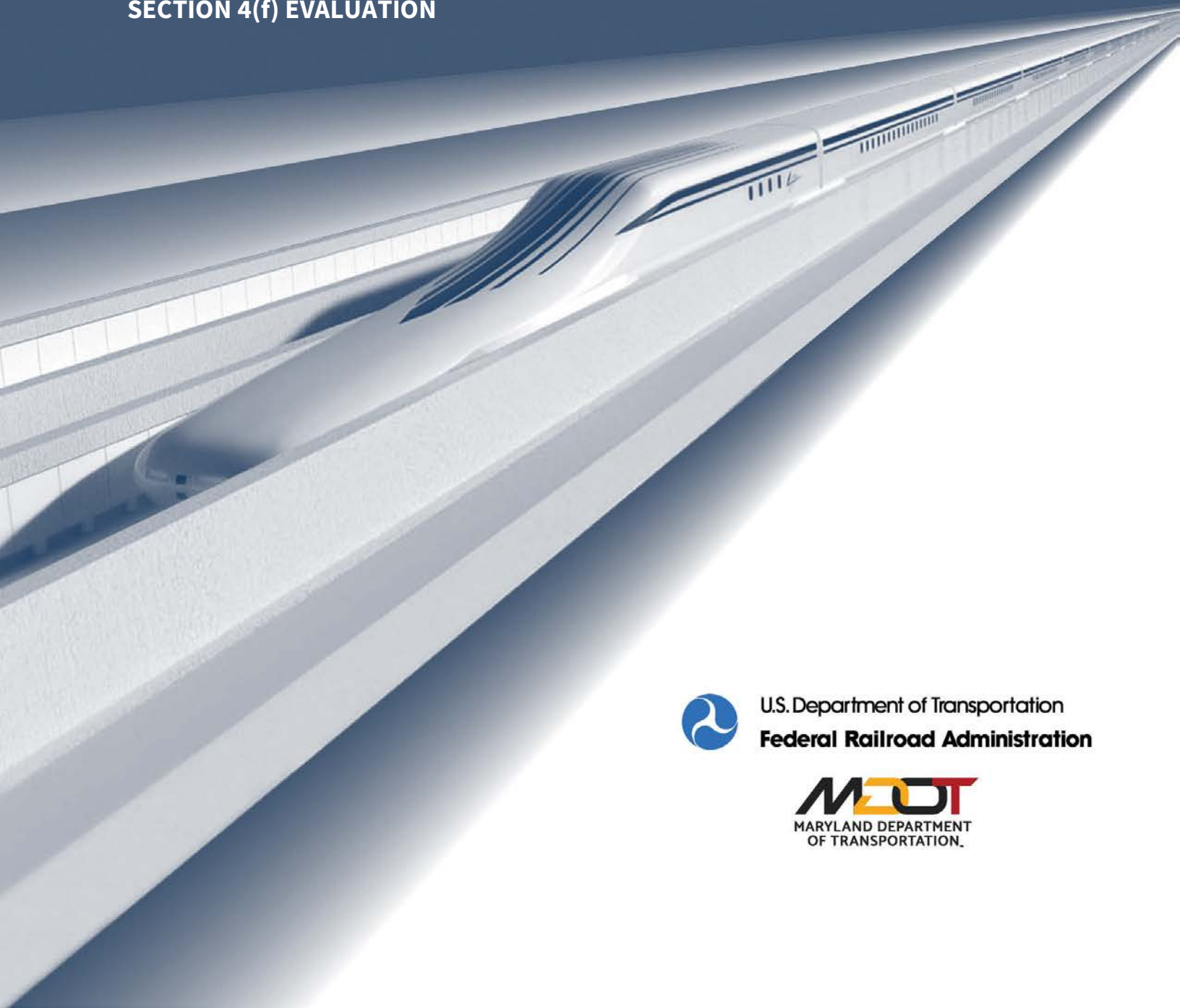


Appendix A

Glossary, Acronyms, References, Distribution List and List of Preparers

BALTIMORE-WASHINGTON SUPERCONDUCTING MAGLEV PROJECT

DRAFT ENVIRONMENTAL IMPACT STATEMENT AND
SECTION 4(f) EVALUATION



U.S. Department of Transportation
Federal Railroad Administration

MDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION.

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Appendix A.1: Glossary

Term	Definition
Accessibility	(1) The ability of vehicles and facilities to accommodate the disabled and comply with the Americans with Disabilities Act (ADA). (2) A measure of the ability or ease of all persons to travel among various origins and destinations.
Advisory Council on Historic Preservation (ACHP)	Independent federal agency that provides a forum for influencing federal policy, programs, and activities as they affect historic and archaeological resources in communities and on public lands nationwide.
Adverse	A negative or unfavorable condition.
Affected Environment	Defines the parameters for which technical areas considered for potential impacts. It differs by resource.
Air Pollution	General term that refers to one or more chemical substances that degrade the quality of the atmosphere.
Alignment	Horizontal and vertical location of a roadway, railroad, transit route, or other linear transportation facility.
Alternatives	Set of transportation improvements or projects that are compared in the Environmental Impact Statement (EIS) to determine their effectiveness in serving as potential solutions to a transportation problem. Alternatives may consist of different configurations, alignments, type of access control, or transportation modes and strategies.
Ancillary Facility	Supports the operation of the train service. Examples of such facilities are substations, maintenance of way facilities, and fresh air and emergency egress facilities.
Aquifer	A layer of permeable rock, sand, or gravel through which ground water flows, containing enough water to supply wells and springs.
Area of Potential Effect (APE)	Geographic area within which a transportation project may cause changes in the character of, or use of, historic properties. The APE is influenced by the scale and nature of the project, and there may be different kinds of effects caused by the undertaking.
At-Grade	On the ground, at surface level.
At-Grade Crossing	Same as a “grade crossing.” A rail crossing with roadways or streets on the same level as the tracks, resulting in a level intersection of both modes. See <i>grade separation</i> .
Avoidance	Act of avoiding or keeping away from impacting on something or someone.
Avoidance Analysis	Applies the Section 4(f) feasible and prudent criteria (23 CFR § 774.17(2) and (3)). “An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.

Term	Definition
Bus	Rubber-tired vehicles operating on fixed routes and schedules on roadways. Buses are powered by diesel, gasoline, battery, or alternative fuel engines contained within the vehicle.
Build Alternative(s)	Alternative(s) describing improved future conditions of an area. It serves as a benchmark to which the impacts of the No build alternative can be compared. As part of this alternative, financially constrained and programmed projects are considered together with existing conditions. <i>See Build Alternative J (BWP East) and J1 (BWP West).</i>
Build Alternative J (BWP East)	Consists of 6 Options
Build Alternative J1 (BWP West)	Consists of 6 Options
Capital Costs	One-time expenses incurred to design and build a transit system.
Carbon Monoxide (CO)	A colorless and odorless gas, which is a product of incomplete combustion. CO is absorbed by the lungs and reacts with hemoglobin to reduce the oxygen carrying capacity of the blood. At low concentrations, CO has been shown to aggravate the symptoms of cardiovascular disease. It can cause headaches and nausea, and at sustained high concentration levels, can lead to coma and death. CO concentrations tend to be highest in localized areas because they are most affected by local traffic congestion, since motor vehicles are a major source of CO emissions.
Clean Air Act (CAA)	Federal legislation that sets air quality standards. Sometimes cited as CAAA, Clean Air Act and Amendments of 1990.
Clean Water Act (CWA) (33 U.S.C. 1344) – Section 401 Water Quality Certification and Section 402 National Pollution Discharge Elimination System	Federal legislation to establish the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly reorganized and expanded in 1972.
Connectivity	Connecting various transportation modes and services to minimize wait times between transfers and reduce overall travel time.
Construction Impact	Temporary impact that would occur while a project is under construction.
Constructive Use Impact	An impact adversely impacting activities on or enjoyment of a property without directly acquiring the property or any portion of the property. A new noisy project adjacent to a previously quiet outdoor theater would be an example of a constructive use impact.
Construction-Related Impact Area	Areas of temporary disturbance during construction activities.

Term	Definition
Coastal Resources	The federal Coastal Zone Management Program (CZMP) is a voluntary partnership between federal government and U.S. Coastal and Great Lakes States and territories, aimed at ensuring federal projects are consistent with approved state coastal zone management laws, regulations and policies.
Coastal Zone Management Program (CZMP)	Voluntary partnership between federal government and U.S. Coastal and Great Lakes States and territories, aimed at ensuring federal projects are consistent with approved state coastal zone management laws, regulations and policies.
Cumulative Impact	Impact that “results from incremental consequences of an action when added to other past and reasonably foreseeable future actions.” The cumulative effects of an action may be undetectable when viewed in the individual context of direct and indirect impacts but can add to other changes and eventually lead to a measurable environmental change. Potential cumulative effects on the environment must be assessed as required by NEPA.
Cut-and-cover	Cut-and-cover is a tradition method of constructing an underground facility such as a tunnel. It involves excavating the surface material from over the location of the underground facility, building the facility, and then putting the surface material back on top of the newly constructed, underground facility.
<i>de minimis</i>	Of insufficient significance. A <i>de minimis</i> contribution means that the environmental conditions would essentially be the same whether or not a proposed project is implemented. Used to evaluate impacts to parks under a 4(f) evaluation.
Dedicated Guideway	Right-of-way that is solely for use of transit vehicles and is not occupied by any other type of vehicle or by pedestrians. Dedicated guideway may be either grade-separated or protected by a fence or substantial permanent barrier.
Deep Tunnel	Deep tunnel is greater in depth below the ground surface that can be construction using traditional cut-and-cover excavation.
Demand Forecasting	Technique of estimating the number and travel times of potential users of a system.
Design Speed	Speed used for design and relationship of the physical features of a highway or rail that influence vehicle operation. It is the maximum safe speed that can be maintained over a specified section of highway or rail when conditions are favorable (i.e., clear, dry, daylight).
Design Year	Year for which the facility is designed. The transit facility should be able to handle the traffic forecasted for that year, which is generally 20 to 25 years in the future.

Term	Definition
Determination of Eligibility (DOE)	Process of assembling documentation to render professional evaluation of the historical significance of a property. Departments of Transportation, in consultation with the State Historic Preservation Office, apply the National Register of Historic Places criteria when deciding matters of historical significance.
Displacement	Results in converting current residential or commercial uses to transportation use.
Dust Control	Controlling dust from exposed soils by minimizing the time soils are exposed, temporarily mulching, seeding or covering exposed soils, and/or spraying water on exposed soils.
Dwell Time	Time, in seconds, that a transit vehicle spends at each stop waiting for passengers to alight and board.
Easement	Temporary or permanent right to use the land of another for a specific purpose sometimes referred to as a “deed restriction.” Easements may be purchased from the property owner or donated by the owner.
Effects	“Effects” and “impacts” are synonymous. Effects include ecological, aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial. Effects include (1) direct effects that are caused by the action and occur at the same time and place and (2) indirect effects that are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
electromagnetic field/electromagnetic interference (EMF/EMI)	All sources of electricity produce both electric and magnetic fields. Electric fields result from the strength of the electric charge and magnetic fields are produced from the motion of the charge. Together, the combination of electric and magnetic fields is referred to as “electromagnetic fields.” EMFs are invisible, non-ionizing, low-frequency radiation. EMFs are commonly produced by both natural (for example thunderstorms) and man-made sources. EMI is a disturbance emitted by an external source, such as the SCMAGLEV Project technology, that may affect a sensitive electrical circuit in relatively close proximity via induction, coupling or conduction.
Eminent Domain	Authority of an agency to acquire property at fair market value for public purposes. Also known as condemnation.

Term	Definition
Endangered Species Act (ESA)	An organism of very limited numbers that may be subject to extinction and is protected by law under the Endangered Species Act.
Environmental Justice (EJ)	Presidential Executive Order 12898 requires federal agencies to ensure that their actions (or actions they oversee) do not disproportionately discriminate against or impact minority populations and low-income populations.
Environmental Impact Statement (EIS)	Public document that a federal agency prepares under the National Environmental Policy Act (NEPA) to document the expected impacts of a development or action on the surrounding natural and human environment. The document must detail efforts to avoid, minimize, or mitigate any adverse impacts.
Ephemeral stream	Rain-dependent streams; only flow after precipitation. Runoff from rainfall is the primary source of water.
Environmental Justice population.	An EJ Population consists of a minority population and/or a low-income population.
Feasible	Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.
Financially Constrained	Term used to describe the financial requirement that all projects must have an identified funding source.
Fresh Air and Emergency Egress Facility	Facility providing fresh air vents for tunnels and an access point for exiting tunnel in an emergency situation.
Full Acquisition	Purchase of all land ownership rights of a property. Also known as a “fee simple” acquisition.
Floodplain (100-year)	Area adjacent to a stream that contains a flood event that has a one percent probability of occurring in any given year.
Geographic Information System (GIS)	Computer system capable of storing and manipulating spatial data.
Grade	<p>(1) Refers to a rise in elevation within a specified distance. For example, a one-percent grade is a one-foot or 0.305-meter rise in elevation in 100 feet or 30.5 meters of horizontal distance.</p> <p>(2) The rate of upward or downward slope of a roadway, expressed as a percent.</p> <p>(3) “At grade” refers to a transportation facility built at ground level in a level intersection of both modes. See grade separation.</p>
Grade Separated Crossings	Facilities such as overpasses, underpasses, skywalks, or tunnels that allow pedestrians or vehicles to cross paths at different levels; also referred to as grade separations.

Term	Definition
Grade Separation	Crossing of transportation rights-of-way that are separated vertically and for which there is no shared common intersection. A transit right-of-way may be fully grade-separated or partially grade-separated.
Groundwater	Subsurface water and underground streams that can be collected with wells or that flow naturally to the earth's surface through springs.
Groundwater Recharge	Hydraulic process where water moves downward from surface water to groundwater.
Groundwater Resources	Groundwater resources consist of water present beneath the ground surface in soil pore spaces and in the fractures of rock formations. A unit of rock or soil deposit is called an aquifer when it can yield a usable quantity of water. Aquifers are groundwater resources that supply, or can potentially supply, source water for water supply wells and groundwater recharge to surface water features. Including wells and aquifers.
Guideway	A right-of-way that is used for transit vehicles and is not occupied by any other type of vehicle or by pedestrians.
Hazardous Materials	Material, often waste, that poses a threat to human health and/or the environment.
Headway	Time interval between transit vehicles operating in the same direction along a fixed route.
Impacts	See Effects.
Impacted Areas	Defines the limits of operational/physical disturbance for each alternative. The primary impact area is the LOD; however, some resources such as noise, vibration, electromagnetic field/electromagnetic interference (EMF/EMI) may have different impact areas based on regulatory requirements.
Independent Utility	A project is said to have independent utility if it will provide functional transportation improvements that can stand alone and serve a major purpose, even if no other improvements are made in the region.
Indirect Effects (Secondary Impacts)	Impacts on the environment resulting from the primary impact of the proposed action but occurring later in time or farther removed in distance, although still reasonably foreseeable. Potential indirect or secondary and cumulative effects on the environment must be assessed as required by NEPA.
Intelligent Transportation Systems (ITS)	Computer-based technology applications designed to increase capacity, to move traffic and transit more safely and efficiently, and to supply information to travelers. Examples include global positioning systems for locating vehicles and traffic signal priority for giving preferential green time to transit vehicles at intersections.

Term	Definition
Intermittent Stream	Streams that flow seasonally, during certain times of the year when smaller upstream waters are flowing and when groundwater provides enough water for stream flow. During dry periods, streams may not have flowing water.
Intermodal	Ability to connect, and the connections between, different modes of transportation.
Land and Water Conservation Fund (LWCF) Act 1965	Regulates the use of parklands that were purchased or developed with Land and Water Conservation Fund (LWCF) Act 1965. <i>See Section 6(f).</i>
Level of Service (LOS)	LOS is a measure of the quality of operations of a roadway. It looks at speed, traffic volume and road geometry. LOS A represents free flow conditions and LOS F represents a breakdown of vehicular flow.
Limits of Disturbance (LOD)	The geographic area of impact within the limits of operational/ physical disturbance (where soil will be exposed during construction activities) for all surface and subsurface elements of each alternative, including the construction related impact area, which includes additional areas of temporary disturbance required for construction activities.
Limited English Proficiency (LEP)	Individuals that do not speak English as a first language and have a limited ability to read, write, speak, or understand English as reported to the US Census Bureau.
Logical Termini	Rational endpoint for consideration of transportation improvements and for review of environmental impacts.
Low-Income Household	Household where the median household income is below the Department of Health and Human Services poverty guidelines.
Low-Income	Individual with a median household income at or below the Department of Health and Human Services (DHHS) poverty guidelines (DOT Order 5610.2[a]).
Low-Income Population	Any readily identifiable group of low-income persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed federal transportation program, policy, or activity.
Maintenance of Way (MOW) Facility	Location where maintenance equipment and materials for the guideway are stored.
Map Overlays	Quantitative and qualitative analysis using layering of maps showing land use and resource context from various time periods.
Minimization	Measures taken to reduce the severity of adverse impacts.

Term	Definition
Minority	A person who is (1) Black (having origins in any of the black racial groups of Africa); (2)Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); (3)Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or (4)American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).
Minority Population	Any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed federal transportation program, policy, or activity.
Mitigation	Measures taken to alleviate adverse impacts that remain after minimization.
Mixed-Use Development	Development with multiple categories of land use typically including residential, commercial, retail, and entertainment. Mixed-use areas generally have higher population densities and are pedestrian friendly.
Mode	Specific form of transportation (auto, bus, LRT, heavy rail, pedestrian, bicycle, etc.).
Model	Analytical tool (often mathematical) used in making forecasts of land use, economic activity, travel activity and their effects on the quality of resources such as land, air, and water.
Multimodal	Having or involving several modes of transportation.
National Environmental Policy Act (NEPA)	The federal law that requires every federal agency to evaluate the effect of its proposed actions on the natural and man-made environment.
National Register Eligible	Cultural resources eligible for inclusion on the National Register of Historic Places. Eligible resources receive the same protection as listed resources.
National Register of Historic Places (NRHP)	A federal listing of historic resources protected under the National Historic Preservation Act (NRHP) of 1966. Properties include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture.
New Starts	Discretionary federal funding program for the construction of new fixed guideway systems or extensions of existing fixed guideway systems, based on cost effectiveness, alternatives analysis results and the degree of local financial commitment.

Term	Definition
No-Build	Alternative describing projected future conditions of an area in the absence of a proposed project. It serves as a benchmark to which the impacts of the build alternatives can be compared. As part of this alternative, financially constrained and programmed projects are considered together with existing conditions.
Noise	Unwanted sound.
Off-Peak Period	Periods of the day when travel activity is lower.
Operating and Maintenance Costs (O&M Costs)	All costs involved with running a transit system, including labor for operations and for vehicle and fixed facility maintenance, fuel and electric power, spare parts and other supplies, insurance premiums and claims payments, direct supervision, and general and administrative expenses.
Operating Plan	For transit, an operating plan details characteristic such as running times, frequency, required number of vehicles, changes in frequency throughout the day, and assumptions pertaining to stations.
Ozone (O ₃)	Strong oxidizer and a pulmonary irritant that affects the respiratory mucous membranes, other lung tissues, and respiratory functions. Exposure to ozone can impair the ability to perform physical exercise, can result in symptoms such as tightness in the chest, coughing, and wheezing, and can ultimately result in asthma, bronchitis, and emphysema. Emissions of volatile organic compounds (VOC) and nitrogen oxides (NO _x), which are the precursor pollutants to ozone formation, react in the presence of sunlight to form ozone in the atmosphere. These reactions occur over periods of hours to days during atmospheric mixing and transport downwind.
Partial Acquisition	Purchase of a portion of a property. A partial acquisition could include fee simple or easement acquisition.
Particulate Matter (PM _{2.5})	Small solid particles and liquid droplets. PM ₁₀ refers to particulate matter with an aerodynamic diameter of 10 microns and smaller, and PM _{2.5} refers to particulate matter with an aerodynamic diameter of 2.5 microns and smaller. Particulates, especially PM _{2.5} , have been associated with increased incidence of respiratory diseases such as asthma, bronchitis, and emphysema; cardiopulmonary disease; and cancer. The majority of PM emissions from mobile sources are attributed to diesel vehicles.
Peak (Peak Period, Rush Hours)	Period during which the maximum amount of travel occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak.

Term	Definition
Perennial Stream	Streams that typically have water flowing in them year-round. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is supplemental.
Preliminary Alternatives Screening Report (PASR)	Preliminary Alternatives Screening Report (PASR) Study Area defined for early data collection/broadest parameters that we identified alternatives (important because make reference to it also in 4(f)). Study Area is discussed in the introduction and in Alts Considered and only as needed for regional context or broader study parameters.
Preliminary Engineering	At the preliminary engineering phase, the design is approximately 30 percent complete and include contract drawings, specifications, design calculations and a preliminary cost estimate.
Public Hearing	Formal meeting held to receive public comment on proposed action.
Public Meeting	Informal meeting held to present information about the proposed action and to discuss it with the public.
Purpose and Need Statement	A project purpose is a broad statement of the overall objective to be achieved by a proposed action. Need is a more detailed explanation of the specific transportation problems that exist or are expected to occur in the future.
Queue	Line of vehicles stopped at an intersection, merge or diverge point.
Ridership	Number of rides taken by people using a public transportation system in a given time period.
Root Mean Square (RMS)	Average vibration amplitude
(Public) Right-of-Way (ROW)	Area over which a legal right of passage exists; land used for public purposes in association with the construction or provision of transportation projects or other linear infrastructure and the associated facilities.
SCMAGLEV	Superconducting maglev technology is a high-speed rail technology on a grade-separated, fixed guideway powered by magnetic forces.
Scoping	First step in the NEPA process that determines the range of proposed actions, alternatives, and impacts to be discussed in a DEIS. The scoping process provides agencies and the public opportunity to comment. Scoping is used to encourage cooperation and early resolutions of potential conflicts, to improve decisions, and to reduce paperwork and delay.
Scenic and Wild Rivers	The National Wild and Scenic Rivers System was created by the Wild and Scenic Rivers Act of 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values.

Term	Definition
Section 106	The section of the National Historic Preservation Act that requires federal agencies to consider the potential effects of proposed federal action on any known or potential historic, architectural, or archaeological resources and to consult with the SHPO.
Section 4(f)	Section 4(f) of the US Department of Transportation Act of 1966 includes a national policy to make special effort to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and significant historic sites. Use of these lands for a transportation project will be permitted only when it has been determined that there is no feasible and prudent alternative and the project includes all possible planning to minimize harm to the property resulting from such use.
SHPO (State Historic Preservation Office)	The office of the State Historic Preservation Officer, a state official in each state that is responsible under the National Historic Preservation Act of 1966 to review potential impacts to cultural resources by federal actions and to supervise the mitigation of adverse impacts.
Shuttle Service	Local bus service that moves passengers to collection points for bus or rail service.
Soil Erosion and Sediment Control	To reduce the uncontrolled movement of soils.
Stakeholders	Individuals and organizations involved in, or affected by, the transportation planning process, including federal/state/local officials, MPOs, transit operators, freight companies, shippers, and the general public.
State Implementation Plan (SIP)	The SIP is a state-adopted plan required for compliance with the Clean Air Act for regions that are not in attainment of the National Ambient Air Quality Standards.
Stormwater Management (SWM)	Physical design features such as ponds, bioretention, or drainage swales that retain or direct stormwater run-off in a manner that controls discharge volumes and/or water quality.
Substation	Power support facility that transfers power from outside the train operation (such as from a power-producing plant) to the train operation.
Surface Water	As defined by the National Oceanic and Atmospheric Administration (NOAA), a watershed, or drainage basin, is defined as “a land area that channels rainfall and snowmelt to creeks, streams and rivers, and eventually to outflow points such as reservoirs, bays, and the ocean.”
Terminal Station	Bus or rail station where a route or line begins and ends.
Tunnel	Linear, underground structure through which a transportation facility operates.

Term	Definition
Tunnel Portal	Structure than connects a tunnel to an elevated guideway. The tunnel portal enables a train to transition from operating underground to operating above ground, and vice versa.
Trainset Maintenance Facility (TMF)	Place where maintenance and storage of SCMAGLEV vehicles would occur.
Transfer	The portion of a trip between two connecting transit routes.
Transit Oriented Development (TOD)	A term used for urban development that encompasses a direct and planned access to transit facilities.
Travel Time	Average time required to travel between two points, including delays at intersections, but not including terminal or waiting time.
Viaduct	Structure that consists of a horizontal element that contains a guideway and supporting piers that support the horizontal element. A viaduct is elevated above the ground surface.
Viewshed	Area visible from a specific vantage point.
Waterbodies	See Surface Water.
Water Quality	As defined by the Environmental Protection Agency (EPA), water quality standards “form a legal basis for controlling pollutants entering the waters of the United States. Water quality standards consist of three core components. This includes designated uses of a water body, criteria to protect designated uses, and anti- degradation requirements to protect existing uses and high quality/high value waters.
Watersheds	As defined by the National Oceanic and Atmospheric Administration (NOAA), a watershed, or drainage basin, is defined as “a land area that channels rainfall and snowmelt to creeks, streams and rivers, and eventually to outflow points such as reservoirs, bays, and the ocean.”
Wetlands	As defined by the U.S. Army Corps of Engineers, areas that are inundated or saturated by surface water or groundwater sufficiently to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and similar areas and are subject to protection under Executive Order 11990 and Section 404 of the Clean Water Act.

Appendix A.2: Acronyms and Abbreviations

Acronym	Definition
4(f)	Section 4(f)
6(f)	Section 6(f)
AA	Anne Arundel
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
AADT	Annual Average Daily Traffic
ADA	Americans with Disabilities Act
ADT	average daily traffic
AIRFA	American Indian Religious Freedom Act of 1990
ANC	Advisory Neighborhood Commission
APE	Area of Potential Effects
AST	aboveground storage tank
ATF	Bureau of Alcohol, Tobacco, Firearms, and Explosives
AUL	Activity Use Limitations
AVE	Area of Visual Effects
B&P	Baltimore and Potomac Tunnel
BARC	Beltsville Agricultural Research Center
BCA	benefit-cost analysis
BCDOT	Baltimore City Department of Transportation
BCDP	Baltimore City Department of Planning
BEA	Bureau of Economic Analysis
BGE	Baltimore Gas and Electric Company
BGEPA	Bald and Golden Eagle Protection Act
BMC	Baltimore Metropolitan Council
BMP	best management practices
BRTB	Baltimore Regional Transportation Board
Btus	British thermal units
BWI Marshall Airport	Baltimore-Washington International Thurgood Marshall Airport
BWP	Baltimore-Washington Parkway
BWRR	Baltimore-Washington Rapid Rail
CAA	Clean Air Act
CAC	Critical Area Commission
CBRE	United States Commercial Real Estate Services

Acronym	Definition
CCC	Civilian Conservation Corps
CCTV	Closed Circuit Television
CDC	Centers for Disease Control and Prevention
CDP	Census Designated Places
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFA	Commission of Fine Arts
CFR	Code of Federal Regulations
CH ₄	methane
CLRP	Constrained Long Range Plan
CO	Carbon Monoxide
COBAR	Code of Baltimore County Regulations
COG	Council of Governments
COMAR	Code of Maryland Regulations
COVID-19	Coronavirus Pandemic
CSA	Combined Statistical Area
CSO	combined sewer system
CSX	CSX, a corporation
CSXT	CSX Transportation
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
D.C.	District of Columbia
DC DGS	District of Columbia Department of General Services
DC-DRP	District of Columbia Department of Recreation and Parks
DC SHPO	District of Columbia State Historic Preservation Office
DCCC	District of Columbia Children's Center
DCMR	District of Columbia Municipal Regulations
DCOP	District of Columbia Office of Planning
DCRA	Department of Consumer and Regulatory Affairs
DDOT	District Department of Transportation
DEA	Drug Enforcement Administration
DEIS	Draft Environmental Impact Statement

Acronym	Definition
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DOE	Determination of Eligibility
DOEE	Washington D.C. Department of Energy and Environment
DOI	Department of the Interior
DPF	Diesel Particulate Filter
DPW	District of Columbia Department of Public Works
DRBP	District Recovery Base Plan
DRP	District Response Plan
Dulles	Washington Dulles International Airport
EDR	Environmental Data Resources
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EJ	environmental justice
EMF	electromagnetic field
EMI	electromagnetic interference
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
EPBM	Earth Pressure Balance Machine
ERU	Environmental Review Unit (MDNR)
ESA	Endangered Species Act
ESC	erosion and sediment control
ESD	Environmental Site Design
FAA	Federal Aviation Administration
FA/EE	Fresh Air and Emergency Egress
FAST	Fixing America's Surface Transportation Act
FCA	Forest Conservation Act
FCC	Federal Communications Commission
FCP	Forest Conservation Plan
FD	Fire department
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Act
FGGM	Fort George G. Meade
FHWA	Federal Highway Administration
FIDS	forest interior dwelling species

Acronym	Definition
FIRM	Flood Insurance Rate Maps
FPPA	Farmland Protection Policy Act
FR	Federal Register
FRA	Federal Railroad Administration
FSD	Forest Stand Delineation
FTA	Federal Transit Administration
GB	Ground-borne
GBH	great blue heron
GCR	General Conformity Rule
GDP	gross domestic product
GGAO	Goddard Geophysical and Astronomical Observatory
GHG	Green House Gas
GIS	Geographic Information System
GPS	Global Positioning System
GSA	General Services Administration
GSFC	Goddard Space Flight Center
HAPs	hazardous air pollutants
HAZMAT	hazardous material
HDC	Historic District Commission
HEI	High Explosive Impact
HFCs	hydrofluorocarbons
HMP	All-Hazards Mitigation Plan
HSEMA	Homeland Security and Emergency Management Agency
HSR	High Speed Rail
HUB	Department of Housing and Urban Development
IBI	Index of Biotic Integrity
ICE	Immigrations and Customs Enforcement
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDA	Intensely Developed Area
IPaC	Information for Planning and Consultation (USFWS)
ips	inches per second
IRM	Interagency Review Meeting
ITS	Intelligent Transportation Systems
JE	Joint Environmental (Committee Meeting)
JRC	Japan Central Railway

Acronym	Definition
LDA	Limited Development Area
Ldn	day-night noise level
LEDPA	Least Environmentally Damaging Practicable Alternative
LEP	Limited English Proficiency
LOD	limits of disturbance
LOS	level of service
LRT	Light Rail Transit
LWCF	Land and Water Conservation Fund
MAP-21	Moving Ahead for Progress in the 21st Century Act
MARC	Maryland Area Regional Commuter
MBPS	Maryland Building Performance Standards
MBSS	Maryland Biological Stream Survey
MBTA	Migratory Bird Treaty Act
MD	Maryland
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
MDOT	Maryland Department of Transportation
MDOT MAA	MDOT Maryland Aviation Administration
MDOT SHA	MDOT State Highway Administration
MDP	Maglev Deployment Program
MDSHPO	Maryland State Historic Preservation Officer
MDSPGP	Maryland State Programmatic General Permit
MEDCO	Maryland Economic Development Corporation
Maglev	magnetic levitation
MDOT MTA	Maryland Department of Transportation/Maryland Transit Administration
MEMA	Maryland Emergency Management Agency
Metro	Metrorail as in Washington DC (WMATA)
MGS	Maryland Geological Survey
MHT	Maryland Historical Trust
MIHP	Maryland Inventory of Historic Properties
MLK	Martin Luther King, Jr
M-NCPPC	Maryland-National Capital Parks and Planning Commission
MOVES	Motor Vehicle Emission Simulator
MOW	maintenance of way

Acronym	Definition
MPE	maximum permissible exposure
MPO	Metropolitan Planning Organization
MRDS	Mineral Resources Data System
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MMBtu	million British thermal units
MSA	Metropolitan Statistical Area
MSAT	mobile source air toxics
MVS	Mount Vernon Square
MW	megawatt
MWAQC	Metropolitan Washington Air Quality Committee
MWh	megawatt-hours
MWCOG	Metropolitan Washington Council of Governments
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NASA	National Aeronautics and Space Administration
NATM	New Austrian Tunneling Methods
NCPC	National Capital Planning Commission
NDMS	National Disaster Medical System
NEC	Northeast Corridor
NEC FUTURE	The comprehensive plan for the NEC
NEPA	National Environmental Policy Act
NETR	Nationwide Environmental Title Research
NFHL	National Flood Hazard Layer
NFPA	National Fire Protection Association
NGO	nongovernmental organization
NHD	National Hydrologic Data
NHPA	National Historic Preservation Act
N ₂ O	nitrous oxide
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOAA	National Oceanic Atmospheric Administration
NOFA	Notice of Funding Availability
NOI	Notice of Intent

Acronym	Definition
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NPV	net present value
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRIS	Natural Resource Information System
NSA	National Security Agency
NSR	New Source Review
NTWSSC	Nontidal Wetlands of Special State Concern
NWI	National Wetland Inventory
NW	northwest
NY	New York
NYARC	New York Avenue Recreation Center
O ₃	ozone
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
OWJ	officials with jurisdiction (Section 4(f) context)
PA	Programmatic Agreement
P&N	purpose and need
PaCI	Information for Planning and Consultation
PASR	Preliminary Alternatives Screening Report
Pb	lead
PCB	polychlorinated biphenyls
PE	Preliminary Engineering
PEIS	Programmatic Environmental Impact Statement
PEM	palustrine emergent wetland
PEPCO	Potomac Electric Power Company
PFCs	perfluorocarbons
PFO	palustrine forested wetland
PJM	Pennsylvania-New Jersey-Maryland Power Pool
PM	Particulate Matter
PMT	passenger-miles traveled
POS funds	Public Open Space funds
ppb	parts per billion

Acronym	Definition
ppm	parts per million
PPV	peak particle velocity level
PRR	Patuxent Research Refuge (USFWS)
PSC	Public Service Commission
PSD	Prevention of Significant Deterioration
PSS	palustrine scrub-shrub wetland
PUB	palustrine unconsolidated bottom
PWA	Public Works Administration
RCA	Resource Conservation Area
RCC	Rail/Operations Control Center
RCN	Residential Communications Network
RCRA	Resource Conservation and Recovery Act
RIMS	Regional Input-Output Modeling System
RMS	Root Mean Square
ROD	Record of Decision
ROW	right-of-way
RPA	Rule of Particular Applicability
RTA	Regional Transportation Agency of Central Maryland
RTE	rare, threatened or endangered species
RTEP	Regional Transmission Expansion Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Equity Act
SAV	Submerged Aquatic Vegetation
SCMAGLEV	Superconducting Magnetic Levitation
SCR	Stable Continental Region
SCORP	Maryland Statewide Comprehensive Outdoor Recreation Plan
SDP	Service Development Plan
SEM	sequential excavation methods
SF ₆	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SIS	System Impact Study
SMCRA	Surface Mining Control and Reclamation Act
SO	Sulfur dioxide
SPCC	Spill Prevention, Control and Countermeasures

Acronym	Definition
SSP	System Safety Program
SSPRA	Sensitive Species Project Review Areas
STB	Surface Transportation Board
SWM	Stormwater Management
SWPPP	Stormwater Pollution Prevention Plan
TBM	tunnel boring machine
TCR	Transportation Conformity Rule
TCP	traditional cultural properties
TFS	Transmission Feasibility Study
THPO	Tribal Historic Preservation Officer
TIP	Transportation Improvement Program
TMDL	total maximum daily loads
TMF	trainset maintenance facilities
TNC	transportation network company
TNW	Traditional Navigable Waters
TOD	transit-oriented development
TPB	Transportation Planning Board
tpd	tons per day
tpy	tons per year
TRB	Transportation Research Board
TSA	Transportation Security Administration
TSCA	Toxic Substances Control Act
TSD	treatment, storage, and disposal
TTI	Travel Time Index
UM	University of Maryland
USACE	United States Army Corps of Engineers
USC	United States Code
USCB	United States Census Bureau
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USNA	United States National Arboretum

Acronym	Definition
USSS	United States Secret Service
UST	underground storage tank
UXO	unexploded ordnance
VdB	vibration velocity levels in decibels
VMF	vehicle maintenance facility
VMT	vehicle-miles traveled
VOC	volatile organic compound
WB&A	Washington, Baltimore & Annapolis Trail
WGL	Washington Gas
WHO	World Health Organization
WHPA	Well Head Protection Area
WHS	Wildlife and Heritage Service (MDNR)
WIA	Waterfront Industrial Area
WMATA	Washington Metro Area Transit Authority
WRA	Waterfront Revitalization Area
WSSC	Washington Suburban Sanitary Commission

Appendix A.3: List of References

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SCMAGLEV-BWRR-MEM-0006 2020-R0 Memo-FRA Data Request Task-17 Helium

SCMAGLEV-BWRR-MEM-0010-R1 Ridership Data 2020.05.06

SCMAGLEV-BWRR-MEM-0008-R2 LB 4.3 Train Speed Profiles 20.05.06

SCMAGLEV-BWRR-MEM-0004-R1 LB. 2020 4.3 SCMAGLEV Public Transportation Task 25

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LB 4.3 EMF Rev3 20.03.31

SCMAGLEV-BWRR-MEM-0003-R2 LB 4.3 BW Operations Plan Task 28 20.05.06
EJ Communities Outreach Tech Memo Rev0 20200514

Railroad Outreach Tech Memo Rev1 20200508

BWI-FAA Outreach Tech Memo Rev1 20200508

BWRR. 2020 - 4.3 Electrical Tech Memo Rev 0

Appendix A.4 Distribution List

Federal Agencies
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. Coast Guard (USCG)
U.S. Department of Agriculture (USDA)–Beltsville Agricultural Research Center (BARC)
U.S. Environmental Protection Agency (EPA)
National Aeronautics and Space Administration, Goddard Space Flight Center (NASA/GSFC)
Department of Defense (DOD) National Security Agency (NSA)
U.S. Department of Interior (USDOI)-U.S. Fish and Wildlife Service (USFWS)
Federal Highway Administration (FHWA)
Fort George G. Meade (U.S. Army)
Federal Emergency Management Agency (FEMA)
U.S. Secret Service (USSS)
U.S. Commission of Fine Arts (CFA)
National Oceanic and Atmospheric Administration (NOAA) - National Marine Fisheries Service (NMFS)
General Services Administration (GSA)
U.S. Department of Labor (DOL)
Advisory Council on Historic Preservation (ACHP)
Federally Recognized Tribes
Delaware Nation, Oklahoma
Delaware Tribe of Indians
State of Maryland Agencies
Maryland Department of Transportation Maryland Aviation Administration (MAA)
Maryland Department of Transportation State Highway Administration (MDOT SHA)
Maryland Department of Natural Resources (DNR)
• Maryland Park Service
• Wildlife and Heritage Service

• Maryland Environmental Trust
Maryland Department of Planning (MDP)
Maryland Department of the Environment (MDE)
Maryland Historical Trust (MHT)
Maryland Public Service Commission (PSC)
District of Columbia Agencies
District of Columbia Department of Transportation (DDOT)
District of Columbia Department of Energy & Environment (DOEE)
District of Columbia Department of Public Works (DPW)
District of Columbia Historic Preservation Office (DC SHPO)
District of Columbia Office of Planning (DCOP)
District of Columbia Public Service Commission
District of Columbia Department of General Services
Regional Agencies
Baltimore Metropolitan Council (BMC)
Metropolitan Washington Council of Governments (MWCOCG)
Washington Metropolitan Area Transit Authority (WMATA)
County and Local Agencies
Anne Arundel County Transportation Division
City of Greenbelt
Howard County Department of Planning and Zoning
Maryland-National Capital Park and Planning Commission (MNCPPC)
• Community Planning
• Countywide Planning
• Park Planning and Development
Prince George's Public Works and Transportation
Baltimore City Department of Planning
Baltimore City Department of Transportation (BCDOT)
Baltimore County Planning Office
DEIS Availability
The DEIS is publicly available online at: https://www.bwmaglev.info/index.php . No public viewing locations are available. Please send an email to info@bwmaglev.info for assistance.

Appendix A.5: List of Preparers

Federal Railroad Administration (FRA)

Name	Title
Shreyas Bhatnagar	Regional Manager
Brandon Bratcher	Environmental Protection Specialist
Matthew Mielke	Environmental Protection Specialist
Katherine Zeringue	Federal Preservation Officer
Marlys Osterhues	Environmental and Corridor Planning Division Chief
Faris Mohammed	Attorney
Pauline Munz	Attorney
Kathryn Johnson	Attorney
Christopher Van Nostrand	Attorney
David Valenstein	Senior Advisor, Major Projects
Amanda Murphy	Environmental Protection Specialist
Leslie Perry	Environmental Protection Specialist
Andrea Martin	Environmental Protection Specialist
Stephanie Perez-Arrieta	Environmental Protection Specialist

Consultant, Booz Allen Hamilton (Program Consultant for FRA)

Name	Title
Barbara Bottiger	Senior Environmental Specialist
Katie Hite	Lead Technical Specialist – Natural Resources
Miles Buzbee	Lead Technical Specialist – Hazardous Materials
A. Scott Kiefer, P.E.	Senior Lead Engineer
Adam Turbett	Lead Technical Specialist - Noise

Name	Title
Courtney Williams, M.A., RPA	Senior Consultant – Cultural Resources
Vincent Bonifera Jr.	Lead Associate – Air Quality

Maryland Department of Transportation (MDOT) and MDOT Maryland Transit Administration (MDOT MTA)

Name	Title
Michelle Martin	MDOT Assistant Director
Bradley Smith	MDOT Director of the Office of Freight and Multimodalism
Jacqueline Thorne	MDOT Project Manager-Priority Projects
Holly Arnold	MDOT MTA - Senior Deputy Administrator & Chief of Planning Program and Engineering Officer
Lauren Molesworth	MDOT MTA - Environmental Planning Division Manager
Kelly Lyles	MDOT MTA – Senior Advisor Environmental Planning

AECOM

Name	Role	Qualifications
Jane Tiedeman, PE	Project Director	EDUCATION AND DEGREE: University of Maryland, MS Civil Engineering; University of Maryland, BS Civil Engineering Years of Experience: 26
Phil Fischer	Project Manager Scoping and Planning Phases	EDUCATION AND DEGREE: MBA; BS Industrial Engineering Years of Experience: 22
Mark Cheskey	Project Manager	EDUCATION AND DEGREE: Pennsylvania State University, Bachelor of Science Environmental Resource Management Years of Experience: 31
Jerry Smiley, AICP	Project Advisor	EDUCATION AND DEGREE: Indiana University, MS Environmental Science; Indiana University, MPA; University of Texas at Arlington, BS Biology Years of Experience: 27

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Name	Role	Qualifications
Susan Anderson, AICP	NEPA Document Manager	EDUCATION AND DEGREE: Radford University, BS Geography Years of Experience: 26
Chris Bell, AICP	Lead Transit Planner, Transportation Analysis	EDUCATION AND DEGREE: University of North Carolina, MRP Transportation Planning; University of Maryland, MBA Transportation/Logistics; State University of New York, BS Geography and Political Science Years of Experience: 36
Patricia Macchi	Economic Analysis	EDUCATION AND DEGREE: Boston University, MA Economics; Universidad Torcuato Di Tella, BS Economics Years of Experience: 15
Selina Zapata Bur, AICP	Core Team Resource Lead: Neighborhoods and Community Facilities, Environmental Justice, and Parklands	EDUCATION AND DEGREE: University of Pennsylvania School of Design, Master of City Planning; Columbia University, BA Economics-Political Science Years of Experience: 10
LeAnn Waletzko, AICP	Core Team Resource Lead	EDUCATION AND DEGREE: Rutgers, The State University of New Jersey, MCRP; University of Wisconsin River Falls, BS Years: 18 years
Haikun Dong, PE, PTOE	Lead Traffic Engineer, Transportation Analysis	EDUCATION AND DEGREE: University of Wisconsin, MS Industrial Engineering; Dalian Maritime University, BS Civil Engineering, Years of Experience: 28
Kendall Drummond, PE	Lead Civil Engineer, Alternatives Analysis	EDUCATION AND DEGREE: University of Virginia, Master of Science Civil Engineering; University of Virginia, Bachelor of Science Civil Engineering Years of Experience: 18
Scott Seibel, RPA	Cultural Resources/Section 106 Lead	EDUCATION AND DEGREE: University of Sheffield, MS Archaeomaterials Years of Experience: 21

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Name	Role	Qualifications
Robert Forstner, PE, Sr.	Air Quality (Construction Emissions Equipment Estimates)	EDUCATION AND DEGREE: Cooper Union ME, Civil Engineering; Cooper Union, BS Civil/Environmental Engineering Years of Experience: 19
Kathleen Furgerson	Cultural Resources GIS Specialist	EDUCATION: University of Leicester, MA Archaeology and Heritage Years of Experience: 34
Geoffrey Henry	Cultural Resources Analyst (Above-ground)	EDUCATION AND DEGREE: University of Virginia, MA Architectural History; University of Virginia, BA Architectural History Years of Experience: 35
Tom Herzog	Noise and Vibration Specialist	EDUCATION AND DEGREE: Boston University, Finance, MBA; Hamilton College, BA Physics Years of Experience: 28
Joanna Hiebler, QP	Natural Resources Team Leader	EDUCATION AND DEGREE: Miami University, MA, Geography; University of Maryland, Baltimore County, BS, Geography; Years of Experience: 21
Toni Horst	Economic Analysis	EDUCATION AND DEGREE: University of Pennsylvania, PhD Regional Science; Oberlin College, BA Economics and Government Years of Experience: 24
Jason Huang	Air Quality (Analyst)	EDUCATION AND DEGREE: New York University, MS Environmental Science; Jiao Tong University, BS Environmental Science Years of Experience: 4
Ralph Koziarski, PhD, RPA	Cultural Resources Analyst (Archaeology)	EDUCATION AND DEGREE: University of Wisconsin-Milwaukee, PhD Anthropology, MS Anthropology, BA Anthropology Years of Experience: 15
Brian Lange	Public Involvement/ Visual & Aesthetic Resources	EDUCATION AND DEGREE: University of Delaware, BS Civil Engineering Years of Experience: 18
Kristen Lueken	Safety and Security Analysis	EDUCATION AND DEGREE: University of Iowa, MS Urban Regional Planning, BS Physics, BA Science Education,

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Name	Role	Qualifications
		Years of Experience: 12
Melanie Lytle	Cultural Resources Analyst (Above-ground)	EDUCATION AND DEGREE: Goucher College, MA Historic Preservation; California State University-Sacramento, BA History Years of Experience: 13
David Nelson	Lead Graphic Designer, Report Document	EDUCATION AND DEGREE: Maryland Institute College of Art, BFA Years of Experience: 30
Gayle Nicoll, CSP, ASP, REP	Electromagnetic Field Interference	EDUCATION AND DEGREES: Purdue University, MS and PhD Chemistry; Indiana University, BS Chemistry and Physics Years of Experience: 16
Marilyn Palmer	Editor, formatter	EDUCATION AND DEGREE: Pennsylvania State University, University Park, Certificate, Geographic Information Systems (GIS) Years of Experience: 25
Priyal Pandya	Air Quality (Analyst)	EDUCATION AND DEGREE: New York Institute of Technology, MS Environmental Technology Years of Experience: 11
Mikayla Raymond	Cultural Resources Analyst/Cultural Landscape Specialist (Above-ground)	EDUCATION AND DEGREE: University of Pennsylvania, MS Historic Preservation, Landscape Studies; Scripps College, BA French, Art Conservation Years of Experience: 3
Doug Scrivener, GISP	Lead GIS Specialist, Socioeconomic and Natural Environmental Resource Analyses	EDUCATION AND DEGREE: Towson University, BS Geography and Environmental Planning Years of Experience: 25
Jessica Kersey	Energy	EDUCATION AND DEGREE: UC Berkeley, MS Energy and Resources (in progress); Virginia Tech, BS Chemical Engineering, BA International Studies Years of Experience: 5

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Name	Role	Qualifications
Jennifer Slacum, PWS, QP	Permit Specialist	EDUCATION AND DEGREE: Penn State University, BS Wildlife Fisheries Science Years of Experience: 18
John Southern	Cultural Resources Analysis (Above-ground)	EDUCATION AND DEGREE: Cornell University, MA Historic Preservation Planning; University of California Santa Cruz, BA Cultural Anthropology Years of Experience: 4
Patrick Thompson	Cultural Resources Analyst (Above-ground)	EDUCATION AND DEGREE: University of Kentucky, MPA, MA Historic Preservation; BA Political Science Years of Experience: 11
Graham Twibell, WPIT, QP	GIS Specialist/Technical Support	EDUCATION AND DEGREE: Clark University, MA Environmental Science & Policy Years of Experience: 7
Fang Yang	Air Quality Resource Lead	EDUCATION AND DEGREE: New York University, MS Atmospheric Science; Fudan University, BS Physics Years of Experience: 29
Christy Shumate, AICP	Technical Review	EDUCATION AND DEGREE: Washington & Lee University, BS; Duke University, MEM Years of Experience: 18
Allison Anolik	508 Compliance	EDUCATION AND DEGREE: University of Mary Washington, BA Years of Experience: 15
Taylor Alligood	508 Compliance	EDUCATION AND DEGREE: University of North Carolina Chapel Hill, BA Years of Experience: 4
Haley Lloyd, AICP Candidate	508 Compliance	EDUCATION AND DEGREE: Bridgewater College, BS; University of Virginia, MUEP Years of Experience: 4

Straughan Environmental Inc.

Name	Role	Qualifications
John Bishop	GIS Analyst	EDUCATION AND DEGREES: University of Maryland College Park, BS Years of Experience: 2.5
Harrison Bloom	GIS Technical Lead	EDUCATION AND DEGREES: SUNY College of Environmental Science & Forestry, MS Years of Experience: 9
Mischa Bowen-Kreiner, E.I.T.	Acoustical Engineer	EDUCATION AND DEGREE: University of Maryland Baltimore County, BS Mechanical Engineering; University of Baltimore, BS Business Administration Years of Experience: 5
Alessandra Daniere	Natural Resource Analyst, Wetlands and Habitats	EDUCATION AND DEGREE: University of Maryland College Park, BA Environmental Science Years of Experience: 2
Tom Hay	Geology and Topography, Soils and Farmlands	EDUCATION AND DEGREE: The University of the South, BS Natural Resources Management Years of Experience: 26
Alverna Durham, Jr.	Neighborhoods and Community Facilities, Environmental Justice, Public Outreach	EDUCATION AND DEGREE: North Carolina A&T State University, BS Industrial Technology Years of Experience: 14
Tim Harvey, PMP	Quality Control	EDUCATION AND DEGREE: Cornell University, BS Natural Resources Years of Experience: 34
Jacqueline Jahn	Natural Resource Analyst, Wetlands and Habitats	EDUCATION AND DEGREE: Sacred Heart University, MS Environmental Science & Management Years of Experience: 4

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Name	Role	Qualifications
Chimere Lesane-Matthews, AICP	Neighborhoods and Community Facilities, Environmental Justice, Land Use, Public Outreach	EDUCATION AND DEGREE: Morgan State University, MS Civil Engineering Years of Experience: 18
Isha McKnight	Natural Resources Analyst, Wetlands and Habitats	EDUCATION AND DEGREE: Towson University, MS Environmental Science Years of Experience: 4
Sarah Michailof	Section 4(f) Analysis, NRHP Determinations of Eligibility	EDUCATION AND DEGREES: Goucher College, MA Historic Preservation; University of North Carolina at Chapel Hill, BA Anthropology and Biology Years of Experience: 24
Jeffrey Nelson, PE	Hazardous Materials Specialist	EDUCATION AND DEGREES: Massachusetts Institute of Technology, MS Civil Engineering; University of Colorado BS Civil and Environmental Engineering Years of Experience: 40
Nikki Radke	Natural Resources Analyst, Wetlands and Habitats	EDUCATION AND DEGREES: Texas Tech University, MS; University of Wisconsin at Stevens Point, BS Years of Experience: 16
Tracy Seymour, PE	Acoustical Engineer and NEPA Support	EDUCATION AND DEGREE: University of Maryland at College Park, BS Civil Engineering Years of Experience: 21
Kate Traut, PWS, QP	Natural Resources and Permit Specialist	EDUCATION AND DEGREE: Towson University, BS Environmental Science Years of Experience: 17
Lauren Wirth	Natural Resources Analysis, Wetlands and Habitats	EDUCATION AND DEGREE: University of Maryland, BS Natural Resources Management Years of Experience: 16

Name	Role	Qualifications
Christine Wysocki	Socioeconomic Resource Analyst (Land Use, Environmental Justice) and Section 4(f) Analysis	EDUCATION AND DEGREE: Johns Hopkins University, MS Environmental Planning and Management; University of San Diego, BA Communication Studies Years of Experience: 8.5

Remline

Name	Role	Qualifications
Linda Moreland	Public Outreach	EDUCATION AND DEGREE: Goshen College, BS Business Management Years of Experience: 31
Danielle Lloyd	Public Outreach	EDUCATION AND DEGREE: Villa Julie College, BS Business Administration Years of Experience: 8