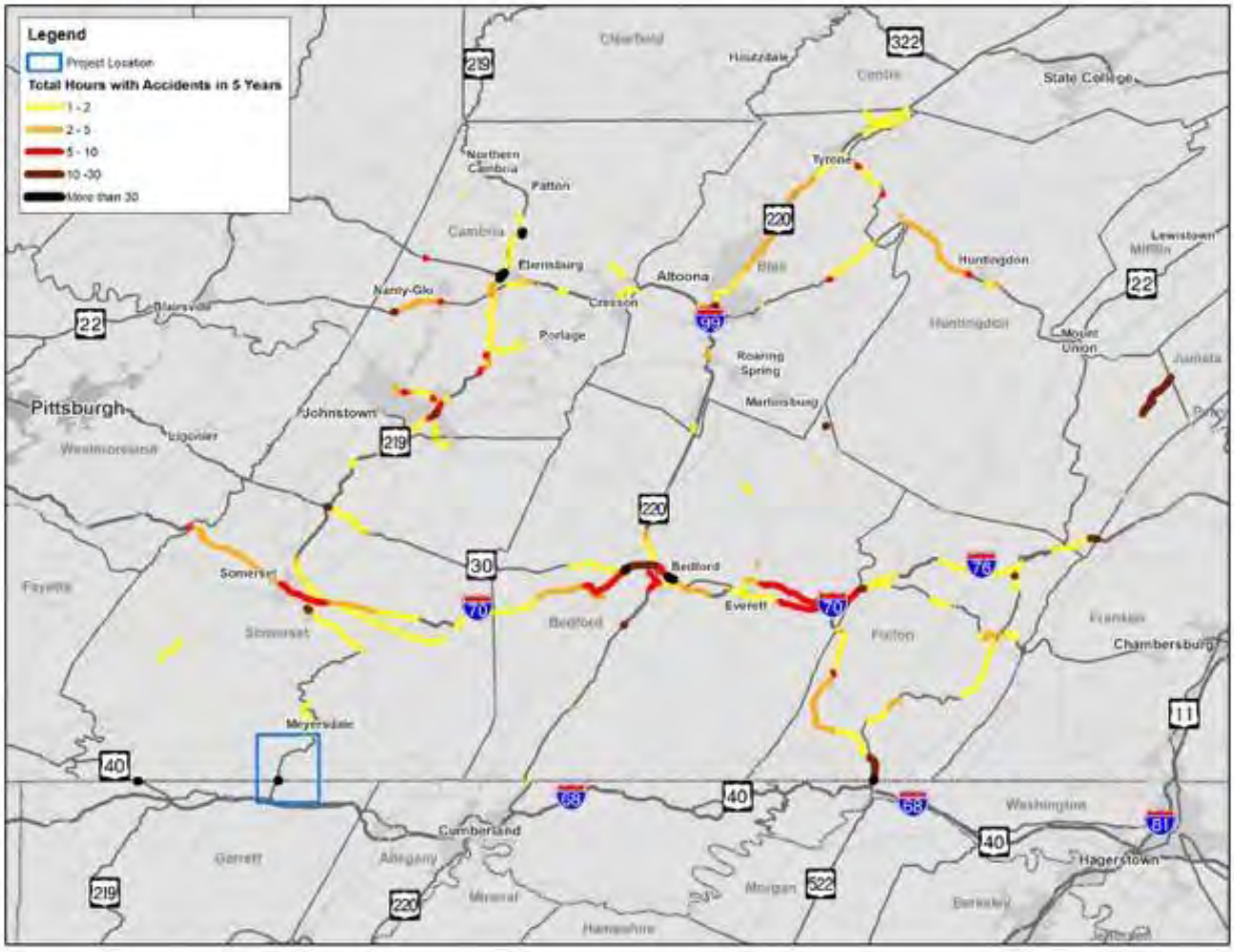


Exhibit 9: Total Number of Hours with Accidents in 5 Years



Incident by Type

Using the INRIX data, the incidents by type were estimated to get an assessment of the frequency and severity of non-recurring incidents. Ideally, there was interest in estimating the following three types of incidents:

- **Type 1 Incidents:** Non-recurring incidents which slow traffic by more than 10 MPH for at least five minutes
- **Type 2 Incidents:** Non-recurring incidents which slow traffic by more than 20 MPH
- **Type 3 Incidents:** Non-recurring incidents which average traffic to 0 MPH for at least 5 minutes

However, due to the limitations of the INRIX data, the above definitions could not be used to estimate the Type 1, Type 2, and Type 3 incidents. The INRIX data that was available had speeds and travel time values available for each hour and not by 5-minute intervals. Therefore, a slight change in the definitions was done, as shown below:

- **Type 1 Incidents:** Non-recurring incidents which slow traffic by more than 10 MPH
- **Type 2 Incidents:** No change in definition
- **Type 3 Incidents:** Non-recurring incidents where speed was less than 5 MPH

Using the revised definitions, the total number of hours in five years were estimated for each incident type for each segment. The revised definition of Type 1 incident will capture lesser number incidents as only those hours will be captured that have an average reduction in speed by more than 10 MPH for the entire hour. In the case of Type 3 incidents, the average speed for the hours within which traffic was not moving (0 MPH) for at least five minutes would be more than 0. Therefore, the Type 3 definition was changed to capture hours where the average speed was less than 5 MPH.

Exhibit 10, **Exhibit 11**, and **Exhibit 12** show the heat maps of segments with total hours of Type 1, Type 2, and Type 3 incidents, respectively. As seen from these maps, the occurrence of Type 1 incidents is highest, followed by occurrences of Type 2 and then Type 3.

Exhibit 10: Number of Type 1 Incident Hours in 5 Years

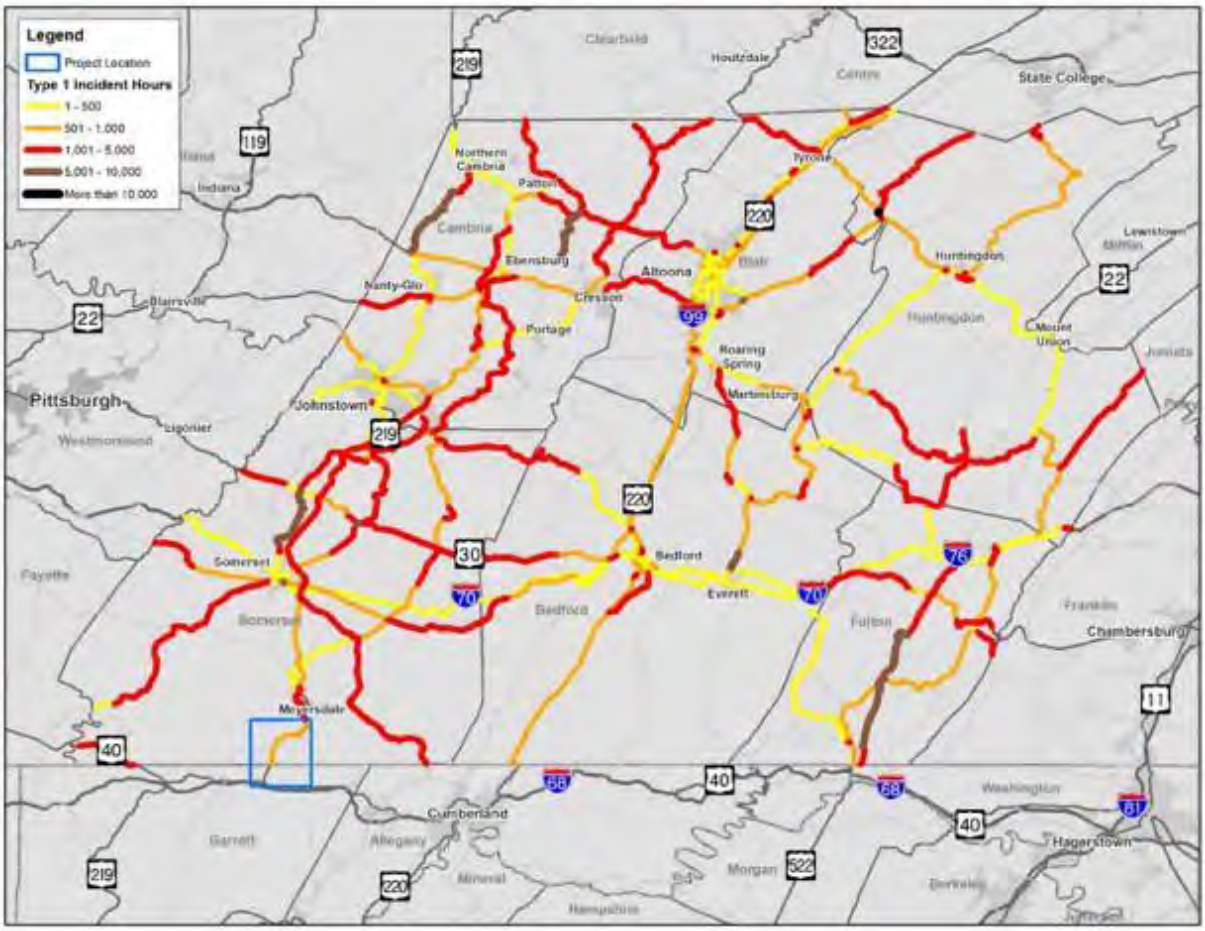
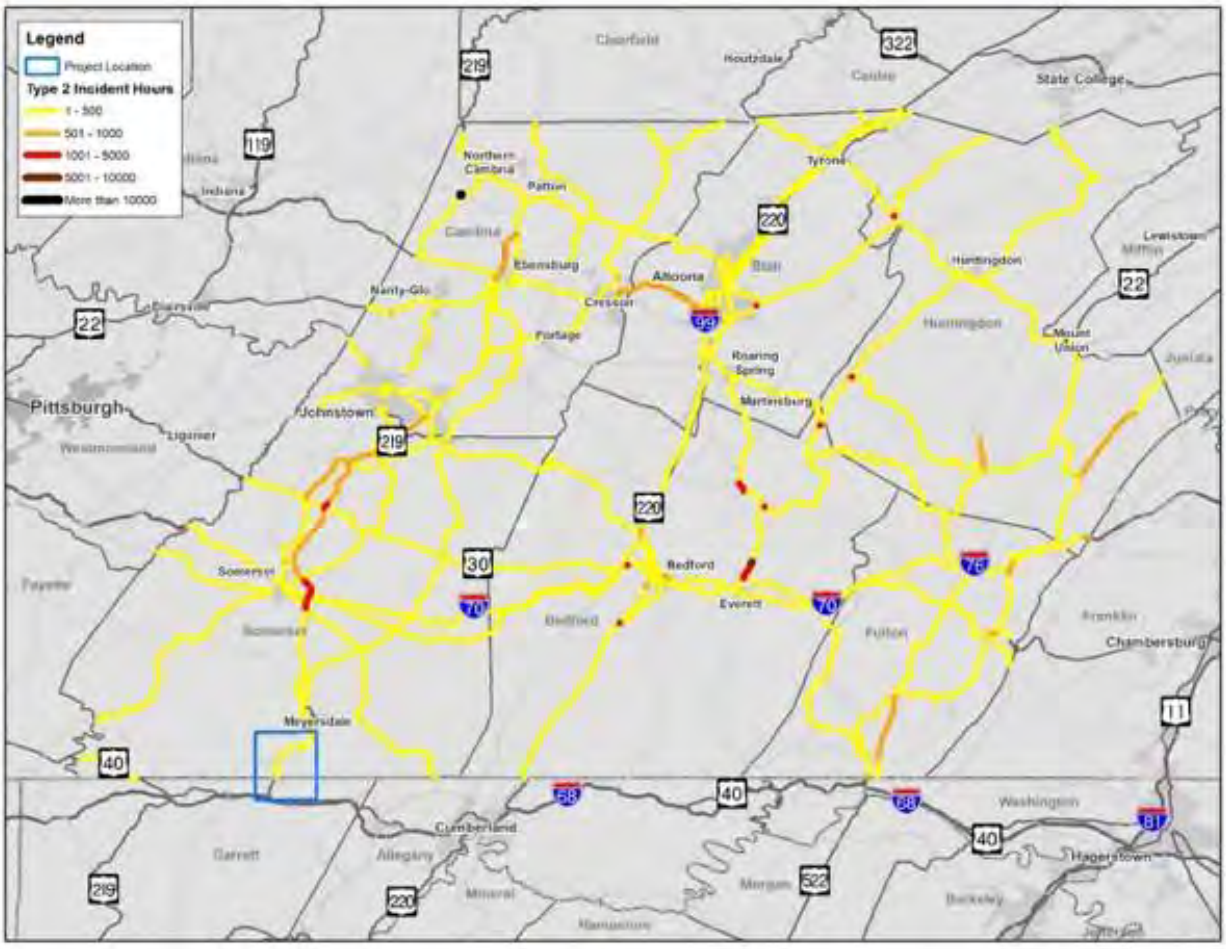


Exhibit 11: Number of Type 2 Incident Hours in 5 Years



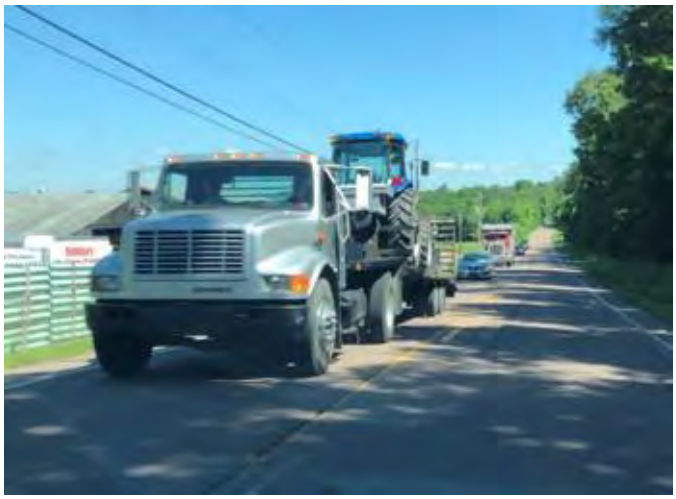
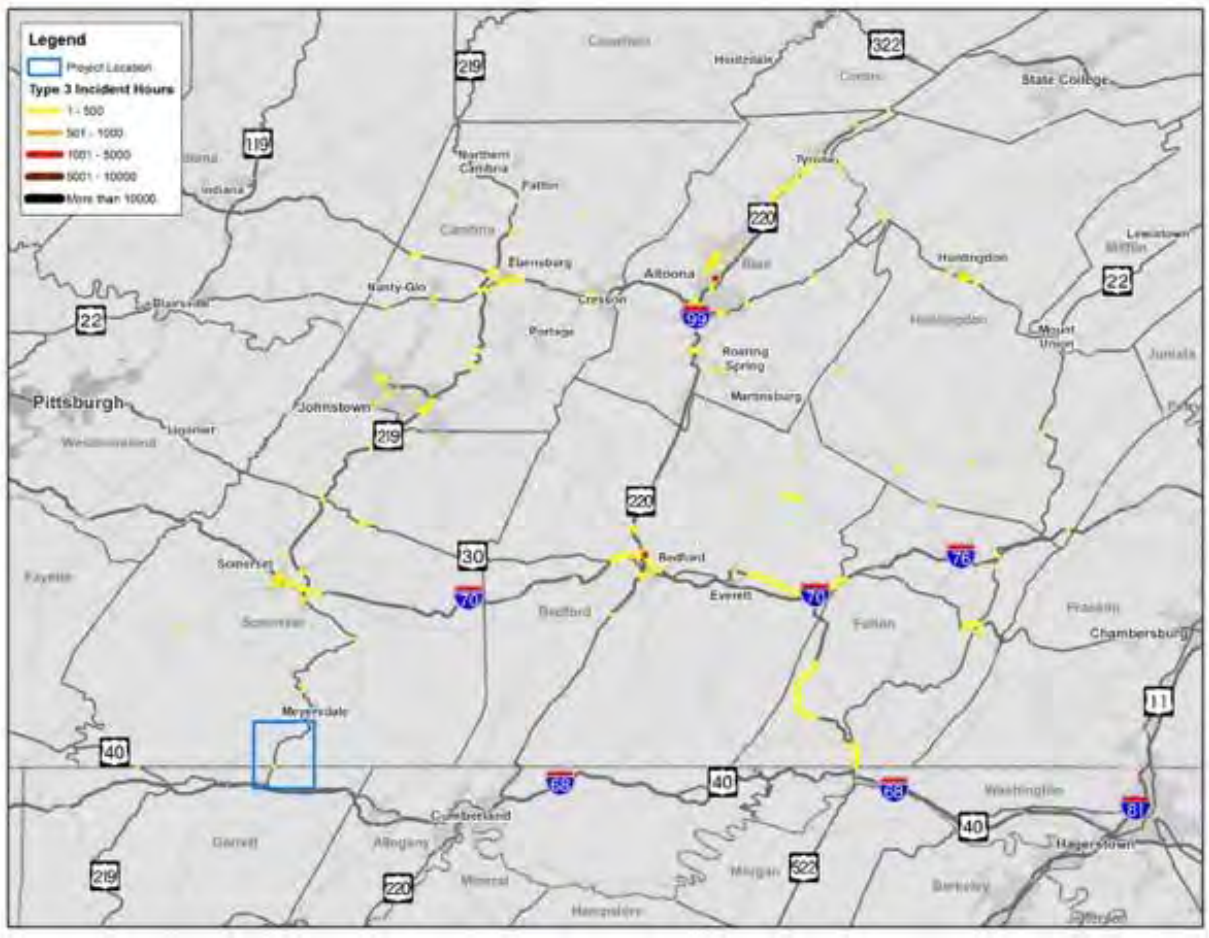
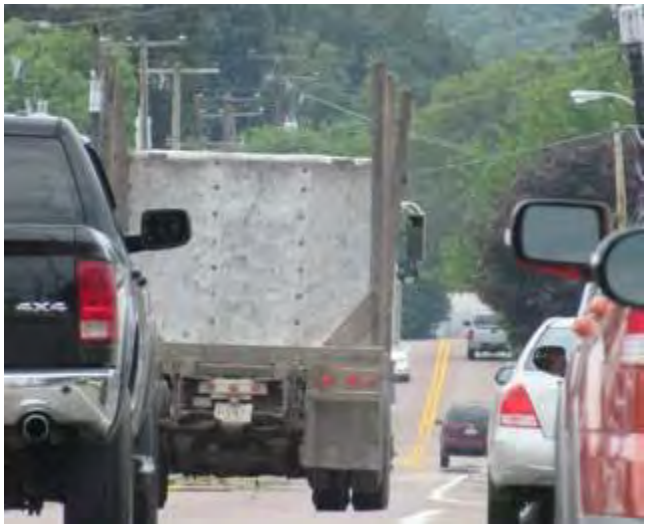


Exhibit 12: Number of Type 3 Incident Hours in 5 Years





Somerset County Commission email and letter received December 7, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts. The PTC acknowledges funding has been obtained to complete the environmental / planning studies for U.S. Route 219 Section 020. The potential date of construction is an unknown and cannot be a considering factor in a Pennsylvania Turnpike project at this time. The completion of U.S. Route 219 also does not address the existing substandard geometry or accident rate for the tunnel area. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

From: Bednar, P
To: albrightel@aol.com
Subject: [External Mail] RE: Environmental Document
Date: Thursday, December 10, 2020 7:59:17 PM

Ms. Albright,
I forwarded your email to the design team.

Sent from my Verizon, Samsung Galaxy smartphone

-------- Original message --------
From: albrightel@aol.com
Date: 12/10/20 7:39 PM (GMT-05:00)
To: "Bednar, P" <gbednar@paturnpike.com>
Cc: allegheny.tunnel@lrkimball.com
Subject: Fwd: Environmental Document

Gregory Bednar, P.E.
Project Manager
Pennsylvania Turnpike Commission
2200 North Center Avenue
New Stanton, PA 15672-9602
724-755-5182

Dear Mr Bednar,

After leaving a phone message on your answering machine, I received a return call from Kimball's (Tammy) who acknowledged my concerns for the massive environmental disruption planned to eliminate the Allegheny Tunnel on the PA Turnpike which is East of the Somerset Exchange and West of the Bedford Exchange. Tammy directed me to the website covering the project in great detail.

My concerns are founded in the December 9, Tribune Democrat Editorial page article, *Ridgetop needs to be preserved,* by Christine Dahlin, associate professor of biology at the Pitt-Johnstown Campus.

While I understand the project has been a work in progress for decades, current understanding of the crisis planet life faces due to advancing global warming and climate change mandates rethinking all human activity and its impact.

Below is listed information copied and pasted from the project's website.

Two Different areas cited needs/justification for bypassing the tunnels:

- Traffic Congestion
- Frequency and severity of accidents in the vicinity of the tunnel
- Physical and structural conditions of the tunnel
- Rerouting of hazardous materials, which are prohibited in the tunnels, onto alternate routes

PROJECT NEEDS

- Transportation Demand
- Existing Geometric Constraints
- Accident Rates
- Tunnel Conditions
- System Linkage and Continuity (Diversion of Hazardous Material Hauler

However what I found troubling was in the Executive Summary of the project that reads:

"There were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. As noted, the Gray Cut Alternative is not without environmental impacts; therefore, federal and state permits will be required."

With the dire circumstances of global warming and climate change already adversely impacting sustainability of human, and environmental health, I ask that this project be put on hold and rethought; especially with question of remaining unmet needs.

While I respect the tremendous amount of time, talent and treasure invested, I ask this project be shelved because planet sustainability is in jeopardy. As citizens with duties of citizenship, we are encouraged to think globally and act locally.

Respectfully,

Etta Albright
429 Powell Avenue
Cresson, PA 16630
814-886-7311

Etta Albright email received December 10, 2020
Draft Environmental Document

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. The PTC continues to perform studies and work with resource agencies to minimize project impacts.
Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

December 7, 2020

Erik Choka
731 Linden Ave.
Johnstown, PA 15902-2853

L.R. Kimball
615 W. Highland Ave.
Ebensburg, PA 15931

RE: Allegheny Tunnel Comments

Dear Mr. Kimball:

This letter is in response and for concern of the Allegheny "Grey Cut Alternative" project proposed by the Pennsylvania Turnpike.

I have never experienced any type of major delay while passing through the Allegheny Tunnels and do not believe that this "Alternative Project" is absolutely necessary. When the Pennsylvania Turnpike acquired the land to proceed with building the Turnpike, the tunnels were in the design and it is my belief that any repairs that the tunnels should need, should be made and the use of the tunnels by mototists should be continued.

The tunnels are not only part of the history of Pennsylvania but add to the beauty of the landscape and the Pennsylvania Turnpike. Some motorists, especially tourists, look forward to passing through the tunnels while traveling the Pennsylvania Turnpike and it is a good possibility that the Pennsylvania Turnpike could lose considerable revenue from the bypass of the Allegheny Tunnels.

Again, please repair the tunnels if this is what is necessary and forget the "Grey Cut Alternative."

Thank you for consideration towards this letter.

Sincerely,

Erik Choka
PA Motorist

Erik Choka letter received December 11, 2020

Thank you for sending your comments concerning the Allegheny Tunnel Transportation Improvement Project. Your comments have been noted. Please refer to the website at: https://www.patpconstruction.com/allegtunn/ for updates as we continue moving forward with this project.

11.0 Agency Coordination

Throughout the development of the Allegheny Tunnel Transportation Improvement Project, coordination with various federal, state, and local resource and regulatory agencies has occurred regarding concerns, questions and recommendations about the Project. As noted above in public involvement, agency coordination began as early as 1996 and continued through 2000 for the project. Upon re-initiation of the project in 2010 agency coordination continued. Correspondence with respective agencies includes letters, Agency Coordination Meetings (ACMs), phone conferences, and field meetings/reviews. Copies of the correspondence and meeting minutes since the Project re-initiation in 2010 are also provided in Appendix I.

11.1 Agency Coordination Meetings

During each stage of its development, the Project was presented to federal and state resource and regulatory agencies at ACMs. These meetings provide an opportunity for formal presentation and discussion of the proposed alternative developments and associated impacts. Agencies typically involved in the ACMs included: USEPA, USACE, USFWS, DCNR, PADEP, PFBC, PHMC, and PGC. Table 11.1 provides a summary of the ACMs held since 2010. Copies of the meeting minutes are provided in Appendix I – Agency Coordination Meetings.

Table 11.1
Agency Coordination Meetings Summary

ACM Meeting Date	Purpose
July 28, 2010	ACM #8 providing an update and discussion on the Project alternatives. • A summary of the Project history was presented, explaining that 12 preliminary alternatives (including a no build) were originally studied and presented to agencies and the public in 1997 and 1998. Upon agency concurrence, six alternatives and the no build were carried forward for detailed study. These included Orange Cut, Yellow Cut, Brown Cut, Yellow Tunnel, Brown Tunnel and Red Tunnel. In November of 2000 the PTC identified the Brown Cut as the preferred alternative. AT that time, the USACE requested study of the Bifurcated Tunnel Alternative. This alternative was not carried into detailed analysis due to difficulties in design, cost, safety and impacts. Following the fall of 2000, the Project was put on hold with no concurrence on a preferred alternative. • It was noted that the Project purpose and needs were re-evaluated with the restart of the Project in 2010 and deemed to be valid. • In moving forward with the Project in 2010, it was noted that prior to the project ending the agencies and public were requiring additional information on one cut and one tunnel option. The Red Tunnel and Orange Cut were not indicated as being favored by the agencies, public or Project team in 2000. Therefore, in moving forward, the PTC requested concurrence from the agencies on carrying the Brown and Yellow corridors forward for the Project continuation. • Following multiple questions and comments from the agencies it was determined to provide a list of comments and responses to the agencies concerning previous studies and meetings. Additionally, several agencies requested additional information on the Red Tunnel Alternative.

ACM Meeting Date	Purpose
September 22, 2010	ACM #9 providing an update and discussion on the Project alternatives. • A summary was provided of the July 28, 2010 ACM, and materials provided including information on the Red Tunnel Alternative, location of the South Penn Railroad Tunnel, a tunnel construction typical, bridge plans and profiles for the Yellow Tunnel and Brown Cut Alternatives. • A group discussion was then held with multiple questions asked on the Red Tunnel and/or other alignments to the south of the existing Turnpike. The USFWS also noted that alternatives to the north (Brown and Yellow Corridors) would result in an adverse effect to the Indiana bat and formal consultation would be required. It was noted that recent investigations (from 2007) showed that the bats travel north along the Raystown Branch Juniata River valley corridor. • It was agreed that the USFWS would provide a copy of the 2007 bat study and that the agencies would have a separate meeting with USACE to discuss the Project and provide a response to the PTC.
May 2, 2013	ACM #10 providing an update and discussion on the Project alternatives. • A history of the Project was presented along with the three current Project corridors being analyzed. The three corridors include the Brown and Yellow Corridors to the north of the existing Turnpike and the Gray Corridor to the south of the existing Turnpike. Each corridor includes a cut and tunnel option. It was noted that the Gray alternatives were added due to agency concerns of potential impacts to the Indiana bat population that is associated with the South Penn Railroad tunnel. • A summary was then provided of the updated field studies that had been conducted, as well as the anticipated impacts for each of the Alternatives, and the avoidance and minimization efforts to-date. • A general discussion was then held with multiple questions asked and comments noted. Items resulting from the meeting included a PGC response letter regarding the revised bat mist netting report, the inclusion of the Indiana bat and the eastern small-footed bat on the alternative matrix table and documentation of the Red Alternative's exclusion from consideration (as sent to the PADEP SWRO).
October 16, 2019	ACM #11 providing an update and discussion on the project • A brief history of the project was presented. • Discussion on the development of the alternatives occurred including the Gray Corridor to the south. • The types of environmental studies conducted were also discussed. A draft environmental document is being prepared and the project is at the agency, public officials briefing, public plans display stage. • It was noted the U.S. Army Corps of Engineers was the lead federal agency and their NEPA / permitting process would be followed. • The identification of an ancient landslide east of the eastern tunnel portal was also discussed, noting that it would be impacted by the Gray alternatives and require remediation. It was also stated that if no alternative is chosen, the slide will still require remediation.

ACM Meeting Date	Purpose
	• The Gray Cut Alternative was identified as the preferred alternative as it best balances the environmental, engineering, operational, cost and safety considerations of the project. • Permitting was anticipated to begin with obtaining a provisional Section 404 permit from the USACE and later obtain the Chapter 105/Section 401 permit from PA DEP when the design was being finalized. Further discussion on the agencies end need to occur to verify this approach. • Cost was noted as being approximately $600 to $700 million for the tunnel options while the cut options were approximately $300 million. Operation and maintenance costs were also higher for a tunnel option. • An area for excess excavation waste disposal was identified for the project as requested. It is located within an area of abandoned strip mine and can hold approximately 13.2 million cubic yards of soil. Resource impacts were noted in each alternative for the access road and excess excavation area. • The proposed wildlife crossing would be located in an area of approximately 26 feet of cut and would be at the elevation of the existing forest land. • Mitigation for the project could include banking credits or on-site and off-site restoration/replacement. • It was agreed updates would be provided to the agencies as the project progresses.

11.2 Special Agency Meetings

Special agency meetings were held to discuss specific areas of concern, such as reviews of threatened or endangered species habitat, wetland and stream resource reviews, etc. Table 11.2 provides a summary of the meetings. Copies of the meeting minutes are provided in Appendix J – Special Agency Meetings.

Table 11.2
Special Agency Meetings Summary

Agencies	Date	Purpose
USACE (Baltimore District)	January 13, 2010	Project review, update, and discussion. The USACE noted that they gave concurrence on the project need and preliminary alternatives but could not concur with PTC preferred alternative of Brown Cut in 2000. It was agreed that the PTC would follow the NEPA / 404 process for the Project. It was identified that the best approach for the Project would be to present a strategy for moving forward at an ACM Meeting.
USACE (Pittsburgh District)	June 2, 2010	Project review, update, and discussion. The USACE Pittsburgh District was identified as the lead federal agency due to the majority of waterway and wetland impacts occurring within their area of jurisdiction. The meeting summarized the history of the alternatives analysis to-date, with the PTC noting a preference to move forward re-evaluating the yellow and brown corridors. It was noted that the PTC would attempt to have the Project added to the July 2010 ACM agenda.
USFWS & PGC	September 8, 2011	Indiana bat coordination and survey requests. The meeting included a summary of the Project to-date, including the inclusion of a southern alternative (gray alternative) following two ACM's in 2010. A summary of past bat surveys was then given, as well as a summary of the current Project alternatives. The meeting noted a previously identified small cave that had never been surveyed for bat presence. The PGC noted they would like to survey the cave in the winter. It was indicated in the meeting that the Project would require formal consultation with the USFWS regarding the Indiana bat, with the preparation of a Biological Assessment, and issuance of a Biological Opinion by the USFWS.
USACE (Pittsburgh District)	January 19, 2012	Project review, update, and discussion. It was verified that the USACE Pittsburgh District would be the lead federal agency due to the location of most of the waterway and wetland impacts. The meeting noted that two ACM's had occurred resulting in the addition of a southern alternative corridor (gray cut and tunnel) for study, as well as the brown and yellow alternatives. A summary was then given of the environmental studies conducted to-date and it was agreed to contact PADEP to identify which wetland function and value assessment methodology should be used.
PGC	May 4, 2012 (conference call)	Scope and methodology for bat mist netting and habitat surveys. The meeting included a summary of the development of the current alternatives (brown, yellow, and gray cut and tunnel alternatives). PGC requirements for bat surveys was then discussed. It was noted that the issue of mist netting and tracking of Indiana bats would be clarified with the USFWS. The proposed plan for mist netting and tracking was discussed, as well as the roost emergence survey. It was also determined that radio telemetry would not be required for the northern long-eared bat if timbering time of year restrictions were utilized.
PADEP & USACE (Pittsburgh District)	May 11, 2012 (conference call)	Use of PADEP Rapid Assessment Protocols (RAP) for wetlands and streams. The PADEP noted that within the timeframe of the Project

Agencies	Date	Purpose
		the PADEP plans to publish the PADEP Wetland Condition and Riverine Condition Level 2 RAPs for use as part of the environmental assessment process under PADEP Chapter 105. Because of the Project timeframe it was suggested to utilize these forms for the Project. It was questioned if the Level 2 RAP should be used on the entire project or only on the preferred alternative when identified. It was determined that a Level 1 RAP (to be provided to PTC once completed) would be conducted on the entire study area and a Level 2 assessment would be completed on resources identifies as being impacted by the preferred alternative, once chosen.
USACE (Pittsburgh District)	March 5, 2013	Project review, update, and discussion. A summary of environmental studies conducted to-date was presented including wetland and stream studies, botanical survey, timber rattlesnake survey, Allegheny woodrat survey, bat mist-net survey, bat hibernacula surveys, preliminary area reconnaissance, historic structures reconnaissance, archaeological reconnaissance, and upcoming geotechnical analysis. The six alternatives (brown cut and tunnel, yellow cut and tunnel, and gray cut and tunnel) and impacts were then summarized. It was noted that they gray alternatives were developed at the request of the USFWS in response to concern of the Indiana bat movement patterns to the north of the existing Turnpike.
DCNR	April 24, 2013 (conference call)	Review of botanical survey report and discussion of current/proposed status of state-listed plant species within the Project study area. The teleconference identified stiff cowbane, bog goldenrod, thick-leaved meadow rue, mountain bellwort, veiny-leaved aster, and Appalachian blue violet as being within the Project area. The DCNR clarified the status of some of the identified species. It was noted that the Appalachian blue violet's status is proposed as tentatively undetermined and the DCNR would not require mitigation for proposed impacts to the Appalachian blue violet. It was also noted that the proposed status for stiff cowbane, bog goldenrod and thick-leaved meadow rue is PA threatened, and the proposed status of mountain bellwort is PA rare. It was noted that avoidance and mitigation will be required for impacts to proposed threatened or endangered species. The DCNR stated the southern (Gray) alternative appeared to be the DCNR's preferred option at the time, but mitigation would be required for the mountain bellwort, stiff cowbane, and bog goldenrod if impacted. It was indicated that mitigation measures consisting of transplanting would require a five-year monitoring period. It was also noted that the veiny-leaved aster is proposed for removal from the RTE plant list and would not require avoidance and/or mitigation, as it is assumed to be able to re-seed from existing populations.
PADEP & USACE (Pittsburgh District)	October 23, 2013 (on-site field view)	Preliminary jurisdictional determination (PJD) Project field view. The attendees visited several representative wetlands and streams. Following the field view, the USACE stated that a letter would be provided stating that all the identified resources located within the Project Study Area are considered USACE-jurisdictional under the

Agencies	Date	Purpose
		PJD. It was also noted that standard wetland data forms would be completed for the preferred alternative once determined.
PGC	March 10, 2014	Review and discussion of the small-footed myotis habitat assessment and acoustic monitoring report, as well as recommendations. A summary of the habitat assessment and acoustic monitoring was presented. The PGC noted that that Project should incorporate avoidance, minimization and mitigation, which may include seasonal restrictions on habitat disturbance and habitat mitigation for the sites that are disturbed by the Project. The PGC also asked if the potential hibernaculum identified within the study could be avoided. It was indicated that seasonal restrictions on blasting may apply due to the proximity of hibernacula. The PGC also recommended contacting the USFWS regarding the status of the northern long-eared bat, which was under consideration for listing under the Endangered Species Act.
USFWS & PGC	April 16, 2014 (conference call)	Review of USFWS' "Northern Long-Eared Bat Interim Conference and Planning Guidance" and Project-specific guidance. The teleconference included a review of assessments and reports relating to federally listed species. the Interim northern long-eared bat guidance was then referenced. Following Project related discussions, it was indicated by the USFWS to utilize the interim guidance along with time of year restrictions with the understanding that measures may change with a final listing. The USFWS also noted that they are trying to take a more proactive approach to projects with respect to the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.
USACE (Pittsburgh District)	July 30, 2014	Project review, update, and discussion. A list of meetings and summaries was provided for the meeting that occurred in regards to the Project since the last meeting with USACE on March 5, 2013. The proposed excess excavation area and access road were also discussed, along with the DRAFT Alternative Matrix dated July 29, 2014. Project schedule was also discussed.
USFWS	August 19, 2015	Project status update and review of bat surveys completed. A brief history of the Project was presented. A discussion was held about an ancient landslide identified within the area of the gray alternatives, along the southeast of the existing Turnpike. Over-excavation of this area would be required. As a result, the PTC has decided to expand the current study area to the south. The PTC also decided to add additional study area to the north to accommodate shifts in the brown alternatives in an attempt to avoid and/or minimize environmental impacts. It was noted that the updated environmental studies would take about 18 months to complete. The USFWS indicated that the PTC could assume presence of the species critical habitat in the expanded study areas and address impacts in the BA. It was also noted that a review of the existing studies should take place to identify the benefit of additional studies. It was indicated that a southern alternative is preferred from the USFWS standpoint as being less damaging.
USACE (Pittsburgh District)	September 3, 2015	Project review, update, and discussion. This meeting summarized project development activities since the previous meeting on July 30,

Agencies	Date	Purpose
		2014. A discussion was held about an ancient landslide identified within the area of the gray alternatives, along the southeast of the existing Turnpike. Over-excavation of this area would be required. As a result, the PTC has decided to expand the current study area to the south. The PTC also decided to add additional study area to the north to accommodate shifts in the brown alternatives in an attempt to avoid and/or minimize environmental impacts. It was noted that the updated environmental studies would take about 18 months to complete. A summary of the August 19, 2015 meeting with USFWS was also provided.
USFWS	April 25, 2016	Project review, update, and discussion. Recent project updates were presented including additional information on the geotechnical efforts for the Project. It was noted that the area of over-excavation required for the Gray alternatives would result in additional earth moving and cost for those alternatives and may require the removal of the smaller cave hibernaculum. Additional impacts would include forest removal within 1/4 mile radius of the South Penn Railroad Tunnel hibernaculum and removal of Indiana bat habitat (forest land) throughout the project area. The USFWS indicated that a Presidential Memo concerning "no net loss" was recently published and new mitigation measures were discussed in the Federal Registry. The Project would require formal consultation under Section 7 of the Endangered Species Act and must discuss avoidance, minimization, and mitigation. Potential mitigation measures noted were protection of higher level hibernacula, payment into the Indiana bat fund, buying credits from an approved conservation bank, and creating bat habitat on site (use of abandoned tunnel). The USFWS noted that the southern corridor may still be preferable due to the flight pattern of the bats upon exiting the South Penn Railroad Tunnel hibernaculum. It was noted that an acoustical survey of the elevations /aspects bats are flying should be conducted in the Project area.
USACE / PA DEP (Pittsburgh)	August 28, 2019	The history of the project was presented along with a discussion on the development of alternatives. The impact analysis was summarized and permitting approach discussed. It is anticipated that a separate Section 404 permit will be submitted to the USACE prior to the state Chapter 105 permit to PA DEP. The agencies requested further discussion on this approach prior to agreeing on the approach to permitting. The project schedule was reviewed and input from the agencies was given.
USFWS / PGC	March 24, 2020	A teleconference meeting was held to discuss additional bat surveys due to the length of time previous surveys were conducted and the listing of the little brown and tri-colored bats. It was noted the bat species identified in the most recent PNDI are present within the study area given the results of past hibernaculum and mist-net surveys (all species listed were present in the South Penn Railroad Tunnel Surveys and/or captured during previous mist-net surveys). The determination to conduct additional surveys on the preferred alternative in the near future was reached. A new PNDI search will be conducted for the preferred alternative giving the agencies a

Agencies	Date	Purpose
		chance to update their information for one specific area as opposed to the very large study area used in this Environmental Document.

Throughout the alternative analysis process, and the overall development of the Project, concern over the Project's potential impacts on the area resources, including wetlands, streams, threatened and endangered species and their respective habitats, has been expressed by the various agencies. The input from these agencies has been utilized throughout the Project's history to develop and refine the Project alternatives, and to assist in determining the preferred alternative.

11.3 Agency Correspondence

During the process of developing the Project, regular correspondence occurred with federal and state environmental and cultural resource agencies to determine if the proposed Project would have effects on resources under their respective jurisdictions. A summary of agency correspondence is detailed below in table form by agency. Hard copies of the correspondence are located in Appendix E – Agency Correspondence.

11.3.1 USACE Correspondence

Table 11.3.1
Summary of USACE Correspondence

Date	Purpose	Summary
January 7, 2011	Response to PTC request for concurrence on Alternatives to carry forward for detailed study	The USACE did not concur with studying only the Brown and Yellow Alternatives going forward and instead / encouraged the PTC to consider alternatives to the south of the Allegheny Tunnel.
November 06, 2013	Preliminary JD Approval	E-mail noting preliminary JD approval for a request sent July 2013 with a field visit on October 23, 2013. The study area was noted to contain 71 wetlands (36.88 ac.) and 134 streams (84,995 LF).
July 24, 2014	Preliminary JD Approval for excess excavation / access road wetland and stream delineation addendum	Preliminary JD approval for project area now including the excess excavation area and access road with a total of 74 wetlands (37.84 ac.) and 135 streams (85,776 LF).
July 11, 2017	Preliminary JD Approval for expanded study area wetland and stream delineation addendum	Preliminary JD approval for project area now including the expanded study area with a total of 114 wetlands (79.24 ac.) and 165 streams (99,601 LF).

11.3.2 Pennsylvania Department of Environmental Protection Correspondence

Table 11.3.2
Summary of PADEP Correspondence

Date	Purpose	Summary
January 27, 2011	Response to PTC request for concurrence on Alternatives to carry forward for detailed study; includes responses from PADEP, PFBC, PGC and PDCNR	The letter noted that the agencies did not concur with the proposal to re-evaluate only the Brown and Yellow corridors for detailed study. They also requested a study of a modification of the red tunnel alternative, and an additional alternative route to the south of the existing tunnel. The letter noted that the detailed study of alternatives must be revised and updated to identify and describe additional resource concerns as detailed in the letter. The letter did agree with the proposal to discontinue further analysis of the orange corridor alternative.
July 2, 2014	Discussion on use of PADEP Level 1 Rapid Assessment Protocol (telephone memo)	Mr. Dave Goerman of PADEP requested feedback on the use of the PADEP Level 1 RAP as used on the Project. It was noted that wetland and stream delineation report was being drafted for submission to PADEP and USACE and a copy would be provided to Mr. Goerman as well. A discussion was held on the field time taken to complete the Level 1 RAPs and potential revisions to the upcoming Level 2 RAPs.

11.3.3 Pennsylvania Historical and Museum Commission Correspondence

Table 11.3.3
Summary of PHMC Correspondence

Date	Purpose	Summary
November 9, 2010	Response to PTC request for concurrence on Alternatives to carry forward for detailed study	The PHMC noted that at the September 27, 2010 ACM, the PTC requested that the Brown and Yellow Corridor alternatives be carried forward for more intensive study and the Red Corridor Alternatives would be dropped. The PHMC did not concur with dropping of additional alternatives, due to the length of time since the last evaluation. They requested additional cultural resource studies, and recommended consideration of a modified Red Alternative and investigation of another alternative south/west of the current Turnpike.
November 9, 2011	Response to request for concurrence of APE	The PHMC concurred with the proposed Area of Potential Effect for the Project
June 13, 2012	Response to request for Determination of Eligibility for Historic Structures	The PHMC concurred that the newly evaluated Dutch Colonial House, SR 160 and the J. Landis Farmstead are not eligible for listing in the NR. They also noted that no reassessments of previously identified properties were necessary and the Turnpike and the South Pennsylvania Railroad are the only NR eligible above-ground resources within the APE.
March 26, 2015	Response to request of concurrence on Assessment of Effect	The PHMC agreed that the Project will have an adverse effect on the NR eligible Turnpike Main Line Historic District. It noted mitigation has been carried out under a separate agreement, and no further coordination regarding effects to above-ground resources is necessary for this project.
November 21, 2016	Response to request for Determination of Eligibility for Historic Structures within the expanded APE	The PHMC agreed that the evaluated properties within the expanded APE were not eligible for listing in the NR.

11.3.4 U.S. Fish and Wildlife Correspondence

Table 11.3.4-A
Summary of USFWS Correspondence

Date	Purpose	Summary
December 22, 2010	Response to request for T&E consultation	The USFWS noted the Project is within the range of the Indiana bat (federally endangered). They recommended that alignments to the north of the Turnpike be dropped from further consideration due to the adverse effect that may compromise the status of the regional Indiana bat population, and they encouraged the further evaluation of alignments to the south of the existing Turnpike, including a tunnel alignment that would incorporate use of the existing tunnel farthest from the hibernaculum.
January 05, 2012	Response to request for update of T&E consultation	The USFWS again noted the Project is within the range of the Indiana bat (federally endangered) and reiterated that while alternatives to the south of the existing Turnpike will have adverse effect on the Indiana bat, it would substantially reduce adverse effects on the Indiana bat when compared to the northern alternatives. Recommendations were offered for avoiding and minimizing impacts to migratory birds within and around the project area. The letter also noted utilizing best management practices for erosion control and the need for a 404 USACE permit.
March 19, 2014	T&E consultation update (telephone memo)	It was noted the previous review letter of January 5, 2012 would require updating as the USFWS review letters are good for two (2) years. The USFWS also provided a link to the interim guidance for the northern long-eared bat.
August 28, 2014	Response to request for update of T&E consultation, including excess excavation area and access road	The USFWS noted the Indiana bat (federally endangered) and the northern long-eared bat (federally threatened) are known to exist within the Project area, along with two known hibernacula. Following an explanation of reasoning, the letter again recommends that alignments to the north of the Turnpike be dropped from further consideration due to anticipated adverse effects to both a regionally important Indian bat hibernaculum and to an Indiana bat maternity colony that may compromise that status of an Indiana bat population already under severe stress due to the effects of white-nose syndrome. They continued to encourage the further evaluation of alignments to the south of the existing Turnpike, including a tunnel alignment that would incorporate use of the existing tunnel farthest from the hibernaculum. The letter also noted that in regards to the northern long-eared bat, minimization of forest habitat loss, time of year restrictions for timber clearing and coordination of blasting requirements as conservation measures were identified with the understanding that guidance may change once final guidance becomes available. The letter again included recommendations for avoiding and minimizing impacts to migratory birds within and around the project area. It also requested additional information regarding effects to species under their jurisdiction.

Date	Purpose	Summary
November 02, 2015	Response to request for update of T&E consultation due to expanded study area	The USFWS noted the Indiana bat (federally endangered) and the northern long-eared bat (federally threatened) are known to existing within the Project area, along with two known hibernacula. The USFWS noted that consistent with their letters in 2010, 2012 and 2014, they again recommend that alignments to the north of the Turnpike be dropped from further consideration due to anticipated adverse effects to both a regionally important Indian bat hibernaculum and to an Indiana bat maternity colony that may compromise that status of an Indiana bat population already under severe stress due to the effects of white-nose syndrome. They again encouraged the further evaluation of alignments to the south of the existing Turnpike, including a tunnel alignment that would incorporate use of the existing tunnel farthest from the hibernaculum. The letter included recommendations for avoiding and minimizing impacts to migratory birds within and around the project area.
February 7, 2020	Response to request for update of T&E consultation	The USFWS noted the Indiana bat (federally endangered) and the northern long-eared bat (federally threatened) are known to existing within the Project area, along with two known hibernacula. The USFWS noted that consistent with their letters in 2010, 2012, 2014, and 2015, they again recommend that alignments to the north of the Turnpike be dropped from further consideration due to anticipated adverse effects to both a regionally important Indian bat hibernaculum and to an Indiana bat maternity colony that may compromise that status of an Indiana bat population already under severe stress due to the effects of white-nose syndrome. They recommend temperature and humidity data be collected in the two hibernacula prior to and post construction. The anticipated direct and indirect effects of the project should be evaluated in a biological assessment. They again encouraged the further evaluation of alignments to the south of the existing Turnpike, including a tunnel alignment that would incorporate use of the existing tunnel farthest from the hibernaculum. The letter included recommendations for avoiding and minimizing impacts to migratory birds within and around the project area.

11.3.5 Pennsylvania Department of Natural Resources and Conservation Correspondence

Table 11.3.4-B
Summary of DCNR Correspondence

Date	Purpose	Summary
October 3, 2011	Response to request for T&E consultation	The DCNR noted that Appalachian blue violet, mountain bugbane and mountain goldenrod are located in the project vicinity and requested surveys for those species be conducted by a qualified botanist at the appropriate time of year.
April 26, 2013	Response to results of botanical survey.	The letter acknowledged the identification of stiff cowbane, bog goldenrod, thick-leaved meadow-rue, mountain bellwort, Appalachian blue violet, veiny-leaved aster and wild ginseng within the Project study area. The letter noted that DCNR's regulation for plant species of concern uses the Proposed PA Status, and therefore their top concerns for the site are stiff cowbane, bog

Date	Purpose	Summary
		goldenrod, and thick-leaved meadow rue.
May 15, 2014	Response to request for update of T&E consultation, including excess excavation and access road	DCNR conducted an updated review of the area on May 14, 2014 and did not find any additional plant species of concern or Threatened & Endangered plant species within the proposed project area, nor the proposed Allegheny Tunnel Excess Excavation Area or proposed Access Road, which were cleared by the PNDI tool on February 18 and April 3, 2014, respectively. They determined that no new impacts are likely for the project. They noted that further coordination would be required to construct a plan to avoid, minimize, or mitigate impacts to populations of stiff cowbane, bog goldenrod, and thick-leaved meadow rue.
October 14, 2015	Response to request for update of T&E consultation due to expanded study area	The DCNR noted that thick-leaved meadow-rue and mountain bellwort are located in the vicinity of the expanded study area and requested surveys for those species be conducted by a qualified botanist at the appropriate time of year.
February 9, 2017	Response to results of botanical survey in expanded study area.	The letter acknowledged the identification of mountain bellwort, thick-leaved meadow rue, and Appalachian blue violet within the expanded study area. The DCNR suggested avoiding the population of thick-leaved meadow-rue if at all possible. They noted if avoidance is not feasible, mitigation and monitoring will be required. DCNR also recommended avoidance and/or minimizing impacts to the PA plant species of concern, mountain bellwort, which occurs throughout the study area. They also recommended minimizing impacts for Appalachian blue violet, though not the highest priority, since this species can tolerate disturbance.
April 10, 2017	Letter from DCNR Director of Office of Policy and Planning following a tour and briefing of the project.	The letter summarized the agency's collective comments on the Project. It noted three plant species of concern from the February 9, 2017 letter as well as the avoidance suggestions. The letter also noted that replacing the existing tunnel with an open cut would remove one more of very limited opportunities for migratory species to survive their north-south travels.
December 16, 2019	Response to request for T&E consultation	The letter acknowledges the presence of tick-leaved meadow rue, mountain bellwort, stiff cowbane, bog goldenrod, and Appalachian blue violet. Given the lack of changes to PNDI records since 2015 and the currently preliminary nature of the project alignment and construction plans, there have been no significant changes to DCNR's recommendations. Avoidance of impacts to thick-leaved meadow rue and bog goldenrod are recommended. If avoidance is not feasible, mitigation and monitoring will be required. DCNR also recommends avoidance and/or minimization of impacts to mountain bellwort and stiff cowbane. Minimization of impact to Appalachian blue violet is recommended, but not the highest priority.

11.3.6 Pennsylvania Game Commission Correspondence

Table 11.3.4-C
Summary of PGC Correspondence

Date	Purpose	Summary
November 10, 2011	Response to request for T&E consultation	The PGC noted that the Indiana bat, eastern small-footed bat, the Allegheny woodrat, and the northern long-eared bat are located in the project vicinity. They noted the area includes two bat hibernacula, suitable swarming,

Date	Purpose	Summary
		foraging, and migration habitat for various species of bats, and is located within the Allegheny Mountain Important Mammal Area. They noted that Indiana bats are a federally listed endangered species under the jurisdiction of the USFWS and they deferred comments on potential impacts to the Indian bat to USFWS. The letter requested bat mist netting and telemetry be conducted on the project area by a qualified consultant. They also requested an eastern small-footed bat roosting habitat assessment, as well as an Allegheny woodrat habitat assessment within the project area and within 300 feet of the project area. The letter also requested specific project impact information.
May 14, 2013	Response to request for update of T&E consultation	The same species and features were identified in this letter as the November 11, 2011 letter, noting that the PGC deferred comments on the Indiana bats to the USFWS. The PGC also noted the completion of an Allegheny woodrat habitat assessment that identified six locations having characteristics essential for potential habitat, but no evidence of woodrat activity or presence was identified. The PGC recommended to avoid and minimize impacts to the six potential habitat areas to the greatest extent possible. The letter also noted PGC surveys of the two hibernacula located in the study area which identified Indiana bat usage in one hibernacula and northern long-eared bat usage in both. The PGC again requested an eastern small-footed bat roosting habitat assessment be conducted. The letter also requested specific project impact information, as well as a list of recommendations regarding the design of the project.
October 7, 2013	Response to receiving eastern small-footed myotis habitat assessment report.	The PGC noted receipt of the Report and requested several revisions to the report as detailed in the letter. The letter also included requirements for a potential roost emergence count survey and potential hibernacula survey.
March 10, 2014	E-mail Response to receiving revised eastern small-footed myotis habitat assessment and acoustic monitoring report.	The PGC stated they had no comments on the revised Eastern small-footed habitat assessment and acoustic monitoring report submitted to the PGC on January 20, 2014.
June 30, 2014	Response to request for update of T&E consultation including the access road and excess excavation area.	The PGC reiterated the information provide in the 2011 to 2014 letters. It was also noted that the eastern small-footed myotis habitat assessment was not conducted within the access road or excess excavation areas associated with the project (both are new additions to the project area in 2014). The PGC determined that eastern small-footed roost habitat assessment surveys are not warranted within the access road or excess excavation areas, as both areas do not appear to contain potential small-footed roost habitat. The letter noted that emergence counts are to be conducted by a qualified bat consultant at all potential roost sites to be impacted by the selected alignment, and all eastern small-footed bat roost habitat to be removed occur between November 15 and March 31. The letter also requested specific project impact information, as well as a list of recommendations regarding the design of the project.
November 4, 2015	Response to request for update of T&E	The PGC again noted that the Indiana bat, eastern small-footed bat, the Allegheny woodrat, and the northern long-eared bat are located in the project

Date	Purpose	Summary
	consultation due to expanded study area	vicinity. They noted that Indiana bats are federally listed endangered species and northern long-eared bats are federally listed threatened species under the jurisdiction of the USFWS. Comments on potential impacts to both bat species were deferred to USFWS. Habitat surveys were requested for the eastern small-footed bat and Allegheny woodrat within the expanded study area. It also noted bat roost emergence counts will be required at all potential roost sites to be impacted by the selected alignment. Additional information about specific project impacts and design recommendations was included.
April 27, 2017	Email response to the 2016 Allegheny woodrat and eastern small-footed bat surveys on expanded study area	The PGC has received and reviewed both the Allegheny woodrat and eastern small-footed bat habitat assessment survey reports and have no additional questions or comments on the reports at this time.
January 23, 2020	Response to request for update of T&E consultation	The PGC noted that the Indiana bat, northern long-eared bat, little brown bat, tri-colored bat, eastern small-footed bat, and Allegheny woodrat are located in the project vicinity. They noted that Indiana bats are federally listed endangered species and northern long-eared bats are federally listed threatened species under the jurisdiction of the USFWS. Comments on potential impacts to both bat species were deferred to USFWS. Mist-netting, telemetry, hibernacula investigations, roost habitat assessments, were requested for the state-listed bats. It also noted bat roost emergence counts will be required at all potential roost sites to be impacted by the selected alignment. An Allegheny woodrat habitat assessment was requested to refresh previously identified areas as well as survey any areas on and within 300 feet of the project study area not included in the 2012 or 2016 surveys. Additional information about specific project impacts and design recommendations was included.

11.3.7 Pennsylvania Fish and Boat Commission Correspondence

Table 11.3.4-D
Summary of PFBC Correspondence

Date	Purpose	Summary
October 13, 2011	Response to request for T&E consultation	The PFBC noted that the timber rattlesnake (PA Candidate species) is located in the project vicinity. They requested a timber rattlesnake habitat assessment be conducted in the project area by a PFBC recognized / qualified timber rattlesnake surveyor.
February 6, 2013	Response to receiving timber rattlesnake habitat assessment report.	The letter acknowledged receipt of the timber rattlesnake habitat assessment report and results identifying potential denning and gestation habitat as well as the confirmation of the presence of timber rattlesnakes in the area. The letter recommended that the project alternatives be routed to avoid direct disturbance to those areas designated as potential overwintering habitat. Additionally, it was recommended that earth disturbance be routed to avoid the habitats identified as potential denning sites, and efforts to avoid potential gestation sites were also warranted. The letter also noted the workers responsible for implementing the project be advised timber rattlesnakes may be encountered and avoidance is the best means of minimizing risks to personal safety. They should also be advised that the timber rattlesnake is a

Date	Purpose	Summary
		state protected species and is not to be harmed.
June 4, 2014	Response to request for update of T&E consultation, including excess excavation area and access road	The PFBC stated that, "according to this submission and our records there have been no changes in on-site biological information; therefore, the Commission's comments regarding potential impacts to rare, candidate, threatened, or endangered species under our jurisdiction, as detailed in our letter of February 6, 2013 for SIR# 37260, remain unchanged".
October 27, 2015	Response to request for update of T&E consultation due to expanded study area	The PFBC noted that the timber rattlesnake (PA Candidate species) is located in the project vicinity. They requested a timber rattlesnake habitat assessment be conducted in the expanded project area by a PFBC recognized / qualified timer rattlesnake surveyor. The recommendations from the February 6, 2013 letter were also included.
November 28, 2016	Response to receiving timber rattlesnake habitat assessment report for expanded study area.	The letter acknowledged the presence of timber rattlesnakes and their critical habitat within the project study area. The letter again recommended the project alternatives be routed to avoid direct disturbance to those areas designated as potential overwintering habitat. Additionally, it was recommended that earth disturbance be routed to avoid the habitats identified as potential denning sites, and efforts to avoid potential gestation sites were also warranted. The letter also noted the workers responsible for implementing the project be advised that timber rattlesnakes may be encountered and avoidance is the best means of minimizing risks to personal safety. They should also be advised the timber rattlesnake is a state protected species and is not to be harmed.
January 7, 2020	Response to request for T&E consultation	The letter acknowledged the presence of timber rattlesnakes and their critical habitat within the project study area. It noted habitat assessments for the timber rattlesnake have been obtained throughout the project study area. Timber rattlesnakes have been documented as using parts of the project area for den, basking and / or foraging habitat. PFBC recommends the project disturbance areas be routed to avoid direct disturbance to those areas designated as potential overwintering habitat and potential denning sites. Efforts to avoid potential gestation sites are warranted, but if not possible recommendations for recreating gestation sites is included.

Draft Environmental Document Review

The Allegheny Tunnel Transportation Improvement Project Draft Environmental Document was made available for agency review on November 5, 2020. It was submitted electronically via OneDrive for each agency to download and review. Comments were received from PA DCNR, PGC, USACE, and EPA. Each agency's comments with responses are locate in Appendix E.

12.0 List of Agencies, Tribes, and Publics Consulted

During the processes of developing the Project Alternatives and drafting this Environmental Document, several federal, state, and local agencies, tribes, and public entities were contacted for their input on the proposed Project. Table 12.0 provides a summary of the entities consulted and their respective jurisdictions. In addition to the contacts noted below, all property owners located within the Project study area received Notice of Intent to Enter (NOIE) letters prior to field investigations.

Table 12.0
Summary of Agencies and Public Entities Consulted

Contact Acronym	Contact Full Name	Jurisdiction / Involvement
USACE	United States Army Corps of Engineers – Baltimore District	Waters of the U.S.
USACE	United States Army Corps of Engineers – Pittsburgh District	Waters of the U.S. / Lead Federal Agency
PA DEP	PA Department of Environmental Protection	Waters of the Commonwealth of Pennsylvania
USFWS	United States Fish and Wildlife Service – PA Field Office	Federal Species of Special Concern
EPA	United States Environmental Protection Agency	Waters of the U.S.
USDA	United States Department of Agriculture	Agricultural Lands
PHMC	PA Historical and Museum Commission	Cultural Resources
PGC	PA Game Commission	State Mammal and Bird Species of Special Concern
PFBC	PA Fish & Boat Commission	State Fish, Reptile and Amphibian Species of Special Concern
DCNR	PA Department of Conservation and Natural Resources	State Plant Species of Special Concern
PADA	PA Department of Agriculture	Agricultural Lands
SCCD	Somerset County Conservation District	Clean & Green Lands and ASA's
MFSC	Mountain Field and Stream Club	Project Stakeholder
PBS Coals	PBS Coals	Project Stakeholder
	Somerset County Farm Service Agency Office	Clean & Green Lands and ASA's
	Somerset County Assessment Office	Clean and Green Lands
	Somerset County Recorder of Deeds	ASA's
	Somerset County Planning Commission	Comprehensive Plan
	Berlin Borough Municipal Authority	Berlin Borough Water Supply
	Local Representatives of the PA State House of Representatives	On behalf of local constituents
	Local Representatives of the PA State Senate	On behalf of local constituents
	Local Representatives of the U.S. House of Representatives	On behalf of local constituents
	Local Representatives of the U.S. Senate	On behalf of local constituents
	Somerset County Commissioners	On behalf of local constituents
	Stonycreek Township Supervisors	On behalf of local constituents
	Allegheny Township Supervisors	On behalf of local constituents
	Berlin Borough	Berlin Water Supply
	Bedford County Control	EMS Response
	Somerset County Control	EMS Response
	Property Owners within Project study area	Personal property

13.0 Permits Required, Additional Studies Anticipated and Tentative Schedule

As noted, there were no Project alternatives that completely avoided environmental impacts, met all Project purpose and needs, and provided for reasonable costs. The Gray Cut Alternative was selected as the Project Preferred Alternative as it best balances all the operational, safety, cost, and environmental considerations that are components of the Project. The Gray Cut Alternative is not without environmental impacts; therefore, federal and state permits will be required. The Project will first obtain an Individual 404 Permit from the USACE for the wetland and waterway impacts resulting from the Gray Cut Alternative. The following studies are anticipated as the project progresses: wetland and waterways delineation, Phase I archaeological survey, threatened and endangered species studies, groundwater analysis, and acid-bearing rock analysis. The table below provides a brief, estimated schedule for the continuation of the Project.

Project Tasks	Estimated Time Frame
Wetland Delineation of Gray Cut Alternative and Jurisdictional Determination	Fall 2020 to Spring 2021
Phase I Archaeology on Gray Cut Alternative	Fall 2020 to Spring 2021
Additional threatened and endangered species studies on Gray Cut Alternative	Fall 2020 to Fall 2021
Submit 404 Permit and 401 Water Quality Certification	Winter 2021
Submit Biological Assessment to USFWS	Spring 2022

Additional groundwater and geologic studies along with a PA DEP Water Obstruction and Encroachment (Chapter 105) permit and Individual NPDES Permit for Discharges of Stormwater Associated with Construction Activities (Chapter 102) permit during the final design phase of the Project.

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