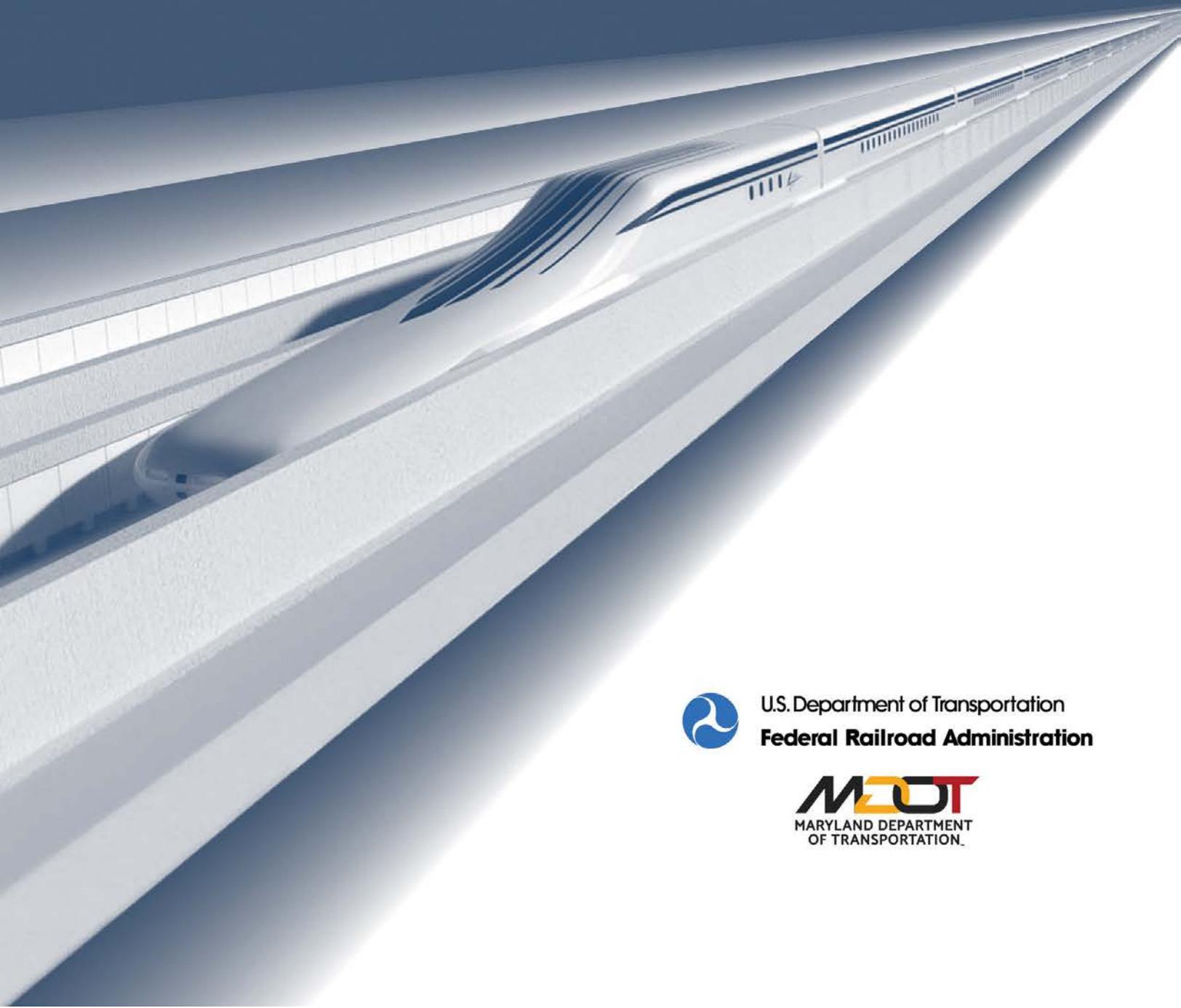


# Executive Summary

## BALTIMORE-WASHINGTON SUPERCONDUCTING MAGLEV PROJECT

DRAFT ENVIRONMENTAL IMPACT STATEMENT AND  
SECTION 4(f) EVALUATION



U.S. Department of Transportation  
**Federal Railroad Administration**



## *Executive Summary*

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### **ES.1 Introduction**

The U.S. Department of Transportation's (USDOT) Federal Railroad Administration (FRA) is preparing this Draft Environmental Impact Statement (DEIS) in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.) to assess the potential environmental impacts from implementing the proposed Superconducting Magnetic Levitation (SCMAGLEV) system between Baltimore, MD and Washington, D.C. (SCMAGLEV Project).

FRA is conducting this environmental review process in accordance with the Council on Environmental Quality's (CEQ) NEPA regulations (40 C.F.R. § Parts 1500-1508), and FRA's *Procedures for Considering Environmental Impacts* (64 Fed. Reg. 28545 (1999)). FRA is the lead Federal agency for preparation of the EIS. The Maryland Department of Transportation's (MDOT) Maryland Transit Administration (MTA) provided technical assistance to FRA in the preparation of the EIS. Baltimore-Washington Rapid Rail, LLC (BWRR), the private Project Sponsor, is the entity that would design, construct, and operate the SCMAGLEV system. Other Federal, state and local agency stakeholders directly involved in implementation of the Project include a wide range of entities that FRA identified and coordinated with during the NEPA process.

FRA has jurisdiction over all railroads, as defined in 49 U.S.C. 20102, except urban rapid transit operations that are not connected to the general railroad system of transportation, and broad authority to prescribe regulations and issue orders, as necessary, for every area of railroad safety (49 U.S.C. 20101 et seq.; 49 C.F.R. § 1.89, Parts 200-299). In addition, FRA is providing funding for Project planning under Section 1307 of The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) Act (P.L. 109-59, August 10, 2005), which authorized funding for a MAGLEV project, defined as transportation systems employing magnetic levitation that would be capable of safe use by the public at a speed in excess of 240 miles per hour. There is no funding appropriated for construction as of the publication of this DEIS.

In November 2015, the Maryland Public Service Commission approved BWRR's application to acquire a passenger railroad franchise to deploy a SCMAGLEV system between Baltimore, MD and Washington, D.C. In 2016, FRA awarded a \$27.8 million grant to MDOT MTA for Preliminary Engineering (PE) and Environmental Review for the SCMAGLEV Project. BWRR provided a 20 percent match for the grant for the NEPA study and preliminary engineering. However, there is no funding appropriated for construction as of the publication of this DEIS.

Current FRA safety regulations do not comprehensively address SCMAGLEV train operations, as this technology is not currently deployed in the United States. Therefore, FRA may issue a rule of particular applicability (RPA) (regulations that apply to a specific railroad or a specific type of operation), a rule of general applicability, impose requirements or conditions by order(s) or waiver(s), or take other regulatory action(s) to ensure the SCMAGLEV Project is operated safely. This regulatory action(s) and providing Project funding require an environmental review under NEPA.

### **ES.1.1 Agency Roles and Responsibilities**

FRA, as the lead Federal agency, is responsible for ensuring that the environmental review process is conducted in accordance with NEPA and all applicable environmental laws and regulations. The FRA is coordinating with Cooperating and Participating Agencies as part of the NEPA process. Cooperating Agencies are those agencies that have jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative). Participating Agencies are those agencies that may have an interest in the proposed project. By agreeing to be either a Cooperating or Participating agency in the NEPA process, agencies are committing to participate throughout the process and to provide input on methodology, analysis, findings and mitigation. FRA has invited applicable Federal, state, county and local government regulatory and jurisdictional agencies within the Project Study Area to be Cooperating and Participating Agencies. Chapter 5, Public Involvement and Agency Coordination provides a list of agencies and their roles.

The Project Team Members for the SCMAGLEV Project are using a modified version of Maryland's Streamlined Environmental and Regulatory Process to establish concurrent coordination of Section 106, Endangered Species Act, Clean Air Act, and Clean Water Act Section 404. This streamlined process helps to ensure the appropriate agencies have been provided an opportunity to communicate necessary information to the team and to review and comment on the preliminary findings of the NEPA studies.

Concurring agencies review, comment and provide formal concurrence at three key milestones for issuance of required wetlands and waterways permits following the NEPA phase. Milestones are:

1. Purpose and Need,
2. Alternatives retained for detailed study; and
3. Preferred Alternative/Conceptual mitigation.

Concurring agencies provide agreement to the decisions made at key milestones, unless there are substantial changes to the proposed action or significant new circumstances or information relevant to the environmental concern. For the SCMAGLEV Project, FRA identified the following concurring agencies: The U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), U.S.

Environmental Protection Agency (USEPA), and the Federal Aviation Administration (FAA).

The Cooperating Agencies for the SCMAGLEV Project are:

- Federal Aviation Administration (FAA)
- Federal Transit Administration (FTA)
- National Capital Planning Commission (NCPC)
- U.S. Department of Interior (USDOI)-National Park Service (NPS)
- Surface Transportation Board (STB)
- U.S. Army Corps of Engineers (USACE)
- U.S. Department of Agriculture (USDA)–Beltsville Agricultural Research Center (BARC)
- U.S. Environmental Protection Agency (USEPA)
- National Aeronautics and Space Administration, Goddard Space Flight Center (NASA/GSFC)
- National Security Agency (NSA)
- U.S. Fish and Wildlife Service (USFWS)

### **ES.1.2 Description of the Project**

The Project includes the construction and operation of a SCMAGLEV system between Baltimore, MD and Washington, D.C. The SCMAGLEV Project is a high-speed rail technology that runs on a grade-separated, fixed guideway powered by magnetic forces at speeds of over 300 miles per hour. This system does not operate on standard steel wheel railroad tracks and therefore requires a dedicated grade-separated guideway. Chapter 3, Alternatives Considered, and various appendices provide more information on the superconducting magnetic levitation technology.

The SCMAGLEV Project includes two terminal stations (Washington, D.C. and Baltimore, MD) and one intermediate station at the Baltimore-Washington International Thurgood Marshall Airport (BWI Marshall Airport). The system requires additional facilities to operate including one trainset maintenance facility (TMF), two maintenance of way (MOW) facilities, and other various smaller ancillary facilities. The ancillary facilities include fresh air and emergency egress (FA/EE) facilities, substations, SCMAGLEV wayside system facilities and stormwater management. The system would operate underground (deep tunnel) and on elevated (viaduct) guideway. Stations and ancillary facilities would have access to passenger and employee parking as applicable.

BWRR is providing technical input to FRA regarding the construction and operation of the SCMAGLEV system, as deployment of this technology would be new to the United

States. BWRR is responsible for securing all required approvals and permits to construct and operate the SCMAGLEV Project.

### **ES.1.3 Project Study Area**

The Project Study Area is roughly bound by I-95 on the west and by the former Washington-Baltimore & Annapolis Electric Railroad alignment on the east, and it includes portions of Baltimore City, Baltimore County, Howard County, Anne Arundel County, Prince George's County, and Washington, D.C. (**Figure ES1.3-1**).

### **ES.1.4 Draft Environmental Impact Statement (DEIS)**

The DEIS provides a detailed description of the SCMAGLEV Project Purpose and Need, alternatives developed, the existing environmental conditions and the analysis of the potential beneficial and adverse environmental effects and consequences of the alternatives, and potential mitigation strategies. The DEIS provides a comparative analysis between the No Build Alternative and the Build Alternatives so that government agencies, elected official, interested citizens, businesses, and other stakeholders can assess the potential human and environmental effects of the SCMAGLEV Project. The DEIS is supported by appendices, technical reports and supporting technical information provided by the Project Sponsor.

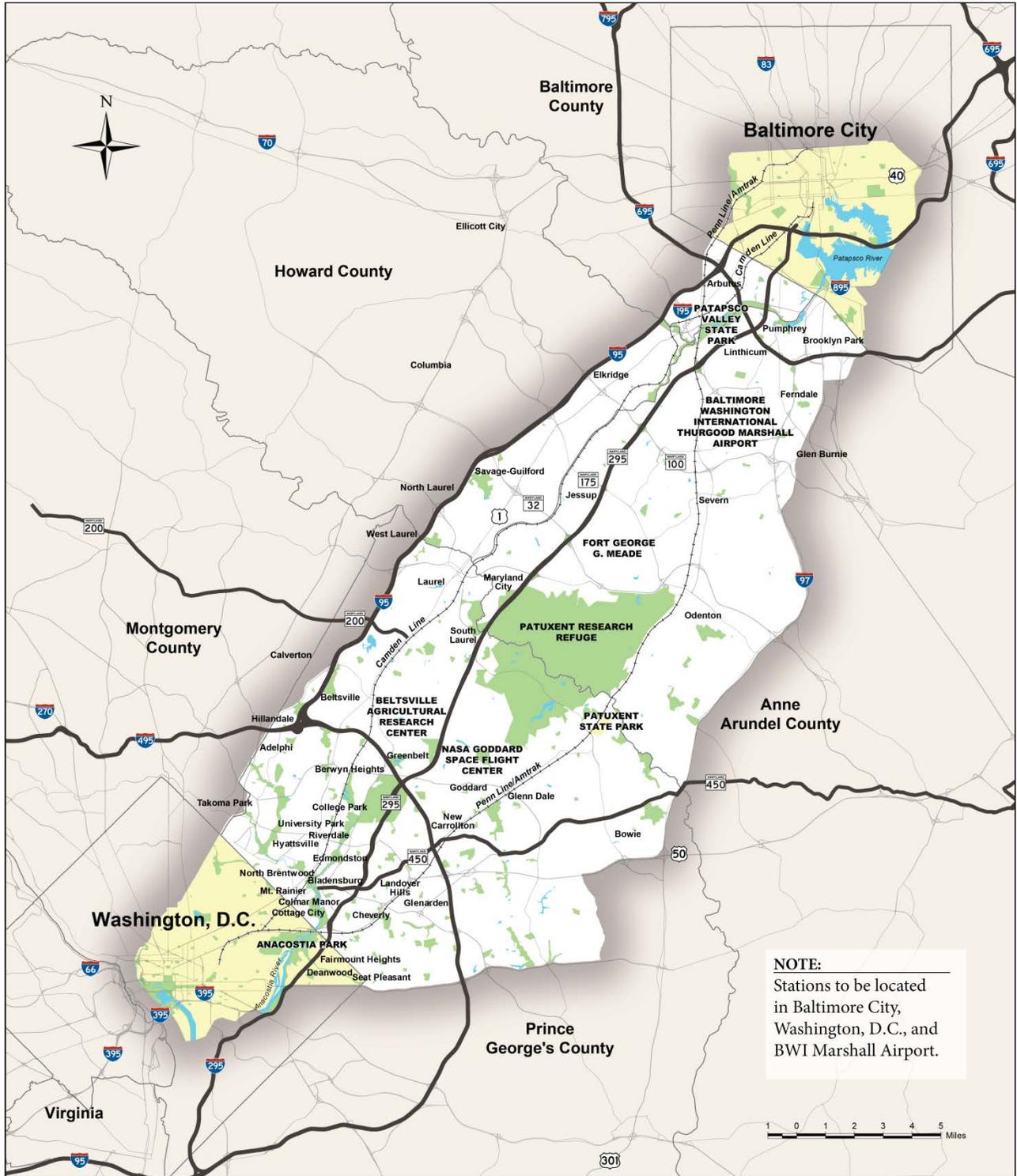
After circulation of the DEIS, a Final Environmental Impact Statement (FEIS) will be developed. The FEIS will identify the Preferred Alternative and focus on any additional analysis and refinements of the data, as well as responding to substantive comment and testimony received on the DEIS. A Record of Decision, which identifies the Selected Alternative as a result of the analysis, after considering a reasonable range of alternatives and all practicable means to avoid, minimize, or mitigate environmental impacts would complete the EIS process.

#### **ES.1.4.1 Scope of the DEIS Document**

The DEIS provides a summary of technical studies and contains 5 chapters. Detailed documentation of existing conditions, methodologies, assessment of effects, and potential mitigation strategies are included in the document appendices and are available on the project website ([www.bwmaglev.com](http://www.bwmaglev.com)).

- Chapter 1 presents an introduction to the SCMAGLEV Project and NEPA process.
- Chapter 2 presents the Purpose and Need for the SCMAGLEV Project.
- Chapter 3 provides an overview of the alternatives' development process and definition of the No Build and Build Alternatives evaluated in the DEIS.

Figure ES1.3-1: Project Study Area



- Chapter 4 presents a description of the existing conditions, potential effects of the Build Alternatives, and mitigations strategies to address adverse effects.
- Chapter 5 provides a summary of public and agency involvement through the publication of the DEIS.

## ES.2 Project Purpose and Need

The purpose of the SCMAGLEV Project is to evaluate, and ultimately construct and operate, a safe, revenue-producing, high-speed ground transportation system that achieves the optimum operating speed of the SCMAGLEV technology to significantly reduce travel time to meet the capacity and ridership needs of the Baltimore-Washington region. To achieve the operational and safety requirements needed for a SCMAGLEV system, the SCMAGLEV Project must include:

- Infrastructure, vehicles, and operating procedures required for the SCMAGLEV system.
- An alignment which allows the highest optimal speed attained by SCMAGLEV technology at a given location and which avoids the need for reduction in speed other than that imposed by the normal acceleration and braking curves into and out of stations.
- A system that complies with Federal safety requirements.
- Avoidance, minimization, and mitigation of impacts to the human and natural environments.

The objectives of the SCMAGLEV Project are to:

- Improve redundancy and mobility options for transportation between the metropolitan areas of Baltimore and Washington, D.C.
- Provide connectivity to existing transportation modes in the region (e.g., heavy rail, light rail, bus, air).
- Provide a complementary alternative to future rail expansion opportunities on adjacent corridors.
- Support local and regional economic growth.

In June 2001, FRA selected the Baltimore-Washington corridor as the location for further consideration of maglev technology under the Maglev Deployment Program. FRA selected the SCMAGLEV Project for funding due to the area's high level of congestion, economic importance, increased development, and the need for connectivity between the two cities. The SCMAGLEV Project is needed to address the following transportation issues and challenges:

- Increasing population and employment
- Growing demands on the existing transportation network

- Inadequate capacity of the existing transportation network
- Increasing travel times
- Decreasing mobility
- Maintaining economic viability

## ES.3 Alternatives Development

FRA considered the No Build Alternative and Build Alternatives that focus on implementation of a SCMAGLEV system. FRA did not include the evaluation of other transportation modes for the Build Alternatives because modes other than SCMAGLEV technology would not achieve the SCMAGLEV Project Purpose and Need. As such, the Build Alternatives focus on the SCMAGLEV technology and related infrastructure, such as stations, TMF, and other ancillary facilities needed to support the operation of the SCMAGLEV system.

### ES.3.1 SCMAGLEV Technology

SCMAGLEV is a transportation technology developed by the Central Japan Railway Company (JRC), but not currently in operation in the United States. Unlike typical electric trains in service in the United States, a SCMAGLEV system does not operate on standard steel railroad tracks. SCMAGLEV trains levitate between the walls of a unique U-shaped concrete structure, known as a guideway, which has walls surrounding the trains on both sides, which prevents the SCMAGLEV system from derailment. Powerful superconducting magnets on the trains and propulsion coils in the guideway walls generate the acceleration forces that drive the SCMAGLEV system, resulting in traveling speeds of over 300 miles per hour. Direct links to power substations transfers the electrical power needed to operate the SCMAGLEV system along the guideway.

SCMAGLEV technology requires a grade-separated fixed guideway to operate. Grade-separated means that the guideway is not at ground level; it is either elevated above ground on a structure (viaduct) or below ground in a tunnel and is physically separated from existing roadways and railroads. In general, guideway alignments that FRA evaluated in the DEIS follow existing transportation corridors and provide multimodal connections to existing Washington Metro Area Transit Authority (WMATA) and MDOT MTA transit services to the extent reasonably feasible. Chapter 3 Alternatives Considered includes detailed descriptions and graphics of each SCMAGLEV technology elements.

SCMAGLEV technology requires the following ancillary facilities as listed in **Table ES3.1-1**.

**Table ES3.1-1: Ancillary Facilities**

Project Elements	Element Description
Tunnel Portals	Areas where the guideway transitions between viaduct and tunnel. For the SCMAGLEV Project, the portal length generally varies between 330 feet to 1,600 feet depending on SCMAGLEV design criteria and on-site conditions. During operation, a train would emerge from a tunnel in an area with walls on either side, transition to an area where the guideway would be supported on retaining walls and would then rise to a viaduct.
Trainset Maintenance Facility (TMF)	A facility for storing, maintaining, repairing, and cleaning the 16-car SCMAGLEV trains. The key elements at a TMF are a storage yard for trains; maintenance building for inspection, factory and repair shops; miscellaneous storage building; administrative offices; and employee/visitor parking.
Maintenance of Way (MOW) Facilities	A MOW facility is an above ground location that consists of the offices, equipment, and materials for maintaining and repairing the SCMAGLEV guideway. A SCMAGLEV system may have one or more MOW facilities to accommodate the requirements to maintain and repair the guideway if needed.
Stations	Stations are the points of passenger access to the SCMAGLEV system. Key elements of stations are access points; ticketing and waiting concourses; boarding platforms; operational spaces; passenger parking; pick-up and drop-off areas; and ground transportation connection areas.
Fresh Air and Emergency Egress (FA/EE) Facilities	Provide fresh air circulation during normal operations to underground facilities including tunnels and stations and in the event of an emergency provides evacuation facilities from the tunnel to the ground surface. FA/EE sites, located between 3.1 and 3.7 miles apart along tunnel guideway sections, are enclosed in above ground buildings with an access road connection to a public street. In addition to fan equipment, airshafts and emergency exits, the sites house control facilities and emergency response equipment.
Power Facilities	SCMAGLEV technology requires power substations near or at each TMF, station, and approximately every 12 to 16 miles along the guideway route, including tunnel and viaduct sections. Substations provide power to the SCMAGLEV guideway and propulsion systems, and power all operations and maintenance facilities including FA/EE's and other ancillary signals and communications equipment. Substations can be built above or below ground, and possibly combined with other facilities.
Operations and Control Center	The Operations Control Center (Center) manages all operations related to the SCMAGLEV technology: train movements, safety and emergency activities, power usage, and operations according to the established schedule. Generally, the center is located at a station or at a TMF.
Signals and Communications	Additional SCMAGLEV system facilities along the guideway route provide signals and communications required for safe and efficient operation of the overall SCMAGLEV system technology. Signal and communication equipment are typically housed in buildings adjacent to and at intervals along the guideway; the equipment is interconnected by means of underground wiring in conduit, which in turn, is connected to the Operations Control Center.

### ES.3.2 Alternatives Development Process

FRA conducted a multi-step screening process to identify potential alternatives, including previously studied alternatives and new alternatives. Screening included public and agency outreach and input to inform the process and the determination to either advance or eliminate alternatives from further consideration. FRA and MDOT MTA held public Scoping Meetings in December 2016 and Draft Purpose and Need and Screening meetings in April 2017 and October 2017, and the Cherry Hill/Patapsco Avenue Baltimore meeting in December 2018.

The screening process resulted in two reports: FRA's 2018 *Preliminary Alternatives Screening Report, Baltimore-Washington Superconducting Maglev Project* (Preliminary Alternatives Screening Report (PASR)) and FRA's 2018 *Alternatives Report, Baltimore-Washington Superconducting Maglev Project*. A No Build Alternative was defined and carried forward throughout the screening process.

The PASR identified a reasonable range of alignments and possible TMF and station locations for the SCMAGLEV Project. The PASR first focused on existing transportation corridors and alignments that would optimize operating speed for the SCMAGLEV system. FRA identified fourteen initial alignments in the PASR. The initial alignments, along with multiple station zones and TMF sites, went through a fatal flaw analysis that refined the alignments for further evaluation. Public and agency outreach occurred during the screening process to assist in evaluating the alignments, station zones, and maintenance facilities.

Alignments retained for further study from the PASR, in addition to the No Build Alternative, were Build Alternative J (Baltimore-Washington Parkway (BWP Modified-East)) and Build Alternatives J1 (BWP Modified-West). These alternatives achieved the geometrical requirements for SCMAGLEV operation and, compared to the other preliminary alternatives, would require relatively fewer residential property acquisitions and displacements; have fewer visual and noise impacts to surrounding neighborhoods and communities; would minimize/avoid disruption to the Northeast Corridor (NEC); would not impact the planned Odenton Town Center Transit-Oriented Development (TOD) at the Maryland Area Regional Commuter (MARC) Odenton Station; would not displace the MARC Seabrook Station; and would have fewer impacts on parks and trails.

FRA documented the alternatives development, refinement, and environmental evaluation of Build Alternatives J and J1 in the *Alternatives Report* (November 2018). FRA made refinements to Build Alternatives J and J1 based on input from Federal, state, and local agencies to reduce or eliminate property impacts, improve horizontal and/or vertical geometry, and lengthen tunnel sections. The evaluation of alternatives and ancillary facilities included refinement of initial station concepts within the station zones studied in the PASR. The evaluation resulted in FRA retaining these alternatives for further consideration and detailed comparative study of the benefits and impacts of each alternative including:

- New parking structures;
- Multiple ancillary facilities (power substations, FA/EE facilities (FA/EE), MOW facilities, and tunnel boring machine (TBM) launch/retrieval sites); and,
- One TMF (referred to as a ‘rolling stock depot’ (RSD) in the November 2018 Alternatives Report).

During development of this DEIS, the design criteria for SCMAGLEV technology has evolved, resulting in design refinements to achieve newly adopted design criteria. This resulted in shifts and new locations for some SCMAGLEV Project elements. This DEIS represents and evaluates those refinements resulting from newly adopted design criteria. For more information on the Alternatives Development Process see Chapter 3. **Table ES3.2-1** provides a summary of the previous and current assumptions for various elements of the SCMAGLEV Project.

**Table ES3.2-1: Comparison of Previous and Current SCMAGLEV Project Elements**

Project Elements	Previously Considered (2019)	Currently Considered (evaluated in this DEIS)
Alignment (dedicated guideway)	BWP East/West (J and J1); combination of tunnel and viaduct	Same general alignment, shifts in alignment to meet geometric design refinements
Stations	2 D.C. stations, 1 BWI Marshall Airport Station, 2 Baltimore Station options	1 D.C. station, 1 BWI Station, 2 Baltimore Station options
Trainset	12 Car Trains	16 Car Trains
TMF	Patapsco Avenue and MD 198 (approximately 150 acres in total size)	BARC Airstrip (new), Beltsville Agricultural Research Center (BARC) West (new), redesigned MD 198 (approximately 180 acres in total size)
Ancillary Facilities	Portals, FA/EE facilities, substations, MOW facilities, system operations center, and signals and communications facilities	All still applicable; changes in size/locations to be consistent with current trainset, stations, TMF assumptions

This DEIS considers 12 Build Alternatives and the No Build Alternative. Each Build Alternative comprises an alignment for the dedicated guideway, three stations, one TMF, and other ancillary facilities:

- Each Build Alternative follows the same common alignment in deep tunnel from the Washington, D.C. Station to just west of the Anacostia River. The alignments

then split and follow along either the east or west side of the BWP in a combination of deep tunnel and viaduct. The alignments re-converge just north of MD 175 near Fort George G. Meade. The alignments then continue in deep tunnel north through the BWI Marshall Airport tunnel and ultimately terminate at the Cherry Hill Station or Camden Yards Station.

- Each Build Alternative includes one of two alignments - Build Alternatives J or J1, each with six variations that incorporate station and TMF options, as noted below. Both Build Alternatives generally follow a common route (described above) and the BWP; Build Alternatives J are on the east side of the BWP and Build Alternatives J1 are on the west side of the BWP.
- Each Build Alternative includes stations at three locations: in Washington, D.C.; at the BWI Marshall Airport; and in the Baltimore area. There are two options for the Baltimore area station – Cherry Hill or Camden Yards – each of which has a corresponding MOW facility and a Systems Operations Center.
- Each Build Alternative includes one TMF, which could be one of three locations adjacent to the alignment. A MOW facility is associated with each TMF. The location of the MOW is determined by the TMF selected.

Each Build Alternative would have the same types of ancillary facilities; however, the locations of these facilities may vary among the Build Alternatives. **Table ES3.2-2** provides a summary of the DEIS Build Alternatives. See Appendix G for more detailed engineering, including plans and profiles. Chapter 3 Alternatives Considered includes small scale mapping of all 12 build alternatives.

**Table ES3.2-2: DEIS Build Alternatives**

Build Alternative	Alignment	Stations				TMF		
	BWP	Mount Vernon Square East	BWI Marshall Airport	Cherry Hill	Camden Yards	BARC Airstrip	BARC West	MD 198
J-01	EAST	X	X	X	-	-	-	X
J-02	EAST	X	X	X	-	X	-	-
J-03	EAST	X	X	X	-	-	X	-
J-04	EAST	X	X	-	X	-	-	X
J-05	EAST	X	X	-	X	X	-	-
J-06	EAST	X	X	-	X	-	X	-
J1-01	WEST	X	X	X	-	-	-	X
J1-02	WEST	X	X	X	-	X	-	-

Build Alternative	Alignment	Stations				TMF		
	BWP	Mount Vernon Square East	BWI Marshall Airport	Cherry Hill	Camden Yards	BARC Airstrip	BARC West	MD 198
J1-03	WEST	X	X	X	-	-	X	-
J1-04	WEST	X	X	-	X	-	-	X
J1-05	WEST	X	X	-	X	X	-	-
J1-06	WEST	X	X	-	X	-	X	-

Source: AECOM 2020.

Notes:

1. **Alignment** = alignment between station limits and ancillary facilities (fresh air and emergency egress sites; stormwater management; substations; and portal areas)
2. **Stations** = station footprint and parking (if parking is included at the station), plus surface access points, underground access tunnels to the stations or parking, and maintenance of way facility in the case of the Camden Yards Station Option
3. **TMF** = TMF footprint (includes the connecting tracks, substations, and employee parking) plus maintenance of way facilities

### ES.3.2.1 Avoidance and Minimization

The Project Sponsor considered opportunities to avoid and minimize impacts during the conceptual design of the SCMAGLEV system. These design elements were applied where reasonable and feasible, and include:

- Maximizing use of underground guideway (deep tunnel) and stations to avoid surface impacts;
- Locating the elevated guideway (viaduct) along or within existing transportation and utility corridors;
- Co-locating of ancillary facilities; and,
- Siting the Cherry Hill Station and TMFs in non-residential areas.

## ES.4 Environmental Resources and Consequences

Chapter 4 of the DEIS presents the existing environmental conditions (SCMAGLEV Affected Environment) identified in the study area, the anticipated impacts to resources, and measures to avoid, minimize, and mitigate unavoidable impacts to those resources. Additional opportunities to avoid and minimize impacts will be considered in the FEIS.

### ES.4.1 Methodology

For each resource topic, FRA evaluated both long -and-short-term effects on resources. Long-term effects are those that would be permanent, whereas short-term effects occur from temporary, often construction-related, impacts and are not considered permanent.

Effects on resources may result from operational (i.e., service frequencies, speed) or physical (i.e., infrastructure requirements, construction activities) characteristics of the SCMAGLEV Project. FRA assessed effects for each Build Alternative and the No Build Alternative for comparison. See Chapter 4 for resource specific methodologies.

For each resource topic, FRA defined geographic areas of study to assess where effects could occur (i.e., SCMAGLEV Project Affected Environment). The SCMAGLEV Project Affected Environment, varies in size according to the resource due to the unique and dynamic features associated with each resource. Impacts occur within the limits of operational/physical disturbance and can be permanent (Impact Area) or temporary (Construction-related Impact Area).

As engineering design of the SCMAGLEV system is still ongoing, FRA used a larger area to conservatively define the limits of disturbance (LOD).

### **ES.4.2 No Build Alternative**

The No Build Alternative is included in this analysis as the baseline for comparison with the Build Alternatives. This is also known as the alternative of no action as required by NEPA. Under the No Build Alternative, the SCMAGLEV Project would not be constructed. Travel between Baltimore, MD and Washington, D.C. would continue via existing transportation infrastructure.

### **ES.4.3 Build Alternatives**

The environmental consequences presented in Chapter 4 are described for the No Build and Build Alternatives. As shown in **Table ES4.2-1** the Build Alternatives would result in similar impacts to certain resources, due to the specific engineering requirements for the system. For the SCMAGLEV system to reach optimal speeds, and to ensure optimal performance of system features (i.e. TMF and ancillary features), the system has been designed with specific geometry and using a combination of underground tunnel and aboveground viaduct on a dedicated guideway. Technical reports detailing the engineering design of the system are located in Appendix G. **Table ES4.2-1** also shows where impacts between Build Alternatives would vary. For example, Build Alternatives J-01 to J-06 includes 25 percent viaduct and 75 percent tunnel whereas Build Alternatives J1-01 to J1-06 includes 14 percent viaduct and 86 percent tunnel. The respective resource chapters provide additional details on the identified impacts.

### **Section 4(f) of the Department of Transportation Act (DOT)**

In accordance with Section 4(f) of the DOT Act (49 U.S.C. § 303), before approving a project that uses Section 4(f) property, FRA must determine that there is no feasible and prudent alternative that avoids the Section 4(f) properties and that the project includes all possible planning to minimize harm to the Section 4(f) properties; or, FRA makes a finding that the project has a *de minimis* impact on the Section 4(f) property.

Section 4(f) properties were identified within the Study Area. A draft Section 4(f) evaluation is provided in Appendix F. Coordination with Officials with Jurisdiction is ongoing to determine the nature of impacts to 4(f) properties, including *de minimis* impacts.

### Section 106 of the National Historic Preservation Act (NHPA)

In accordance with Section 106 of the NHPA (55 U.S.C. § 306108), FRA initiated consultation with the appropriate consulting parties, including the State Historic Preservation Officers for Washington, D.C., and the State of Maryland, and the Advisory Council on Historic Preservation (ACHP). Pursuant to the ACHP's implementing regulations for Section 106 (36 CFR Part 800), FRA prepared a draft Programmatic Agreement (PA) to govern the Section 106 process. The draft PA is appended to this DEIS, and is being made available to the public for review and comment. Public involvement requirements regarding historic resources are being fulfilled with public outreach and NEPA public participation.

#### ES.4.3.1 Summary of Impacts

Each Build Alternative has the potential for beneficial and negative impacts on the human and natural environment.

**Tables ES4.3-1 and ES4.3-2** provide a quantitative summary of the impacts from the Build Alternatives. Chapter 4 of the DEIS contains a detailed evaluation of all resources analyzed for the SCMAGLEV Project. In addition, the following common impacts are identified for all Build Alternatives and are summarized as follows:

#### Social Impacts:

- Impacts to neighborhoods and communities would occur in the vicinity of above-ground SCMAGLEV Project elements including the viaduct. The Build Alternatives could have an adverse impact on community cohesion, businesses, and community facilities; introducing large transportation structures near residential and into forested areas; changing residents' navigation routes around their community; and disrupting interaction between people and groups within a community. This includes visual impacts and increased noise. Large area impacts to land use would be associated with SCMAGLEV Project related buildings such as substations, FA/EE facilities, MOW facilities TMFs, and systems support buildings; construction laydown areas; and areas for stormwater management.
- Potentially spur development and commercial investment in neighborhoods near station locations. This could impact the long-term character of neighborhoods'

The following terms are used frequently in this DEIS:

**Adverse:** A negative or unfavorable condition.

**Avoidance:** The act of avoiding impacts to, or keeping away from, something or someone.

**Minimization:** Measures taken to reduce the severity of adverse impacts.

**Mitigation:** Measures taken to alleviate adverse impacts that remain after minimization.

economic and demographic makeup due to increased property values, changes to commercial and retail offerings, increased employment opportunities, higher wages, and changes to available community facilities.

- Environmental justice impacts would occur along the length of the SCMAGLEV Project corridor particularly in proximity to aboveground construction, including the stations, viaduct, tunnel portals, TMF sites, and ancillary facilities. The SCMAGLEV Project would provide a premium service at a higher fare, roughly seven times the cost of an existing MDOT MTA Maryland Area Regional Commuter (MARC) commuter train fare between Washington, D.C., and Baltimore City.

### **Economic Impacts:**

- Total construction employment impacts would range between 161,000 job-years and 195,000 job-years. The economic impacts in terms of earnings from the construction of the SCMAGLEV Project would be between \$8.8 billion and \$10.6 billion (2018 dollars). Temporary negative construction impacts to business revenues in the affected areas may be significant, ranging from \$18.5 million to \$311.3 million (2018 dollars).
- The annual economic impacts from operation and maintenance would result in between 390 and 440 total jobs annually, and between \$24.3 and \$27.4 million in earnings (2018 dollars).
- The availability of the SCMAGLEV service option would change the travel patterns in the Combined Statistical Area (CSA). These changes include the net change in user benefits, increased reliability relative to other modes, increased safety, induced ridership, avoidance of congestion, pavement savings, reduced emissions as drivers divert to SCMAGLEV, and reduced revenue for publicly provided regional commuter rail service as riders on these modes divert to SCMAGLEV.

### **Resource Impacts:**

- All Build Alternatives would likely impact historic resources including Mount Vernon Square Historic District, The New York (building), and Martins Woods; Build Alternatives will impact historic resources including the USDA's BARC and NPS's BWP.
- The visual prominence of SCMAGLEV System elements would alter the scenic character along and above the BWP. The viaduct elements would be located up to 150 feet higher than the elevation of the travel lanes of the parkway and would cross over the parkway to access TMF facilities.
- At BARC, USDA is conducting hazardous materials remediation activities. Data from monitoring wells indicate that chlorinated solvents (perchloroethylene and trichloroethylene) are present in the groundwater at a depth of approximately 30 feet and have migrated southeast from the site toward the BWP. Coordination

with USDA on the status of remedial investigations and remedial actions at BARC sites would be necessary to better understand the risks posed and liabilities. In particular, the consequences of siting facilities over the groundwater plume.

- There are potential surface water impacts to the following tributaries of the Chesapeake Bay: Patuxent River, Little Patuxent River, Anacostia River, and Beaverdam Creek.
- Construction of the entire SCMAGLEV Project will take approximately seven years. Construction will begin after completion of the final engineering design, and require Federal, state, and local permits and/or approvals. During this time, localized construction impacts, such as changes in traffic volume and circulation patterns, noise and vibration levels, visual effects have the potential to occur. Construction includes trucking and disposal of an estimated 23+ million cubic yards of soil. Given that the length of the SCMAGLEV Project Study Area is roughly 40 linear miles, construction activities occurring in any one location will not last for the entire construction period.
- Potential effects to public health attributed to air quality impacts, impacts to geologic resources, electromagnetic fields/electromagnetic interference, and potential implications for public safety.

### **Property Impacts:**

- Build Alternatives J-01 and J-04 are generally the same and result in similar impacts except for the northern terminus station. Build Alternative J-01 uses the Cherry Hill Station whereas Build Alternative J-04 uses Camden Yards. As a result, Build Alternative J-01 requires more total permanent property acquisitions. The Cherry Hill Station results in more affected parcels and larger areas of permanent property acquisitions, including medical centers, commercial, and retail properties that support surrounding neighborhoods (Cherry Hill, Westport, Lakeland), than Build Alternatives that use the Camden Yards Station. While the Cherry Hill Station results in greater property impacts, the Camden Yard Station results in significant traffic impacts during construction, demolition of high rise office building (Bank of America) and the Federal Courthouse (Edward A. Garmatz U.S. District Court) and displacement of the Old Otterbein United Methodist Church, a historic resource, and an urgent care facility. A key differentiator with these Build Alternatives is that they would have the greatest permanent impacts on the following Federal properties: BWP, Fort George G. Meade, and the Patuxent Research Refuge (PRR) (although this is nearly the same for all Build Alternatives J). Most of these impacts are related to the viaduct associated with Build Alternatives J. The Fort George G. Meade property is impacted by the viaduct, proposed deep tunnel portal, stormwater management, SCMAGLEV system facilities and a new access road.
- A differentiator with the Build Alternatives J-02 and J-05 is that they would result in the greatest impacts to the BARC property and NASA's GSFC due to the

BARC Airstrip TMF. These Build Alternatives would also have permanent property impacts on the PRR and BWP. The BARC Airstrip TMF would result in direct and permanent impacts to the headwaters and first order streams of Beaverdam Creek and the greatest potential impact to Nontidal Wetlands of Special State Concern (NTWWSC). Although this TMF would result in the least acreage of forest removal, impacts to the headwaters would affect the habitat of sensitive species, including RTE species and habitat, important riparian corridors, and water quality to the one stream system noted Section 4.10 as having good water quality.

- In general, Build Alternatives J-03 and J-06 would have the greatest total impact to Federal lands. The BARC West TMF is the key differentiator in this set of Build Alternatives. The BARC West TMF is near residential properties on its far northwestern end and would require a small property acquisition from two residential properties. In general, use of the BARC West site requires the least amount of property from BARC. It does have similar impacts to Fort George G. Meade, PRR, and the BWP as described for the other Build Alternatives J with the differences resulting from TMF ramp configurations. The BARC West TMF would have permanent wetland impacts, including NTWSSC associated with Beaverdam Creek and its tributaries, and the greatest impact to FIDS habitat (approximately 175 acres associated with the Build Alternatives J). The BARC West TMF results in the greatest impacts to areas designated as Sensitive Species Project Review Area (SSPRA).
- Build Alternatives J1-01 and J1-04 have a MOW associated with the MD 198 TMF located just north of Powder Mill Road. This MOW requires an additional two-mile long access ramp for maintenance vehicles to access the mainline viaduct. In addition, these Build Alternatives also have a 3.5-mile access ramp from the mainline viaduct to MD 198. The Cherry Hill Station results in more affected parcels and larger areas of permanent property acquisitions than Build Alternatives that use the Camden Yards Station. These Build Alternatives have the least total acres of impacts to Federal lands. Their biggest impact to Federal lands is associated with the BWP as part of the viaduct associated with these Build Alternatives and the fresh air/emergency egress, stormwater management, SCMAGLEV system facilities, and an access road to the Fort George G. Meade property. A key differentiator with these Build Alternatives is that they avoid impacts to PRR and NASA Goddard Space Flight Center. The types of impacts to wetlands would be similar as described for Build Alternatives J-01 and J-04. However, Build Alternatives J1-01 and J1-04 would have the greatest total wetland impacts per any Build Alternative. Another key differentiator for all Build Alternatives J1 is forest impacts. These Build Alternatives result in forest habitat impacts on City of Greenbelt property and forest impacts on M-NCPPC park property. The acreage of impact to City of Greenbelt parkland eliminates most of the natural habitat and buffer between the residential areas and the BWP.
- Build Alternatives J1-02 and J1-05 have the second highest total acreage of impact to Federal lands. Most of the impacts are related to the BARC Airstrip

TMF, resulting in the second highest acreage impacts to BARC and the NASA Goddard Space Flight Center. These Build Alternatives have the least impact to the BWP and avoid impacts to PRR. The BARC Airstrip TMF will result in direct and permanent impacts to the headwaters and first order streams of Beaverdam Creek and the greatest impact to NTWWSC. Although this TMF will result in the least acreage of forest removal, impacts to the headwaters will affect the habitat of sensitive species, including RTE species and habitat, important riparian corridors, and affect water quality to the one stream system on record within the SCMAGLEV Project Affected Environment as having good water quality. Another key differentiator for all Build Alternatives J1 is forest impacts. These Build Alternatives result in forest habitat impacts on City of Greenbelt property and forest impacts on M-NCPPC park property. The acreage of impact to City of Greenbelt parkland eliminates most of the natural habitat and buffer between the residential areas and the BWP.

- The BARC West TMF is the key differentiator for Build Alternatives J1-03 and J1-6. The BARC West TMF is near residential properties and requires a small property acquisition from 2 residential properties. In general, use of the BARC West TMF requires the least amount of property from BARC. It does have similar impacts to Fort George G. Meade, PRR, and the BWP as described for the other Build Alternatives J1. The BARC West TMF has permanent wetland impacts, including NTWSSC associated with Beaverdam Creek and its tributaries, and the greatest impact to FIDS habitat (approximately 180 acres associated with Build Alternatives J1). The BARC West TMF results in the greatest impacts to areas designated as Sensitive Species Project Review Area (SSPRA). SSPRAs are state and locally significant habitat areas that may include RTE species and their habitat, Natural Heritage Areas, colonial water bird sites, NTWSSCs, habitat protection areas, areas subject to Critical Area review, and geographic areas of concern. Another key differentiator for all Build Alternatives J1 is forest impacts. These Build Alternatives result in forest habitat impacts on City of Greenbelt property and forest impacts on M-NCPPC park property. The acreage of impact to City of Greenbelt parkland eliminates most of the natural habitat and buffer between the residential areas and the BWP.

**Table ES4.3-1: Build Alternatives Environmental Resource Impacts**

Resource	Build Alternative											
	J-01	J-02	J-03	J-04	J-05	J-06	J1-01	J1-02	J1-03	J1-04	J1-05	J1-06
Permanent Property Impacts to Recreational Facilities and Parklands (Acres)	109	93	88	109	96	88	141	102	105	132	102	105
Total Acres of Permanent Floodplain Impact	74	59	46	53	38	26	76	52	40	56	32	20
Total Acres of Permanent Wetland Impact	45	26	22	45	25	22	51	27	23	51	27	23
Total Wetland Impact (acres) Classified as NTWSSC	6	19	9	6	19	9	4	14	5	4	14	5
Total Impact to Waterways (linear feet)	10,261	12,624	12,896	9,946	12,310	12,581	12,009	12,108	12,659	11,694	11,794	12,344
Total Acres of Permanent Forest Impact	420	381	451	402	363	432	388	324	392	370	306	374
Total Permanent Forest Interior Dwelling Species (FIDS) Habitat Impact (Acres)	404	354	437	404	354	437	330	268	352	330	268	352
Total Permanent Sensitive Species Project Review Area (SSPRA) Impact (Acres)	173	218	272	175	220	275	197	227	282	200	229	284
Total Critical Area Boundary Impacts (Acres)	128	128	128	85	85	85	128	128	128	85	85	85

Notes: Total Permanent Acres of Wetland Impact and Total Impact by Waterway: All Build Alternatives impacts exclude published wetland data associated with the long-term construction laydown area near MD 200 and I-95; Total Wetland Impact Classified as NTWSSC: acreage is calculated separately from the total acreage, based on state-published boundaries, not field-delineated boundaries.

**Table ES4.3-2: Build Alternatives Engineering Resource Impacts**

Resource	Build Alternative											
	J-01	J-02	J-03	J-04	J-05	J-06	J1-01	J1-02	J1-03	J1-04	J1-05	J1-06
Linear Miles of Guideway	39	38	38	41	39	39	40	38	38	41	39	39
Total Number of Parcels Permanently Impacted	312	294	297	207	189	192	334	313	314	229	208	210
Total Acres of Permanent Impacts	1,000	1,066	1,019	852	918	871	1,009	1,053	1,009	861	905	861
Public Property Acres of Permanent Impacts	210	63	63	203	58	58	260	108	698	255	102	104
Federal Property Acres of Permanent Impacts	57	293	245	57	293	245	26	248	201	26	248	201
Total Number of Parcels Temporarily Impacted	162	170	167	113	123	120	167	183	178	121	134	132
Total Acres of Temporary Impacts	203	239	214	216	252	228	120	161	133	134	174	147
Public Property Acres of Temporary Impacts	49	48	48	55	54	54	40	43	68	46	49	46
Federal Property Acres of Temporary Impacts	50	87	63	50	87	63	14	50	25	14	50	25
Project Construction Cost (\$ Millions)	10,950	10,640	10,640	12,370	12,060	12,060	11,480	11,170	11,170	12,900	12,590	12,590

Notes: Parcels Permanently Impacted and Acres of Permanent Impacts: includes Full and Partial Permanent property impacts  
 Number of Parcels Temporarily Impacted and Acres of Temporary Impacts: property impacts that would occur during construction.

### **ES.4.3.2 Federal Property Impacts**

Coordination with various stakeholders, including the public, special interest groups, private property owners, and agencies, has occurred throughout the NEPA process. Implementation of the SCMAGLEV Project will impact Federal property, therefore the Project Sponsor and FRA consulted with affected Federal agencies to understand potential impacts and necessary avoidance, minimization, and mitigation measures. The following is a summary of critical feedback from Federal agencies directly affected by the proposed Build Alternatives. FRA will continue to coordinate with the relevant regulatory agencies to further understand the potential impacts of the SCMAGLEV Project on Federal property. For more information on all agency and public involvement, see Chapter 5 Public Involvement and Agency Coordination.

#### **NASA**

NASA has expressed concerns over the BARC Airstrip TMF. NASA expressed serious concerns with the location of the BARC Airstrip TMF due to the proximity of the Goddard Geophysical and Astronomical Observatory (GGAO). The GGAO supports numerous NASA activities that are sensitive to vibration, artificial lighting, and electromagnetic interference. The location of the GGAO was specifically chosen to be remote from disturbances and human activities. This facility has a long history and changes related to the Project have the potential to impact the scientific integrity of some research. NASA is concerned about the negative impacts the BARC Airstrip TMF would likely have on the operations of sensitive equipment located at the facility. They also expressed concern over the reconstruction of Explorer Road.

#### **USFWS**

USFWS noted several areas of concern where the Build Alternatives could interfere with the National Wildlife Refuge System, specifically PRR. The concerns included impacts to high-quality habitat for rare, threatened, endangered and protected species; disruption to established vegetative communities; impacts to forests and related bat communities; impacts to birds, bats, and pollinators from train pass-bys; impacts to recreational activities including hunting, fishing and hiking; and impacts to historic cemeteries on site. Areas of the PRR have known unexploded ordnances. USFWS also noted that in many areas of the PRR, prescribed burns occur to manage vegetation that could interfere with SCMAGLEV Project operations. USFWS also stated that proposed project elements affecting PRR are incompatible with the purpose and mission. Furthermore, USFWS noted that the land transfer process for PRR in Maryland would require legislative action.

#### **USDA**

USDA owns the BARC facility where the Project Sponsor proposes two alternative TMF locations. USDA noted that legislation and congressional approval is needed to convert BARC property to a non-agricultural use. This transfer can be a lengthy process, even when transferring between Federal agencies. USDA indicated that nearby communities would likely be impacted due to the potential light, noise, vibration and traffic generated

by the TMF sites. Beaverdam creek was identified as a sub watershed with low development in the Anacostia watershed. They also raised concerns over the peak activity hours associated with the TMF facilities. USDA scientists are concerned with potential permanent impacts to research fields on the eastern side (BARC Airstrip TMF) of the property and an active study of solar fields on the western side (BARC West TMF) of the property. Additionally, USDA research animals and sensitive equipment may be impacted by construction and operation of the SCMAGLEV project. USDA also identified potential concerns on the eastern side of the property where the NASA facilities exist.

### **Fort George G. Meade/National Security Agency (NSA)**

Fort George G. Meade and NSA raised concerns over the MD 198 TMF and with the alternative alignments.

### **National Park Service (NPS)**

NPS owns and manages several properties along the SCMAGLEV Project corridor, including small park reservations associated with the L'Enfant Plan throughout Washington, D.C., crossing the Anacostia River, and the BWP. NPS expressed concerns about direct and indirect impacts to these resources including flyover ramps over the BWP, temporary occupancies of small park reservations, locations of SCMAGLEV system elements, and the need for visual screening/buffers from surface features. NPS has indicated a preference for tunnels, particularly in the Anacostia River/Kenilworth, Park and BWP areas.

### **Department of Labor (DOL)**

Construction of the MD 198 TMF would require closure of the Woodland Job Corp building. The closure of the current facility would result in the loss of 125 jobs, and the services provided by the center. DOL estimated that it will take over four years and cost tens of millions of dollars to acquire land and construct a replacement facility in kind. DOL opposes Alternatives J-01, J-04, J1-01 and J1-04.

### **General Services Administration (GSA)**

Alternatives J-04, J-05, J-06, J1-04, J1-05 and J1-06 that include the Camden Yards Station will require the demolition of the Edward A. Garmatz Federal Courthouse to build a parking structure. The Courthouse is considered a long-term GSA asset. It supports the federal court's continued mission in Baltimore and the District of Maryland, 4<sup>th</sup> circuit. GSA expressed concerns with the proposed parking and impacts to the Courthouse. Permanent and temporary federal property impacts have been identified in **Table ES4.3-3**. It is a quantitative summary of the impacts from the Build Alternatives on properties where there will be multiple acres of impact.

**Table ES4.3-3: Federal Property Impacts**

Build Alternative	Federal Property														Build Alternatives - Total Permanent Acres of Impact	Build Alternatives - Total Temporary Acres of Impact
	BARC		Fort George G. Meade		NASA Goddard Space Flight Center		NSA		Patuxent Wildlife Research Refuge		Secret Service		BWP/ NPS			
	P	T	P	T	P	T	P	T	P	T	P	T	P	T		
J-01	16.5	18.4	43.3	8.5	6.7	5.6	5.2	0.9	24.0	22.9	0.9	0.5	88.9	27.2	185.5	84.0
J-02	187.4	38.5	18.5	8.5	24.5	9.2	5.2	0.9	23.7	23.1	2.0	7.0	66.3	33.0	327.6	120.2
J-03	164.9	26.9	18.5	8.5	6.7	5.6	5.2	0.9	23.7	23.1	1.0	3.4	67.2	36.1	287.2	104.5
J-04	16.5	18.4	43.3	8.5	6.7	5.6	5.2	0.9	24.0	22.9	0.9	0.5	88.9	27.2	185.5	84.0
J-05	187.4	38.5	18.5	8.5	24.5	9.2	5.2	0.9	23.7	23.1	2.0	7.0	66.7	33.0	328.0	120.2
J-06	164.9	26.9	18.5	8.5	6.7	5.6	5.2	0.9	23.7	23.1	1.0	3.4	67.2	36.1	287.2	104.5
J1-01	18.7	10.0	29.8	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.4	13.6	101.9	29.0
J1-02	180.6	32.6	5.0	5.4	17.7	3.5	0.0	0.0	0.0	0.0	0.9	3.5	40.3	14.8	244.5	59.8
J1-03	155.0	20.0	5.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.1	14.1	202.1	39.5
J1-04	18.7	10.0	29.8	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.4	13.6	101.9	29.0
J1-05	180.6	32.6	5.0	5.4	17.7	3.5	0.0	0.0	0.0	0.0	0.9	3.5	40.3	14.8	244.5	59.8
J1-06	155.0	20.0	5.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.1	14.1	202.1	39.5

P - includes Full and Partial Permanent property impacts  
 T - Temporary property impacts that would occur during construction.

## ES.4.4 Mitigation Strategies

FRA has identified potential mitigation strategies to address the impacts evaluated in the DEIS. Potential mitigation strategies range from implementation of best management practices and conducting additional coordination to the development of detailed mitigation plans with detailed mitigation measures. The estimates of potential impacts in this DEIS are based on the level of design undertaken by the Project Sponsor to date. As the SCMAGLEV Project design advances, the mitigation measures will be refined with the goal of avoiding or minimizing impacts to the extent feasible. FRA will continue to refine the mitigation measures specified in the DEIS through additional coordination with the Project Sponsor, relevant Federal, state, and local agencies, and through public involvement.

## ES.5 Permits, Approvals and Authorizations

In addition to NEPA compliance, many permits, approvals and authorizations are being coordinated with the NEPA process or would be obtained prior to construction the SCMAGLEV Project. Appendix D-1 summarizes the Federal, state, and local permits, authorizations and approvals that will likely be required based on the current project design associated impacts and coordination with stakeholders. These permits and authorizations include, but are not limited to, a Joint Federal/State Application for the Alteration of Any Floodplain, Waterway, Tidal or Nontidal Wetland in Maryland (JPA); Incidental Take Permits in accordance with Section 7 of the Endangered Species Act; Chesapeake Bay Critical Area Consistency approval; Forest Conservation Act approval; Archaeological Resources Protection Act Permit; NPS Special Use Permit; pollutant and discharge construction permits; and Right of Entry (ROE) Permits necessary for private rights-of-way, ROE to existing utility, rail, and Federal/state properties traversed by the SCMAGLEV Project. FRA recognizes that this does not include details of all Federal actions necessary by each bureau and the specific authorities that would allow them to authorize or approve the Project.

Several Federal properties would be affected through the selection of a Build Alternative. If a transfer of Federal property is proposed and converted to transportation use, environmental review, in accordance with NEPA, and related reviews may be required. For example, the USFWS generally must prepare a Compatibility Determination when a third party proposes to use a National Refuge System property.

For certain agencies, a Congressional Act may be required to authorize the agency's action. For example, an act of Congress is generally required to allow a non-conforming (i.e. a non-agricultural) use at the BARC. Similarly, USFWS will require congressional approval for impacts to the PRR if land is converted to transportation use.

In addition, the FAA would require review of aboveground structures and associated construction plans via the submission of Form 7460 Notice of Proposed Construction or Alteration for both BWI and Tipton Airport (FME). STB authorization may be required if the Board is determined to have jurisdiction over the SCMAGLEV Project.

The FRA is conducting ongoing coordination with the agencies throughout the planning phase of the Project. Coordination with the regulatory and resource agencies will continue through further design phases, review and construction. **Table ES5.0-1** summarizes the likely Federal permits and approvals that will be required to build the Project.

**Table ES5.0-1: Likely Federal Permits and Approvals**

Permit/Approval	Responsible Permitting Agency
National Environmental Policy Act – Record of Decision Section 4(f), Department of Transportation Act - Approval	Federal Railroad Administration
Construction at BWI Airport - Permit	Federal Aviation Administration
TBD	Surface Transportation Board
Section 7, Endangered Species Act	U.S. Fish and Wildlife Service
Special Use Permit	National Park Service*
Land-owning Agency	U.S. Department of Agriculture*
Section 404/408, Clean Water Act - Permit	U.S. Army Corps of Engineers
Coordination/Land-owning Agency	National Security Agency/Fort George Meade (U.S. Army)
Coordination/Land-owning Agency	National Aeronautics and Space Administration
Land-owning Agency	U.S. Secret Service/James J. Rowley Training Center
Land-owning Agency	General Services Administration
Coordination/Land-leasing Agency	U.S. Department of Labor/Woodland Jobs Corps Center
Coordination	National Capital Planning Commission

\*Denotes where a Congressional Act may also be required to authorize agency action.

## ES.6 Public and Agency Outreach

FRA and MDOT MTA are engaging Federal, state, and local agencies and the public throughout the NEPA process. Public engagement will continue during the DEIS public comment period and through the FEIS and Record of Decision (ROD).

## ES.7 Preferred Alternative

FRA is not identifying a Preferred Alternative in the DEIS to allow the agency an opportunity to consider agency and public feedback on the DEIS prior to identifying a preferred alternative. FRA will consider all relevant available information when identifying its Preferred Alternative in the FEIS.

CEQ's NEPA regulations require a NEPA document to specify the alternative that is considered to be environmentally preferable (Section 1505.2(b)). CEQ defines an environmentally preferable alternative as the alternative that would cause the least damage to the human and natural environments. In addition, Section 4(f) prohibits a Federal agency from approving a project that would result in the use of significant parks, recreation areas, wildlife and waterfowl refuges, or historic sites if there is a feasible and prudent alternative to the use of the resource.

BWRR has identified its preferred configuration; Build Alternative J, BARC West TMF, and Cherry Hill as the north terminus station (Build Alternatives J-03). BWRR favors this alternative for its shorter construction, ability to avoid and mitigate impacts, and lower construction and operating costs. BWRR believes Build Alternative J-03 will be the least impact and lowest cost to construct, operate, and maintain while also providing the earliest start to revenue service.

## **ES.8 Next Steps**

FRA is circulating the DEIS to affected local jurisdictions, state and Federal agencies, tribes, community organizations and other interested groups, interested individuals and the public. FRA is circulating the DEIS for a review and comment period, which will include public hearings, to accept agency and public comment on the contents of the DEIS. After taking into account comments received on the DEIS, FRA will prepare an FEIS that will include responses to comments. Upon completion of the FEIS, FRA expects to issue a ROD for the SCMAGLEV Project in compliance with NEPA.