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of Transportation  
Federal Railroad  
Administration

## Final Programmatic Environmental Impact Statement

# Maglev Deployment Program Volume II

April 2001



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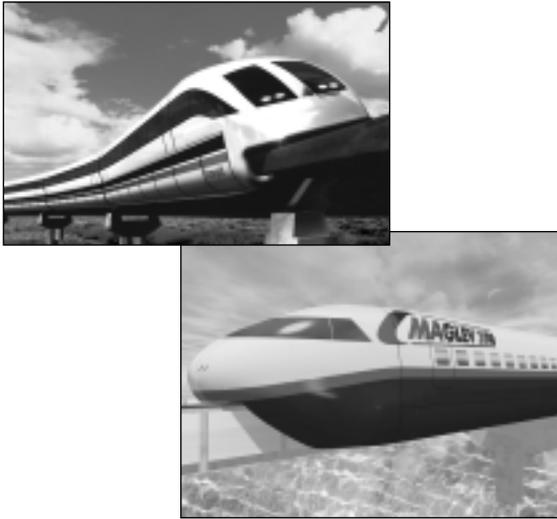
U.S. Department  
of Transportation

**Federal Railroad  
Administration**

## Final Programmatic Environmental Impact Statement

# Maglev Deployment Program

Office of Railroad Development  
Washington, D.C. 20590



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Date

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S. Mark Lindsey  
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This Final Programmatic Environmental Impact Statement (PEIS) has been prepared in two volumes to satisfy the requirements of the National Environmental Policy Act (NEPA) for the Maglev Deployment Program. The Program encourages the development and construction of a public transportation system using magnetic levitation, capable of safe speeds in excess of 386 kilometers/hour (240 miles/hour). Magnetic levitation (Maglev) is an advanced transportation technology in which magnetic forces lift, propel, and guide a vehicle over a specially designed guideway. Through a nation-wide competition, FRA selected seven states or state designated authorities, from a pool of eleven, to receive grants for pre-construction planning. Those seven state projects are considered the Action Alternatives in this PEIS. This document presents the purpose and need, alternatives, a description of the affected natural and human environments, and an assessment of the consequences with potential mitigation for each of the sub-alternatives as well as for the No-Action Alternative.

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## **1. INTRODUCTION**

In July of 2000, the Federal Railroad Administration (FRA) distributed the Draft Programmatic Environmental Impact Statement (DPEIS) for the Maglev Deployment Program in an effort to encourage public involvement and to address public concern. The DPEIS was circulated for review and comment to government agencies, local organizations, and interested private citizens. All comments were compiled in the U.S. Department of Transportation's Docket Management System (DMS). The DMS is an electronic, image-based database used to store information on-line for easy research and retrieval via the Internet. Public comments were accepted on the DMS from July 21, 2000 to September 19, 2000. During that time, the FRA held seven public information meetings and one public hearing, to promote public involvement.

The FRA received various comments/concerns through this public involvement. The DPEIS was refined based on the public comments and is now considered the Final Programmatic Environmental Impact Statement (PEIS). The PEIS is comprised of two volumes. Volume I is the DPEIS as refined by public comments. Volume II contains the public comments and the specific responses to those comments.

### **1.1 Public Comment Period**

#### **1.1.1 Public Information Meetings**

As part of the comment period, Public Information Meetings were held for each of the Maglev Alternatives. The public was notified about the meetings in various ways (i.e., written invitation, newspaper, radio, television announcements, etc.) by each of the Maglev participants identified in Volume I, Appendix A. The Public Information Meetings were held as follows:

- Maryland Alternative: August 1, 2000, 4:30pm-7:45pm, Baltimore, MD.
- Georgia Alternative: August 8, 2000, 6:30pm-9:15pm, Atlanta, GA.
- Louisiana Alternative: August 9, 2000, 5:00pm-8:00pm, New Orleans, LA.
- Florida Alternative: August 10, 2000, 4:30pm-7:00pm, Titusville, FL.
- Pennsylvania Alternative: August 16, 2000, 6:00pm-9:30pm, Pittsburgh, PA.
- California Alternative: August 21, 2000, 3:00pm-6:30pm, West Corvina, CA.
- Nevada Alternative: August 22, 2000, 3:00pm-7:00pm, Las Vegas, NV.

Each of the Public Information Meetings followed a similar format. The meetings began with an open house, followed by presentations, and concluded with a question and answer session. Throughout the meetings, the public was informed that the purpose of the meeting was to informally address concerns. To have a concern addressed formally, the public was advised to submit a written comment card, communicate orally with the court reporter, or contact the DMS.

The open house consisted of poster displays with representatives from the FRA and the Maglev Alternatives available to answer questions. The FRA posters had information on the

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overall Maglev Deployment Program, including route maps of the alternatives, proposed technologies and a summary of the environmental impacts. The participants presented detailed posters specifically for their alternative.

The open house portion of the meetings was followed by presentations. Similar to the poster displays, the FRA team presented general information on the overall Maglev Deployment Program and the Maglev participants presented the details related to their alternative.

Following the presentations, the meetings were opened to a question and answer session. The question and answer session was an opportunity to address public concerns in an informal manner. Although the question and answer sessions were considered an informal response to public concern, the topics of concern were noted and are listed below. Each of these concerns is addressed in the response to comments section of this document or in Volume I of the Final PEIS.

- Program Concerns:
  - Why Maglev in the US?
  - Competition
  - Public/Private partnership
  - Alignments/routes
  - Technology
  - Costs/FundingRidership/Fares
  - Distribution of information to public
  - Project contact information
  -
- Environmental Concerns:
  - Geology
  - Wetlands
  - Wildlife
  - Environmental Justice
  - Socioeconomics
  - Aesthetics
  - Transportation
  - Energy
  - Safety
  - Noise & Vibration
  - EMF
  - Measuring environmental benefits

### **1.1.2 Public Hearing**

On August 24, 2000 the FRA conducted a Public Hearing. The hearing was held from 9:00 am to 11:00 am at the FRA offices located in Washington, DC. During the public hearing, representatives from the FRA were present to listen to comments from all interested parties. The hearing transcript and a list of attendees are included in Section 2 of Volume II.

## 1.2 Public Comments

Many comments were received on the Draft PEIS for the Maglev Deployment Program. The comments were submitted in various forms, including written on comment cards, oral statements to court reporters, and electronic submittals via the DMS. The comments received for the Draft PEIS for the Maglev Deployment Program are included in Section 2 of Volume II. Within each comment letter, a number was placed in the right hand margin to reference the appropriate response given in the following section. Additional information was also provided from the Maglev participants and a Maglev manufacturer. Appropriate information from these participants was incorporated in the applicable sections of Volume I.

## 1.3 Response to Comments

The following comments and questions were identified from documents submitted to the FRA and to the US Department of Transportation DMS during the Maglev DPEIS Public Comment Period. These documents are included in Section 2 Public Comments Received on DPEIS. The corresponding responses were developed to answer or provide further clarification to the comments within the submitted documents. In some instances several of the documents contained comments that were similar. To avoid duplication these comments were grouped together, paraphrased into one general comment and a corresponding response provided. In other instances the comments were either alternative specific or specific in content. In these instances a specific response was provided. The number of the comment corresponds to a reference number in the right hand margin of the document where the comment originated.

### 1. How will the Maglev vehicles be evacuated in the event of an emergency?

#### **Response:**

The extensive use of elevated Guideway makes evacuation procedures a special concern. The Maglev vehicles design depends on evacuation tubes at each door to provide emergency egress. In locations where the tubes are not practical (i.e., over water, swamp, steep rugged terrain) special structures and stairways could be provided leading to safe areas. Onboard operating personnel would be responsible for assisting elderly or disabled passengers. Applicable passenger equipment standards require rail systems to complete an emergency plan and specify number of emergency exits with special lighting and signage. During the site-specific design stage, local fire fighter and rescue workers could be consulted to prepare emergency plans.

All Maglev passenger stations and support and maintenance areas will be serviced by State and local police, and local ambulance, fire, and hospital emergency services. Existing emergency procedures and routes associated with currently operating transportation, transit, and commuter facilities (buses, trains, and airplanes) are applicable to support the Maglev operation. The medical equipment to be carried on the Maglev vehicles will be specified through the route operator and U.S. regulations. Emergency plans, specialized evacuation

procedures, and emergency preparedness training would be addressed during final site design.

## **2. What are the benefits from Maglev implementation?**

### **Response:**

In order to determine the positive impacts that would result from implementation of the Maglev Deployment Program, it is necessary to identify the transportation need that the Program is intended to address. It is also important to account for the transportation and other related benefits associated with the Program that would be precluded if the Program were not implemented. Continued economic and population (resident and visitor – business and tourism) growth in major metropolitan areas in the United States will continue to increase the demand for mobility, and the operational congestion and safety deficiencies of the transportation system. The ongoing increase in transportation demand would result in transportation infrastructure and operation expansions, with their associated impacts on the human and natural environment, including among many others: 1) continued dependence on fossil fuels for transportation; 2) continued deterioration of air quality and increases in greenhouse gas emissions associated with automotive travel; and 3) infrastructure construction impacts on natural ecosystems – wetlands and other sensitive and important habitats – resulting in habitat destruction and fragmentation and effects on wildlife.

Transportation between cities in the country is essential to the economy and vitality of the nation. Travel demand is growing and inter-city transportation by air and auto continue to suffer from congestion and delay. This condition is particularly evident within large metropolitan areas, surrounding airports, and during weekends, holidays, and bad-weather periods. The Federal Aviation Administration has stated that high-speed ground transportation has the potential to relieve the pressure on short haul traffic by diverting air trips of 800 kilometers (500 miles) or less. Thus, the implementation of the Maglev Deployment Program is proposed as a transportation solution to address several of the main problems associated with inter- and intra-regional transportation in the United States. The Maglev Deployment Program would be the first – nationally and internationally – commercial operation of super-speed ground transportation. Thus, implementation of the Program would be the first step towards a new generation of state-of-the-art ground transportation systems. Because of its high speed, Maglev would offer competitive trip-time savings to automobile and aviation modes in the 40- to 600-mile travel markets – an ideal travel option for the 21st century. Maglev would serve as an alternative transportation system, partially alleviating the congestion in airway and automotive corridors that results from increasing travel demand. Maglev systems could also extend the usefulness of existing airport and highway infrastructure. In addition, Maglev technology could improve the utilization of airports' potential by providing inter-modal connections between airports and business districts, thereby supporting airports as centers for inter-modal transfer and travel.

The analysis of the positive impacts of Maglev should compare – on a local, regional, and national basis – the resulting impacts associated with different transportation alternatives

used to satisfy the demand for safe and efficient transportation. Benefits associated with Maglev implementation could include, among others: 1) regional economic development, partly as a result of joint development at stations and of construction and operation related jobs; 2) stimulation of the local and regional economy through project investment and technology transfer; 3) support to comprehensive land use planning based on transit oriented development to address urban sprawl; 4) increased productivity of business travelers; 5) improved air quality from emissions reductions; and 6) reduced consumption of non-renewable resources. Additional benefits would include enhancement of passenger comfort, as the Maglev trains would provide a smoother ride than that provided by airplanes, with special benefits to elderly passengers. Also, handicap and elderly egress would be easier than in airplanes, with special significance for emergency evacuations. The potential positive impacts from Maglev implementation are addressed by resource and summarized in Table ES-1 in Volume I, Executive Summary of the Final PEIS.

**3. What is the difference between programmatic and site-specific analysis? How will site-specific concerns be addressed?**

**Response:**

In general, environmental impact statements (EIS) can be prepared in either a programmatic or a site-specific fashion. Most programmatic documents identify the general impacts of a program on a comprehensive list of environmental resources. A site-specific document identifies the specific impacts of a project on the environmental resources in a particular area. As a programmatic document, this EIS has analyzed the general impacts of the Maglev Deployment Program on environmental resources, with respect to eight different alternatives. Without knowing the exact location of the Maglev system from the preliminary designs, a wide corridor was established of approximately 100-ft to evaluate potential impacts. Environmental resources that may be within the 100-ft wide corridor were identified. The preliminary design precludes identifying which specific environmental resources may be impacted. Thus, this analysis is very conservative in favor of the environmental resources and does not specifically consider mitigation, but identifies mitigation options on an overall basis. Furthermore, identifying the resources as potentially being impacted allows awareness at the programmatic EIS level and establishes a need for investigation and analysis at the site-specific level. At the completion of this programmatic document, the FRA will select one or more of the alternatives as preferred alternatives for further design and analysis. Upon completion of additional studies, a single project will be selected for implementation. Once a project is selected, a site-specific environmental impact statement will be prepared as a continuation of the NEPA process to address specific impacts of the selected alternative.

The site-specific EIS will address the specific environmental impacts with a vigorous analysis of each resource to identify impacts and plans for mitigation. A comprehensive analysis will be performed on the environmental resources including, but not limited to the following:

- Finalize Maglev alignment.

- Identify station locations and related parking and traffic issues.
- Location and number of noise sensitive receptors.
- Prepare coastal zone consistency determination.
- Address issues of environmental justice.
- Identify required environmental permits.
- Address human factors and ergonomic issues.
- Identify impacts on flood hazards.
- Determine EMF sources and exposure levels.
- Prepare for construction – water supply, utilities, and best management practices.

The most significant difference between the programmatic EIS and the site-specific EIS will be the location of the alignments and the associated technical system components (train, guideway, stations, parking lots, substations, etc.). The location of the site-specific alignments will be well defined. Based on the final designs of the proposed alignments, the exact location of the Maglev system components will be known. Thus, the analysis of impacts on the environmental resources could be performed in much more detail than in the programmatic EIS. The site-specific EIS will take into consideration a corridor of less width, the elevation of the guideway, mitigation plans, and concerns identified during the PEIS NEPA process. Therefore, the impacts to environmental resources could potentially be significantly reduced.

#### **4. Describe how the Maglev will look and feel for non-passengers during operation?**

##### **Response:**

The look and feel of the Maglev vehicle during operation depends on the speed. At lower speeds, the look and feel of a Maglev vehicle approaching and passing by can be compared to traditional trains. At high speeds, the Maglev system and the traditional train are very different. The differences and similarities between the Maglev and traditional systems include comparison of noise, vibration, air turbulence, startle affect, and appearance.

The noise generated by a Maglev vehicle depends greatly on its speed. High-speed Maglev pass-bys are characterized by high noise levels of brief duration. The observer would notice that the noise level rises fast then falls off more gradually. In comparison to the noise from traditional trains, Maglev noise is generally quieter at comparable speeds and also has a uniform tone-therby avoiding the high, shrill sound and the rolling, rumbling noise of many conventional steel-wheel trains. Thus, the sound from Maglev may be perceived by many as being less piercing than noise from conventional rail traffic.

The Maglev system produces perceptible groundborne vibrations even though the vehicle does not actually touch the guideway. It is estimated that vibrations would not be noticeable, even at 400 km/h (250 mph), beyond 60 m (200 ft) from the guideway. At 250 km/h (155 mph), this “no-perception” distance drops to 35 m (115 ft). Standing on a station platform waiting for a stopping Maglev train, the vibrations would feel substantially less intense, compared to the vibration created by a traditional train.

The Maglev vehicle generates minimal air turbulence as it passes by. There is nothing more than a slight gust at a distance of 2 m (6.5 ft) when the Maglev passes by at a speed of more than 380 km/h (235 mph). There is no perceptible air movement under the elevated guideway and the air movement produced by the vehicle on at-grade guideway at a speed of 330 km/h (205 mph) is comparable to normal local wind conditions. Transrapid states that small pebbles on the ground directly under the at-grade guideway would not move as the train goes by. Transrapid also states that there would be minimal shock wave effect of two Maglev vehicles passing each other in opposing directions, since the vehicle body and clearance envelopes are designed to minimize any undue pressure rise from passing vehicle.

Similar to roadways/walkways adjacent to airports, the Maglev could be startling visually or audibly, depending on the location of the observer. Visually, the Maglev vehicle may startle the distant observer as it passes unexpectedly at a high rate of speed. Up close, the observer could be startled by the sound of the Maglev vehicle if the observer was not expecting it. As time goes by, the novelty of observing the Maglev vehicle will pass and the event should no longer be as startling. At low speeds, the Maglev would not be as startling.

The look of the Maglev vehicle is similar in size to traditional commuter passenger trains. The front of the lead vehicle is slightly pointed to reduce air drag, as is the end of the last vehicle. The guideway is usually elevated on a bridge like structure, but can also be at-grade. The Maglev stations will be similar to traditional train or bus terminals. See Volume I, Section 2.3 of the Final PEIS for a figure showing how a Maglev system could look in various visual environments.

**5. Are there other technologies that could be used in place of the proposed Maglev 2000 and Transrapid International technologies?**

**Response:**

As authorized by Congress in the Transportation Equity Act for the 21<sup>st</sup> Century (TEA 21) (Pub. L. No. 105-178, 112 Stat. 107, 216), the Maglev Deployment Program encourages the development and construction of an operating transportation system employing magnetic levitation, capable of safe use by the public at a speed in excess of 386 kilometers/hour (km/h) (240 miles/hour (mph)). TEA 21 added a new section 322 to title 23 of the United States Code. Section 322 provides a total of \$55 million in contract authority from the Highway Trust fund for Fiscal Years 1999 through 2001 for pre-construction planning of transportation systems employing Maglev. Section 322 authorizes but does not appropriate additional federal funds of \$950 million for final design and construction of the most promising project. As directed by the enabling legislation, the Secretary of Transportation is required to select a project for the purpose of demonstrating the use of Maglev technology to the American public, according to the selection criteria specified in the legislation. The final rule for the Maglev Deployment Program published on January 14, 2000 (65 FR 2342), requires the down selection of one or more projects to the selection of a single project.

Although there could be viable alternatives (system improvements, highway, air, and other high-speed rail) to Maglev technology for addressing the transportation needs of the country, Congress – through approval of TEA 21 – has established that implementation of an operating – and revenue producing – Maglev system in the United States is critical in addressing those needs. Thus, the Maglev Deployment Program is limited to the analysis and implementation of such a system. There are numerous Maglev research and development efforts conducted by several countries, with Germany and Japan having the most demonstrated experience. Many Maglev vehicles are currently in design, including the German (TR07 and TR08) and Japanese Maglev test vehicles (ML100, ML-500, MLU001, MLU002, MLU002N, and MLX01). In 1999 the MLX01, arranged in a five-car manned train set, attained a speed of 552 km/h (343 mph). After carefully evaluating the current available technologies and the requirements of the specific alternatives, the States have selected the German Transrapid International (TR08) and Maglev 2000 (M2000) Maglev technologies. As directed by Congress, FRA – in its decision-making process – is obligated to consider each of the alternatives in the context of the legislation prescribed under TEA 21.

**6. Is the Maglev Deployment Program an initial phase of a larger project that would include longer segments than the ones presented in the Final PEIS?**

**Response:**

The FRA does not plan to expand the proposed Maglev Deployment Program beyond the alternatives identified in the Final PEIS. Furthermore, the FRA is directed by Congress to only consider those alternatives that satisfy the parameters identified in the Congressional authorization relating to the Maglev Deployment Program.

As directed by the enabling legislation, FRA is required to select a project for the purpose of demonstrating the use of Maglev technology to the American public, according to the selection criteria established by the FRA in the final rule for the Maglev Deployment Program published on January 14, 2000 (65 FR 2342). FRA has initiated a competition to select a project, and after receiving and evaluating eleven initial applications, the Secretary of Transportation on May 24, 1999 announced financial assistance grants to seven states and authorities (California, Florida, Georgia, Louisiana, Maryland, Nevada, and Pennsylvania) for pre-construction planning for Maglev high-speed ground transportation (HSGT). The projects under consideration are those selected by the Secretary and presented in Volume I, Section 2.4 of the Final PEIS. Several of the State program participants describe their alternatives as the initial phases of larger projects. However, FRA has been directed and authorized by Congress to consider only the specific projects presented to the Secretary for selection and outlined in the Final PEIS.

**7. What will be the impacts of extreme weather events – heat waves, snowstorms, hurricanes, tropical storms, and tornadoes – on Maglev system?**

**Response:**

Similar to other forms of transportation, the Maglev system could experience impacts from extreme weather events. Depending on the climate, extreme weather events such as heat waves, snowstorms, hurricanes, tropical storms, and tornadoes could potentially affect the operational integrity, service schedule, and maintenance requirements of a Maglev system. In some cases, the Maglev system could be more resistant to extreme weather than other forms of transportation such as airlines, highways, and traditional railways.

Extended periods of excessive temperatures and dramatic temperature changes could potentially cause the steel that comprises the Maglev guideway to expand and contract, similar to a traditional railway. A heat wave could potentially overburden electric utility companies that, in turn, could result in “brown out” conditions. Electric power under these conditions may not be adequate to efficiently run a Maglev system. However, discussions with utility companies indicate that the energy capacity is sufficient and this is an unlikely event. Extremely high winds associated with hurricanes and tropical storms could potentially damage the Maglev system, similar to the damage sustained by other modes of transportation. Since most of the Maglev guideway could be elevated, torrential rains and associated flooding could potentially cause erosion around support structures. However, similar to bridge support structures, it is unlikely the Maglev support structures could be totally washed out. Another weather event of concern is lightning strikes, which could potentially destroy equipment and interrupt service from the loss of power or communications, but would cause no harm to the passengers.

The weather concerns differ for each Maglev alternative depending on the climatic region. The specific weather concerns for each alternative are detailed further in Volume I, Section 4.2. As discussed in Response 3, specific concerns related to the impacts of extreme weather on the Maglev system could be addressed in a site-specific EIS.

**8. Implementation of the Maglev Deployment Program could result in adverse impacts to wetland resources and other habitats – including essential fish habitat, sensitive and rare habitats – and could also produce habitat fragmentation. What mitigation options could be utilized to minimize impacts to these resources?**

**Response:**

Implementation of the Maglev Deployment Program will result in some impacts to natural ecosystems, including wetland and other important habitats. The level and significance of impacts from the program will be determined both by the alternative selected for implementation and the mitigation measures used during planning, construction and operation. The seven proposed alternatives are representative of diverse climatic regions or biomes, including desert, grassland, scrub forest, and temperate deciduous forest. Each of these climatic regions is composed of different habitats – including wetlands – and plant and

animal species (see Volume I, Section 3.3 of the Final PEIS). Thus, the specific impacts of the Maglev Deployment Program on wetland resources and other habitats will be determined to a great extent by the environmental characteristics of the area encompassed by the chosen alternative.

Analyses of the potential impacts for each of the alternatives were based on preliminary studies developed by the proponents of the alternatives (see Volume I, Section 4.3 of the Final PEIS). Based on these studies, program impacts range from insignificant to significant depending on the resources affected by the different alternatives. Site-specific impacts will be addressed in a site-specific EIS to be developed for the alternative selected for construction (see response to Comment 3 above for an explanation of the site-specific analysis). For example, concerns over effects on essential fish habitat and sensitive and rare habitats, and issues related to habitat fragmentation will be addressed in the site-specific EIS where appropriate (depending on selection).

Mitigation plans could be implemented as a strategy for avoiding and/or minimizing the potential impact of the deployment of the Maglev system on natural ecosystems. Avoidance of adverse impacts through program selection and design is the preferred method to protect ecological resources. Where impacts cannot be avoided, minimization strategies should be developed and implemented to protect the function and health of ecological systems. Some of the mitigation strategies that could be used include: 1) utilization of existing transportation corridors to minimize new and cumulative effects; 2) adjustment of guideways to follow outer edges of habitats; 3) coordination with ongoing restoration projects; 4) utilization of elevated guideway to minimize Maglev footprint; 5) use of Best Management Practices during construction, including the selection of construction periods and times that minimize interference with wildlife breeding (i.e., nests) and movement and migration paths. The use of mitigation strategies could result in significant reduction of impacts to natural ecosystems in the alternatives. As an example, Louisiana participants are working to refine their alignment and through the use of mitigation measures expects to significantly minimize impacts to wetland resources in the alternative. By doing so, they could calculate their impacts to wetlands based on a 35 ft wide corridor instead of the 100-ft-wide corridor used for all alternatives in the Final PEIS.

**9. Will the Maglev system adversely impact threatened and endangered species and their habitat?**

**Response:**

The Endangered Species Act (ESA) of 1973 declares the intention of Congress to protect all federally listed threatened and endangered species, both flora and fauna, and designated critical habitat of such species in the United States and abroad. Section 7 of ESA requires that federal agencies ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. The U.S. Fish and

Wildlife Service (USFWS) is the primary regulatory agency responsible for compliance of ESA.

The possibility of threatened and endangered species existing within the seven alternatives has been identified and as such the potential of a significant adverse impact (See Volume I, Section 4.4 of the Final PEIS). The method used to identify impacts to threatened and endangered species existing within the seven alternatives was based on preliminary designs and no mitigation measures. Without knowing the exact location of the Maglev system from the preliminary designs, a wide corridor was established of approximately 100 ft. Threatened and endangered species that may be in the 100-ft-wide corridor were identified. The preliminary design precludes identifying which specific threatened and endangered species may be impacted. Thus, this analysis is very conservative in favor of threatened and endangered species. Furthermore, listing the species as potentially being impacted allows awareness at the programmatic EIS level and establishes a need for continued investigation and analysis at the site-specific EIS.

As the Maglev Deployment Program progresses, the selected alignments will become better defined and the impacts to threatened and endangered species could be reduced. For example, the Louisiana participants are working to refine their specific alignment. By doing so, they could estimate their impacts on threatened and endangered species based on a 35-ft wide corridor instead of the 100-ft wide corridor used for all alternatives in the Final PEIS. Therefore, the Louisiana participants expect to significantly reduce impacts to threatened and endangered species within the alternative.

## **10. Will the Maglev system increase flooding?**

### **Response:**

Flooding occurs when a body of water overflows into the floodplains. The floodplains moderate the flood flow, contribute to human safety and act as areas for ground water recharge. Any structure that is built in the floodplain will displace water during a flood and result in elevated floodwaters. Impacts from a Maglev system are from the construction of structures within the floodplain.

The Maglev system impact to flood hazard was analyzed for each alternative (See Volume I, Section 4.6 of the Final PEIS). The flood hazard analysis was based upon preliminary design locations of the Maglev guideway crossing the floodplains. The analysis assumed that the guideway would be built at-grade and no mitigation measures were considered. This assumption represents a worst-case scenario, in that the at-grade guideway would fill in the flood storage space of the floodplain, resulting in elevated floodwater. It is expected, however, that final Maglev system designs could incorporate elevated guideways and mitigation plans. The elevated guideway would impact floodplains only at the location of the support columns. This could substantially reduce the amount of floodwater that would be displaced by the Maglev system guideway, as compared to the worst-case scenario analysis.

One way of mitigating the Maglev system impacts on the floodplains is to construct additional flood storage. Additional flood storage is constructed by excavating within the floodplain area, a volume equal to the displaced flood storage. The mitigation plans could include constructing additional flood storage, as directed by the Army Corps of Engineers. As the designs progress and further detailed analysis is performed, it is expected that the potential of the impacts could be greatly reduced with mitigation. Therefore, construction of the Maglev system should not cause a significant adverse impact to flooding.

**11. Is the Maglev program consistent with coastal zone management plans?**

**Response:**

Each alternative was reviewed to determine if they were within the jurisdiction of a designated coastal zone management (CZM) district. Upon review of the individual alternatives, it was found that Florida, Louisiana and Maryland lie within a coastal zone district (see Volume I, Section 3.7 of the Final PEIS). Each of these alternatives were carefully considered to determine if Maglev would be consistent with their corresponding CZM policy and plans. At this stage of the Maglev Deployment Program, design has not been finalized for any of the alternatives. However, the concept of providing this alternate form of transportation was found to be consistent with each CZM district policy and plans. If any of these alternatives are selected to prepare a site-specific environmental impact statement, CZM consistency will be evaluated with detailed site-specific information.

**12. Will the Maglev Program disproportionately affect low income and minority populations by displacing homes and businesses?**

**Response:**

Construction and operation of a Maglev system in any of the seven alternatives could result in potential significant adverse impacts on communities. As with any major transportation project, it is likely that there will be some situations where it will not be possible to avoid displacing existing residents or businesses. The adverse impacts include the displacement of people and businesses as a consequence of property acquisitions for the various components of the Maglev system. Based on the current level of planning information, the proposed Maglev alternatives were studied in relation to Executive Order 12898, Environmental Justice in Minority and Low-Income Populations. At this stage of the planning process, no decision has been made on actual alignments. However, as part of Executive Order 12898 it is appropriate at this planning stage to identify the potential impact to low income and minority communities.

Public involvement is considered critical to the success of the Maglev Deployment Program and the foundation of the program is its emphasis on including all impacted communities in the planning process. The Maglev Deployment Program cooperative agreements between FRA and the seven participants require that each alternative develop and implement a

comprehensive public involvement program during the planning and design stages. For each of the alternatives, input has been sought from an extensive base of private citizens, community, and regional organizations. This input resulted in the identification of environmental justice concerns. The PEIS considers these concerns and identifies them for further consideration as part of a site specific EIS. Actual property acquisitions associated with each Maglev alternative will be determined during the site specific EIS process once the level of planning and design has advanced and final alignments determined. The alternatives will continue to address these concerns during a site specific EIS with input from the potentially impacted communities.

During the final design process, efforts will continue to avoid existing residences and businesses including those owned or occupied by minority and low-income by utilizing existing transportation corridors and employing other mitigation techniques. As a mitigation effort, alternative corridors could be located within or immediately adjacent to existing transportation corridors, minimizing property acquisition and displacement impacts to these populations. Additional input from the local communities will continue to be gathered during the site-specific EIS process to ensure that proposed mitigation is developed with these communities in mind.

**13. Have minority labor and worker unions been involved in the construction planning and operation of the Maglev program?**

**Response:**

The Maglev Deployment Program requirements include involving materials at least 70 percent of which are manufactured in the United States and construction according to the Davis-Bacon Act. The implementation of a Maglev system would create job opportunities for U.S. workers in a wide range of industries related to planning, design, construction, operation, and maintenance. Thousands of direct person-years of effort would be required in addition to the labor required to produce the materials and parts. After the system is operational, employees would be required to operate and maintain the system as well as to provide services to the passengers. Minority labor and worker unions could have direct and indirect employment opportunities in the Maglev Deployment Program.

Public involvement is considered critical to the success of the Maglev Deployment Program and the foundation of the program is its emphasis on inclusion of all interested parties. The Maglev Deployment Program cooperative agreements between FRA and the seven selected state participants require each state to develop and implement a comprehensive public involvement program during the planning and design stages. The participants have sought input from an extensive and comprehensive base of private citizens, community, and regional organizations including minority labor and worker union. As the program moves towards the site-specific EIS stage, participation of labor representatives in the final design, engineering, and construction activities will evolve. The public involvement mechanism which will continue into the site-specific EIS stage, allows minority labor and worker unions to participate fully in the Maglev system development. Additional information on the public

involvement programs or job opportunities is available from the contact people identified in the Final DPEIS (see Volume I, Appendix A).

**14. Will the Maglev system contribute to unplanned growth in rural and low population areas, promoting rather than alleviating urban sprawl?**

**Response:**

The deployment of an operating transportation system employing magnetic levitation would demonstrate that Maglev technology could play a role in helping to address several of the main problems already existing and increasing in urban and suburban areas of the United States. Continued population and economic growth in major metropolitan areas around the country will result in increased demand for mobility, greater operational congestion, and increased safety deficiencies of transportation systems. The development of Maglev would provide an alternative transportation option to federal, state, and local transportation decision-makers that are seeking to alleviate already existing and increasing congestion in airway and automotive corridors that result from increasing travel demand. Associated benefits would include increased productivity of business travelers, regional economic development, support to comprehensive land use planning, reduced emissions resulting in enhanced air quality, and reduced consumption of non-renewable resources.

Metropolitan areas are experiencing congestion in airway and automotive corridors. This congestion illustrates the demand for additional mobility. The demand could be met in various ways including highway/airport expansion, new highway/airport construction, and other rail technology implementation. With faster speeds, a Maglev system could comprehensively address the congestion in both the airway and automotive corridors. The Maglev system would be implemented in coordination with existing land use planning already underway to address these existing and increasing trends. Land use plans address the control of urban sprawl. Furthermore, Maglev stations are planned to be widely spaced serving predominantly existing urban centers or clusters. Therefore, it is expected that the potential for the Maglev system to impact urban sprawl is minimal. A site-specific EIS will address the coordination with local land use plans and the minimization of local urban sprawl.

In some instances passenger stations could be located in undeveloped or rural areas (an example of this would be the Louisiana Alternative). This could lead to a redirecting of development. Whether or not this development could be considered “urban sprawl” would need to be determined in a regional context. Development in each of the Alternatives has led to congestion and a need for an enhanced transportation system. Growth will continue in each of the alternatives with or without Maglev. However, Maglev offers the ability to help plan growth. In each of the alternatives the regional and state planning offices and public have been consulted to develop a suitable conceptual alignment based on many parameters. Growth and the potential for “urban sprawl” are some of these considerations. Although in the PEIS the specific location of passenger stations, guideway, and other system components are not established their impact to growth was considered at a conceptual level.

If the Maglev Deployment Program proceeds, growth issues and the ability of Maglev to help shape growth will be considered in greater detail during the site-specific EIS process.

**15. Does the Maglev program impact prime and unique farmlands? Specifically, does the Pennsylvania Alternative have an impact to this resource?**

**Response:**

Implementation of the Maglev Deployment Program will involve the development of a major transportation system, resulting in a number of affects on land use, including farmland. Farmland is protected under the Farmland Protection Policy Act (FFPA) of 1984. The purpose of FFPA is to minimize the extent to which federal programs convert farmland to non-agricultural uses. Soils classified by the United States Department of Agriculture, Natural Resource Conservation Service (NRCS) as prime or unique are collectively protected by FFPA. In addition to this federal regulation, several states have enacted their own regulations to aid in the protection of farmland resources. The FFPA requires a farmland impact evaluation be performed for applicable federally funded projects. The Maglev Deployment Program must adhere to this requirement.

As stated in Volume I, Section 4.11.7, the Pennsylvania Alternative could potentially result in impacts to both prime farmland soils and designated Agricultural Security Areas. Secondary impacts on farmland from induced development also are possible from this program, particularly in the vicinity of proposed passenger stations. Further consultation with the Pennsylvania Department of Agriculture, indicated that there could be Preserved Farmland located within in the Pennsylvania Alternative. Preserved Farmland is the most highly protected farmland in Pennsylvania.

A wide project corridor width was selected to represent the planning stage of the Maglev Deployment Program. As a result, the approach for the PEIS is conservative in favor of the resource. Furthermore, at the programmatic level of analysis, specific mitigation was not included that could minimize or elevate potential impact (i.e., moving the guideway away from the resource, elevating the guideway so that only columns every 100 feet would impact farmlands, etc.). None the less, at this stage of the Maglev Deployment Program, the Pennsylvania Alternative could potentially cause significant adverse impact to farmland resources. If the Pennsylvania Alternative is selected a more refined assessment of farmland impacts will be part of a site-specific EIS. The site-specific assessment of farmland impacts will include a farmland impact evaluation as required by FFPA, and additional consultations with the Pennsylvania Department of Agriculture to determine if productive farmland could be avoided.

**16. Will visual and aesthetic impacts from program implementation be significant?****Response:**

The introduction of an elevated Maglev system in the urban or rural landscape will change the visual characteristics of the surrounding environment. The Maglev system will be a highly visible element that will have a visual impact on any environment in which it is built and operated. The main components of the Maglev system that could potentially impact visual resources include: guideway structures, stations, parking facilities, maintenance facilities, power substations, and other ancillary facilities. Based on preliminary planning information from the seven alternatives, it has been identified that the proposed Maglev alternatives traverse a wide variety of local visual settings, including: residential, commercial and industrial areas; areas that adjoin major thoroughfares and freeways and along railroad corridors; and central business districts.

The selected alternative could also pass through open natural areas and near parks and historic properties. In these kinds of locations, Maglev facilities would be markedly different than their surroundings and may have a significant adverse impact to the aesthetic environment. On the other hand, in those locations where the Maglev guideway would be located along highly developed transportation corridors, the Maglev infrastructure could merge with the existing visual environment. In those instances where Maglev may have an adverse impact, and when impacts cannot be avoided, mitigation strategies and techniques could be used to minimize visual and aesthetic impacts of the project. See Volume I, Section 2.3 of the Final PEIS for a figure showing what a Maglev system could look like in various visual environments.

The potential visual and aesthetic impacts of Maglev implementation are subject to personal preferences and tastes. The futuristic image of the Maglev trains and guideway may be appealing and pleasing to some while others might consider it an intrusion. Thus, the visual and aesthetic impacts should be considered with reference to the context and existing visual environment of the site where the system would be operated. Some of the considerations to be taken into account might include, for example, neighborhood characteristics, historical and cultural values, people's perceptions and attitudes, and the presence of important vistas and scenic views as well as important natural and historical resources.

The large distances traversed by the Maglev alternatives result in the presence of multiple view sheds and individual views where the introduction of Maglev facilities could have a significant impact, since there are multiple variations in the composition and characteristics of the visual and aesthetic environment potentially affected. Thus, at the present stage of preliminary design, specific potential visual impacts have not yet been defined. Design issues related to Maglev guideways, stations, and related facilities will be specifically addressed in the site-specific EIS stage when development will advance to a degree to allow complete evaluation of impacts (see Response 3). At that point, public comments would be solicited that would enable the identification of the significance of the potential visual and aesthetic impacts.

**17. Is the Maglev Deployment Program an inappropriate use of high-speed rail technology?****Response:**

Determination of the appropriateness of the implementation of the Maglev Deployment Program as a practical and beneficial transportation application of high-speed rail technology is beyond the scope and requirements of the Final PEIS. As authorized by Congress in the Transportation Equity Act for the 21<sup>st</sup> Century (TEA 21) (Pub. L. No. 105-178, 112 Stat. 107, 216), the Maglev Deployment Program encourages the development and construction of an operating transportation system employing magnetic levitation, capable of safe use by the public at a speed in excess of 386 kilometers/hour (km/h) (240 miles/hour (mph)). On January 14, 2000, FRA published in the Federal Register a final rule for the Maglev Deployment Program (65 FR 2342). The final rule establishes the regulations governing financial assistance under the program; and includes a description and schedule for the various phases of the program, requirements for the federal and state funding shares, identification of eligible participants, and identification of the project selection criteria.

As directed by the enabling legislation, FRA is required to select a project for the purpose of demonstrating the use of Maglev technology to the American public, according to the eligibility standards and selection criteria established in the final rule. The eligibility standards determine the standards to be met by projects to be considered for financial assistance, and the selection criteria govern FRA's selection of projects to receive funding under the Maglev Deployment Program. The eligibility standards state that the projects shall: 1) involve a segment or segments of a high-speed or low-speed ground transportation corridor that exhibit partnership potential; 2) require an amount of Federal funds for project financing that will not exceed the sums authorized; 3) result in an operating transportation facility that provides a revenue producing service; 4) be undertaken through a public and private partnership, with at least a third of full project costs paid using non-Federal funds; 5) satisfy applicable statewide and metropolitan planning requirements; 6) be approved by the Secretary based on an application submitted to the Secretary by a State or authority designated by one or more States; 7) to the extent that non-United States Maglev technology is used within the United States, be carried out as a technology transfer project; and 8) be carried out using materials at least 70 percent of which are manufactured in the United States. As part of the competition process to select a project, FRA received eleven initial applications from participants with programs that met the eligibility standards outlined above.

The selection criteria established in the final rule for the Maglev Deployment Program is composed of five main components: (1) Purpose and significance of the project – the degree to which the project description demonstrates attractiveness to travelers; the extent to which project implementation will reduce congestion, emissions and/or energy consumption; the rate of growth in needs for additional highway or airport construction; the degree to which the project will demonstrate the variety of operating conditions which are expected in the United States; and the degree to which the project will augment a Maglev alternative or network that has been identified as having Partnership Potential. (2) Timely implementation

– the speed with which the project can realistically be brought into full revenue service. (3) Benefits for the American economy – the extent to which the project is expected to create new jobs in traditional and emerging industries in the United States. (4) Partnership Potential. (5) Funding limits and source – the extent and proportion to which States, regions, and localities commit to financially contributing to the project, and the extent and proportion to which the private sector contributes financially to the project.

After receiving and evaluating eleven applications, the Secretary of Transportation on May 24, 1999 announced financial assistance grants to seven participants (California, Florida, Georgia, Louisiana, Maryland, Nevada, and Pennsylvania) for pre-construction planning for Maglev high-speed ground transportation (HSGT). The alternatives selected meet all project eligibility standards and were selected based on the selection criteria established in the final rule. The projects under consideration – selected by the Secretary – are presented in Volume I, Section 2.4 of the Final PEIS (see Response 6). FRA has been directed and authorized by Congress to evaluate only the specific projects presented to the Secretary for selection and outlined in the Final PEIS. Thus, determination of the appropriateness of the alternatives under consideration as practical applications of high-speed rail technology is beyond the scope and requirements of this analysis.

**18. How was Maglev ridership calculated? Was it overestimated? Who will ride Maglev?**

**Response:**

Ridership is defined as the number of people that use a specific transportation system. Investment grade ridership forecasts for the Maglev Deployment Program reflect the attractiveness of Maglev to travelers and aid in assessing project benefits and costs – thus project viability. On July 27, 1999, FRA conducted a workshop titled *Maglev Deployment Program, Travel Demand and Revenue Forecasting, Workshop II*, which established general procedures for the forecasting approach to be used by the alternatives in the analysis of Maglev ridership. FRA has established the opening year and the year 2020 as the forecast years to be used by the alternatives in developing their estimates of Maglev ridership and revenue projections. FRA guidelines establish that the forecasting approach use an existing urban model as the basis for producing ridership forecasts. The forecasting methodology recommended by FRA also includes the following elements/features: 1) stated-preference surveys and analysis; 2) calculation of induced demand; 3) origin/destination surveys; 4) independent review of land use forecasts and methodology; and 5) a realistic Maglev operations plan.

Based on the requirement of the Maglev Deployment Program to select a revenue-producing Maglev project, FRA directed the participants – selected by the Secretary of Transportation to receive financial assistance grants for pre-construction planning – to develop investment grade ridership forecasts. Thus, Maglev ridership analyses were developed independently for each of the seven Maglev Alternatives under consideration (California, Florida, Georgia, Louisiana, Maryland, Nevada, and Pennsylvania), and were based on the procedures and

guidelines established by FRA and on current state-of-the-art practices in travel demand forecasting and modeling, market research analysis, and model estimation. Ridership and revenue estimates were generated utilizing a demand-forecasting model, and analyzing current and projected socioeconomic and travel growth, behavior and patterns data. The analyses involved thorough investigations, research, and state-of-the-art modeling, and were performed by highly qualified and nationally recognized organizations. Specific information on the particular methodologies and assumptions used by each of the participants in their analysis, and on the target consumers – riders – is available from the contact people identified in the Final PEIS (see Volume I, Appendix A).

## **19. How was the energy analysis performed?**

### **Response:**

As specified in the Federal Railroad Administration’s “*Guidance and Criteria for Completing Environmental Assessment of the Maglev Deployment Program Project*” which was provided to all participants, the main objective of the energy analysis performed as part of the PEIS is twofold: 1) estimate the potential change in regional energy consumption in the forecast year (2020), by comparing the Maglev Alternative and No-Action Alternative for each of the seven alternatives; and 2) determine the impact to the electric power supply and distribution systems within the alternatives, identifying electric utility capacity issues relevant for the support of Maglev operations. The potential change in regional energy consumption is the difference between the energy consumption for Maglev operation and the energy savings resulting from automobile and commercial travel reduction in the region – from Maglev riders who would no longer drive automobiles or ride buses. The analysis considers energy consumption for transportation operations only, and does not consider energy consumed for construction, equipment manufacturing, and heavy maintenance activities.

The energy requirements for Maglev operations were estimated for each of the seven alternatives based on the technical characteristics of the Maglev system, the configuration of the proposed alignments, operational profiles, and the system’s projected utilization to meet passenger demand. Ridership forecasts were then used to estimate diverted motor vehicle travel, based on assumptions related to the travel modes that Maglev passengers would use if the program were not implemented. The diverted motor vehicle travel was quantified in terms of reduced vehicular distance traveled as a result of Maglev implementation. Fuel efficiency and energy content assumptions were then used to calculate the energy consumption reduction associated with decreased fuel consumption resulting from diverted motor vehicle travel. The resulting estimates – Maglev energy consumption and energy reduction from reduced vehicular fuel consumption – were used to calculate the projected net changes in regional energy consumption for each of the seven alternatives. Determination of the potential impact of the estimated changes was based on the contribution of the change to the overall – forecasted – transportation energy consumption for the different alternatives. See Volume I, Sections 3.15 and 4.15 of the Final PEIS for specific information on the energy analysis performed for each of the alternatives.

**20. Can the existing power supply satisfy the Maglev power demand?****Response:**

Maglev trains are electromagnetically levitated and propelled along a guideway. The magnetic forces used to levitate and propel the Maglev train are produced from electric current supplied from local power lines. Electricity is also used for auxiliary services such as communication and safety devices, and station lights. The energy supply for Maglev technology is normally drawn from the three-phase, public power grid. Based on current technical and ridership information, it has been determined that the Maglev system will be a large energy consumer, and as such will significantly increase electrical energy demand in the region where the selected alternative is implemented. Thus, identification of feasible energy providers will be critical to guarantee adequate supply for Maglev operation and the other commercial and residential users in the area. In addition, it is also important to ensure that power lines are available to supply electricity to the Maglev system. The determination of the impact to the electric power supply and distribution systems within the alternatives was based on information provided by the participants; for several of the alternatives, their conclusions are based on ongoing work with the power generation and distribution companies in their respective regions. This preliminary information is intended to provide general guidelines to determine the feasibility of supplying energy for Maglev operations (see Volume I, Sections 3.15 and 4.15 of the Final PEIS). Based on this preliminary design information, FRA concluded that there would be adequate energy supply and distribution systems to power Maglev and that the potential adverse impact of Maglev on them would not be significant.

Once an alternative is chosen for project implementation, further analysis of specific energy requirements will be carried out to determine the source(s) of supply (e.g., existing or new power plants, self-generated, purchased) and the costs associated with the acquisition of the electricity required to operate Maglev. Specific energy requirements of Maglev will be determined by the technical characteristics of the Maglev system, the configuration of the proposed alignments and operational profiles, and the system's projected utilization to meet Maglev demand – as calculated from ridership forecasts (see Response 19). Issues of special concern that must be addressed in the site-specific analysis include the sources of supply, the effects of Maglev energy consumption on electricity supply to other users, distribution capability, and the potential effect of Maglev energy consumption on increased frequency of power outages. These and other site-specific impacts will be addressed in a site-specific EIS to be developed for the alternative selected for construction (see Response 3).

**21. Can the Maglev system be used in Louisiana as an evacuation alternative in the event of a hurricane?****Response:**

The National Weather Service has named the New Orleans Metropolitan Area as the number one area in the nation at risk for catastrophic loss of life due to a direct hit from a hurricane. The Emergency Preparedness Directors and public officials estimate that the number of individuals in the New Orleans Metropolitan Area without access to private vehicles to be over 250,000. In the case of a severe hurricane and forced evacuation, officials will be faced with the task of transporting these individuals in school buses and other public vehicles on a transportation system that will already be filled to capacity with another 650,000 individuals with access to private vehicles. The existing transportation system is primarily three main roads: the Causeway across Lake Pontchartrain, Interstate 10 to the east and Interstate 10 to the west. The Causeway and parts of I-10 are closed when wind speeds reach 72 km/h (45 mph). With tidal surges estimated to be 20 feet above mean sea level with the worst case Category 4 or 5 hurricanes, evacuation is planned to start 72 hours in advance of a hurricane's landfall. This evacuation should realistically begin 48 to 30 hours in advance of 72 km/h (45 mph) gale force winds.

The proposed Maglev system will be able to evacuate 3700 people per hour and can operate at full speed in winds of 100 km/h (62 mph), providing full service beyond the limits of the surface transportation system. The south shore stations could be used as passenger collection points with the North Shore station serving initially as a passenger transportation hub and ultimately as a refuge. Working with the local Parish, State and Federal Emergency Preparedness Directors, the five story-parking garage could be designed to accommodate approximately 40,000 people as an emergency shelter with temporary kitchens, medical assistance and bathroom facilities. In addition, if the Louisiana Alternative is selected to continue in the Maglev Deployment Program, further refinement of these plans could expand evacuation beyond the North Shore Station by bus or other means. The Greater New Orleans Expressway Commission and representatives from local Parishes have expressed their support and highlighted the potential for Maglev as an evacuation alternative in the event of a hurricane in the New Orleans metropolitan area.

**22. “Will operating the Maglev system cause adverse noise impacts?”****Response:**

Six of the seven alternatives propose to use the Transrapid technology. The Florida Alternative has proposed to use the Maglev 2000 technology. Potential programmatic environmental noise impacts of these technologies have been analyzed and outlined in the Final PEIS. These analyses have been undertaken utilizing acoustic data for the Transrapid technology. The Maglev 2000 technology does not have actual noise data, but have indicated<sup>1</sup> noise emissions should be similar to the Transrapid technology. Noise standards

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<sup>1</sup> Florida Maglev 2000 Project Environmental Assessment.

exist that reduce the potential impact from transportation projects similar to Maglev. As outlined in Section 4.17, Volume I of the Final PEIS, FRA is required to be in compliance with these noise standards regardless of which Maglev technology or train is selected for deployment.

Potential noise impacts are likely to occur in residential areas, as well as churches, schools and industrial areas. There could also be an indirect short-term impact from people who are distracted by this new transportation technology. Although they would be made aware of Maglev passing from the sound it makes, the reaction would be more from curiosity than the sound produced. However, this inherent distraction should decrease over time as the novelty of viewing Maglev declines. While candidate alternatives have identified several means for mitigation of potential impacts, including primarily slowing the vehicle and the construction of noise barriers, the effect of mitigating factors has typically not been fully quantified at this stage of the EIS. It is anticipated that more detailed analyses will be investigated during the site-specific EIS phase.

It is important to note that the Federal Railroad Administration's (FRA) criteria for potential Maglev noise impacts, as detailed in "High-Speed Ground Transportation Noise and Vibration Impact Assessment" (FRA, 1998), have been applied during the PEIS process. It is expected that all analyses undertaken in this process using the TR07 data will be conservative from a potential noise impact perspective. That is, since all analyses to-date have been performed utilizing the TR07 data, and if the TR08 is quieter, anticipated noise impacts with the TR08 will be less than those calculated for the TR07. It should also be noted that in comparison to the noise from conventional trains, Maglev noise in addition to being less, also has a uniform nature-therby avoiding the high, shrill sound and the rolling, rumbling noise of many conventional steel-wheel trains. Thus, the noise (tone) from Maglev may be perceived by many as being less annoying than noise of the same intensity from conventional rail traffic. Further, given that the noise signatures of the TR08 are estimated to be less than those associated with typical steel-rail trains<sup>2</sup> (unlike traditional trains, there is no physical contact between the vehicle and guideway for Maglev), and the speed to achieve maximum sound levels will be only maintained for short periods (see Response 31), significant adverse noise impacts are not anticipated.

**23. Are there short- and /or long- term effects associated with exposure to electromagnetic field and electromagnetic radiation (EMF/EMR) from Maglev operations?**

**Response:**

The construction and operation of a Maglev system may affect the environment within the alternatives by incrementally raising present levels of extremely low frequency electromagnetic fields (ELF/EMF) from existing electric power generation, transmission and distribution along the right-of-way corridor. Similarly, Maglev sources of electromagnetic

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<sup>2</sup> Stockton, Kilpatrick, LLP, "The Impacts of the TransRapid Magnetic Levitation Train on Human Health and the Environment," May 2000.

radiation (EMR) will add incrementally to the current broadband radiation background from operating broadcast, communication, navigation and emergency location utilities.

The EMF and EMR levels from Maglev operation, however, are not expected to differ substantially from those of existing electrically powered transportation systems, which have been safely and efficiently operated for many years worldwide. Nevertheless, vigilance is needed to ensure both the comparability in EMF/EMR emissions and of public and workers' exposures, and the compliance with the best available human EMF/EMR human exposure safety standards. Since the standards referenced in Section 3.16.2, Volume I of the PEIS focus on short-term safety with a substantial margin of safety, it is clear that there will be no short-term adverse effects, but it is still unknown at this time if there are potential long-term health issues. As discussed in Section 3.16.2, Volume I of the PEIS and references (NIEHS 1998, 1999 posted at <http://www.niehs.nih.gov/emfrapid>), a dedicated 5 years-long research effort into the potential for long-term adverse health effects of EMF environmental exposures found little evidence of increased risk, with remaining uncertainties still under active research.

The "NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields" (NIEHS, 1999) concluded that: *"The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak,"* but noted that: *"The NIEHS concludes that ELF-EMF exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard."*

This is not an issue specific to Maglev systems, but is common to all modern electrically powered devices in the home, office, and other work environments, as well as all transportation and communication utilities. Because of this lingering scientific uncertainty and public concern concerning potential long-term effects of EMF/EMR, the FRA continues its proactive and prudent research program of measuring EMF in advanced rail and Maglev systems and comparing their EMF characteristics with existing electric rail and transit systems that have long operated without any noticeable adverse long-term effects.

FRA's preferred approach is to recommend adoption of the most protective exposure safety standards for both workers and the public. In the interim, the FRA endorses a "prudent avoidance" policy regarding EMF, as advocated by the World Health Organization (WHO, 2000). FRA recommends voluntary industry and Maglev developer/operator compliance with existing international and national EMF exposure safety standards and guidelines. In addition, in order to address public concern with EMF/EMR, safety, health and environmental impacts, FRA could measure current exposure levels within the alternatives, for comparison with post-implementation monitoring surveys (short- and long-term), to ensure compliance with the most protective applicable safety standards.

At the programmatic level, the information available from the TR07 has been used as the baseline data for the analysis presented in the Final PEIS. Analysis by FRA/Volpe Center of the EMF characteristics for the Transrapid Maglev TR07 in 1992 showed that it was and is in full compliance with both U.S. and international applicable human and environmental exposure standards. Since TR08 represents the latest evolution of the Transrapid System, it

is assumed for the Final PEIS that TR08 has very similar EMF characteristics. Similarly, it was assumed that EMF and EMR exposures from the conceptual M2000 will not differ substantially from the Japanese Yamanashi superconducting Maglev (MLX and MLU), whose environmental performance has been documented and does not exceed human exposure safety standards.

However, the lack of available direct measurements of EMF, static magnetic fields, and EMR information for the proposed Maglev technologies (TRI and M2000) allows only for relative and approximate EMF comparability assessments. Recognizing the potential for differences in the EMF characteristics between the Maglev TR07 and the TR08 and M2000 systems, FRA plans to work with the participants to identify EMF and EMR during the site-specific process. Further analysis will then be carried out for the specific operating environment to verify compliance with U.S. and international human exposure safety standards and guidelines for static field, EMF, and EMR, as listed in Section 3.16, Volume I of the Final PEIS.

**24. What will be the effects on soil, habitat, and utilities during construction of the Maglev system?**

**Response:**

The construction stage of the Maglev Deployment Program – independent of the alternative selected – will result in localized short-term impacts on soil, habitat and services provided by local utilities. The level and significance of impacts will be determined both by the alternative selected for implementation and the construction techniques and mitigation measures used during construction. Surface and subsurface disturbances will result from the construction activities – excavation and earth moving – to be carried out for the construction of the Maglev facilities and their infrastructure. These disturbances could result in the destruction of wildlife habitat, with the potential to directly or indirectly displace resident wildlife species within or near the project area. In addition, construction activities could result in exposed soils, with the potential to increase site erosion, sedimentation impacts to nearby water resources, fugitive dust – from surface and subsurface activities, and introduction of invasive weeds. Increased erosion and sedimentation during construction could adversely affect surface water quality, affecting the habitat for aquatic wildlife and plants. Furthermore, fugitive dust could affect residences and businesses along the corridors. Finally, construction activities may impact the services provided by local utilities, with the potential to affect the economic vitality of the areas affected. Utilities – including gas, electric, telephone, water, and sewage – may have to be temporarily or permanently relocated during construction. The effects on local communities will be heavily dependent on the density of population of the areas affected. The extent of habitat destruction and loss – and the impacted species, and the effects on soil and utilities would be further evaluated as part of the site-specific EIS developed for the selected alternative (see response to Comment 3 above for an explanation of the site-specific analysis).

Mitigation plans could be implemented as a strategy for avoiding and minimizing the potential construction impacts of the project. Avoidance of adverse impacts through project selection, planning and design, and selection of construction techniques and practices is the preferred method. Where impacts cannot be avoided, minimization strategies should be developed and implemented, to protect important soil and habitat characteristics and the service provided by utilities. Impacts that cannot be avoided or minimized should be addressed through restoration and compensation strategies that could help in the reestablishment of the soil, habitat and utility services characteristics lost or altered from the imposed disturbance. Specific areas that could be addressed through construction mitigation plans – documenting mitigation goals, objectives, and performance measures – could include: soil erosion and sedimentation; introduction of invasive weeds and other species; dust; loss of habitat; and utility services disruption.

Some of the mitigation techniques may include: public involvement – including resource agencies – to develop priorities related to mitigation planning; watershed and habitat monitoring activities to minimize the loss of native wildlife species, with particular emphasis on endangered species and previously undisturbed habitats; site-specific biological surveys and ecological reviews to identify biological impacts and ensure compliance with existing laws and regulations; vegetation protection plans; revegetation with native species to restore ecological functions and minimize erosion and aesthetic impacts; protection of exposed soils and stabilization of disturbed sites; application of water to loose soil on roadways, excavation areas, and stockpiles to minimize fugitive dust; temporary rerouting, permanent reconstruction, or alternate switching of utility services prior to commencement of construction activities. The extent of disturbances will be greatly influenced by final design. For example, in some instances elevating the guideway by spacing support columns 100 feet or more apart could minimize the impacts. No significant adverse impacts from project construction are expected with the use of appropriate construction mitigation plans. The ultimate success of the mitigation actions requires active monitoring and management.

## **25. Can the Maglev system be operated in an economically feasible way?**

### **Response:**

As authorized by Congress in the Transportation Equity Act for the 21st Century (TEA 21) (Pub. L. No. 105-178, 112 Stat. 107, 216), the Maglev Deployment Program encourages the development and construction of an operating – and revenue producing – transportation system employing magnetic levitation, capable of safe use by the public at a speed in excess of 386 kilometers/hour (km/h) (240 miles/hour (mph)). TEA 21 added a new section 322 to title 23 of the United States Code. Section 322 provides a total of \$55 million in contract authority from the Highway Trust fund for Fiscal Years 1999 through 2001 for pre-construction planning of transportation systems employing Maglev. Section 322 requires FRA to establish program selection criteria, to solicit applications for funding, to select one or more programs to receive financial assistance for pre-construction planning activities, and after completion of such activities, to select one of the projects to receive financial assistance for final design, engineering, and construction activities. Section 322 authorizes but does not

appropriate additional federal funds of \$950 million for final design and construction of the most promising program. Section 322 also provides that the portion of the project not covered by funds provided under Section 322 may be covered by any non-federal funding sources, including private debt and/or equity, state, local, regional, and other public or private entities, as well as by federally provided Surface Transportation Program (STP), and Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds, and from other forms of financial assistance under TEA 21, such as loans and loan guarantees.

As directed by the enabling legislation, FRA is required to select an alternative for the purpose of demonstrating the use of Maglev technology to the American public, according to the eligibility standards and selection criteria established in the Maglev Deployment Program's final rule. The eligibility standards determine the criteria to be met by projects to be considered for financial assistance, and the selection criteria govern FRA's selection of projects to receive funding under the Maglev Deployment Program. The eligibility standards state that the projects shall, among other things: 1) involve a segment or segments of a high-speed or low-speed ground transportation corridor that exhibit partnership potential; 2) require an amount of Federal funds for project financing that will not exceed the sums authorized; 3) result in an operating transportation facility that provides a revenue producing service; and 4) be undertaken through a public and private partnership, with at least a third of full project costs paid using non-Federal funds. The selection criterion has five main components: 1) purpose and significance of the project; 2) timely implementation; 3) benefits for the American economy; 4) partnership potential; and 5) funding limits and source – the extent and proportion to which States, regions, and localities commit to financially contributing to the project, and the extent and proportion to which the private sector contributes financially to the program.

After receiving and evaluating eleven applications, the Secretary of Transportation on May 24, 1999 announced financial assistance grants to seven participants (California, Florida, Georgia, Louisiana, Maryland, Nevada, and Pennsylvania) for pre-construction planning for Maglev high-speed ground transportation (HSGT). The alternatives selected meet all project eligibility standards and were selected based on the selection criteria established in the final rule. The alternative projects under consideration are presented in Volume I, Section 2.4 of the Final PEIS. FRA will select one of the projects to receive financial assistance for final design, engineering, and construction activities, based on the same selection criteria. The revenue potential – economic feasibility, funding mechanisms, and partnering potential of the project will be considered in the selection process. Thus, the analysis will include consideration of capital and operating costs of the program, as well as the cost to consumers to ride Maglev. Furthermore, Congress has authorized additional funding beyond the \$950 million. Thus, the selected Maglev project will be responsible for its own operation, independent of additional Federal funds. Additional information on these issues as they relate to the specific alternatives under consideration can be obtained by contacting the people listed in Volume I, Appendix A of the Final PEIS.

**26. Can Maglev reach cruising speeds of up to 482 km/h (300 mph) in a practical manner?****Response:**

The Transrapid Maglev System has been demonstrated and tested at the Transrapid Test Facility in Emsland, Germany (TVE) for more than 15 years. A total distance of approximately 700,000 km (435,000 mi) has been traveled. Transrapid vehicles spend about 20 seconds at high speed during a typical 40-km (25-mi) ride at the test facility (one complete cycle). Given that the system has accumulated approximately 700,000 km (435,000 mi) of travel since 1984, there have been roughly 17,500 40-km (25 mi) trips taken. At 20 seconds per trip, it is estimated that approximately 350,000 seconds – or 97.2 hours – have been traveled at high speed. At 386 km/h (240 mph) traveling speed, Transrapid vehicles have traveled 37,545 km (23,333 mi). The maximum-recorded speed for the system is 450 km/h (279.6 mph), recorded in 1993 for the TR07 full-scale, two-section vehicle at the TVE site in Lathen, Germany. With the introduction of the TR08 revenue prototype in August 1999, the top running speeds are between 385 and 403 km/h (between 239 and 250 mph) in daily operations. These speeds have been demonstrated in four-a-day rides conducted five days a week since June 2000 in support of the Hanover World Expo 2000. During this period, more than 70,000 visitors have ridden the Transrapid Maglev. The Transrapid TR08 system is currently designed to sustain top speeds of 550 km/h (342 mph) and maximum operating speeds of 500 km/h (311 mph) in revenue service. Based on design and test data, Transrapid International engineers have concluded that the distances and time traveled at high speed demonstrate the practicality of high-speed travel using Maglev.

As authorized by Congress in the Transportation Equity Act for the 21<sup>st</sup> Century (TEA 21) (Pub. L. No. 105-178, 112 Stat. 107, 216), the Maglev Deployment Program encourages the development and construction of an operating transportation system employing magnetic levitation, capable of safe use by the public at a speed in excess of 386 kilometers/hour (km/h) (240 miles/hour (mph)). Thus, the alternatives are required to meet the high-speed criteria established by the Congressional mandate. The list below presents the distances traveled at speeds over 386 km/h (240 mph), and the average speeds for each of the alternatives:

- **California:** The Maglev train would travel at an overall average speed of 145 km/h (90 mph), and at speeds over 386 km/h (240 mph) for approximately 1.9 km (1.2 mi) of the proposed 133 km (83 mi) to 148 (92 mi) alignment – corresponding to approximately 1.4 percent of the length of the alternative.
- **Florida:** The Maglev train would travel at an overall average speed of 204 km/h (127 mph), and at speeds over 386 km/h (240 mph) for approximately 4 km (2.5 mi) of the proposed 29 km (18 mi) alignment – corresponding to approximately 12.5 percent of the length of the alternative.
- **Georgia:** The Maglev train would travel at an overall average speed of 136 km/h (84.5 mph), and at speeds over 386 km/h (240 mph) for approximately 2.9 km (1.8

mi) of the proposed 50 km (31 mi) alignment – corresponding to approximately 6 percent of the length of the alternative.

- **Louisiana:** The Maglev train would travel at an overall average speed of 156 km/h (96.9 mph), and at speeds over 386 km/h (240 mph) for approximately 37 km (23 mi) of the proposed 78 km (48 mi) alignment – corresponding to approximately 48 percent of the length of the alternative.
- **Maryland:** The Maglev train would travel at an overall average speed of 196 km/h (122 mph), and at speeds over 386 km/h (240 mph) for approximately 14.5 to 20.4 km (9 to 12.7 mi) of the proposed 64 km (40 mi) alignment – corresponding to approximately 23 to 32 percent of the length of the alternative.
- **Nevada:** The Maglev train would travel at an overall average speed of 280 km/h (174 mph), and at speeds over 386 km/h (240 mph) for approximately 31 km (19.3 mi) of the proposed 56 km (35 mi) alignment – corresponding to approximately 55 percent of the length of the alternative.
- **Pennsylvania:** The Maglev train would travel at an overall average speed of 156 km/h (97 mph), and at speeds over 386 km/h (240 mph) for approximately 9.7 km (6 mi) of the proposed 76 km (47 mi) alignment – corresponding to approximately 13.5 percent of the length of the alternative.

**27. Inaccuracies in Section 3.14.5 regarding MTA and WMATA operations in the Maryland Alternative were identified.**

**Response:**

The inaccuracies have been noted and incorporated into Section 3.14.5 of Volume I.

**28. Is Maglev technology safe?**

**Response:**

The Maglev system – with the wrap-around style of the vehicle and guideway – has been tested for more than 15 years with a total distance traveled of approximately 700,000 km (435,000 mi), corresponding to 17,500 40-km (25-mi) trips. The system has been proven to be safe and its safety features (safe hovering, safe evacuation, safe speed control, collision avoidance, near impossibility of “derailment,” emergency braking, and fire safety) make it an extremely safe means of high-speed travel, especially when compared to aircraft, automobiles, and conventional rail. However, since the mission of the FRA clearly states its commitment to safety as a topmost priority for the promotion of successful transportation, FRA will take any necessary steps to ensure the safe operation of Maglev. As stated in Volume I, Section 4.16 of the Final PEIS, FRA will analyze – at the time of final design – the

safety and health aspects of the proposed action before commercialization. Site-specific issues related to safety concerns will be addressed in a site-specific EIS to be developed for the alternative selected for construction (see Response 3).

**29. Is Maglev technology ready for commercial operation?**

**Response:**

The Transrapid Maglev System has been demonstrated and tested at the Transrapid Test Facility in Emsland, Germany (TVE) for more than 15 years. A total distance of approximately 700,000 km (435,000 mi) has been traveled, corresponding to 17,500 40-km (25-mi) trips. Based on engineering and testing data, Transrapid International has concluded that the Maglev system is ready for commercial operation. However, as is the case for any rail system, once deployed the Maglev technology will be fully tested prior to any commercial use. This testing process will permit adaptations and technology updates before commercial use is initiated. Site-specific issues related to specific engineering details of the Maglev technology to be implemented will be addressed in a site-specific EIS to be developed for the alternative selected for construction (see Response 3 above).

**30. Can underground alignments – tunnels – be used as a mitigation option to alleviate project impacts?**

**Response:**

During the planning process participants considered all feasible alternative alignments both above and below ground. The underground placement of guided ground transportation facilities in urban and other areas can be used as a mitigation option for noise and vibration impacts, visual impacts, and effects on historic, archaeological, and cultural resources. It could also be used as a design and technology solution to the geographical constraints imposed by mountains and river crossings, in replace of longer tracks and bridges. The feasibility of this mitigation strategy was analyzed by the seven participants but for financial reasons was only found useful for the Georgia Alternative. Underground mitigation is listed in the mitigation list presented in Volume I, Section 4.10 of the Final PEIS.

**31. What will it be like to ride on Maglev?**

**Response:**

Magnetic levitation (Maglev) uses magnetic forces to lift, propel, and guide the train over a special guideway. Maglev does not require wheels or other mechanical parts at higher speeds for support or propulsion. Without wheels or other components to cause resistance, cruising speeds up to 483 km/h (300 mph) are practical. The hovering operation of Maglev trains results in no contact with the guideway – and hence little vibration, providing for an

extremely smooth ride that makes it more comfortable than modern buses and other high-speed – “steel wheel-on-steel rail” – systems. The high speeds achieved by Maglev trains are reached at a casual and comfortable acceleration rate. Similarly, stopping is achieved at a comfortable deceleration rate. The maximum linear acceleration and deceleration for Maglev operation will meet safety and comfort standards. The extreme comfort of Maglev trains is portrayed by the fact that even though the trains achieve very high speeds, passengers are not required to be seated during operation, and it is completely safe and comfortable to be standing while the train is in motion, and during initial acceleration and stopping. This provides for a drastic difference with airplanes where passengers are not only required to be seated during take-off and landing but also need to use safety belts for their protection. Additional comfort and convenience related benefits from Maglev technology over other transportation systems – airplanes and buses – are derived from the use of platforms at passenger stations. Some of these benefits include the convenience and ease of boarding and exit, especially valuable for elderly and disabled passengers since there will be no stairs to climb and wheelchair users will be able to simply roll in and out of the train. Further analysis of human factors and ergonomics related to Maglev operation will be addressed in a site-specific EIS to be developed for the alternative selected for construction (see Response 3).

### **32. What will be the cost to ride Maglev?**

#### **Response:**

The Maglev Congressional mandate establishes that the selected Maglev Alternative – for construction and operation – shall be a revenue producing transportation system. The cost to ride Maglev will be determined by each of the participants and will be dependent on investment and ridership information. Each alternative will select the Maglev riding fares that provide the most attractive transportation alternative to users and allow them to meet the revenue-producing rules established in the enabling legislation. Based on preliminary planning information the cost of Maglev riding fares for each of the alternative is:

- **California:** Between \$13 and \$14 for a one-way trip from endpoint to endpoint of the proposed 133 km (83 mi) to 148 (92 mi) alignment.
- **Florida:** Approximately \$8 for a one-way trip from endpoint to endpoint of the proposed 29 km (18 mi) alignment.
- **Georgia:** Approximately \$11 for a one-way trip from endpoint to endpoint of the proposed 50 km (31 mi) alignment.
- **Louisiana:** Between \$8 and \$10 for a one-way trip from endpoint to endpoint of the proposed 78 km (48 mi) alignment.
- **Maryland:** Approximately \$26 for a one-way trip from endpoint to endpoint of the proposed 64 km (40 mi) alignment.

- **Nevada:** Approximately \$6 for a one-way trip from endpoint to endpoint of the proposed 56 km (35 mi) alignment
- **Pennsylvania:** Approximately \$6 for a one-way trip on one of the segments of the proposed 76 km (47 mi) alignment.

**33. An Essential Fish Habitat (EFH) was identified within the Louisiana Alternative by the NMFS.**

**Response:**

The information was incorporated in Section 3.3 and 4.3, Volume I of the Final PEIS.

**34. The United States Department of Transportation – Federal Railroad Administration is responsible for EFH consultation with the NMFS if the Louisiana Alternative moves forward.**

**Response:**

The consultation responsibilities were incorporated in Section 3.3 and 4.3, Volume I of the Final PEIS.

**35. Revise the fauna list contained in Appendix H, Volume I of the Final PEIS for the Louisiana Alternative to include the estuarine and marine species known to utilize Lake Pontchartrain.**

**Response:**

The fauna list in Appendix H, Volume I of the Final PEIS was revised.

**36. The Maryland Department of Natural Resources indicated that two species (Bachman’s sparrow and Great blue heron) were omitted from the threatened and endangered species list for the Maryland Alternative.**

**Response:**

The list in Section 3.4 of Volume I of the Final PEIS was revised.

- 37. The Pennsylvania Department of Agriculture requested a change to the text in Section 3.3.7 to more accurately reflect the diversity of the wildlife species and habitat present in the agricultural areas of Pennsylvania.**

**Response:**

The text in Section 3.3.7, Volume I of the Final PEIS was revised.

- 38. The Pennsylvania Department of Agriculture indicated that the deposition of storm water onto agricultural fields is unacceptable.**

**Response:**

The information was incorporated into Section 4.1.3, Volume I of the Final PEIS.

- 39. The Pennsylvania Department of Agriculture commented that it is premature to state “There are no impacts to unique or locally important farmland soils.”**

**Response:**

This sentence was deleted from Section 4.11.7, Volume I of the Final PEIS.

- 40. If the land that is to be utilized for the construction of the Maglev system in Pennsylvania was originally used for the production of agricultural commodities, then, in the event that the Maglev system is no longer needed, that land will revert to agricultural status.**

**Response:**

The requirement was incorporated into Section 4.20, Volume I of the Final PEIS.

- 41. The vertical clearance requirements for Astrotech Space Operations, Inc was noted as a serious consideration for a site-specific EIS for the Florida Alternative.**

**Response:**

The comment was incorporated into Section 2.4.2, Volume I of the Final PEIS.

- 42. To help provide the reader with a better understanding of the purpose and need for a Maglev system as envisioned by Congress, it was recommended that TEA-21, Title 23, Chapter 3, Section 322 be included as an Appendix.**

**Response:**

Title 23, Chapter 3, Section 322 was incorporated as Appendix B in Volume I of the Final PEIS.

- 43. To provide the reader with more useful information, the EPA recommended including graphics of a Maglev vehicle and support structure in operation in various settings.**

**Response:**

These graphics were incorporated into Section 2.3, Volume I of the Final PEIS.

- 44. The EPA submitted comments and editorial corrections to the EMF sections of the DPEIS.**

**Response:**

These comments have been incorporated into sections 3.16 and 4.16, Volume I of the Final PEIS.

- 45. The Fish and Wildlife Service of Pennsylvania stated that one species (Indiana bat) was omitted from the threatened and endangered species list for the Pennsylvania Alternative.**

**Response:**

The species was added to the list in Section 3.4, Volume I of the Final PEIS.

- 46. The concern of spreading noxious and other invasive weed species was raised by the Nevada Department of Conservation and Natural Resources.**

**Response:**

The concern was addressed by creating a “Vegetation” subsection in Section 4.19, Volume I of the Final PEIS. The concerns will be further addressed in the construction plans of a site-specific EIS.

- 47. The Nevada Outdoor Recreation Association noted that the Las Vegas metropolitan area is very close to being categorized as non-attainment for ozone.**

**Response:**

This information was incorporated into Section 3.8.6, Volume I of the Final PEIS.

- 48. The Fish and Wildlife Service of California stated that five species (San Bernardino kangaroo rat, Delhi sands flower-loving fly, least Bell's vireo, Southwestern willow fly-catcher, El Segundo blue butterfly) were omitted from the threatened and endangered species list for the California Alternative.**

**Response:**

The list in Section 3.4, Volume I of the Final PEIS was revised.

- 49. C. Salvary identified potential environmental justice issues related to the Georgia Alternative.**

**Response:**

The concern has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 50. J. Mundy identified potential environmental justice issues related to the Georgia Alternative.**

**Response:**

The concern has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 51. J. Mundy identified potential impacts to three African American churches within the Georgia Alternative.**

**Response:**

The concern has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 52. J. Mundy requests consideration of tunneling under an African American community to eliminate visual impacts of Maglev system within the Georgia Alternative.**

**Response:**

The request to consider tunneling has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 53. J. Mundy identified a property potentially on the National Register within the Georgia Alternative.**

**Response:**

The potential of this property to be on the National Register has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 54. J. Mundy identified potential environmental justice issues related to the Northside Drive portion of the Georgia Alternative.**

**Response:**

The concern has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 55. J. Mundy identified potential environmental justice issues related to the Georgia Alternative.**

**Response:**

The concern has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 56. J. Mundy identified potential environmental justice issues related to the Atlanta University Center located within the Georgia Alternative.**

**Response:**

The concern has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**57. J. Mundy identified the potential destruction of an African American community within the Georgia Alternative.**

**Response:**

The destruction of this community has been noted and incorporated into Section 4.10.2 of Volume I for further consideration in a site-specific EIS.

**58. J. Mundy expressed concern of the potential affects on two African American churches within the Georgia Alternative.**

**Response:**

The concern of impacts to the African American churches has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**59. J. Mundy expressed concern of the potential affects on the Antioch Church within the Georgia Alternative.**

**Response:**

The concern of impacts to the Antioch Church has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**60. J. Mundy expressed potential concern over the lack of including four African American churches in public involvement related to the Georgia Alternative.**

**Response:**

The concern of lack of including four potentially impacted African American churches has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**61. J. Mundy expressed potential concern with public involvement efforts when planning the public information meeting related to the Georgia Alternative.**

**Response:**

The concern with public involvement efforts has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 62. J. Mundy stated that the Georgia Alternative would not be supported if tunneling was not planned as mitigation to destruction of community.**

**Response:**

The consideration of tunneling has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 63. Councilman Bond stated that the Georgia Alternative would not be supported if tunneling was not planned as mitigation to destruction of the Vine City community.**

**Response:**

The consideration of tunneling has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 64. Senator Fort stated that the potential impact of the Georgia Alternative would be too intense on the churches. Consider moving alignment to the east to avoid impacts to churches.**

**Response:**

The consideration of moving the Georgia alternative has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 65. Senator Fort requested specifics on how many people may be displaced by the Georgia Alternative.**

**Response:**

The request for specifics on how many people may be moved has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

- 66. B. Amos identified potential serious problems with the level of community public input allowed by the Georgia Alternative participants.**

**Response:**

The problem with community public input has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**67. B. Amos requested that the communities being impacted be included in the planning of the Georgia Alternative.**

**Response:**

The request for additional community involvement has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**68. Bullard/Torres expressed concern over the lack of representation of Fulton County and the City of Atlanta officials on the Atlanta-Chattanooga Maglev Study Committee.**

**Response:**

The concern over lack of representation of public officials on the study committee has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**69. Bullard/Torres expressed concern over the lack of participation of educational institutions directly impacted by the development of the Georgia Alternative on the Atlanta-Chattanooga Maglev Study Committee.**

**Response:**

The concern over lack of representation of educational institutions on the study committee has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**70. Bullard/Torres are concerned with the potential impacts to the area surrounding the Atlanta University Center (AUC) regarding the Georgia Alternative.**

**Response:**

The concern of impacts to the areas surrounding the AUC has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**71. Bullard/Torres are concerned with the lack of inclusion of the communities affected by the Georgia Alternative.**

**Response:**

The concern of the lack of inclusion of the communities affected by the Georgia Alternative has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**72. Bullard/Torres stated that no public information meetings were held in the areas potential impacted by the Georgia Alternative.**

**Response:**

The concern with the location of the public information meetings has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**73. Bullard/Torres identified environmental justice issues with the potential impacts on the Vine City area within the Georgia Alternative.**

**Response:**

The environmental justice issues with the impacts on the Vine City area have been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**74. Bullard/Torres state that the AUC should have been included in the planning of the Georgia Alternative.**

**Response:**

The concern of the lack of inclusion of the AUC in the planning of the Georgia Alternative has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**75. Bullard/Torres identified potential environmental justice issues within the Georgia Alternative.**

**Response:**

The environmental justice issues have been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**76. Bullard/Torres requested that elevating the guideway be investigated to mitigate potential impacts to communities within the Georgia Alternative.**

**Response:**

The request to elevate the guideway as mitigation has been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**77. The Housing Authority of Atlanta identified potential detrimental impact to mixed income communities – Village at Castleberry Hill and Herndon Homes – within the Georgia Alternative.**

**Response:**

The impacts to the mixed income communities have been noted and incorporated into Section 4.10.2, Volume I of the Final PEIS for further consideration in a site-specific EIS.

**78. The Toiyabe Chapter of the Sierra Club identified several issues in the description of the habitat within the Nevada Alternative**

**Response:**

The habitat description has been revised in the Nevada sections of Volume I.

**79. The Toiyabe Chapter of the Sierra Club requested reconsideration of the stated level of potential impact to air quality for the Nevada Alternative.**

**Response:**

The Nevada information was refined in the air quality sections of Volume I of the Final PEIS.

**80. The Toiyabe Chapter of the Sierra Club requested reconsideration of the units in the energy information of the Nevada Alternative.**

**Response:**

The energy units were revised in Volume I of the Final PEIS.

**81. J. Guignard made editorial comments.****Response:**

The editorial comments were reviewed and incorporated into Volume I of the Final PEIS where appropriate.

**82. How will flocking bird strikes affect the Maglev system?****Response:**

The potential for collisions between flocking species of birds and Maglev trains exists for the Maglev alternatives. Impacts to bird populations will be local and regional in nature and will be determined not only by species occurrence, population abundance, and nesting, feeding and landing sites of birds in the proposed alternatives, but also by the speed of Maglev in those areas where the identified species would be present. No scientific studies have been carried out by the Maglev participants to determine the potential effects to bird species from impacts with Maglev. However, some discussions have been held to initiate consideration of potential impacts to birds and mitigation measures in the planning process (refer to Volume I, Section 4.3 of the Final PEIS). Specific impacts to colonial nesting or flocking shore birds, wading birds, and waterfowl, as well as mitigation methodologies, would be further evaluated in the site-specific EIS to be developed for the alternative selected for implementation (please see response to Comment 3 above for an explanation of the site-specific analysis).

The potential for collisions between birds and the Maglev vehicles motivated Transrapid to investigate their effect on the safety of Maglev operations and the immediate environment<sup>3</sup>. Transrapid found that bird strikes are not uncommon at their test track in Germany, especially after a period of reduced operations, during which the local birds can get accustomed to perching on the guideway sections. Transrapid has taken obstacle collisions into account in the safety studies performed for the implementation of their technology in the U.S. market. Experiments have been conducted and numerical simulation calculations have been done to determine the effects of a collision between the Maglev vehicle and an external object. In the course of the qualification of the front cabin, it has been proved in tests that a rock weighing 1 kg (2.2 pounds) hitting the vehicle at a speed of 600 km/h (373 miles per hour) does not penetrate into the interior of the vehicle, even if it hits the front glazing or the plastic construction of the front end. Additionally, tests and simulations for collisions of representative obstacles have been performed (e.g., a stone of 50 kg (110 pounds), and a tree trunk or branch of diameter 20 cm (7.9 inches) and length 18 m (60 feet) lying on the guideway). Evaluation criteria for crashworthiness have been determined and include: injury or death of any people in the front-end section (passenger compartment and entrance area) by deformation due to collision; rapid deceleration of the car body that could result in injury to crew or passengers; and retention of vehicle stability and tracking. All criteria have been met in the experiments performed, assuring the crashworthiness of the TR08 at the levels if

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<sup>3</sup> Larry Blow. US Projects Manager, Transrapid International USA. October, 2000.

impact studied. Although the Maglev 2000 system is in the planning stage, their vehicle would undergo similar analysis and thus it is expected that it would have similar safety characteristics to those of the Transrapid TR08 related to collisions with external objects.

At the preliminary planning stage, these experiments and simulations have been used by the six alternatives proposing the use of the Transrapid technology in their analyses of the safety characteristics of TR08. Further analysis of the specific safety effects and potential mitigation strategies to protect bird populations could be developed by the selected alternative as part of the site-specific EIS stage. Similarly, further analyses to determine the crashworthiness of the M2000 vehicles could be developed as part of the site-specific EIS stage if the Florida alternative were selected for further development (please see response to Comment 3 above for an explanation of the site-specific analysis).

**83. Does the PEIS provide current information about the scientific and medical literature upon which EMF standards and guidelines are based?**

**Response:**

Section 3.16.2, Volume I of the Final PEIS briefly summarizes and refers to the recent conclusions of major expert reviews of the extensive published literature on potentially adverse and beneficial EMF health effects (including those by the National Institute of Environmental Health Sciences (NIEHS, 1995, 1998 and 1999) and to the World Health Organization (WHO) 1993-2000 assessments, upon which the international referenced standards (ICNIRP 1994, 1998) are based. In addition, this section was refined to include the key findings of the 1999 NIEHS report to Congress (see response to comment #85).

**84. What are the limitations of existing guidelines with regard to the degree of EMF protection?**

**Response:**

The FRA is committed to safety. Regulations and recognized guidelines governing safety are implemented at all levels of FRA operations. The FRA is committed to assure the Maglev Deployment Program will operate within all recognized EMF safety guidelines. In Section 3.16, Volume I of the Final PEIS, Public Health and Safety, 3.16.2 Electromagnetic Fields (EMF) and Radiation (EMR) Impacts, the subsection entitled *Knowledge of Health Effects* discusses the limitations of our knowledge, and therefore of existing referenced guidelines with regard to the degree of EMF protection to public and occupational safety and health. The remaining scientific uncertainties and the lack of consensus on public health impacts of low-level chronic exposures to EMF are due in part to the complexity and ubiquity of EMF exposures in our society, and in part to the low level of public health risk as concluded by the National Academy of Science (NAS, 1996), National Cancer Institute (NCI, 1998) and by the NIEHS (1998 and 1999). However, these standards focus on short-term safety effects, rather than on the public health impacts from long-term exposures to environmental low level fields

and radiation, which are still uncertain. Therefore, there are no science based national EMF/EMR safety guidelines at present that address such chronic exposures to environmental levels. Until such time that comprehensive regulations are promulgated on EMF/EMR, the FRA will subscribe to recognized and peer established safety guidelines. The Maglev Deployment Program will operate within all recognized guidelines to assure adequate safety is maintained for passengers, workers and the general public.

- 85. Ensure the accurate portrayal of the conclusions of key cited recent reports to reflect the conclusion that “there is a weak scientific link between ELF-EMF and possible health effects from ELF-EMF exposures.”**

**Response:**

Section 3.16.2, Volume I of the Final PEIS was refined to discuss the key finding of the 1999 NIEHS report to the Congress that indicates “ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard.”

- 86. What are the uncertainties associated with the EMF guidelines?**

**Response:**

See response to Comment #84.

- 87. Are the FCC guidelines that specify radio-frequency radiation (RFR or EMR) exposure limits mandatory or voluntary?**

**Response:**

The FCC 1996 environmental exposure limits on RF radiation exposure safety (see Table 3.16.4 in Volume I of the Final PEIS) are mandatory only for those radio wave sources regulated by the FCC. This includes emitters licensed by the FCC (e.g. radio and TV broadcast stations, cell phone base stations), or commercial communication devices whose spectrum is regulated by the FCC (e.g., cell phones). The FCC approves the radio-communication spectrum bands utilized by railroads. Furthermore, the FRA is the primary regulatory agency responsible for EMF and EMR related safety and environmental assurance issues for both rail and Maglev under the Rail Safety Act. Thus, there exists a double check on the Maglev use of radio communications with the FCC and FRA providing oversight.

**88. Revise the information in Table 3.16-4.****Response:**

Table 3.16-4 in Volume I of the Final PEIS was revised as suggested.

**89. Clarify that AC and DC field exposures do not produce the same (health and safety) effects.****Response:**

Clarification between the AC and DC field exposure health and safety effects are identified in Section 3.16.2, Volume I of the Final PEIS since there are different human exposure safety standards tabulated for static (or direct current, DC) fields in Table 3.16.1 and for alternating current or AC (ELF-EMF) fields in Tables 3.16.2 through 3.16.4. The different magnetic fields characteristics of Maglev alternatives associated with respective technologies are discussed in Section 2.3, 2, Volume I while their impacts are differentiated in Section 3.16.2 in the subsection on *Knowledge of Alternative Maglev EMF/EMR Characteristics*.

**90. Reference the NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields.****Response:**

This reference was incorporated both in the list of references and Section 3.16.2, Volume I of the Final PEIS was refined to quote the key finding from the NIEHS report (see response to comment #85).

**91. Consider revising the referenced tables and the effects of high intensity RF exposures.****Response:**

The complete reference to tabulated human exposure safety standards limiting both field strengths and the power density of electromagnetic radiation was incorporated. This information supplements information provided on tissue heating direct and indirect effect of RF exposures over the entire range of frequencies in Section 3.16.2, Volume I of the Final PEIS under *Knowledge of Health Effects*.

- 92. Consider revising the guidelines referenced to include the most recent International Commission on Nonionizing Radiation Protection (ICNIRP) standards, and note that the IEEE standards referenced are not the most recent, nor the most protective standards available (namely the FCC's 1996 limits, which are based on the NCRP guidelines).**

**Response:**

The ICNIRP 1998 international broad- spectrum human EMF and EMR exposure safety voluntary standards, endorsed by the World Health Organization (WHO), were cited and discussed in Section 3.16.2, , Volume I of the Final PEIS as were the 1994 ICNIRP limits on static magnetic fields. However, the FCC 1998 standards, while most protective, are based on the now outdated 1986 National Council on Radiation Protection (NCRP) guidance, and in part on the IEEE C95.1 1992 voluntary standards for EMR exposure safety. In contrast, the IEEE/ANSI C95.1 consensus human safety standards referenced were updated in 1999 and are the most recent available and applicable to Maglev exposures to passengers, public and workers.

- 93. Clarify that the exposure limits used by some states to determine the width of the right-of-way under electric transmission lines are not based on health effect, but are the limits for the electric field at the edge of the right-of-way which are intended to prevent electrical shock and burn from contact with electrical conductors.**

**Response:**

The text discussion in Section 3.16.2, Volume I of the Final PEIS on State-imposed limits on EMF was now augmented as suggested to further clarify their ad-hoc nature.

- 94. Consider identifying previous Maglev reports containing effects information as well as the reports that contain exposure information.**

**Response:**

The FRA completed several reports, in cooperation with the John A. Volpe National Transportation Systems Center, focusing on measurements, comparisons, standards and potential health effects of EMF associated with existing and advanced rail and transit systems and technologies. Several of these very technical reports were on the potential bioeffects of Maglev-specific fields on animals and have not been scientifically replicated. Without going through this standard peer review process, the reports will remain open to general criticism on their validity. Although several of these reports were referenced (DOT, 1990 through 1995), it would be inappropriate to reference the reports that are in the review process.

**95. Consider changing the narrative to indicate there is weak scientific evidence for possible health effects from ELF-EMF exposure.**

**Response:**

Comment incorporated in the text of Section 3.16.2, Volume I of the Final PEIS.

**96. Why are the EMF and EMR levels of the TR08 similar to those of the TR07?**

**Response:**

The TR07's components, subsystems and EMF characteristics were extensively tested and certified at Emsland, Germany. The TR07 design was refined into the TR08 based on the experience gained at the Emsland Maglev test track. The TR08 represents an evolutionary improvement of the same family of electromagnetic attractive propulsion and levitation technologies and systems. Therefore, its components, subsystems and –by inference- EMF characteristics are very likely to be closely similar to the TR07 that preceded it. While the exact EMF and EMR levels in public and worker areas may differ for TR08 compared to the TR07, it is appropriate at this programmatic level of the NEPA process to use the available information on the TR07. However, for the site specific EIS the exact EMF and EMR characteristics must be known. Understanding this need, the FRA intends to measure the EMF and EMR characteristics of the latest Transrapid Maglev System, TR08, at the Emsland Maglev test track.

**97. Revise the frequency ranges in Table 3.18-1 in Volume I of the Final PEIS.**

**Response:**

Table 3.18-1 was revised accordingly.

**98. Correct the microTesla units conversion.**

**Response:**

The conversion was incorporated in Section 3.16.2, Volume I of the Final PEIS.

- 99. If the detailed information (in original reports referred to) is important, then that information should be provided in this document.**

**Response:**

The detailed information on relative EMF average levels for a variety of rail and transit vehicles, reported in the referenced reports, was summarized in Tables 4.16-1 and -2 and graphically displayed in Figures 4.16.1, -2 and-3 in Volume I of the Final PEIS.

- 100. Replace NOIH with NIOSH.**

**Response:**

The replacement was made in Section 4.16-3, Volume I of the Final PEIS.

- 101. Can highways I-75 and I-85 be considered as the alignment for the Atlanta-Chattanooga Line?**

**Response:**

The concern was incorporated into Volume I, Section 4.10.2 of the Final PEIS for further consideration in a site specific EIS.

- 102. Will funds be available to residents, businesses, churches, schools and institutions of higher education if they are relocated as a result of Maglev?**

**Response:**

All possibilities will be considered to prevent disruptions to residents, businesses, churches, schools, and institutions of higher education. The process for identifying which of the seven alternatives will be selected for further design is underway. Once an alternative is selected for further design, the next phase of the NEPA process will begin. As part of the next phase of the NEPA process, the final alignment will be discussed with the public. If, as a last resort, relocation of a resident business, church or institution of higher education is necessary, funds will be available from the state participant as defined in the pertinent legislation.

**103. What is considered the “impact area” and what does it mean socially, economically and environmentally to the surrounding neighborhoods, schools, churches and higher learning institutions?**

**Response:**

By statute the PEIS is required to identify the environment of the area to be affected by the alternatives under consideration and the potential impacts to the natural and human environments in these areas. Chapter 3 of Volume I of the Final PEIS succinctly describes the environment of the area to be affected or created by the alternatives under consideration (40 CFR §1502.15). Chapter 4 of Volume I of the Final PEIS describes the effects of the alternatives on the environment and their significance. Effects include ecological, aesthetic, historic, cultural, economic, social or health (40 CFR §1508.0).

**104. Consider financial contributions from Cobb County.**

**Response:**

The concern was incorporated into Volume I, Section 4.10.2 of the Final PEIS for further consideration in a site specific EIS.

**105. The Florida Fish and Wildlife Conservation Commission (FWC) opposes the deployment of the Maglev Florida Alternative due to the associated potential extensive environmental impacts.**

**Response:**

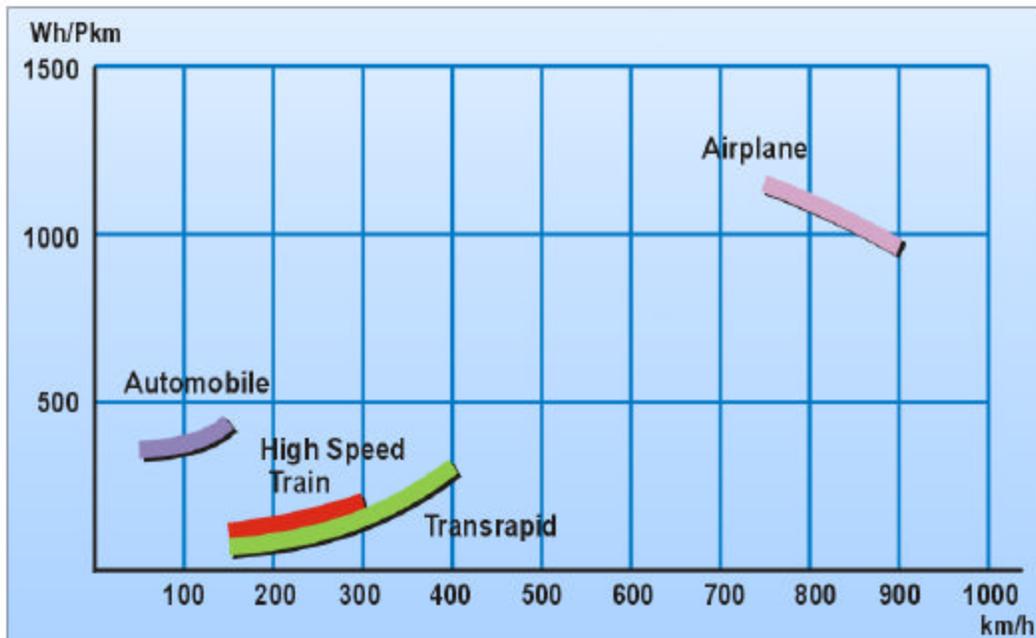
The concern and opinion of the FWC was incorporated into Volume I, Section 4.3.3 of the Final PEIS for further consideration in a site specific EIS if the Florida Alternative is selected for further analysis. Please refer to the answers to questions 8, 9, and 16 for further explanation of the evaluation of impacts to ecological resources, wetlands, threatened and endangered species and their habitat, and visual impacts.

**106. How energy efficient is the Transrapid Maglev technology when compared to other high-speed ground transportation systems?**

**Response:**

The low energy consumption of the Transrapid system results from its lack of friction (non-contact technology), the high efficiency of its synchronous longstator motor, and the economical vehicle data such as low weight and low aerodynamic resistance (no pantograph, smooth exterior and underbody). For these reasons, when traveling at the same speed, the Transrapid consumes approximately 30 percent less energy than a modern high-speed train. Or formulated another way, for the same energy input, the Transrapid Maglev train produces

approximately one third more output or performance. When compared with road and air travel, Transrapid is even more energy efficient. For equal distances, the specific energy consumption of automobile travel is three times higher and for air travel, five times higher than the Transrapid system. Further, a comparison briefing has been made to compare Transrapid Maglev energy performance with those of the InterCity Express (ICE) high-speed trains in service in Germany. The briefing has been endorsed by Deutsche Bahn and substantiates the energy differences between the two technologies. The accompanying figure illustrates a comparison between the primary energy consumption of Transrapid Maglev technology and that of some selected common modes of travel.



Source: Transportation International

**107. Will turnouts be used for Maglev implementation and would be their potential visual impact?**

**Response:**

It is anticipated that high- and low-speed turnouts, or switches, will be used in for Maglev operation. The two switches used at the Transrapid test facility in Germany are two-position switches. Several of the alternatives have proposed the use of three-way turnouts. The potential visual and aesthetic impact of the turnouts will be determined as part of the site-specific environmental impact statement to be developed for the selected alternative(s) (see response to Comment 3 above for an explanation of the site-specific analysis).

**108. The Florida Department of Environmental Protection highlighted the importance of the Indian River Lagoon System and the water quality of the Banana River.**

**Response:**

Section 3.3.2 in Volume I of the PEIS was revised to include Florida Department of Environmental Protection information.

**109. The Florida Fish and Wildlife Conservation Commission stated that the Florida alternative would cross and potentially impact the Enchanted Forest Conservation and Recreational Lands (CARL) Project, the Scrub Jay Refuge CARL Project, and the Banana River Aquatic Preserve.**

**Response:**

Section 4.3.3 in Volume I of the PEIS was revised to include the Florida Fish and Wildlife Conservation Commission information.

**110. The DPEIS started the discussion of potential issues, but how many detailed issues are left unanswered or quantified? Detailed EIS's should be completed on all seven properties before a decision is made to proceed with the final selection process.**

**Response:**

The decision to proceed with the U.S. Maglev Development Program and which alternative or alternatives will be considered for further analysis will not be made solely on the PEIS. Each applicant was required to submit to the FRA detailed project descriptions that included comprehensive information on finance, management, construction scheduling, refinement to the environmental concerns, and other considerations. Furthermore, each applicant was invited to participate in an information exchange with FRA to consider additional information in that each applicant developed after submitting the project descriptions. The final decision in the selection process will include at a minimum all other information. Thus, developing site specific EIS's for each participant is not necessarily needed to make an informed final decision.

- 111. The Pennsylvania Alternative could have passenger terminals located in agricultural areas. If this occurs, a concerted and genuine effort to coordinate a comprehensive Land Use plan with train stops must be undertaken with county officials.**

**Response:**

Protection of agricultural area is an important consideration for the construction of the Maglev system. If the Maglev Deployment Program does proceed past the PEIS stage, all concerns relating to agricultural areas will be addressed at the appropriate site specific level of analysis.

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## **2. PUBLIC COMMENTS RECEIVED ON DPEIS.**

The following public comments were received during the Maglev DPEIS Public Comment Period. The majority of the comments were sent to the U.S. Department of Transportation's DMS. However, comments were included that were sent directly to the FRA. The public hearing transcript and public meeting minutes, when supplied by the state participants, were also included. As a reminder, the large number in the right hand margin references the response provided in Section 1.3 Response to Comments.

[Link to General Comments](#)

[Link to California Comments](#)

[Link to Florida Comments](#)

[Link to Georgia Comments](#)

[Link to Louisiana Comments](#)

[Link to Maryland Comments](#)

[Link to Nevada Comments](#)

[Link to Pennsylvania Comments](#)

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