

tive Alignment A5-South would have slightly greater potential for impacts to high and moderate potential archaeological resources (see Table 4.10.2-1).

In Section B, potential impacts for Alternative Alignment B4-East and Alternative Alignment B4-West would be relatively similar. There would be no impacts to recorded archaeological sites. Alternative Alignment B4-East would have slightly greater impacts to archaeological resources, but both alternatives would have comparable impacts to areas of high potential for prehistoric and historic archaeological resources.

Within Section C, Alternative Alignment C5 would have the greatest impacts to recorded sites (including a recorded prehistoric village site [36WM0726]) and predicted archaeological resources with 23.8 hectares (58.8 acres) of high potential surface area, particularly within the crossing of the Bushy Run drainage basin. Alternative Alignment C6 would impact one recorded site and would have somewhat less potential for impacts to high potential areas. The highest potential areas for Alternative Alignment C6 would be where it traverses the Little Sewickley Creek drainage basin. Alternative Alignment C2-Mod would have the least impacts to archaeological resources, with no impacts to recorded sites and the smallest amount of acreage containing high potential for prehistoric and historic archaeological resources.

4.10.2.4 Mitigation

Mitigation for impacts to cultural resources will be in accordance with the Programmatic Agreement. FRA, in cooperation with PAAC, shall ensure that the mitigation measures of the Programmatic Agreement concerning archaeological resources are initiated and concluded prior to completion of the project. Mitigation could include: avoidance of high probability archaeological sites, Phase I and II testing, and/or Phase III data recovery. Other details of mitigation will be developed via coordination with the signatories and consulting parties as per the PA.

Dissemination of public information on the potential impact to archaeological resources, while always difficult because of the need to protect specific resources from “amateur archaeologists” looking to add valuable artifacts to their personal collections, will continue as necessary to allow members of the public to make reasonable decisions on the extent of the impacts. Publicly disseminated information, however, will be presented only in a fashion that guarantees protection of irretrievable cultural resources.

4.11 Aesthetic Environment and Scenic Resources

4.11.1 Methodology

The aesthetic environment and scenic resources were evaluated where the project alternative alignments could result in a change in local or regional aesthetics and other values. When the project alternative alignments were determined to affect the viewshed for important community features (e.g., an outdoor recreation area or historic property), aesthetic or visual quality impacts were assessed. Additionally, GIS-based techniques and mapping techniques were used to create a visual analysis of the impact zone.

Other methods of interpreting visual impacts were also used, such as perspective sketches; GIS and computer aided drafting and design (CADD) generated renderings, modi-

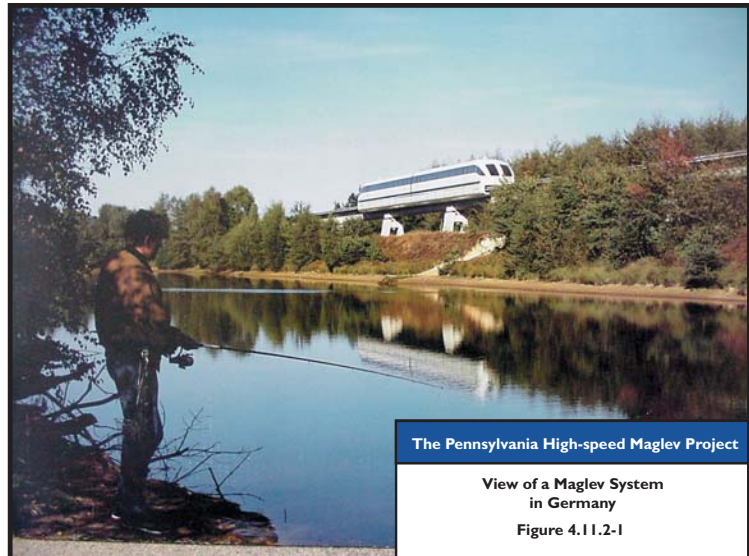
fied photographs, slide projections, scale models, computer graphics, two-dimensional drafting and painting; surface and solid modeling; image processing; and animation techniques.

4.11.2 Impact Analysis

The guideway would be an elevated structure. The guideway would be constructed at varying heights, enabling the elimination of at-grade crossings and allowing the land under the guideway to be used for other purposes. The majority of the guideway beams would be composed of steel and would be about 2-meters (6-feet) deep. The structure that supports the guideway would be composed of piers, constructed of either steel or concrete, that would be placed at approximately 31-meter (101-foot) intervals.

There would be areas along the alignments where a cut into the existing ground would be necessary to maintain the vertical alignment. The typical area of cut would have a flat bottom with 2 to 1 side slopes. A typical cut section of guideway is found in Chapter 2.0, Alternatives. The area of cut may be revegetated with grasses and other short herbaceous vegetation; large trees would not be allowed to grow near the guideway for safety reasons.

The maglev system has been demonstrated and tested at a proving facility in Emsland, Germany, as well as in revenue service in Shanghai, China. A photograph of the actual system in operation, in Germany, is presented in Figure 4.11.2-1. The photograph is a good representation of how the system would look for the majority of its length. In addition to the guideway, there would be four stations. Figure 4.11.2-2 depicts an artist's rendering of the Steel Plaza station.



A visual depiction of the maglev system was presented at every public meeting. Various forms of media were used, including a video clip of the actual system in Germany, artist renderings, and 3D simulations generated from CADD drawings of the alignments. The simulations had the ability to depict how the system would look from the outside and what the rider would see from inside the vehicle.

No-Build Alternative

Under the No-Build Alternative, there would be no visual or aesthetic impacts associated with the physical presence of the maglev infrastructure. However, travel by motor vehicle and air is expected to be higher under the No-Build Alternative than that under any of the build alternatives. This could lead to the construction of additional air and land transportation infrastructure. The added transportation infrastructure elements have the potential for creating visual impacts associated with structures such as airports, stations/terminals, parking and main-



tenance facilities, support structures such as bridges, as well as the ribbon-like lines of railroad and highway networks.

Build Alternatives

Section A

Alternative Alignment A5-North and Alternative Alignment A5-South are essentially the same except that there is a variation between the two alignment alternatives in the vicinity of the FedEx facility and the community of Cherrington, where there would be visual impacts to Cherrington Pointe for Alternative Alignment A5-North. These alternative alignments would have a maintenance facility west of PIA, a station near the landside terminal of PIA, a commuter station near PIA, and the Steel Plaza station.

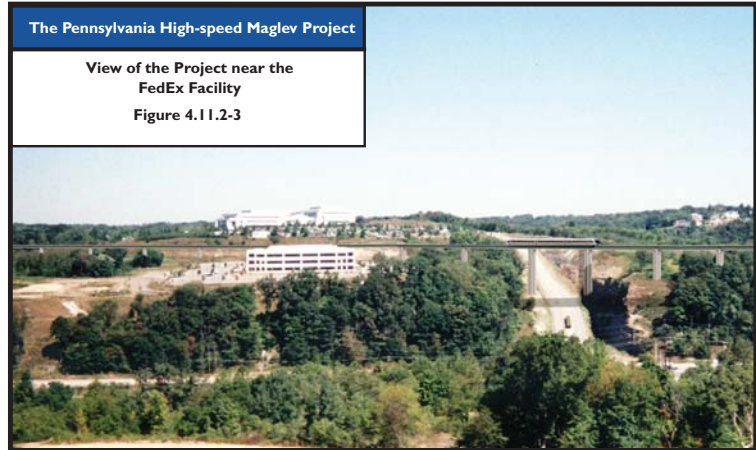
The alignments would start at the PIA where a station would be constructed at the landside terminal of the airport. A conceptual view of this station is shown in Chapter 2.0, Alternatives. The guideway would be located near the existing access roadways and cross over PA Route 60 near the existing interchange. The guideway would be at a minimum height so the maglev vehicles do not intrude into operating airspace; however, riders on maglev should get a spectacular view of PIA.

Alternative Alignments A5-North and A5-South would pass over PA Route 60, and would turn east to enter the separate commuter station. After leaving the commuter station, the alignment would continue eastward paralleling existing highways. Figure 4.11.2-3 depicts how the maglev facility would appear as it crosses near the FedEx facility, a major employer in the area.

Continuing east, the maglev guideway would pass through the Oil Extraction Facility No. 2, which is a historic resource. The guideway would be in cut at this point and would be

seen from the remainder of the oil extraction facility if someone were standing on the edge of the cut. The depth of the cut at this point would be 14 meters (45 feet) and the maglev rider would see the sides of the cut.

As the alignments would continue down the Chartiers Creek valley they would cross over the Pan Handle Historic District near McKees Rocks Borough. The maglev guideway would cross over the Pan Handle Historic District several times. The Pan Handle Historic District is a historic railroad corridor and the maglev guideway and piers would cause an intrusion to the present viewshed; however, there would be no impact to the physical features of this resource. The maglev guideway would pass over the Corliss Street Tunnel without impacting any features of the tunnel. The people in the community of McKees Rocks would see the maglev guideway at an elevation of approximately 12 meters (40 feet) above the ground with the hillside behind the guideway.



The Pennsylvania High-speed Maglev Project
View of the Project near the FedEx Facility
Figure 4.11.2-3

The maglev rider would have a panoramic view of the Ohio River as the vehicles emerge from the Chartiers Creek valley. The alignment would then follow the Ohio River and the Monongahela River, paralleling the Pan Handle Historic District and the P&LE Railroad Complex (Station Square) and crossing over the Monongahela Incline (all historic resources), where it would turn to cross the Monongahela River.

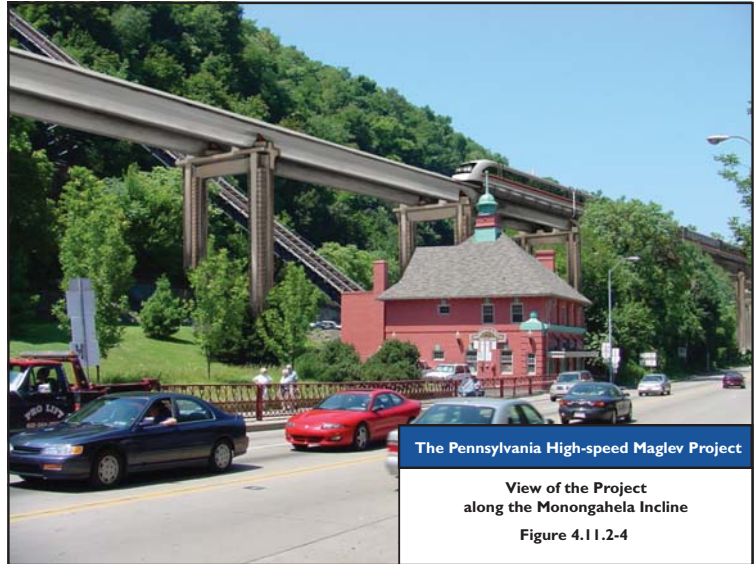
As maglev vehicles would travel along the Monongahela River toward the Steel Plaza station, they would parallel the P&LE Railroad Complex along West Carson Street. Although the complex buildings would not be displaced, piers would be placed within the historic boundary of the property. The maglev guideway would cross under the Ft. Pitt Bridge, minimizing visual impact. Alternative Alignments A5-North and A5-South would range in height between 5 and 30 meters (16.5 and 100 feet) above ground level as they would continue along the P&LE Railroad property, altering the viewshed.

Alternative Alignments A5-North and A5-South would cross over the Monongahela Incline at an average height of 14 meters (46 feet) above the ground. The guideway would pass behind the lower station building and over the inclined plane of the Monongahela Incline. Figure 4.11.2-4 depicts this crossing. The project would alter the view from the incline to Downtown Pittsburgh and the view of the incline from Downtown Pittsburgh and the river.

Before the vehicles cross the Monongahela River into Downtown Pittsburgh, the maglev rider would have a view of the cityscape. The maglev vehicles would be seen from the river and opposite bank as an elevated guideway that would range in height between 5 and 30 meters (16.5 and 100 feet) above existing ground level with the hillside in the background. This view could be similar to Figure 4.11.2-1.

Section B

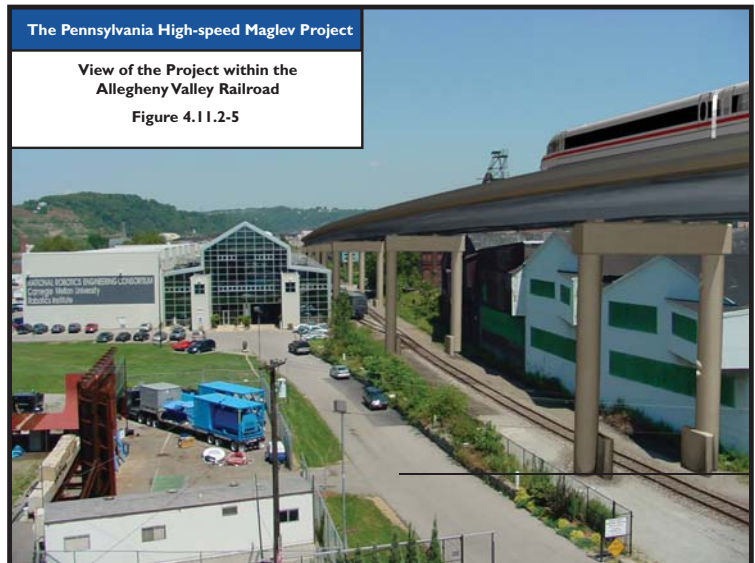
Alternative Alignments B4-East and B4-West share a common alignment except for the area immediately north of the proposed Thompson Run station, where there is an eastern and western option. Alternative Alignments B4-East and B4-West could affect several important viewsheds along the Allegheny River.



The Pennsylvania High-speed Maglev Project
View of the Project along the Monongahela Incline
Figure 4.11.2-4

The alternative alignments in Section B would begin at the proposed Downtown Pittsburgh station and end at the proposed Thompson Run station near Monroeville. The alternative alignments would follow the existing Martin Luther King, Jr., Busway as they pass south of the Strip Historic District and then would head slightly north to parallel the Allegheny River within the Allegheny Valley Railroad (AVRR) corridor. The maglev guideway would be elevated about 12 meters (40 feet) as it would cross from the Steel Plaza station to the Allegheny Valley Railroad. Figure 4.11.2-5 depicts the proposed project, as it would appear within the right-of-way of the AVRR. Alternative Alignments B4-East and B4-West would then follow the river through the City of Pittsburgh’s Lawrenceville Historic District, a residential, commercial, and industrial neighborhood in the City of Pittsburgh, and continue along the AVRR corridor to Verona. From Verona, the alternative alignments would leave the existing rail line and head east following the Pennsylvania Turnpike and the existing Bessemer and Lake Erie/Union Railroad corridor to the Thompson Run station. The maximum height of the guideway would be 30 meters (100 feet), which would occur slightly north of the Union Railroad tunnel.

As the alternative alignments would make their way along the Allegheny River and AVRR corridor, the maglev guideway would cross over the north approach to the 40th Street/Washington Crossing Bridge, a three-span deck arch bridge. The area is heavily industrialized, which limits views of the bridge. The alternative alignments, consequently, would have limited visual impact. The alternative alignments would pass through the lower, undeveloped portion of Highland Park. The developed portions of Highland Park are at a higher elevation than the proposed alternative alignments. The guideway would be elevated



The Pennsylvania High-speed Maglev Project
View of the Project within the Allegheny Valley Railroad
Figure 4.11.2-5

approximately 7 meters (22 feet) above existing ground level, but would be 11 meters (36 feet) below the elevation of the developed portion of the park. Due to the higher elevation of the park facilities, the heavy foliage from the trees, and the fact that the proposed alternative alignments would be located at the northernmost portion of the park, the B4 alternative alignments would not impact the park's viewshed.

From the Highland Park area, Alternative Alignments B4-East and B4-West would continue along the AVRR corridor between the Allegheny River and Allegheny River Boulevard, which is a historic transportation corridor. The guideway would be constructed at an elevation of approximately 5 to 5.5 meters (16.5 to 18 feet) as it parallels Allegheny River Boulevard. In some locations the top portion of the guideway would be visible from the boulevard. In other areas the guideway would be located at the same level as Allegheny River Boulevard, and in some locations the guideway would be lower than the boulevard.

The Section B alternative alignments would continue along the AVRR corridor, passing through East Railroad Community Park in Verona. From Verona, they would leave the existing railroad corridor and continue east to Penn Hills.

The guideway would be elevated approximately 22 meters (72 feet) above existing ground level as it passes over the lower ballfield of Penn Hills Community Park. The alternatives would be in a cut immediately to the east of the ballfield as they would enter the wooded portion of the park, and re-emerge at the eastern park boundary at about 23 meters (75 feet) above ground level. Based on this elevation, the portion of the alternative alignments that cross the lower ballfield would be seen from the remaining park facilities and from some other areas of the park that are used for passive recreation, thereby placing a new visual element in the park's viewshed.

Section C

Alternative Alignments C2-Mod would begin at the Thompson Run station and travel east to a proposed passenger station at Greengate Mall in Westmoreland County. This alternative alignment would leave Monroeville along the north side of I-376 and follow the north side of the Pennsylvania Turnpike to the approximate location of the municipal boundary between Murrysville and Penn Township. It would then head east through Penn Township, through the southern end of Claridge, and into Hempfield Township. Once entering Hempfield Township, Alternative Alignments C2-Mod would head south across PA Route 130 to the Greengate Mall station.

This alternative alignment would have a maximum height of 64 meters (210 feet) west of Oak Farm Estates as the guideway crosses over a valley. The deepest cut area would be north of Greengate Mall, which would be about 29 meters (95 feet).

Alternative Alignment C2-Mod would traverse through the Municipality of Monroeville's Cottonwood Park and Valley Sports Fields. Cottonwood Park is on the side of a hill overlooking a small valley. The guideway would be approximately 19 meters (61 feet) above ground level as it enters the park from the north. It would then intersect the hillside terrain into a cut for about 400 meters (1,310 feet) before exiting the southern end of the park. Since most of the guideway is in cut, the alternative alignment is not anticipated to have an affect on the viewshed of the remaining eastern portion of the park.

The Valley Sports Fields property is located in a valley next to the Pennsylvania Turnpike. The alternative alignment would enter Valley Sports Fields in a cut at the park's western end, traveling approximately 5 meters (16 feet) below existing ground level for the first 30 to 61 meters (100 to 200 feet). The guideway would then exit the hillside and cross over Abers Creek Road, elevated between 12 and 26 meters (39 and 85 feet) above the existing ground for the rest of its length through the park. The elevated guideway would be visible from the developed portion of the park, thereby altering the viewshed from the developed portion of Valley Sports Fields. This alternative alignment could also have potential visual impacts to the Bushy Run Battlefield in Westmoreland County.

Like Alternative Alignment C2-Mod, Alternative Alignment C5 would begin at the Thompson Run station, travel along the north side of I-376, and follow the north side of the Pennsylvania Turnpike to the approximate location of the municipal boundary between Murrysville and Penn Township. From this point, Alternative Alignment C5 would veer further north than C2-Mod, crossing Penn Township north of Claridge and entering Hempfield Township. The alternative alignment would then cross PA Route 130 near Toll Route 66, ending at the proposed Greengate Mall station.

This alternative alignment would have a maximum height of 47 meters (154 feet) in the vicinity of the interchange between U.S. Route 22 and the Pennsylvania Turnpike in Monroeville. The deepest cut area would be just east of where the guideway crosses over Pleasant Valley Road through an area that was a former surface mine.

Alternative Alignment C5 would have impacts similar to Alternative Alignment C2-Mod. Important viewsheds associated with this alignment include Cottonwood Park, Valley Sports Fields, the Lauffer/Radakovich Farm, and the Lauffer/Blank Farm. The visual impacts to Valley Sports Fields would be identical to that of Alternative Alignment C2-Mod. Cottonwood Park would not be impacted.

The elevation of Alternative Alignment C5, as it would pass through the Lauffer/Radakovich Farm, would range from ground level to 12.6 meters (41 feet) below ground level in cut, except for a small area in the center of the farm where the guideway would be above the existing ground level for a span of approximately 49 meters (160 feet). Access would be provided from one side of the alignment to the other side within this above ground area. This alternative alignment would alter the viewshed in the area where the guideway is located above existing ground level; however, it would not be visible from the farmstead.

The elevation of Alternative Alignment C5 as it would pass through the Lauffer/Blank Farm would range from approximately 13 meters (42 feet) below existing ground level in cut in the western portion of the property to between 4.3 meters (14 feet) and 7 meters (35 feet) above existing ground level in the eastern portion of the farm. The guideway would be visible from the property and its buildings.

As with the other alternatives in Section C, Alternative Alignment C6 would begin at the Thompson Run station. However, this alternative alignment would travel farther south than either of the other Section C alternative alignments, ending at a station located in Hempfield Township near the highway interchange of Toll Route 66 and PA Route 136. Alternative Alignment C6 would leave Monroeville via the north side of I-376 and follow the northeast side of the Pennsylvania Turnpike through Penn Township and Manor Borough to North Huntingdon Town-

ship. The alignment would then cross U.S. Route 30 in North Huntingdon Township, just east of the Irwin interchange of the Pennsylvania Turnpike. The alternative alignment would continue to parallel the Pennsylvania Turnpike to PA Route 3071, where it would generally follow PA Route 136 to the proposed station.

Alternative Alignment C6 would have an average guideway height of 24 meters (78 feet). The maximum height of the guideway would be 47 meters (154 feet), which would occur in the vicinity of the interchange between U.S. Route 22 and the Pennsylvania Turnpike in Monroeville. Figure 4.11.2-6 depicts Alternative Alignment C6, as it would cross over the Pennsylvania Turnpike. The maximum depth of a cut would be about 82 meters (269 feet), which would occur in Westmoreland County near the Toll Route 66/PA Route 136 station.



Alternative Alignment C6 would have similar impacts to the Valley Sports Fields as Alternative Alignments C2-Mod and C5. Cottonwood Park would not be impacted.

4.11.3 Summary

Under the No-Build Alternative, other proposed transportation facilities could impact visual resources in the future. The proposed maglev facility would introduce an elevated guideway and support structure into the visual environment throughout the length of the project. The guideway would be seen from many important vistas.

Alternative Alignments A5-North and A5-South would have a visual effect on historic resources such as the Oil Extraction Facility #2, Pan Handle Historic District, P&LE Railroad Complex, and the Monongahela Incline. These alternative alignments would also have a visual impact on the communities of Cherrington Pointe and McKees Rocks.

Alternative Alignments B4-East and B4-West would have a visual effect on such historic resources as the Allegheny Valley Railroad Historic District and Allegheny River Boulevard. They would also have a visual impact on vistas like the Allegheny River and Penn Hills Community Park.

Alternative Alignment C2-Mod would affect the viewshed of the Valley Sports Fields and Bushy Run Battlefield. Alternative Alignment C5 would have a visual affect on the Valley Sports Fields, as well as the historic Lauffer/Radakovich Farm and the Lauffer/Blank Farm. Alternative Alignment C6 would have the same visual impacts to Valley Sports Fields as Alternative Alignments C2-Mod and C5.

4.11.4 Mitigation

Considerable effort has been devoted to avoiding or reducing visual impacts during the preliminary design phase; however, some impacts cannot be avoided. Appropriate mitigation measures could reduce the negative impacts. Opportunities to mitigate visual impacts of the guideway would be somewhat limited due to the size and composition of structures required for the maglev system. Some appropriate mitigation options may include:

- Vegetative screening (e.g., trees, hedgerows, and other natural barriers);
- Landscaping features such as grass-covered earthworks, berms, etc;
- Decorative barriers such as fences and walls and architectural enclosures;
- Burying of power lines;
- Careful design and placement of the guideway columns, attention to color and finishing materials, as well as consideration of shadows and lighting;
- Restoring views by moving and/or reconstructing obstructed objects; and
- Emphasizing high-end architectural design.

Coordination with the SHPO will be conducted to determine mitigation for visual impacts to historic resources. Coordination will continue during final design with groups interested in visual resources and vistas.

4.12 Transportation

Potential transportation impacts associated with the project include impacts to the local highway network, public transportation, air transportation, and rail and freight movements. Projections are based on SPC's Cycle VI forecasts adopted in 2000. These forecasts were the latest available at the time the analysis was performed.

4.12.1 Existing Transportation Systems and Conditions

4.12.1.1 Existing Highway Network and Traffic

The existing highway network in the project area includes major east/west highways, such as I-279 (the Parkway West) from the PIA to Downtown Pittsburgh, I-376 (the Parkway East) from Downtown Pittsburgh to Monroeville, and I-76 (the Pennsylvania Turnpike) from Monroeville to the Greensburg area and points eastward. The major north/south highways in the project area include I-79, PA Route 28, and PA Route 66. The existing highway network is depicted on Figure 4.12.1-1.

Existing traffic volumes and level of service (LOS) for major routes in the area are summarized in Table 4.12.1-1. LOS is best described as a set of characteristics that indicate the quality and quantity of transportation service as well as serving as a qualitative rating of the effectiveness of a highway in meeting operational traffic needs. Despite little or no population growth, the total number of vehicle miles traveled in the SPC region grew by approximately 12 percent from 1990 to 1997 (SPC's Cycle VI Data). Many of the major highways serving the PIA to Greensburg corridor are congested and, for most, the demand far exceeds the number of lanes available as noted by these highways with a LOS F. (See Section 4.12.3.5 of this DEIS for a more detailed LOS discussion).