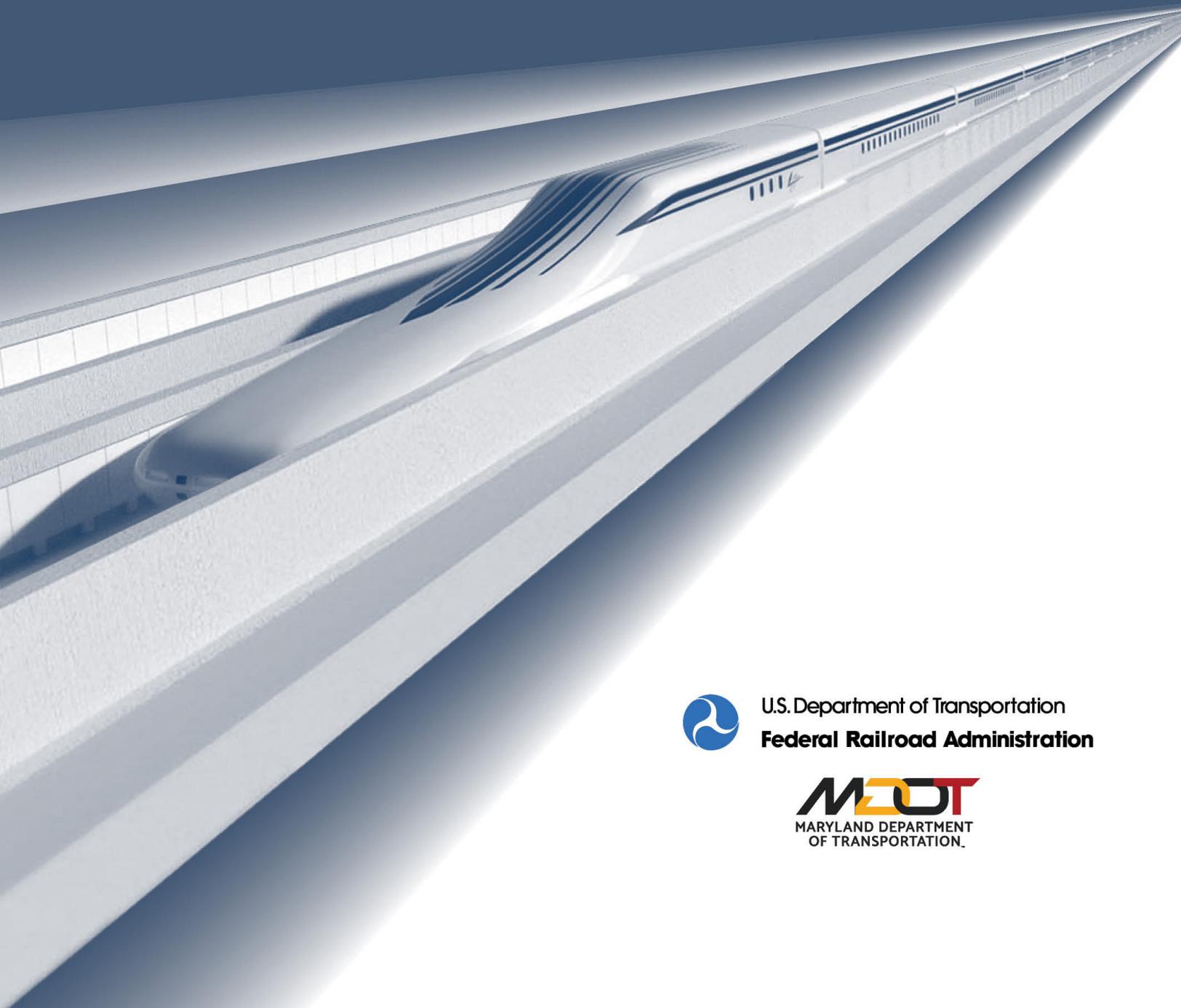


Section 4.3

Land Use and Zoning

BALTIMORE-WASHINGTON SUPERCONDUCTING MAGLEV PROJECT

DRAFT ENVIRONMENTAL IMPACT STATEMENT AND
SECTION 4(f) EVALUATION



U.S. Department of Transportation
Federal Railroad Administration



4.3 Land Use

4.3.1 Introduction

This section evaluates the effects of the No Build and Build Alternatives on land use and zoning along the Superconducting Magnetic Levitation Project (SCMAGLEV Project) corridor. Land use characterizes what can be built on the land and what the land can be used for. It considers the intended use of the land and the general development criteria that exists. This differs from zoning, which specifies design and development guidelines for those intended land uses. This section also considers if the SCMAGLEV Project is consistent with approved comprehensive planning documents (i.e., master plans, transportation plans, etc.) and identifies temporary and permanent property impacts associated with the construction and long-term operation of the SCMAGLEV Project Build Alternatives. For additional information, please see Appendix D.3 Socioeconomic Environment Technical Report (SETR).

4.3.2 Regulatory Context and Methodology

4.3.2.1 Regulatory Context

In accordance with the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., the Council on Environmental Quality (CEQ) regulations, 40 C.F.R. Parts 1500 - 1508, and the Federal Rail Administration's (FRA) Procedures for Considering Environmental Impacts, 64 Fed. Reg. 28545 (May 26, 1999), the Federal Railroad Administration (FRA) assessed the impacts on land use both existing and planned.

In addition, FRA considered possible conflicts or inconsistencies between the Project and applicable Federal, state, and local land use policies, plans, and regulations. Plans reviewed were those in effect at the time of the Notice of Intent in 2016 and include:

- The *District of Columbia Comprehensive Plan* (2011)
- Move D.C. Multimodal Long-Range Transportation Plan (2014)
- The Maryland-National Capital Park and Planning Commission's (M-NCPPC) *Plan Prince George's 2035 Approved General Plan (Plan 2035)*
- Regional Transportation Priorities Plan for the National Capital Region (2014)
- The *Anne Arundel County's General Development Plan 2009*
- Visions of the *LIVE EARN PLAY LEARN: The City of Baltimore Comprehensive Master Plan* (2012)
- Maximize 2040: A Performance-Based Transportation Plan (2016)
- 2035 Maryland Transportation Plan (2014)

A list of the comprehensive planning documents that guide development within the SCMAGLEV Project Affected Environment is located in Appendix D.3 Table D.3-1 Plans

will be reviewed and updated, as needed, prior to the Final Environmental Impact Statement.

The SCMAGLEV Project will be subject to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655) (Uniform Relocation Act), which establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms.

4.3.2.2 Methodology

This analysis identifies temporary and permanent changes of land uses to transportation land uses associated with SCMAGLEV Project. The SGMAGLEV Project impact area includes the limits of operational/physical disturbance, as well as the construction related impact area, which includes additional areas of temporary disturbance required for construction activities. These impact areas comprise the overall limit of disturbance (LOD) of the SCMAGLEV Project Build Alternatives. The LOD includes all surface and subsurface elements.

The SCMAGLEV Project Affected Environment for land use is defined as the area within a 500-foot buffer around the proposed alignments and ancillary facilities of the Build Alternatives and within a 1/4-mile buffer around stations and Trainset Maintenance Facility (TMF) locations, as shown on the land use mapping (see Appendix D.3 Figure D.3-5). These buffers were considered to capture potential impacts (i.e., visual/aesthetics, noise/vibration, and changes in access and mobility) that could extend beyond the LOD.

FRA considered changes to land use due to the construction of the Project and operation of above ground elements of the Project. Using Geographic Information System (GIS) data, FRA quantified these land use changes. FRA then considered if the proposed transportation land use is consistent with surrounding land uses, existing zoning designations, and locally and regionally adopted comprehensive planning documents. The land use and zoning data were obtained from various state and local jurisdictions, each with their unique zoning codes and land use category descriptions. In order to normalize this analysis, the Maryland Department of Planning (MDP) Land Use/Land Cover 2010 designations were used to reclassify all land uses within the SCMAGLEV Project Affected Environment into the following categories: Agriculture, Residential, Commercial, Forest, Institutional, Industrial, Open Space, Open Urban Space, Transportation, Mixed Use, and Water. Likewise, all zoning codes were reclassified and reasonably combined into the following zoning categories: Residential, Commercial, Mixed Use, Industrial, Open Space and Other. For example, residential zoning codes allow for dwellings that range from single-family homes to high-rise apartment complexes.

FRA conducted a quantitative impact analysis of individual parcels within the LOD. For this parcel analysis, FRA adjusted the land use designation of parcels within the LOD

that are currently inconsistent with the MDP Land Use/Land Cover 2010 designation to more accurately represent the 2020 conditions. For purposes of this analysis, the quantified impact to individual parcels is equivalent to the quantified changes in land use. FRA categorizes parcel impacts as temporary acquisitions, partial permanent acquisitions, and permanent full acquisition, as further explained below:

- Temporary acquisition (short-term construction) – the parcel will be impacted by the SCMAGLEV Project construction, require construction easements, and be restored to its original use and ownership post construction.
- Partial permanent acquisition – less than 1/3 of a parcel's total area will be impacted by the perpetual operation of the SCMAGLEV Project and will require either perpetual easements or partial property acquisition.
- Full permanent acquisition – greater than 1/3 of a parcel's total area will be impacted by the perpetual operation of the SCMAGLEV Project and will require full property acquisition, which will change the ownership or right to use the parcel indefinitely. Also, some parcels with less than 1/3 of its total area being impacted were determined to be full permanent acquisitions if the property impact will result in any of the following:
 - parcel fragmentation;
 - overlapping of an existing structure on the parcel such that the structure is no longer usable (e.g., residence or business); or
 - restricted access to the property where no alternate access route can be established.

Comprehensive planning documents were reviewed as part of the analysis to determine if the SCMAGLEV Project is compatible with local plans. Comprehensive planning documents are prepared, reviewed, and approved by the governments that have authority over them and provide guidance for future actions in the subject communities. These documents express community goals and priorities as they pertain to issues such as land use, transportation, development, and recreation. The plans range from smaller neighborhood plans that focuses on individual blocks up to larger geographies with plans that focus on the metropolitan areas. Some plans have a narrow focus and provide more detail on a single planning concept (i.e. parks or transportation), while others are more comprehensive and speak to the interrelated planning goals and objectives.

Land use data gathered for this analysis was also used in analyzing impacts on the visual environment and from noise and vibration, the results of which are described in greater detail in Sections 4.9 and 4.17, respectively.

4.3.3 SCMAGLEV Project Affected Environment

4.3.3.1 Land Use

The SCMAGLEV Project spans two major metropolitan areas, Baltimore, MD and Washington, D.C., both with distinct metropolitan planning organizations. Smaller, defined neighborhoods, towns, and cities comprise each of these urbanized areas. Clusters of residential and commercial land uses are also located throughout the SCMAGLEV Project Affected Environment.

The SCMAGLEV Project Affected Environment includes large areas of Federal property including National Park Service (NPS) property associated with the Baltimore-Washington Parkway (BWP), the Patuxent Research Refuge (PRR), and Beltsville Agricultural Research Center (BARC). Additionally, the SCMAGLEV Project Affected Environment includes areas of Federal property associated with Fort George G. Meade, National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC), National Security Agency (NSA), and the U.S. Secret Service (USSS).

Table-4.3.1 shows property ownership classification within the SCMAGLEV Project Affected Environment and **Table-4.3.2** presents a breakdown of property under the jurisdiction of Federal agencies.

Table 4.3-1: Property Ownership Classification within the SCMAGLEV Project Affected Environment

Ownership	Acreage	Percentage of Study Area
Federal	3,628	36.7%
Public*	3,320	33.6%
Private	2,926	29.6%
Total	9,874	

*Note: Includes Baltimore-Washington Parkway which is considered public right of way under the jurisdiction of NPS

Source: Maryland Land Use Land Cover-County Use Land Cover 2010, IMAP, Maryland Department of Planning; Washington, DC Existing Land Use, Open Data DC, DCGIS

Table 4.3-2: Federally Owned/Managed Land by Federal Agency within the SCMAGLEV Project Affected Environment

Ownership	Acreage
Beltsville Agricultural Research Center (US Department of Agriculture)	2,260
Fort George G. Meade	671
NASA Goddard Space Flight Center	54
National Park Service	831
National Security Agency	55

Ownership	Acreage
Patuxent Research Refuge (US Fish and Wildlife Service)	508
US Secret Service	213.5
United States of America*	29.6
Total	4621.9

*Note: Includes multiple properties occupied by various Federal agencies. The majority are located in Washington, DC and Baltimore City, Maryland.

Source: Maryland Land Use Land Cover-County Use Land Cover 2010, IMAP, Maryland Department of Planning; Washington, DC Existing Land Use, Open Data DC, DCGIS

The land uses identified in **Table 4.3-3** and further described below are present within the SCMAGLEV Project Affected Environment. Additional mapping of land uses present in the SCMAGLEV Project Affected Environment is located in Appendix D.3 Figure D.3-5.

Table 4.3-3: Land Use Classification within the SCMAGLEV Project Affected Environment

Land Use Type	Acreage	Percentage of Study Area
Low Density Residential	18	0.2%
Medium Density Residential	464	4.6%
High Density Residential	450	4.4%
Open Space	21	0.2%
Open Urban Space	318	3.1%
Mixed Use	2	0.0%
Commercial	967	9.6%
Industrial	695	6.9%
Institutional	803	7.9%
Agriculture	979	9.7%
Forest	4,383	43.3%
Water	217	2.1%
Transportation	798	7.9%
Total	10,116	100%

Forest – There is forested land scattered throughout the SCMAGLEV Project Affected Environment, most notably along the BWP within Prince George’s County and south of MD 32 in Anne Arundel County, in the PRR, and surrounding the MD 198 TMF site (see Section 4.12 Ecological Resources).

Agriculture – Agriculture land uses within the SCMAGLEV Project Affected Environment are identified within Prince George’s County, predominately within BARC

and east of I-95 at MD 200 and Konterra Drive. Although the Konterra site is classified as an agricultural land use on the Maryland Department of Planning's (MDP) current land use/land cover mapping, it is an open grass field with roadways and stormwater management facilities and is not currently used for agricultural purposes. Future plans for the area include the development of the Konterra Town Center and do not include agricultural use.

Residential, Commercial & Mixed Use – Clusters of residential and commercial land uses are located throughout the SCMAGLEV Project Affected Environment.

Concentrated (or dense) residential land uses are primarily located in and around Washington, D.C. and Baltimore City. Residential land use is also present along the BWP near the MD 197 and MD 198 interchanges. Commercial uses are dispersed throughout the SCMAGLEV Project Affected Environment including within the Washington D.C. and Baltimore central business districts, the Baltimore-Washington International Thurgood Marshall Airport Station (BWI Marshall Airport Station) and surrounding area in Anne Arundel County, and in areas such as Laurel, Maryland City, and Greenbelt in Prince George's County. Mixed uses are present to a lesser extent than designated residential and commercial uses. Mixed uses are located in Washington, D.C. and include a combination of residential and commercial uses.

Industrial & Institutional – There are concentrations of industrial land uses in the Ivy City neighborhood of Washington, D.C. and around Patapsco Avenue and Annapolis Road in Baltimore City. Scattered industrial land uses also occur within the vicinity of major roadways such as MD 201 in Prince George's County and MD 162, MD 170, MD 176, and MD 198 in Anne Arundel County. Institutional land use includes Federal, state, and local government-owned property. Institutional land uses are present at BARC, the NASA GSFC, and the Secret Service properties in Prince George's County; in dense pockets in Anne Arundel County, including the Fort George G. Meade area; the Mount Vernon Square area of Washington, D.C.; and Camden Yards in Baltimore City. Churches and schools also qualify as institutional land uses and are dispersed throughout the SCMAGLEV Project Affected Environment, generally in proximity to residential and commercial areas that they serve.

Transportation – Transportation land uses exist throughout the SCMAGLEV Project Affected Environment and include interstates, highways, parkways, state roadways, railways, and local roads. The BWP (MD 295) stretches north-south throughout most of the SCMAGLEV Project Affected Environment and is a major roadway that spans from Washington, D.C. to Baltimore City. A major segment of I-495 (Capital Beltway) in Prince George's County and I-695 (Baltimore Beltway) in Anne Arundel and Baltimore Counties interconnect north-south corridors of the SCMAGLEV Project Affected Environment. The Northeast Corridor (NEC) railway runs north-south between Washington, D.C. and Baltimore, MD with passenger rail provided by the Maryland Area Regional Commuter (MARC) Train Camden line and MARC Train Penn line, as well as Amtrak service. Other transportation land uses include portions of the Washington Metro Area Transit Authority (WMATA) Metrorail system, located throughout

Washington, D.C. and Prince George's County, and portions of the Maryland Department of Transportation, Maryland Transit Administration (MDOT MTA) Light RailLink system located in Baltimore City, Baltimore County, and Anne Arundel County.

Open Space, Open Urban Space & Water – Open space and open urban space includes golf courses, parks, recreation areas (except areas associated with schools or other institutions), cemeteries, and undeveloped land. These land uses are dispersed throughout the SCMAGLEV Project Affected Environment. Water is present to a lesser extent than the other land uses within the SCMAGLEV Project Affected Environment. Water includes Anacostia, Patuxent, Little Patuxent, and Patapsco Rivers.

4.3.3.2 Zoning

The SCMAGLEV Project Affected Environment is primarily zoned as residential, open space, and industrial. For purposes of this analysis, areas not specifically zoned by a county were classified as 'other' which often, but not always, pertains to Federal lands. Zoning is used to dictate which uses can and cannot take place within a designated area. Zoning codes sometimes include provisions that regulate the form of the built environment within designated areas. Typically, when a property owner wants to use their land for a purpose outside of the designated zoning for the area, they would have to apply for a special exception. As stated previously, zoning is established and controlled within the Affected Environment by multiple jurisdictions and rules for designating or changing zoning vary. Certain transportation uses (i.e., underground utilities, roads, rail roads, and transit stations) are supported within most zoning designations. Other above-ground public utility uses, or structures would require a special exception. Zoning designations present within the SCMAGLEV Project Affected Environment are summarized below and identified on mapping in Appendix D.3 Figure D.3-6.

Within the SCMAGLEV Project Affected Environment, Anne Arundel County has the highest acreage of residential zoning, which is the most prevalent zoning in the SCMAGLEV Project Affected Environment. Open space zoning, including parks and other undeveloped parcels, is the second most prevalent zoning designation throughout the SCMAGLEV Project Affected Environment. Prince George's County has the highest concentration of open space zoning. Industrial is the third largest zoning designation in the SCMAGLEV Project Affected Environment, primarily concentrated within Baltimore City and the Ivy City neighborhood of Washington, D.C.

Federal lands are not provided a zoning category by the local jurisdictions and are designated as Other on zoning maps located in Appendix D.3. These Federal lands, which are prevalent in Prince George's County and Anne Arundel County, include portions of NPS BWP, NASA GSFC, BARC, USSS, PRR, Fort George G. Meade, and NSA properties.

4.3.4 Environmental Consequences

4.3.4.1 No Build Alternative

Under the No Build Alternative, the SCMAGLEV Project would not be built and therefore no impacts related to the construction or operation of a SCMAGLEV system will occur. However, other planned and funded transportation projects will continue to be implemented in the area and could result in change to land uses and property impacts.

4.3.4.2 Build Alternatives

The Build Alternatives support statewide and regional transportation goals as identified in various approved comprehensive planning documents, including improvements to multi-modal mobility and improved access to commercial and transportation hubs. Additionally, the SCMAGLEV Project would indirectly support many local planning goals in Washington D.C., Anne Arundel County, Baltimore County, and Baltimore City.

The impacts associated with land use and zoning changes would require coordination with local or Federal agencies, and the approval process would vary per agency. Land use and zoning changes occur frequently within developed areas, and changing residential, commercial, and industrial land uses to transportation uses are generally allowed and approved given that the relevant procedures are followed. Additionally, all changes to land use and property impacts on Federal property would require agency-specific coordination, as well as potential updates to agency planning documents to accommodate the SCMAGLEV Project. During interagency scoping, multiple agencies expressed concerns about land use changes and the proximity of the SCMAGLEV facilities and its associated direct and indirect impacts to their property. For instance, Fort Meade indicated that locating SCMAGLEV viaduct and/or supporting facilities on or within close proximity to it may impact development of new supporting facilities, as available real estate on the installation is limited. Likewise, some agencies have noted that property transfer is unprecedented, infrequent, unfavorable, and/or potentially unattainable. Land acquisition from Federal agencies would require agency-specific permitting, transfer agreements, and in some cases, congressional approval.

This land use analysis is based on the LOD of above ground elements of the Build Alternatives. Coordination with property owners during later design phases would be required for impacts to utilities and water wells (discussed in greater detail in Section 4.13 Geology and Section 4.20 Utilities), and any rights to below ground resources. Impacts to land use, zoning, and property would vary between the 12 Build Alternatives. An overview of the impacts is provided below.

Summary of Build Alternatives Impacts

- Linear impacts to land use would be due to the viaduct, its support piers, and new roadways built to supplement access for construction and ongoing maintenance. Large area impacts to land use would be associated with

SCMAGLEV Project related buildings such as substations, fresh air/emergency egress facilities (FA/EEs), TMFs, and systems support buildings; construction laydown areas; and areas for stormwater management.

- The construction of some SCMAGLEV Project features would be in contrast to current and surrounding land uses. The potential sites for the TMFs include large portions of BARC which currently includes open space, forested areas, and agricultural uses or an area of land off of MD 198 east of the BWP that includes forested land and institutional uses. In other areas, SCMAGLEV Project facilities would be located in proximity to residential and commercial uses and forested areas.
- SCMAGLEV Project elements are located in areas zoned with various designations. SCMAGLEV Project elements would be considered transportation and/or public utility use. These uses would be permitted or would require a special exception prior to construction.
- The 12 Build Alternatives would result in property impacts that range from a total of 852 acres to 1,066 acres for permanent acquisition. Temporary property impacts would range from 120 acres to 252 acres. Build Alternatives with the Cherry Hill Station (J-01, J-02, J-03, J1-01, J1-02, J1-03) would result in more affected parcels and larger areas of permanent property acquisition, and would require larger amounts of land use changes compared to Build Alternatives with the Camden Yards Station (J-04, J-05, J-06, J1-04, J1-05, J1-06).
- Agricultural land uses would have the largest amount of land changed to transportation use. Most of the land characterized as agricultural is located on the Konterra site that would be used as a long-term construction laydown area under all Build Alternatives. Although classified as agricultural land use on MDP's current land use/land cover mapping, the Konterra site is an open grass field with a few roadways and stormwater management facilities. The site is not being used for agricultural purposes and is planned for future development. Impacts on farmland (i.e., soils designated as prime farmland, unique farmland, and farmland of statewide or local importance) are described in Section 4.14 Soils and Farmland.
- Build Alternatives J would result in at least one full permanent acquisition of a residential property. Build Alternatives J1 would result in one additional permanent acquisition of a residential property; however, this additional property is part of homeowners' association owned land and is currently forested and undeveloped.
- The BARC Airstrip TMF and the BARC West TMF would be located in the Prince George's County Rural and Agricultural area. The construction and operation of a TMF at either location would not be consistent with Prince George's County

Master Plan as the county intends to limit and discourage growth in the BARC area and keep it as a natural area.

- The SCMAGLEV Project would require temporary property acquisitions and permanent partial (less than 1/3 of the property) property acquisitions from numerous residential properties. As the SCMAGLEV Project design is finalized, these property impacts may be refined.

Permanent and temporary impacts to property are displayed by total acreage and number of parcels within the LOD for above ground elements, and changes in land use and parcel impacts are highlighted on **Table 4.3-4**. The Build Alternatives that would require the lowest and highest numbers of residential parcel property impacts are also identified. Property impacts are displayed by parcel in Appendix D.3 Attachment A. Impacts to land use are displayed by acreage, number of parcels, and land use type for each Build Alternative in Appendix D.3 Attachment B.

Table 4.3-4: Changes in Land Use and Parcel Impacts by Build Alternative

Build Alternative	Acres of Impact		Number of Parcels		Key Impacts and Highlights
	P	T	P	T	
J-01	1,000	203	312	162	<ul style="list-style-type: none"> • Property impacts to industrial and commercial land uses higher due to Cherry Hill Station in comparison to Alternatives that would use Camden Yards Station • One of the largest acreage of permanent property impacts to Fort Meade and BWP due to MD 198 TMF • Impacts to NASA, NSA, PRR, and USSS properties anticipated
J-02	1,066	239	294	170	<ul style="list-style-type: none"> • Largest acreage of impacts to forested land use • One of the largest acreage of permanent property impacts to Federal property • Largest acreage of permanent property impacts to BARC, NASA*, and Secret Service due to BARC Airstrip TMF • Impacts to NASA, NSA, PRR, and USSS properties anticipated
J-03	1,019	214	297	167	<ul style="list-style-type: none"> • Largest total acreage of impacted acres • Impacts to NASA, NSA, PRR, and USSS properties anticipated
J-04	852	216	207	113	<ul style="list-style-type: none"> • One of the largest acreages of permanent property impacts to Fort Meade and BWP due to MD 198 TMF • One residential parcel would be displaced. • Requires the lowest number of residential parcel property acquisitions (8 permanent, 4 temporary). Eight of the 13 total impacted residential parcels currently include a residential structure

Build Alternative	Acres of Impact		Number of Parcels		Key Impacts and Highlights
	P	T	P	T	
					<ul style="list-style-type: none"> Impacts to NASA, NSA, PRR, and USSS properties anticipated
J-05	918	252	189	123	<ul style="list-style-type: none"> One of the smallest acreages of permanent property impacts Least number of total parcels permanently impacted One of the largest acreages of permanent property impacts to Federal property Largest acreage of permanent property impacts to BARC, NASA*, and Secret Service due to BARC Airstrip TMF Impacts to NASA, NSA, PRR, and USSS properties anticipated
J-06	871	228	192	120	<ul style="list-style-type: none"> Impacts would fall within the range of impacts across Build Alternatives Impacts to NASA, NSA, PRR, and USSS properties anticipated
J1-01	1,009	120	334	167	<ul style="list-style-type: none"> Largest number of total parcels permanently impacted One of the lowest acreages of permanent property impacts to Federal property No impacts to NASA, NSA, PRR, or USSS properties anticipated
J1-02	1,053	161	313	183	<ul style="list-style-type: none"> Impacts would fall within the range of impacts across Build Alternatives
J1-03	1,009	133	314	178	<ul style="list-style-type: none"> No impacts to NASA, NSA, PRR, or Secret Service anticipated Two residential parcels would be displaced. Requires the highest number of residential parcel property acquisitions (11 permanent, 16 temporary). Nineteen of the 29 total impacted residential parcels currently include a residential structure.
J1-04	861	134	229	121	<ul style="list-style-type: none"> Least acreage of permanent property impacts to Federal property No impacts to NASA, NSA, PRR, or Secret Service anticipated
J1-05	905	174	208	134	<ul style="list-style-type: none"> One of the smallest acreages of permanent property impacts
J1-06	861	147	210	132	<ul style="list-style-type: none"> No impacts to NASA, NSA, PRR, or USSS property anticipated

Acreage totals reflect impacted parcel acreage. Land use descriptions reflect the Adjusted Land Use designations.

* NASA GSFC occupied parcels on BARC land are counted as NASA property for this analysis.

Source: AECOM, September 2020.

Alignment and Ancillary Facilities

The aboveground structures associated with the alignment include the viaduct substations, fresh air/emergency egress facilities, and systems buildings (ancillary facilities). The viaduct would run only along the central portion of the SCMAGLEV

Project corridor and generally parallels BWP and would impact the land that abuts it. The ancillary facilities would be dispersed throughout the SCMAGLEV Project corridor and would include larger footprints in comparison to the viaduct. Some ancillary facilities are located within and in close proximity to residential, commercial, open space, and forested land uses. The aboveground structures associated with Build Alternatives using the Build Alternatives J would result in permanent changes to land use of between 629 acres and 643 acres. Land use characterized as open space and institutional land uses count for the largest total acreage of land changes to transportation use. Comparatively, the viaduct for Build Alternatives with the Build Alternatives J1, would result in land use changes of between 620 acres and 636 acres from mostly open space and commercial land uses to transportation use.

The alignment and ancillary facilities associated with the Build Alternatives would require full permanent acquisitions from a range of 114 to 120 parcels. The alignment and ancillary facilities of Build Alternatives J1-02 and J1-03 would require the highest number of full permanent acquisitions with 120 parcels.

Build Alternatives J-01 through J-06 would require the full permanent acquisition of one residential property located off of Harmans Road due to a fresh air/emergency egress facility. Build Alternatives J1-01 through J1-06 would require an additional full permanent acquisition of a residential parcel located between Hermosa Drive and BWP. This parcel is currently forested. Changes to residential land use would also be required to areas along BWP in the vicinity of the MD 197 interchange for all Build Alternatives and would result in multiple partial permanent acquisitions. However, the LOD in these areas are in close proximity to residential structures and may eliminate parking and egress in some areas. Therefore, additional properties may warrant a full permanent acquisition.

Federal lands would also be impacted by the SCMAGLEV Project alignments and ancillary facilities. Build Alternatives J-01 through J-06 would permanently impact up to 328 acres and temporarily impact up to 120 acres of Federal lands. Viaduct and ancillary facilities of Build Alternatives J-01 through J-06 would be located east of the BWP and within properties operated by Federal agencies including NPS, NASA Goddard, BARC, USSS, PRR, NSA, and Fort Meade. The viaduct and ancillary facilities would be within the perimeter fence line at the USSS, Fort Meade, and NSA and could limit access to portions of these properties and fragment the properties, potentially affecting future management and use of them.

Build Alternatives J1-01 through J1-06 would permanently impact up to 245 acres and temporarily impact up to 60 acres of Federal lands. Viaduct and ancillary facilities of Build Alternatives J1-01 through J1-06 would be located along the BWP and western boarder of properties operated by Federal agencies including NPS, BARC, and Fort Meade.

Stations

The SCMAGLEV Project would include the construction and operation of three stations. One in Washington, DC, one at BWI Marshall Airport, and one in Baltimore City. Two stations, Cherry Hill Station and Camden Yards Station, are under consideration in Baltimore City. Only one would be constructed as part of the SCMAGLEV Project.

Each proposed station would result in land use changes and property acquisition. The Cherry Hill Station (Build Alternatives J-01, J-02, J-03, J1-01, J1-02, and J1-03) would result in the greatest land use change, with approximately 179 acres and 73 full permanent parcel acquisitions. The Cherry Hill Station is the only station under consideration that would be above ground. The Cherry Hill Station would be built above an existing Light Rail Station. Most of the land use changes will occur to industrial uses (115 acres), followed by commercial uses (20 acres) and forest uses (19 acres). The majority of the commercial land use changes would be associated with the businesses in the northeast quadrant of the intersection of Annapolis and Patapsco Roads and would include the Patapsco Flea Market and Patapsco Arena. There would be multiple full permanent acquisitions in this area, in addition to properties acquired east and west of the proposed station along Annapolis Road, Waterview Road, and Cherry Hill Road. Baltimore City planning documents, such as the *South Baltimore Gateway Master Plan*, acknowledge that consideration should be given to redeveloping this area.

The Camden Yards Station (Build Alternatives J-04, J-05, J-06, J1-04, J1-05, and J1-06) would be located in Downtown Baltimore City and would result in approximately 27 acres of permanent land use changes and four full permanent parcel acquisitions and would include the demolition of the Baltimore Convention Center, the Garmatz US District Court House, Old Otterbein Church, and the Federal Reserve Bank. Camden Yards access points would be along W Conway and Pratt Streets between Howard and Charles Streets.

BWI Marshall Airport Station (all Build Alternatives) would be mostly located under the existing airport and garage facilities but would impact some airport parking, resulting in 21 acres of permanent commercial land use changes.

The Mount Vernon Square East Station (all Build Alternatives) would result in approximately 3 acres of permanent commercial, institutional, open urban space, and transportation land use changes. Mount Vernon Square East Station access points would be southeast of the 6th Street NW and New York Avenue NW intersection, northeast of the 4th Street NW and New York Avenue NW intersection, and northwest of the 1st Street NW and New York Avenue NW intersection within the New York Avenue Playground and Park; this station would have the least permanent changes in land use.

TMF

Build Alternatives J and MD 198 TMF (J-01 and J-04) would require permanent changes to land use of nearly 194 acres and 11 full permanent parcel acquisitions. Land use converted to transportation use would include the following: approximately

140 acres of forest, 30 acres of institutional, 10 acres of industrial, 5 acres of residential, 4 acres of open urban space, and 3 acres of commercial land uses. Build Alternatives J1 and MD 198 TMF (J1-01 and J1-04) would require permanent changes to land use of nearly 216 acres and 12 full permanent parcel acquisitions. Land use changes to transportation use would include the following: approximately 161 acres of forested land use, 31 acres of institutional, 10 acres of industrial, 5 acres of residential, 2 acres of open urban spaces, 3 acres of commercial and 1 acre of agricultural land uses. The MD 198 TMF would alter the character and development intensity in the area. This location is currently identified within the *Anne Arundel County General Development Plan 2009* as part of the Managed Growth Area, which allows for development, and is within the County's Priority Funding Area. The MD 198 TMF would result in the full acquisition of 11 parcels under J-01 and J-04 and 12 parcels under Build Alternatives J1-01 and J1-04 including the Woodlands Job Corps facility. The United States Department of Labor (DOL), which manages and oversees the Woodlands Job Corps facility and program, expressed opposition to any Build Alternatives that would remove the facility. According to DOL, the Woodlands Job Corps facility is only one of two of the kind in the DC area and that relocating the center would be extremely costly.

Build Alternatives J and BARC Airstrip TMF (J-02 and J-05) would require permanent changes to land use of nearly 200 acres. Land use changes to transportation use would include the following: approximately 91 acres of institutional, 87 acres of forest, and 22 acres of agricultural land uses. Build Alternatives J1 and BARC Airstrip TMF (J1-02 and J1-05) would require permanent changes to land use of nearly 193 acres. Land use changes to transportation use would include the following: approximately 90 acres of institutional, 82 acres of forested, and 21 acres of agricultural land uses. The BARC Airstrip TMF would be located in the Prince George's County Rural and Agricultural area. The TMF is not consistent with Prince George's County Master Plan as the county intends to limit and discourage growth in the BARC area to maintain it as a natural area. Permanent partial property acquisition would be required from BARC and PRR. Additionally, portions of a parcel owned by BARC and currently occupied by NASA would be required. The BARC Airstrip TMF would occupy or be in close proximity to land that serves multiple research functions for both BARC and NASA. According to both BARC and NASA, the unique setting of the area cannot be replicated in another location on BARC property, and therefore, if the BARC Airstrip TMF is constructed, the research functions would no longer be available and years of ongoing research may be lost or altered for a very long time.

Build Alternatives J and BARC West TMF (J-03 and J-06) would require the permanent change in land use of nearly 193 acres. Land use changes to transportation use would include the following: approximately 152 acres of forest, 27 acres of agricultural, 13 acres of institutional uses, and under one acre of residential land uses. Build Alternatives J1 and BARC West TMF (J1-03 and J1-06) would require the permanent change in land use of nearly 194 acres. Land use changes to transportation use would include the following: approximately 151 acres of forested, 29 acres of agricultural, 13 acres of institutional, and under one acre of residential land uses. The BARC West

TMF is the only TMF option that would impact residential property. The BARC West TMF would be located in the Prince George's County Rural and Agricultural area. The TMF would not be consistent with Prince George's County Master Plan. Permanent partial property acquisition would be required from BARC. BARC has expressed that the development of either the BARC Airstrip TMF or the BARC West TMF would have a significant impact on BARC research activities and that the changes in land use would affect long-term research that would be permanently lost.

4.3.4.3 Short-term Construction Effects

Construction of the SCMAGLEV Project would include activities such as digging and tunneling using multiple tunnel boring machines, ground clearing, pile driving, excavating, grading, and the stockpiling of soil, muck, and materials. During construction, areas used to stage equipment, stockpile soil, create access roads, and provide access to underground stations construction would be temporarily impacted. Build Alternatives J-01 through J-06 would require between 203 and 239 acres of temporary acquisition affecting up to 170 parcels. Build Alternatives J1-01 through J1-06 would require between 120 and 174 acres of temporary acquisition and would affect up to 183 parcels (see **Table 4.3-4**). These lands would be restored to their original use after construction is complete. However, although some impacts would not be permanent in nature, removal of mature forest cover could take 75-100 years to regenerate to current levels. Additional details on the impacts to land use and property can be found in Section 4.2 Transportation, Section 4.4 Neighborhoods and Community Resources, Section 4.12 Ecological Resources, Section 4.14 Soils and Farmlands, and Section 4.20 Utilities.

4.3.5 Potential Minimization and Mitigation Strategies

The Build Alternatives would result in changes in land use, permanent full and partial property acquisition, and temporary property acquisition. The Project Sponsor incorporated design considerations to avoid and minimize impacts in areas along the corridor. Some examples include:

- The Washington, D.C. Station and the Camden Yards Station in Baltimore City are underground to avoid significant permanent land use changes in urban, highly developed areas.
- The Cherry Hill Station is located above an existing transportation facility (i.e., a Light RailLink Station) with light rail and bus service.
- Tunnel boring machine (TBM) launch sites, storage, and staging areas are consolidated to sites that would ultimately be fresh air and emergency egress facilities, or substations post construction will minimize land use impacts during construction.

In addition, FRA has identified the following measures to mitigate and minimize these impacts.

The Project Sponsor would consider comprehensive master and local land use plans, existing land use and zoning, and property ownership in the preliminary design of the SCMAGLEV Project. In an effort to minimize impacts to surface properties, the Project Sponsor has incorporated tunneling into design of the Build Alternatives.

The Project Sponsor would continue to coordinate with state and local governments, Federal agencies, and private landowners regarding the location and positioning of Build Alternatives including the stations, selected TMF site, and ancillary facilities like the fresh air and emergency egress facilities and substations. At this stage of design, the viaducts, access ramps, and TMF sites are currently being evaluated as large, contiguous tracts of land. However, as design progresses, detailed layouts of the selected TMF site would be developed to reduce land use and parcel impacts and the Project Sponsor would coordinate with state, local, and Federal agencies to continue to evaluate the project's consistency with future land use plans. In addition, the viaducts and access ramps would be further refined to minimize land use impacts under the structures.

As part of the design process, the Project Sponsor would examine ways to reduce or eliminate property acquisitions where feasible. The Project Sponsor and FRA will coordinate with potentially impacted property owners on an individual basis to identify and discuss appropriate mitigation measures. Mitigation measures would follow applicable regulations and procedures and would be in place prior to the start of construction.

To mitigate impacts from forest land use changes, the Project Sponsor would provide reforestation for impacts to forested lands in consultation with Maryland Department of Natural Resources (MDNR), local governments, and Federal agencies (USFWS, NPS, BARC) as warranted, and in compliance with applicable regulations. To minimize the impacts to aesthetics and visual character, the Project Sponsor would ensure the architecture and design of the surface elements conforms to surrounding uses, by considering the form, scale, and materials of the surface elements. The design and placement of above-ground elements would encourage compatibility with adjacent land uses to the extent feasible, such as placing entry areas away from incompatible adjacent land uses. The Project Sponsor would consult with state and local planning approval agencies and Federal agencies during the development of the architecture and design of the surface elements.

The Project Sponsor would comply with the Uniform Relocation Act as part of the property acquisition process. The Project Sponsor would negotiate with property owners for parcel acquisitions on an individual basis, and agreements would be in place prior to the start of construction. Some parcels identified as a full parcel acquisition in this analysis may ultimately qualify as partial parcel acquisitions depending on final design and property owner negotiations. Likewise, some parcels identified as partial parcel or temporary acquisition may ultimately qualify as full parcel acquisitions.

The Project Sponsor would implement a surface settlement monitoring program during construction and tunneling operations. A pre-construction survey of sensitive structures for existing cracks and damages would be conducted. Tolerance levels would be established based on thresholds for buildings, roads, and other sensitive structures to ensure no damage. The monitoring program would include an Alert Notification System that notifies the responsible personnel when tolerances are exceeded.

4.3.5.1 Short-term Construction Strategies

The construction of the SCMAGLEV Project could cause potential short-term impacts to air quality (fugitive dust and construction equipment exhaust), noise and vibration (construction equipment and activities), and transportation (work vehicles, increased congestion, detours, and road closures). These impacts could affect the access and functions of land uses. The Project Sponsor would include the following minimization and mitigation strategies for impacts related to construction.

- Develop a construction mitigation plan with community and property owner input to address construction impacts. Public outreach at Public Meetings with impacted neighborhoods and stakeholders would be included as a part of the programmatic mitigation approach. The Project Sponsor would continue to incorporate stakeholder input into design throughout the SCMAGLEV Project to inform their decision-making process;
- Develop a community outreach plan to notify local communities of construction schedules, road and sidewalk closures, and detours. The Project Sponsor would develop the community outreach plan which would ultimately outline how and when communities would be informed of these potential disruptions;
- Determine truck hauling routes and schedules that would minimize impacts on residential and commercial areas;
- Notify property owners, businesses, and residences of upcoming major construction activities (e.g., utility relocation/disruption and milestones; re-routing of delivery trucks);
- Coordinate business outreach programs and implement promotions for businesses most affected by the construction;
- Develop detours for any road or sidewalks to be closed during construction. Develop Worksite Traffic Control Plans in conjunction with the county and municipal departments of transportation to accommodate automobile and pedestrian traffic;
- Maintain access to residences, businesses, and community facilities including community parks affected by construction activities;
- Provide early notification to emergency service providers of any road closures or detours; and

- During construction, provide temporary replacement or shared parking as needed to absorb the loss of parking due to acquisitions. Temporary parking could be added by constructing surface lots on nearby vacant parcel or restriping nearby streets to allow diagonal curb parking.