

## 1.0 PURPOSE AND NEED FOR ACTION

The *National Environmental Policy Act of 1969* (NEPA) requires that the potential environmental impacts of an action be assessed for every federal action that could “significantly affect the quality of the human environment.” The law applies to any project where there is major federal involvement, including federal financial assistance, the issuance of a permit, or a requirement for federal approval. Following the enactment of *NEPA*, regulations issued by the Council on Environmental Quality noted that environmental impact statements shall “provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment” (40 Code of Federal Regulations [CFR] Parts 1500-1508). An environmental impact statement is required when it is apparent from the beginning of the project, or through subsequent analysis, that the proposed project is likely to have a major effect on the human environment.

Definitions for all acronyms can be found in Chapter 10.0 of the DEIS

The Draft Environmental Impact Statement (DEIS) and Draft Section 4(f) Evaluation for the *Pennsylvania Project of the Magnetic Levitation Transportation Technology Deployment Program* has been prepared by Port Authority of Allegheny County (PAAC), in cooperation with the Pennsylvania Department of Transportation (PENNDOT), for the Federal Railroad Administration (FRA) to fulfill the requirements set forth in *NEPA* and Section 4(f) of the *U.S. Department of Transportation (USDOT) Act of 1966*. The DEIS also complies with the regulations established by the President’s Council on Environmental Quality, and conforms with FRA’s *Procedures for Considering Environmental Impacts* (May 18, 1999).

As discussed in more detail in the next section of this chapter, the purpose of this project is to deploy an alternative mode of transportation using high-speed maglev technology between Pittsburgh International Airport (PIA) and the Greensburg area. The local project is the Pennsylvania High-speed Maglev, and is identified as such throughout this DEIS and all supporting reports, technical documents, and related public information materials. In early 2001, the Pennsylvania High-speed Maglev Project was selected by the FRA for further study from among several other projects.

The Notice of Intent to Prepare an Environmental Impact Statement was published in the Federal Register on July 16, 2001 (Vol. 66, No. 139; FR Doc. 01-18112). Public scoping meetings for the Pennsylvania High-speed Maglev Project were held on October 23, 24, and 30, 2001, and November 1, 2001. The meetings were held at four separate locations throughout the project area for the convenience of people living within the proposed transportation corridor. Members of the public were introduced to the project during these meetings. They were also provided with an overview of the environmental study process, background information on potential transportation alternatives, and asked to identify environmental and socioeconomic features within the region that were important to them.

A special task force of environmental resource and transportation agencies with jurisdiction over, or having operating interests with, transportation projects within Pennsylvania was also established to help guide the project through the environmental process. The interagency group consisted of representatives from the Federal Highway Administration (FHWA), PAAC, PENNDOT, Federal Aviation Administration (FAA), Federal Transit Administration (FTA), U.S. Coast Guard (USCG), U.S. Environmental Protection Agency (USEPA), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USCOE), Pennsylvania Department of Environmental Protection (PADEP), Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission (PFBC), Pennsylvania Histori-

cal and Museum Commission (PHMC), and Pennsylvania Department of Agriculture (PDA). In addition to the task force, special interagency group meetings were also held to keep task force and other representatives of these key agencies apprised of the project. The first of these meetings was held on November 8, 2001, in order to initiate the environmental scoping for the project and introduce interested federal and state environmental agencies to the project.

The FHWA, FAA, FTA, USCOE, and USCG have been cooperating agencies in the preparation of this DEIS. A cooperating agency is any public agency with jurisdiction by law over parts of the proposed project or with special expertise related to the project.

The FHWA administers the highway transportation programs of the USDOT in accordance with *The Department of Transportation Act* (49 USC §104 and USC §101 et. seq.). As such, it also coordinates the development of highway programs with other modes of transportation.

Also as an agency of the USDOT, the FAA is responsible for, among other things, regulating air commerce, controlling the use of navigable airspace within the United States, and regulating air operations in the interest of safety and efficiency. The FAA was invited to be a cooperating agency because the proposed project would provide high-speed ground transportation service to the PIA and offer an interface for air travelers with other modes of transportation.

The FTA is also an agency of the USDOT. It is the responsible federal agency with funding jurisdiction over the nation's public transit programs.

The USCOE has jurisdiction over environmental impacts to most water bodies within the project area. The USCOE would also issue a *Clean Water Act*, Section 404 permit for the proposed project. The DEIS and subsequent Final Environmental Impact Statement (FEIS) will provide background information for the USCOE in support of the Section 404 permit application, but additional documentation will be required before a permit can be issued. Although some DEIS/FEISs satisfy the requirements of NEPA and Section 404, the process used to develop this DEIS was not fully integrated.

Although not cooperating agencies, the USEPA and the USFWS will also review the Section 404 permit application. Additionally, the USEPA has discretionary veto authority over the Section 404 permit under Section 404 (c) and special expertise with respect to the *Clean Water Act*, Section 404 (b)(1) guidelines.

In conjunction with several different laws, the Commandant of the USCG must approve the location of, and plans for, any new bridges over the navigable waterways of the United States. All three of Pittsburgh's major rivers, the Allegheny, the Monongahela, and the Ohio, are navigable waterways. The proposed project would cross the Monongahela River.

## **I.1 Project Overview**

The USDOT *Magnetic Levitation Transportation Deployment Program* (Maglev Deployment Program), administered by the FRA, was authorized by the *Transportation Equity Act for the 21<sup>st</sup> Century*, Pub. L. No. 104-178, 112 Stat.107, 216 (*TEA 21*). See also 49 CFR Part 268. The FRA Maglev Deployment Program is an initiative to promote the development and construction of an alternative operating transportation system in the United States, employing a method of transportation utilizing magnetic levitation technology capable of safe use by the public at speeds in excess of 386 kilometers per hour (240 miles per hour). Section 322 of Title 23 of the *United States Code* provides a

total of \$55 million in contract authority from the Highway Trust Fund for pre-construction planning of transportation systems employing maglev technology. Section 322 also authorized \$950 million for final design and construction of a maglev project. The portion of the project not covered by federal funding would be covered by various funding sources, including private debt and/or equity, state, local, regional, and other public or private entities.

FRA circulated a Programmatic Environmental Impact Statement (PEIS) in April 2001, which documents and evaluates each of the projects involved in the maglev program. The PEIS described the results of a nationwide competition, sponsored by the FRA, to provide pre-construction grants to seven different states for the potential deployment of a maglev demonstration project. The FRA issued a Record of Decision (ROD) on June 29, 2001, selecting “the Action Alternative of proceeding with the Maglev Deployment Program including the continued process of selecting a final project to demonstrate maglev.” The Pennsylvania High-speed Maglev Project and the Baltimore-Washington Maglev Project were identified in the ROD to be advanced to the next phase of the Maglev Deployment Program.

The Pennsylvania High-speed Maglev Project is an initiative to plan, finance, construct, and operate a high-speed ground transportation system between PIA in Allegheny County, located approximately 29 kilometers (18 miles) west of Downtown Pittsburgh, to the Greensburg area, the county seat of Westmoreland County. Logical termini for the project have been set at PIA and at two possible locations near Greensburg. The distance between the PIA and Greensburg is about 87 kilometers (54 miles). Construction of a maglev system would likely occur through a phased schedule.

The project area is located in the Appalachian Plateau Province, a physiographic area that typically consists of hilly topography dissected by numerous rivers and streams. All three of the region’s major rivers, the Allegheny, the Ohio, and the Monongahela, are included, in part, within the study area. The area is heavily urbanized, primarily within and around the City of Pittsburgh, but also includes suburban and rural areas at its western and eastern ends. Besides PIA and Greensburg, the study area includes Downtown Pittsburgh (which encompasses the Central Business District, the North Shore, and the South Side), Monroeville, Penn Hills, Hempfield Township, and the areas in between.

Although the project has independent utility, it could form part of a larger interstate transportation system, which could serve Harrisburg (Pennsylvania’s capital) and Philadelphia (Pennsylvania’s largest city) to the east; Morgantown, Clarksburg, and Charleston, West Virginia to the south; Wheeling, West Virginia and Cleveland and Columbus, Ohio to the west; and Erie (Pennsylvania’s fourth largest city) and Buffalo, New York to the north. The larger transportation system is a concept that could be the subject of future studies.

## **I.2 Project Purpose**

The purpose of this project is to deploy an alternative mode of high-speed ground transportation using maglev technology between PIA and the Greensburg area, which will satisfy the developmental intent by demonstrating the feasibility of maglev technology, assist in mitigating the impacts of increased travel demands within this corridor, and provide an alternative intercity transportation option. Through *TEA 21*, Congress suggested that maglev could provide important transportation and environmental benefits to the citizens of the United States.

The project has the following general purposes:

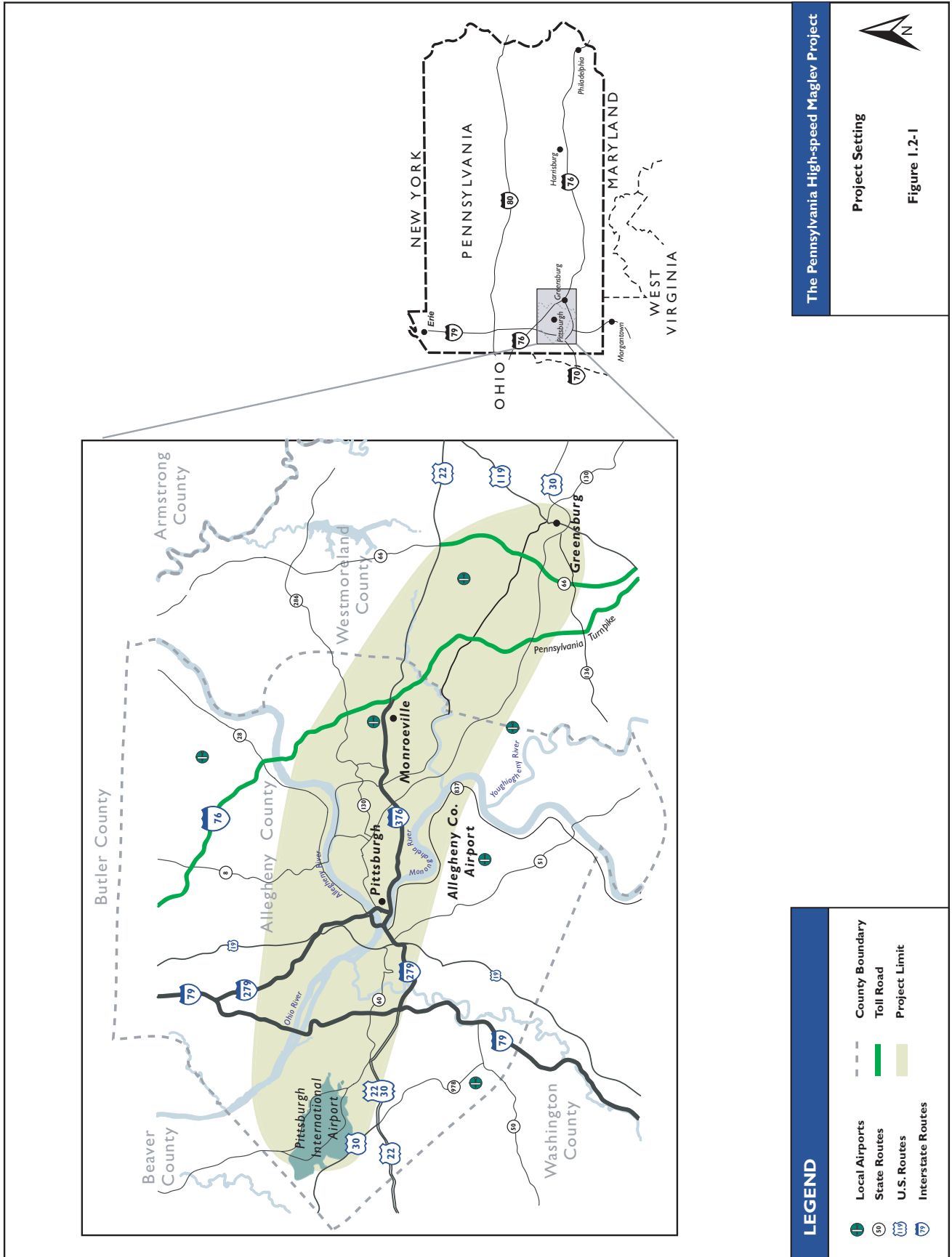
- Encourage maglev technology transfer in support of other areas of the United States currently investigating the feasibility of similar transportation systems;
- Provide rapid, convenient, and reliable transportation between major population and employment centers and the PIA;
- Extend the existing airport, transit, and highway infrastructure beyond current expected usefulness;
- Maximize the utilization and capability of PIA by providing intermodal connections at PIA, Downtown Pittsburgh, the Monroeville/Penn Hills area and the Greensburg/Hempfield Township area;
- Improve regional air quality;
- Facilitate joint development opportunities at maglev station areas;
- Promote regional economic development; and
- Support comprehensive land use planning and “smart growth” initiatives.

With a regional population over 2.3 million, the Pittsburgh metropolitan statistical area (a six-county area, including Allegheny, Beaver, Butler, Fayette, Washington, and Westmoreland counties) was ranked 22nd of all metropolitan statistical areas in the country (Census 2000, U.S. Census of Population). The City of Pittsburgh forms the core of the metropolitan area and the surrounding region. Pittsburgh is Pennsylvania’s second largest city. Approximately seven million person trips are made each weekday within the geographic region that includes Allegheny, Armstrong, Beaver, Butler, Washington, and Westmoreland counties (see Figure 1.2-1).

The topography of the Pittsburgh region and its three large signature rivers, the Allegheny, Monongahela, and Ohio, provide transportation obstacles that require the use of substantial numbers of large bridge structures and widened cut and fill areas to accommodate typical highway transportation facilities. The Pennsylvania High-speed Maglev Project would not typically require the placement of permanent fill material, except for the access roads and parking areas at the passenger stations. The maglev facility would also minimize the amount of cut required due to the elevated guideway and narrow width of the travel corridor. The capabilities of a maglev system to integrate with such physical features on a regional, as well as national, level would be demonstrated by the project.

Environmental impacts as the result of highway construction and widening receive much focus due to the magnitude of the physical area affected by these projects and the potential environmental impacts. In Pennsylvania, the transportation agencies utilize two primary forums for coordinating transportation projects with the resource agencies, Agency Coordination Meetings (ACMs) and Special Agency Coordination Meetings (SACMs). These meetings have been successful in providing a roundtable atmosphere for discussing and addressing transportation projects and the associated social and environmental impacts. Similar interagency meetings were held with state and federal environmental resource agencies to specifically discuss the Pennsylvania High-speed Maglev Project. Both office meetings and field views were held with agency representatives to review the project.

Implementation of the Pennsylvania High-speed Maglev Project would reduce the need for additional highways and capacity-adding highway improvements, which have the potential for greater impacts to the social, cultural, and natural environment.



The Pennsylvania High-speed Maglev Project

Project Setting  
Figure 1.2-1

### I.3 Project Need

PAAC and PENNDOT formed a local public/private partnership with MAGLEV, Inc., in the mid-1990s for the advancement of an alternative intercity transportation system operating in western Pennsylvania's heaviest traveled transportation corridors. MAGLEV, Inc., is a Pittsburgh-based, private-for-profit company that has been promoting the development of magnetically levitated transportation systems in the United States. PAAC is the major public transit service provider in the area, although several smaller, suburban transit operators also provide both fixed-route and paratransit services in the region, including the Westmoreland County Transit Authority (WCTA), the Beaver County Transit Authority (BCTA), the Mid-Mon Valley Transit Authority (MMVTA), and the City of Washington. As Pennsylvania's state transportation agency, PENNDOT is responsible for the development, financing, construction, and maintenance of several different modes of transportation within the Commonwealth.

In May 1994, MAGLEV, Inc., released its first major report, *A Demonstration, Design, and Development Plan* (DD&D Plan), that addressed issues associated with the manufacturing, building, and operation of a regional maglev system, and identified conceptual engineering and environmental aspects of a proposed system demonstration project. The need for an alternative intercity transportation system was further documented by PENNDOT, PAAC, and FRA during environmental and engineering studies conducted in 1999 and 2000 for the PEIS. Existing transportation facilities, social and economic conditions, and environmental conditions of the project area were evaluated during that effort to determine the need for an alternative intercity transportation system in the local region.

Several needs have been identified through a collaborative process that included the examination of past studies, a review of existing regional plans, consultation with citizens and local officials within the project area, and an analysis of the environmental and socioeconomic conditions of the region. The identified project needs are:

- Developmental
- Operational
- Regional

#### I.3.1 Developmental Need

##### **TEA 21 established parameters for demonstrating the viability of magnetic levitation as an alternative transportation system in the United States of America.**

As noted in the Project Overview, the Maglev Deployment Program was authorized by the United States Congress as part of *TEA 21*. *TEA 21* identified the following criteria for meeting the intent of the Act, as it relates to the Maglev Deployment Program. *TEA 21* stipulates, in part, that proposed maglev projects should involve high-speed ground transportation corridors that exhibit partnership potential; result in a revenue producing service; satisfy applicable statewide and metropolitan planning requirements; and be approved by the Secretary of Transportation based on an application submitted by one or more states, or a state-designated authority. In addition, *TEA 21* specifically cites a need for an operating transportation system employing magnetic levitation, capable of safe use by the public at speeds in excess of 386 kilometers per hour, or kph, (240 miles per hour, or mph).

The Pennsylvania High-speed Maglev Project would meet each of these developmental needs. As discussed in Chapter 2.0, Alternatives, the alignments being considered generally

follow existing transportation corridors and corridors currently under study for potential transportation facilities. Ridership surveys and cost estimates reveal that the maglev system would be revenue-producing. The Southwestern Pennsylvania Commission (SPC) is the Metropolitan Planning Organization for the Pittsburgh region. Initial coordination with FHWA, PENNDOT, and SPC indicates that the project would satisfy and be complementary to applicable statewide planning requirements. Ownership and operation of the maglev facility will be determined through an extensive coordination and evaluation process in which the Secretary of Transportation will be involved. Due to the length of the facility, location of the passenger stations, and connection with other available transportation modes, construction of the Pennsylvania High-speed Maglev Project would be phased. The first portion of the maglev facility that would be constructed and operated would be the section between the PIA and Downtown Pittsburgh. This section would safely operate at speeds in excess of 386 kph (240 mph) while carrying passengers in comfort.

Recent application of maglev technology is evidenced by the completion and operation of the maglev facility in Shanghai, China. The maglev vehicle made its first journey on this 31 kilometer (19 mile) long facility on December 31, 2002. Development and use of a maglev facility in the United States could lead to the transfer of such technology to this country.

### **I.3.2 Operational Need**

**TEA 21 mandates a need for an operating transportation system employing magnetic levitation, capable of safe use by the public at speeds in excess of 386 kph (240 mph); having a minimum distance of 19 kilometers (12 miles) between station stops; and meeting other technical design criteria.**

Magnetic levitation technology is capable of reaching speeds in excess of 386 kph (240 mph). This capability is attractive as a ground transportation mode, particularly when other modes of transportation are within close proximity to passenger stations. Connection and service to other maglev systems as part of a national network would be possible.

To be effective as an alternative intercity transportation system, the maglev vehicle will need to attain high speeds for a maximum amount of time consistent with passenger comfort and safety. To attain such high speed requires that maglev stations be spaced a minimum of approximately 19 kilometers (12 miles) apart. Additionally, the design of an alternative transportation system in the region utilizing maglev technology would meet other applicable technology specifications related to horizontal and vertical curves, spirals and tangents, and acceleration and deceleration rates. As indicated in the conclusion of the PEIS, maglev could offer an alternative mode of regional transportation that would be competitive with shorter distance regional air travel as well as offering an alternative mode of transportation to and from PIA. Despite repeated cutbacks by US Airways, still PIA's dominant carrier, local air traffic reached an all time high last year with expectations for local traffic to increase with the start of service by Southwest Airlines and other low cost airlines (*Pittsburgh Post-Gazette, June 2, 2005*). This growth in local air traffic results in substantial air and ground traffic to and from PIA. Related ground transportation to the numerous business parks that surround Pittsburgh and the high-tech and financial institutions in Pittsburgh's Central Business District and surrounding areas contributes to the high volume of traffic on Pittsburgh area roadways.

Anticipated fares on the maglev facility would be structured to maximize ridership while also maximizing revenues. When compared to traditional modes of transportation – such as

air, cab, bus, and rail – the trip frequency and high speed that is offered by maglev along with its anticipated fare structure could offer a competitive alternative mode of transportation to the airline industry.

In March 1999, FAA noted that the nation’s airline industry had completed its seventh straight year of growth. The FAA forecast was for domestic air travel to grow an average of 3.4 percent a year from 1999 through 2010. The total number of passengers flying on U.S. carriers was predicted to jump from 643 million in 1998 to nearly 1 billion by 2010. Although enplanements declined after the September 11, 2001 terrorist attacks, the FAA recently predicted that domestic air travel would rebound to previous levels by 2006 (Pittsburgh Post-Gazette, April 23, 2003). Traffic has fallen at PIA, however, from a high of 20.7 million passengers in 1997 to 14.2 million in 2003 (Pittsburgh Post-Gazette, December 19, 2004). Maglev could attract some of these “lost” travelers.

### **I.3.3 Regional Need**

#### **There is a need to address inadequate roadway capacity by reducing roadway congestion.**

The capacity of existing transportation facilities in the Pittsburgh area is inadequate to relieve both existing and future congestion. High-speed maglev offers an alternative transportation mode that could reduce congestion and increase regional and national mobility and intermodal connectivity. By diverting travelers from single-occupant automobile trips, maglev would help reduce roadway congestion in the area. Existing transportation systems, both regionally and nationally, would be enhanced and the usefulness of existing facilities would be extended.

According to the *2002/2003 State of the U.S. Airline Industry* (Air Transport Association), “The (airline) industry is evolving.” Since the September 11, 2001 terrorist attacks on the World Trade Center and the Pentagon, passenger demand for air travel was initially reduced by 23 percent (Associated Press, October 30, 2001). Although the current air passenger demand remains below that of pre-September 11, 2001 rates, demand is increasing nationally again. By December 2002, passenger enplanement was 6.5 percent below that of 2000 levels, but soon after airlines began to report some gains once again. Following the industry’s initial rebound after September 11<sup>th</sup>, airline operators had expected profitability to return by 2004. Unfortunately, in December 2004, financial analysts indicated air carriers would collectively lose \$5 billion by the end of the year (Dallas Morning News, December 8, 2004).

Prior to September 11<sup>th</sup>, conservative estimates suggested that air travel would increase by 30 percent by the year 2025 (FAA, June 2000) – although such estimates may now seem overly robust. Despite three straight years of financial losses, however, air travel increased by 5.5 percent in 2003 (Air Transport Association of America, Inc., 2004 Economic Report) and is expected to continue growing at a modest pace. Although passenger boardings at PIA have decreased, the result of increasing air travel at the national level has been long lines at ticket counters, at the gate, and on the runways. Increased security measures at all airports, including PIA, are also compounding airport congestion and could add more hours to routine air travel, making some shorter trips by air impractical. Consequently, it is often faster to travel by ground than to fly, especially for trips expected to take under four hours on the ground. A

regional maglev system could be one of the first steps in providing additional transportation alternatives to help serve this market while providing additional intermodal connectivity in the area.

Once the national hub of US Airways, but now classified as a “focus city,” PIA was opened in October 1992. Until recently, US Airways had approximately 9,000 employees in the Pittsburgh region. Continuing financial woes and two bankruptcies have reduced that number to approximately 6,000 (Pittsburgh Post-Gazette, December 22, 2004). By the end of 2005, US Airways is expected to have fewer than 2,000 employees in the Pittsburgh area. US Airways has also cut over 300 daily flights from its schedule through PIA (Pittsburgh Post-Gazette, December 19, 2004).

Despite the loss of so many employees and the current downturn in service at PIA, existing air service and its related ground transportation to the numerous business parks that surround Pittsburgh and the high-tech and financial institutions in the Downtown Pittsburgh area still contribute to the high volume of traffic on Pittsburgh area roadways. In the wake of US Airways’ troubles, other major airlines and budget carriers have expressed an interest in locating at the PIA to offer air transportation service. Maglev would provide an alternative system of transportation for travelers and employees to and from the PIA.

The Pittsburgh urbanized area road network has been identified as one of the most congested in the country. The *2001 Urban Mobility Study* - a national analysis of congestion and mobility undertaken by the Texas Transportation Institute and supported by 11 state transportation agencies including PENNDOT - noted that in the year 1999, 57 percent of daily travel in the Pittsburgh urbanized area occurred under congested conditions and that commuters paid over \$420 million annually in congestion costs. (Researchers for the study based the urbanized area on definitions from the Highway Performance Monitoring System compiled by the FHWA. Although the geographic area for Pittsburgh encompasses 750 square miles centered around the City of Pittsburgh, the area’s outer boundaries are not equidistant from Downtown Pittsburgh.) In terms of actual overall congestion, expressed as a travel rate index score, Pittsburgh ranked 48th of the 68 urbanized areas included in the study. The *2001 Urban Mobility Study* concluded, however, that “it will be difficult for most cities to address their mobility needs by constructing more roads” (Texas A&M University, May 2001).

The Southwestern Pennsylvania Regional Planning Commission (now called Southwestern Pennsylvania Commission, or SPC) determined in a 1989 analysis, the *Parkway West Multi-Modal Corridor Study*, that travel between Downtown Pittsburgh and the PIA could take up to an hour and a half in the future. This projection was revised downward slightly in the year 2000. At that time, travel time from Downtown Pittsburgh to PIA during peak-hour conditions was about 40 minutes; from Downtown to Monroeville, it was less than 30 minutes; and from Downtown to Greensburg, it was slightly less than one hour. According to projections in the long-range transportation plan, however, travel time from Downtown to PIA is projected to take over 60 minutes by the year 2025, to take 31 minutes from Downtown to Monroeville, and to take 67 minutes from Downtown to Greensburg (SPC, July 31, 2000).

The total number of vehicle trips in the SPC region grew by approximately 12 percent from 1990 to 1997 despite minimal changes in population. The long-range transportation plan projects that the number of vehicle trips in the region will grow from 6.7 million in 1997 to 8.2 million in 2025, an increase of 22 percent (*Mon/Fayette Transportation Project, PA Route 51 to*

*I-376, FEIS, January 30, 2004*). The major highways serving the east-west corridor between the PIA and Greensburg are heavily congested and demand far exceeds the number of lanes available. The proposed Mon/Fayette Expressway is a north-south route that will provide some additional capacity for east-west travel between Monroeville and Downtown Pittsburgh and subsequently provide limited relief for growing congestion on the Parkway East. Although other major potential projects have been identified to address the severe east-west congestion problems of the region, sufficient funding is not available in the current long range transportation plan to implement all of these improvements. These projects include both the Parkway West Widening from Downtown to I-79 and from I-79 to Business Route 60. Given the present congestion on the east-west highway facilities, the projected increase in vehicle trips, and the lack of highway funding resources, increases in travel times and traffic congestion will occur in the future. Maglev could help alleviate some of this expected congestion.

**There is a need to reduce current transportation deficiencies that limit regional mobility and intermodal connectivity.**

Interstate 376 (the Parkway East) is considered a saturated highway for most of the business day, as well as when sports and cultural events take place in Downtown Pittsburgh. Both the Parkway East and Interstate 279 (the Parkway West) were ranked as the region's most congested corridors during both AM and PM peak hours (Schrank and Lomax, 2001). In its strategic plan for the years 1998-2002, *People Moving People into America's Future*, the FTA identified intermodal connectivity as a cornerstone for achieving mobility and transportation accessibility (FTA, March 1998).

Many parts of Allegheny County have excellent bus service with frequent headways and different routes, but other parts are not so fortunate. Although several public transit routes provide service to Downtown Pittsburgh and the Monroeville area, transit service to PIA is provided by limited routes. Therefore, ground travel to PIA is heavily dependent on the automobile. The WCTA also provides commuter bus service to Downtown Pittsburgh on a limited basis. Most commuters from the eastern part of the region, however, are also heavily dependent on the automobile. If connections between the various modes of transportation in operation within the region were easier to navigate, commuters and the traveling public would have a true choice of services to meet individual demand. The true functionality of any alternative transportation system would be in its ability to increase individual mobility and enhance intermodal connectivity by way of an integrated infrastructure that presents a seamless means of travel from one mode to another. Minimal travel times are necessary to facilitate the mobility of travelers and maximize regional intermodal connectivity.

Implementation of the Pennsylvania High-speed Maglev Project would provide a multi-modal transportation improvement serving various travel demands in some of the largest and most critical activity centers (Pittsburgh International Airport, Downtown Pittsburgh, Monroeville and the City of Greensburg) in southwestern Pennsylvania. Mobility options provided by the maglev would reduce congestion by offering a broader set of transportation solutions for the Pittsburgh metropolitan area while serving as a basis for deploying future national projects. The Pennsylvania High-speed Maglev Project has the potential to provide the Pittsburgh region with a 21st century transportation system that would enhance communities, create jobs, and afford this region international recognition as a world leader in transportation planning and development.

**There is a need to maintain regional air quality.**

The *Clean Air Act of 1970* and the *Clean Air Act Amendments of 1990* require that regional long-range transportation plans and their related Transportation Improvement Programs conform to the *Clean Air Act* by supporting its intention of achieving and maintaining National Ambient Air Quality Standards (NAAQS). Urban regions that do not meet those standards are designated as nonattainment areas.

Transportation-related pollutants include ozone, carbon monoxide, and suspended particulate matter. These pollutants can be harmful to human health in varying degrees. Ozone (O<sub>3</sub>) is formed by photochemical reactions in the atmosphere resulting from, among other things, transportation fuel by-products. Ground-level O<sub>3</sub> can cause irritation to the mucous membranes of the body and contribute to long-term lung damage. Carbon monoxide (CO) pollution results from the incomplete combustion of fossil fuels. When absorbed into the bloodstream, CO decreases the oxygen-carrying capacity of red blood cells. Suspended particulate matter is any minute solid or liquid that is dispersed in the air. Because particulate matter can remain suspended for long periods of time, it can cause respiratory problems.

Although the Pittsburgh region is currently classified as a maintenance area for O<sub>3</sub>, the region has been designated as a moderate attainment area in the past. Additionally, Downtown Pittsburgh is technically in nonattainment for CO standards, although there have been no exceedances since 1986. The Allegheny County Health Department has recently requested a CO re-designation to reflect the improved air quality.

Concentrations of air pollution adversely affect human health and welfare. Conversely, clean air results in improvements to human health. Continued reliance on the automobile as the principal means of travel throughout the region could create future problems with air quality compliance and the public welfare. If vehicle miles of travel and congestion continue to increase unabated, the air quality gains of the past decade could be jeopardized.

Implementation of the Pennsylvania High-speed Maglev Project would contribute to maintaining regional air quality through the reduction in vehicle miles traveled, less congestion, and corresponding reduction in the production of transportation-related pollutants.

**There is a need to reduce energy consumption.**

The U.S. Department of Energy (USDOE) has documented American reliance on petroleum-based fuels for transportation. In its annual energy outlook, the USDOE found that transportation accounts for approximately two-thirds of all oil consumed in this country (USDOE, October 2001). That same report called transportation a “key problem” for this country because of our dependence on high levels of oil imports. Additionally, the Congressional Office of Technology Assessment expects transportation energy consumption to grow by 30 percent within the next 15 years. Other studies have shown that Americans consume disproportionate shares of the world’s transportation energy, perhaps as much as 34 percent. Nearly half of the oil Americans use is imported from other countries, creating a heavy dependence on foreign oil.

Based upon the results presented in *The 2003 Annual Urban Mobility Report* (Schrank and Lomax, September 2003), the traffic congestion effects on the average person in 2001, incurred within 75 major metropolitan areas of the U.S. (including Pittsburgh), resulted in a total

average cost of \$69.5 billion, 3.5 billion hours, and 5.6 billion gallons of fuel. Deployment of the Pennsylvania High-speed Maglev Project in Pittsburgh would demonstrate the viability of maglev as an alternative to highway travel.

Based upon ridership estimates for the year 2026, prepared as part of the ridership study conducted for this DEIS, it is estimated that implementation of the Pennsylvania High-speed Maglev Project would result in potential energy savings from reduced vehicle travel, and consequently, could reduce some of the demand for oil. Traffic studies, prepared as part of the environmental studies conducted during the preparation of this DEIS, showed a reduction of vehicle trips, resulting in reduced vehicle travel of 1,354,226 vehicle kilometers (841,500 vehicle miles) daily. The resulting energy savings would be 46,750 gallons of gasoline saved each day, based upon vehicle fuel efficiency of 7 kpl (17 mpg) and 8 kpl (18 mpg) in 2008 and 2026, respectively.

**There is a need to address safety deficiencies in the project corridor.**

Although injuries and fatalities from motor vehicle crashes have reached a 10-year low across the United States, the National Highway Traffic Safety Administration notes that motor vehicle fatalities account for more than 90 percent of all transportation-related fatalities (Traffic Safety Facts 2000, National Highway Traffic Safety Administration). On the other hand, even though accidents on air carriers have increased slightly in past years (0.77 accidents per 1 million aircraft miles of travel in 1999), air transportation remains one of the safest modes available (USDOT, April 2001). Despite the past record of these two modes of travel, safety still remains a concern for motorists and air travelers.

A crash rate analysis was conducted for major highway facilities that generally run parallel to the proposed maglev alignment. PENNDOT, Bureau of Highways was contacted to conduct an analysis of the regional accident rates for the last available three-year period as well as to determine the overall crash rate for these facilities compared to the Allegheny County, Westmoreland County, and Pennsylvania state average crash rate. The most recent accident data available from PENNDOT encompassed years 1998, 1999, and 2000.

The average crash rates for the project area counties and Commonwealth of Pennsylvania are as follows (*crash rate is defined as the number of crashes per million vehicle miles traveled and includes all state roadways and the Pennsylvania Turnpike*):

- Allegheny County - 1.26
- Westmoreland County - 1.09
- Pennsylvania - 1.20

When comparing the statewide and countywide averages, the following major highway facilities in the project area had crash rates higher than these averages:

- Penn Lincoln Parkway West:  
I-279/U.S. Routes 22/30 City of Pittsburgh to  
PA Route 60/S.R. 3160 split/Allegheny County - 2.98
- PA Route 136/South Greensburg/Westmoreland County - 2.36
- Mosside Boulevard (PA Route 48)/Allegheny County - 1.61

Maglev may contribute to a reduction in the accident rate as automobile and some truck trips (freight) are diverted from parallel highway facilities to the maglev facility. With the construction of the Pennsylvania High-speed Maglev Project, accident rates are anticipated to decrease as a result of fewer vehicles on the roadway and a reduction in the number of miles traveled by the public.

Three of the five major highway routes that provide access to the Downtown Pittsburgh area require the use of tunnels. These tunnels are necessary because of the topographical constraints of the Pittsburgh area, but also contribute substantially to traffic congestion and accidents. The Parkway East from the Monroeville area utilizes the Squirrel Hill Tunnel. As this highway passes through Downtown Pittsburgh, it also utilizes the Fort Pitt Bridge and Tunnel. The Parkway West utilizes the Fort Pitt Bridge and Tunnel and PA Route 51/Liberty Avenue utilize the Liberty Bridge and Tunnel. Additionally, PA Route 28 and PA Route 65 utilize major bridge structures to access Downtown Pittsburgh and connect to the highways identified above. Maglev could help reduce congestion caused by the tunnels and bridges.

Numerous safety features would be built into the Pennsylvania High-speed Maglev Project to assure that a regional maglev system is a safe mode of travel and offers a transportation alternative that would increase the safety of the traveling public. As noted in the PEIS, the system would be “inherently safe” due to the engineering design and operational procedures.

**There is a need to support comprehensive land use planning and smart growth initiatives.**

Recognizing the strong relationship between transportation and land use, comprehensive planning is currently receiving a renewed emphasis throughout the communities of Pennsylvania. The Governor’s 21st Century Environment Commission identified “land use as the most pressing environmental problem facing the Commonwealth of Pennsylvania” (February 2001).

In early 2000, then Pennsylvania Governor Tom Ridge introduced his “Growing Smarter” initiative to the people of Pennsylvania, doubling the Commonwealth’s investment in land use planning and technical assistance to address relevant planning issues across the state. Nearly \$650 million was earmarked for environmental improvement programs, farmland preservation, and sound land use. Later that same year, the Pennsylvania legislature incorporated several of these planning initiatives into amendments to the *Pennsylvania Municipalities Planning Code*, such as providing new tools to local municipalities, re-affirming the concept of multi-municipal planning, and adding consistency to existing planning laws. All of these elements helped solidify the principles of sound land use and strengthen comprehensive planning efforts throughout Pennsylvania (Pennsylvania Department of Community and Economic Development, February 2000).

“Smart growth” initiatives encourage more efficient design for residential, commercial, and industrial developments, and emphasize a compatible mix of land uses. They enable local citizens and government officials to develop future plans and growth management strategies in a coordinated and responsible manner.

The opportunities of intermodal connectivity, improved mobility, and economic activity offered by the Pennsylvania High-speed Maglev Project are consistent with local land use planning goals and smart growth initiatives.

**There is a need to support economic development efforts in Pittsburgh and the surrounding region (by improving transportation service to those areas).**

Western Pennsylvania was once the center of the steel industry, not just in the United States, but worldwide. The region prospered as the importance of steel grew. But in the early 1970s, an economic slump began that affected the steel industry as a whole, and the economy of western Pennsylvania suffered. As traditional steel markets shifted and the remaining steel-making capacity became more efficient, the demand for labor decreased and unemployment increased. Because the economy of the region was so dependent on heavy industry, the loss of jobs in steel manufacturing had a rippling effect throughout the local job market. Other labor sectors also declined as the importance of steel waned.

The manufacturing of steel is a highly technical process dependent on a highly trained work force. Much of the technological know-how that supported the steel industry in the past remains in the area. Although some steel workers have retained jobs in specialty-steel markets, and other industries were able to absorb some of these workers, many became unemployed or underemployed. The development of an alternative transportation system in the region could help revitalize the existing local steel industry, create a new type of specialized steel manufacturing, and create new job markets. Implementation of the Pennsylvania High-speed Maglev Project would bring precision steel fabrication technology to the Pittsburgh region and western Pennsylvania. Once established in the Pittsburgh region, this technology and fabrication capability will be available to support additional maglev systems on a broad basis.

The existing transportation system is also one of the critical factors hindering economic development in western Pennsylvania. For years, the Pittsburgh area has been hampered by a surface transportation system adapted to the hilly terrain of the area, an inadequate system of regional freeways, and, generally, has been unable to meet the demand of all users. Although there is a strong potential for economic development at existing activity areas, at brownfield sites, and at new sites included in existing land use plans, efficient transportation access to these sites is not always present. With the proper placement of maglev stations, there could be an impetus to redevelop any nearby brownfield sites.

Through *Pennsylvania Acts 2, 3, and 4*, the PADEP administers the Land Recycling Program. This program has been instrumental in successfully redeveloping land by limiting environmental liability. Application of the Pennsylvania Land Recycling Program will support portions of the project and the economic conditions of the project region. Intermodal connections at proposed passenger stations could allow for better access to these sites. Additionally, some of these sites could be used as specialty steel manufacturing facilities that could service the maglev technology industry.

#### **I.4 Consistency with Local, Regional, State, and National Planning**

An alternative transportation deployment system such as maglev is consistent with existing planning efforts at all government levels. The following three related projects were conducted in the same timeframe as this DEIS. Each examined the need for public transit and related transportation

improvements, either within the framework of a corridor analysis or through a comprehensive regional perspective. There was coordination with the analyses of these studies, and all of the studies used the same SPC demographic projections. The public participation programs were also coordinated.

### **Strategic Regional Transit Visioning Study**

The SPC and PAAC are currently conducting a *Strategic Regional Transit Visioning Study*. This major planning effort is being conducted in concert with the region's other transit authorities. The main task of the study is to identify current and future markets for transit and the transit strategies needed to serve these markets effectively. Additional efforts associated with the study include a refinement and alignment of goals and objectives for the region's long-range transportation plan with local and regional transit goals; an evaluation of river transportation opportunities and constraints; guidance for incorporating "Livable Communities" strategies into the regional transit vision; and identifying and overcoming the intra-regional statutory, regulatory, and institutional barriers to implementing the elements of the vision.

### **Airport Multimodal Corridor Major Investment Study**

The *Airport Multimodal Corridor Major Investment Study* was another major planning study specifically examining transportation alternatives in western Allegheny County. PAAC and SPC co-led this major planning study; PENNDOT, Allegheny County, the Allegheny County Airport Authority, and the City of Pittsburgh were study partners. The objective of the major investment study was to identify a multi-modal package of transportation improvements in the corridor to be advanced to the DEIS phase of project development consistent with the planning and environmental requirements of the FHWA and the FTA. The study identified the need for improvements within the area and assessed associated impacts. It was primarily focused on alleviating traffic congestion on Interstate 279 and U.S. Routes 22/30 and considered impacts to the region with and without maglev.

### **Eastern Corridor Transit Study**

The *Eastern Corridor Transit Study* began in early 2002. PAAC and SPC, in partnership with the WCTA, co-led this study of transit alternatives in the eastern corridor from Downtown Pittsburgh to western Westmoreland County. This study identified a package of transit improvements that could address the mobility needs of the corridor's residents, businesses, and visitors. It is also examined the feasibility of providing rapid transit service from Downtown Pittsburgh, through the East End and Oakland neighborhoods of Pittsburgh and the eastern suburbs of Allegheny County, into Westmoreland County. Several different transportation alternatives were examined, including light rail, commuter rail, and bus service operating on a dedicated busway. As appropriate, elements of the package of transit improvements may be advanced to the DEIS phase of project development consistent with the planning and environmental requirements of the USDOT.

### **Other Plans and Programs**

On a regional level, the Pennsylvania High-speed Maglev Project is listed in the *Year 2030 Transportation and Development Plan for Southwestern Pennsylvania*, prepared by SPC, and, as such, is consistent with the goals and objectives of the region. Of particular interest are regional goals identified in the plan encouraging effective transportation linkages to important regional activity centers, improving transportation capacity, reducing congestion within the regional transportation network, and

providing enhancements to economic development. The plan is southwestern Pennsylvania's long-range transportation plan, covering eight counties, including Allegheny and Westmoreland.

Additionally, the EIS for the Airport Expressway included widening in the median for future mass transit projects. The ROD was issued for the Airport Expressway on July 26, 1989. The development of a maglev system would be consistent with that widening.

Allegheny County is in the process of preparing several County-wide plans that will help focus funding and create policies for the future. It is unclear, as of now, to what extent maglev would be addressed by these mini-comprehensive plans. In neighboring Westmoreland County, however, the recently completed *Comprehensive Plan* (adopted December 2004) noted that maglev would bring "the county within easy commuting distance of job opportunities in eastern Allegheny County, downtown Pittsburgh, and the airport." The Westmoreland County plan suggests that the county is in "the enviable position of attracting employers and residents" because of maglev and its relationship to existing socioeconomic characteristics.

The Pennsylvania High-speed Maglev Project has also been included in a recent Pennsylvania Capital Budget (*Debt Authorization and Project Itemization Act of 2000-2001*). The project will receive \$60 million to match federal and private funding. An additional \$415 million of state financial participation has been requested in a pending Pennsylvania Capital Budget for a total of \$475 million in state financial participation.