Appendix F

Coastal Resources

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APPENDIX F:
Coastal Resources

- Attachment 1: Coastal Consistency Determination Package submitted by MAA to MDE, February 16, 2024.
- Attachment 2: MDE Coastal Consistency Determination, *to be provided in Final EA*.

Attachment 1:

Coastal Consistency Determination Package

Submitted by MAA to MDE

February 16, 2024

February 16, 2024

Ms. Danielle Spendiff
Federal Consistency Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230

SUBJECT: Request for Coastal Zone Determination – Environmental Assessment for Proposed Airport Traffic Control Tower and Associated Improvements at BWI Marshall Airport, Anne Arundel County

Dear Ms. Spendiff:

The Maryland Aviation Administration (MAA) is preparing an Environmental Assessment (EA) to obtain National Environmental Policy Act (NEPA) approval for a Proposed Airport Traffic Control Tower and Associated Improvements at BWI Marshall Airport. The project areas, or Direct Study Area (DSA), at BWI Marshall Airport in relation to water resources are identified on **Figure 1.** The Proposed Action projects are identified in more detail on **Figures 2 and 3.** These projects are planned for implementation in the 2025-2030 timeframe, pending design and available funding.

The Proposed Action projects include the following:

- Construct an Airport Traffic Control Tower (ATCT), 387-feet above mean sea level (AMSL) (including ASDE[1] and antenna) to replace the existing ATCT[2]; this would include all necessary new equipment and utilities;
- Construct Operational Spaces (i.e., "base building") for Federal Aviation Administration (FAA) Staffing Offices within the Passenger C-D Connector;
- Construct a hotel on top of the Passenger C-D Connector; and
- Remove Part 77[3] Obstructions,[4] and
- Remove LOS obstructions for Existing ATCT and completed future Taxiway F.

Connected Actions

Connected actions are those which are closely related to the Proposed Action and would not occur unless the Proposed Action occurs. The following actions are connected to the Proposed Action:

[1] Airport Surface Detection System (ASDE) consisting of an enclosed rotating radar array.

[2] Demolition of the existing ATCT is not part of the Proposed Action. Plans for the existing ATCT have not been determined at this time.

[3] CFR Title 14 Part 77- Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77).

[4] The Proposed Action includes Part 77 obstructions located adjacent to line-of-sight (LOS) obstructions associated with the existing ATCT. Some Part 77 obstructions are also ATCT LOS obstructions between the existing and proposed ATCT and future Taxiway F as shown on attached Figure 3.

- Construct upgrades to existing but unused ramp control tower in order to function as a supplemental ATCT during construction of the C-D Connector and ATCT Program, including upgrades needed to make it compliant with the Americans with Disabilities Act (ADA);
- Remove LOS obstructions between the proposed ATCT and future Taxiway F; and
- Construct duct bank from Concourse D to new Airfield Lighting Vault (ALV) to supply power to proposed ATCT.

The only Proposed Action projects that would result in impacts to wetlands, waterways or forests are the Part 77 and ATCT LOS vegetative obstruction removal, as shown in **Figure 4**.

Forest Impacts

Vegetation west of Taxilane W (existing and proposed ATCT LOS obstructions) is proposed to be clear and grubbed within the DSA, with the exception of the forested wetland area (WL4) where individual obstructions are proposed to be individually hand felled and left in place. Obstructions east of Taxilane W (Part 77 obstructions) are proposed to be individually hand felled and left in place. In areas where trees would be individually hand felled, the following actions will be taken to protect sensitive areas:

1. Access paths will be explicitly designed in order to minimize wetland and buffer impacts to maximum extent practicable,
2. Tree obstructions will be cut by hand with chainsaws and the trees left where they land to decompose, as the use of heavy machinery would significantly increase impacts to vegetation and soils; and
3. Tree stumps will be left in place in order to avoid soil disturbances caused by grubbing.

As illustrated in Figure 4, the Proposed Action Alternative would result in approximately ***7.7 acres (337,100 sq. ft.) of tree clearing, and 110 individual tree obstructions cut down***.

Wetlands, Waterways and Floodplains

West of Taxilane W, MAA proposes to clear and grub all vegetation within the DSA, with the exception of felling individual tree obstructions within the forested wetland area (WL4). Hand felling of individual tree obstructions within WL4 will result in **0.08 acres (3,485 square feet) of PFO to PSS conversion impacts, and 0.18 acres (7,841 square feet) of conversion impacts to the 25-foot wetland buffer of WL4.** Wetland WL4 and its buffer would be allowed to regenerate naturally following felling of individual trees, with the remaining area west of Taxilane W maintained as a field. The removal of vegetation west of Taxilane W would not impact Stream WC3 as there would be no dredging or filling of the stream.

During a pre-application meeting with MDE and USACE for future Section 401 of the CWA permitting needs on December 14, 2023, MDE requested that the basal areas within PFO wetland WL3 be calculated to determine if the wetland will remain forested after the trees are felled. Three basal areas were calculated within wetland WL3 using a 10x prism and resulted in an average basal area of 77 square feet in WL3, exceeding the minimum basal area of 60 square feet required to be considered a stocked forest. Therefore, the proposed Part 77 tree removal east of Taxilane W will result in no impact to WOTUS, including wetlands.

Additionally, the proposed Part 77 obstruction removal east of Taxilane W would result in 51 individual tree obstructions being removed within the floodplain area around Kitten Branch. However, the impact would not be considered significant as the trees would be hand felled and land would remain as forest. Coordination with MDE's State NFIP Coordinator in November 2023 determined that tree removal within a floodplain is not a significant impact. Further, felling discrete individual trees allowing the root system to remain in place would have no impact on the natural and beneficial floodplain values in the limited length of Kitten Branch.

Therefore, the Proposed Action Alternative would not result in a significant impact to wetlands, streams, or floodplains.

Stormwater

Stormwater runoff from the terminal area project sites ultimately drain into streams on and off-Airport. Stormwater management would be subject to review under the Maryland Stormwater Management Act of 2007. Short-term impacts to water quality would be minimized through the use of construction best management practices and adherence to an erosion and sedimentation control plan during construction operations.

NEPA approval is needed for the proposed projects because federal approval is required for the use of federal funding. MAA is requesting a Coastal Zone Management Consistency determination from MDE to satisfy NEPA requirements and receive FAA approval for the EA being prepared. If you have any questions, please do not hesitate to call me at 410-859-7787 or email at kclarke@bwiairport.com.

Sincerely,

Kevin Clarke
Division of Planning & Engineering
Director, Office of Planning & Environmental Services

Enclosures:
MDE Policies Checklists (Core, Development, Forest, Historical & Archaeological, Transportation)
Figures 1-4 from forthcoming Draft EA
Appendix B from forthcoming Draft EA
FCP Mitigation Worksheets
MHT Concurrence

cc: Genevieve Walker, Environmental Protection Specialist, FAA

cc: Kim Hughes, HNTB

Coastal Zone Management Program - Core Policies Checklist

Name of Project:

Proposed ATCT and Associated Improvements at BWI Marshall Airport

5.1. CORE POLICIES

5.1.1. Quality of Life

Quality of Life Policy 1- Air Quality. It is State policy to maintain that degree of purity of air resources which will protect the health, general welfare, and property of the people of the State. MDE (C9) Md. Code Ann., Envir. §§ 2-102 to -103.

Select appropriate response:

- (●) Project will be consistent with Air Quality policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Construction emissions where calculated for the Proposed Action (draft appendix from forthcoming environmental assessment attached) and would not exceed General Conformity de minimis levels in any construction year. As a result, the General Conformity regulations do not require a conformity determination and it can be presumed that the emissions would not cause or contribute to a violation of or exceed the National Ambient Air Quality Standards (NAAQS) for O3 (precursors NOX and VOC) or SO2 and therefore would not result in a significant impact.

Quality of Life Policy 2 – Noise. The environment shall be free from noise which may jeopardize health, general welfare, or property, or which degrades the quality of life. MDE (C9) COMAR 26.02.03.02.

Select appropriate response:

- (●) Project will be consistent with Noise policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action would not increase operations, nor affect the number or type of aircraft using BWI Marshall Airport and would not result in any permanent change to the Airport noise environment. There are no noise sensitive sites within the Direct Study Area (DSA). The closest noise-sensitive sites to the DSA are residential properties located within the Indirect Study Area (ISA) approximately 1,200 feet northeast of the potential construction staging area off Elkridge Landing Road, which includes 300 feet of forested buffer. Therefore, the Proposed Action has no potential to result in noise impacts.

Quality of Life Policy 3– Protection of State Wild Lands. The unique ecological, geological, scenic, and contemplative aspects of State wild lands shall not be affected in a manner that would jeopardize the future use and enjoyment of those lands as wild. DNR (C7) Md. Code Ann., Nat. Res. §§ 5-1201, -1203.

Select appropriate response:

- ○ Project will be consistent with State Wild Lands Protection policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 4 – Protection of State Lands & Cultural Resources. The safety, order, and natural beauty of State parks and forests, State reserves, scenic preserves, parkways, historical monuments and recreational areas shall be preserved. DNR (B1) Md. Code. Ann., Nat. Res. § 5-209.

Select appropriate response:

- ○ Project will be consistent with Protection of State Lands & Cultural Resources policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 5 – Natural Character & Scenic Value of Rivers & Waterways. The natural character and scenic value of a river or waterway must be given full consideration before the development of any water or related land resources including construction of improvements, diversions, roadways, crossings, or channelization. MDE/DNR (C7) Md. Code Ann., Nat. Res. § 8-405; COMAR 26.17.04.11.

Select appropriate response:

- ○ Project will be consistent with policy protecting Natural Character & Scenic Value of Rivers & Waterways.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 6 –Natural Flow of Scenic & Wild Rivers. A dam or other structure that impedes the natural flow of a scenic or wild river may not be constructed, operated, or maintained, and channelization may not be undertaken, until the applicant considers alternatives less harmful to the scenic and wild resource. Construction of an impoundment upon a scenic or wild river is contrary to the public interest, if that project floods an area of unusual beauty, blocks the access to the public of a view previously enjoyed, or alters the stream's wild qualities. MDE/DNR (C7) Md. Code Ann., Nat. Res. § 8-406; COMAR 26.17.04.11.

Select appropriate response:

- ○ Project will be consistent with policy protecting Natural Flow of Scenic & Wild Rivers.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 7 – Atlantic Coast Development. Any land clearing, construction activity, or the construction or placement of permanent structures is prohibited within the Beach Erosion Control District except the construction and installation of a qualified submerged renewable energy line, if the project does not result in any significant permanent environmental damage to the Beach Erosion Control District and is not constructed or installed within the Assateague State Park, and any project or activity specifically for storm control, beach erosion and sediment control, or maintenance projects designed to benefit the Beach Erosion Control District. MDE/DNR (B1) Md. Code Ann., Nat. Res. § 8-1102.

Select appropriate response:

- ○ Project will be consistent with policy ensuring Environmentally Beneficial Atlantic Shoreline Development.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 8 – Integrity & Natural Character of Assateague Island. Activities which will adversely affect the integrity and natural character of Assateague Island will be inconsistent with the State's Coastal Management Program, and will be prohibited. MDE/DNR (B1) Md. Code. Ann., Nat. Res. §§ 5-209, 8-1102.

Select appropriate response:

- ○ Project will be consistent with policy protecting the Integrity & Natural Character of Assateague Island.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 9 – Public Outreach. An opportunity for a public hearing shall be provided for projects in non-tidal waters that dredge, fill, bulkhead, or change the shoreline; construct or reconstruct a dam; or create a waterway, except in emergency situations. MDE (A3) COMAR 26.17.04.13A.

Select appropriate response:

- ○ Project will be consistent with Public Outreach policy for relevant projects.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Quality of Life Policy 10 – Erosion & Sediment Control. Soil erosion shall be prevented to preserve natural resources and wildlife; control floods; prevent impairment of dams and reservoirs; maintain the navigability of rivers and harbors; protect the tax base, the public lands, and the health, safety and general welfare of the people of the State, and to enhance their living environment. MDA (C4) Md. Code Ann., Agric. § 8-102(d).

Select appropriate response:

- ◉ Project will be consistent with Erosion & Sediment Control policy.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

An Erosion and Sediment Control Plan would be required and developed in accordance with MDE guidelines and implemented during construction activities to minimize erosion and sedimentation and its impacts on surface waters.

Quality of Life Policy 11 – Safeguards for Outer Continental Shelf Development. Operations on the Outer Continental Shelf must be conducted in a safe manner by well-trained personnel using technology, precautions, and techniques sufficient to prevent or minimize the likelihood of blowouts, loss of well control, fires, spillages, physical obstruction to other users of the waters or subsoil and seabed, or other occurrences which may cause damage to the environment or property, or which may endanger life or health. (B2) Md. Code Ann., Envir. §§ 17-101 to -403; COMAR 26.24.01.01; COMAR 26.24.02.01, .03; COMAR 26.24.05.01.

Select appropriate response:

- ○ Project will be consistent with policy ensuring Safeguards for Outer Continental Shelf Development.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

5.1.2. Waste & Debris Management

Waste & Debris Management Policy 1 – Hazardous Waste Management. Controlled hazardous substances may not be stored, treated, dumped, discharged, abandoned, or otherwise disposed anywhere other than a permitted controlled hazardous substance facility or a facility that provides an equivalent level of environmental protection. MDE (D4) Md. Code Ann., Envir. § 7-265(a).

Select appropriate response:

- (●) Project will be consistent with Hazardous Waste Management policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The presence of ACBM within the existing concourse is the only known occurrence of hazardous materials that could be impacted by the Proposed Action. During demolition activities of existing concourse structures to allow construction of the proposed ATCT, hotel and Federal Aviation Administration (FAA) offices, proper handling and disposal would be required for any ACBM encountered.

Waste & Debris Management Policy 2 – Hazardous Waste Management in Port of Baltimore. A person may not introduce in the Port of Baltimore any hazardous materials, unless the cargo is properly classed, described, packaged, marked, labeled, placarded, and approved for highway, rail, or water transportation. MDOT (D3) COMAR 11.05.02.04A.

Select appropriate response:

- ( ) Project will be consistent with Hazardous Waste Management in Port of Baltimore policy.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

5.1.3. Water Resources Protection & Management

Water Resources Protection & Management Policy 1 – Pollution Discharge Permit. No one may add, introduce, leak, spill, or emit any liquid, gaseous, solid, or other substance that will pollute any waters of the State without State authorization. MDE (A5) Md. Code Ann., Envir. §§ 4-402, 9-101, 9-322.

Select appropriate response:

- ○ Project will be consistent with water policy requiring a Pollution Discharge Permit.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 2 – Protection of Designated Uses. All waters of the State shall be protected for water contact recreation, fish, and other aquatic life and wildlife. Shellfish harvesting and recreational trout waters and waters worthy of protection because of their unspoiled character shall receive additional protection. MDE (A1) COMAR 26.08.02.02.

Select appropriate response:

- ○ Project will be consistent with Protection of Designated Uses policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 3 – Prohibition of Harmful Toxic Impacts. The discharge of any pollutant which will accumulate to toxic amounts during the expected life of aquatic organisms or produce deleterious behavioral effects on aquatic organisms is prohibited. MDE (A4) COMAR 26.08.03.01.

Select appropriate response:

- ○ Project will be consistent with water policy Prohibiting Harmful Toxic Impacts.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 4 – Pre-Development Discharge Permit Requirement. Before constructing, installing, modifying, extending, or altering an outlet or establishment that could cause or increase the discharge of pollutants into the waters of the State, the proponent must hold a discharge permit issued by the Department of the Environment or provide an equivalent level of water quality protection. MDE (D6) Md. Code Ann., Envir. § 9-323(a).

Select appropriate response:

- (●) Project will be consistent with water policy requiring a Pre-Development Discharge Permit.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A General Permit for Stormwater Associated with Construction Activities would be required and obtained prior to construction.

Water Resources Protection & Management Policy 5 – Use of Best Available Technology or Treat to Meet Standards. The use of best available technology is required for all permitted discharges into State waters, but if this is insufficient to comply with the established water quality standards, additional treatment shall be required and based on waste load allocation. MDE (D4) COMAR 26.08.03.01C.

Select appropriate response:

- (●) Project will be consistent with Use of Best Available Technology or Treat to Meet Standards water policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action would not increase impervious surfaces, however stormwater treatment would be required to meet MDE stormwater management requirements for providing water quality control.

Water Resources Protection & Management Policy 6 – Control of Thermal Discharges. Thermal discharges shall be controlled so that the temperature outside the mixing zone (50 feet radially from the point of discharge) meets the applicable water quality criteria or discharges comply with the thermal mixing zone criteria. MDE (D4) COMAR 26.08.03.03C.

Select appropriate response:

- ○ Project will be consistent with Control of Thermal Discharges water policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 7 – Pesticide Storage. Pesticides shall be stored in an area located at least 50 feet from any water well or stored in secondary containment approved by the Department of the Environment. MDA (C4) COMAR 15.05.01.06.

Select appropriate response:

- ○ Project will be consistent with Pesticides Storage water policy.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 8 – Stormwater Management. Any development or redevelopment of land for residential, commercial, industrial, or institutional purposes shall use small-scale non-structural stormwater management practices and site planning that mimics natural hydrologic conditions, to the maximum extent practicable. Development or redevelopment will be consistent with this policy when channel stability and 100 percent of the average annual predevelopment groundwater recharge are maintained, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary. MDE (C9) Md. Code Ann., Envir. § 4-203; COMAR 26.17.02.01, .06.

Select appropriate response:

- (●) Project will be consistent with Stormwater Management policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action would not increase impervious surfaces, however stormwater treatment would be required to meet MDE stormwater management requirements for providing water quality control. At the time of design for each project included in the Proposed Action, stormwater design would need to adhere to MDE guidelines and regulations. A Stormwater Management Concept Report would be required and be provided during project design.

Water Resources Protection & Management Policy 9 – Unpermitted Dumping of Used Oil. Unless otherwise permitted, used oil may not be dumped into sewers, drainage systems, or any waters of the State or onto any public or private land. MDE (D4) Md. Code Ann., Envir. § 5-1001(f).

Select appropriate response:

- ( ) Project will be consistent with Unpermitted Dumping of Used Oil water policy.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 10 – Toxicity Monitoring. If material being dumped into Maryland waters or waters off Maryland's coastline has demonstrated actual toxicity or potential for being toxic, the discharger must perform biological or chemical monitoring to test for toxicity in the water. MDE (A5) COMAR 26.08.03.07(D); COMAR 26.08.04.01.

Select appropriate response:

- ( ) Project will be consistent with Toxicity Monitoring water policy.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Water Resources Protection & Management Policy 11 – Public Outreach. Public meetings and citizen education shall be encouraged as a necessary function of water quality regulation. MDE (A2) COMAR 26.08.01.02E(3).

Select appropriate response:

- (●) Project will be consistent with Public Outreach water policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A draft environmental assessment (EA) will be issued for public comment, including review of water quality matters, prior to the Federal Aviation Administration's issuance of a finding for the Proposed Action. Comments will be addressed within the final EA and FAA decision document.

Water Resources Protection & Management Policy 12 - No Adverse Impact from Water Appropriation. Any water appropriation must be reasonable in relation to the anticipated level of use and may not have an unreasonable adverse impact on water resources or other users of the waters of the State. MDE (C9) COMAR 26.17.06.02.

Select appropriate response:

- ( ) Project will be consistent with policy ensuring No Adverse Impact from Water Appropriations.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

5.1.4. Flood Hazards & Community Resilience

Flood Hazards & Community Resilience Policy 1 – No Adverse Impact. Projects in coastal tidal and non-tidal flood plains which would create additional flooding upstream or downstream, or which would have an adverse impact upon water quality or other environmental factors, are contrary to State policy. MDE (C2) Md. Code Ann., Envir. § 5-803; COMAR 26.17.05.04A.

Select appropriate response:

- (●) Project will be consistent with No Adverse Impact flood hazard policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Coordination with MDE's State NFIP Coordinator in November 2023 for the Proposed Action determined that tree removal within a floodplain is not a significant impact. Further, felling discrete individual trees allowing the root system to remain in place would have no impact on the natural and beneficial floodplain values in the limited length of Kitten Branch.

Flood Hazards & Community Resilience Policy 2 – Non-Tidal Waters and Non-Tidal Floodplains. The following policies apply to projects in non-tidal waters and non-tidal floodplains, but not non-tidal wetlands. MDE (C2) COMAR 26.17.04.01, .07,.11.

Flood Hazards & Community Resilience Policy 2a – 1-Foot Freeboard Above 100-year Flood. Proposed floodplain encroachments, except for roadways, culverts, and bridges, shall be designed to provide a minimum of 1 foot of freeboard above the elevation of the 100-year frequency flood event. In addition, the elevation of the lowest floor of all new or substantially improved residential, commercial, or industrial structures shall also be at least 1 foot above the elevation of the 100-year frequency flood event.

Select appropriate response:

- (●) Project will be consistent with policy requiring a 1-Foot Freeboard Above 100-Year Flood for Construction in flood hazard areas.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action Alternative does not include any construction of facilities within the 100-Year flood plus 1-foot of freeboard. Coordination with MDE's State NFIP Coordinator in November 2023 determined that tree removal within a floodplain is not a significant impact. Further, the felling of discrete individual trees will be completed in a manner to allow the root system to remain in place so as to have no impact on the natural and beneficial floodplain values in the limited length of Kitten Branch included in the Proposed Action.

Flood Hazards & Community Resilience Policy 2b – Stability of Unlined Earth Channels. Proposed unlined earth channels may not change the tractive force associated with the 2-year and the 10-year frequency flood events, by more than 10 percent, throughout their length unless it can be demonstrated that the stream channel will remain stable.

Select appropriate response:

- (●) Project will be consistent with policy ensuring Stability of Unlined Earth Channels.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Proposed Action does not propose construction of unlined earth channels felling discrete but individual trees will be felled within Kitten Branch. The felling of individual trees will be performed to allow the root system to remain in place so as to have no impact on the natural and beneficial floodplain values in the limited length of Kitten Branch included in the Proposed Action.

Flood Hazards & Community Resilience Policy 2c – Stability of Lined Channels. Proposed lined channels may not change the tractive force associated with the 2-year and the 10-year frequency flood events, by more than 10 percent, at their downstream terminus unless it can be demonstrated that the stream channel will remain stable.

Select appropriate response:

- ( ) Project will be consistent with policy ensuring Stability of Line Channels.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

n/a

Flood Hazards & Community Resilience Policy 2d – Prohibition of Dam Construction in High Risk Areas. Category II, III, or IV dams may not be built or allowed to impound water in any location where a failure is likely to result in the loss of human life or severe damage to streets, major roads, public utilities, or other high value property.

Select appropriate response:

- ( ) Project will be consistent with policy Prohibiting Dam Construction in High Risk Areas.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

n/a

Flood Hazards & Community Resilience Policy 2e – Prohibition of Projects That Increase Risk Unless Mitigation Requirements Are Met. Projects that increase the risk of flooding to other property owners are generally prohibited, unless the area subject to additional risk of flooding is purchased, placed in designated flood easement, or protected by other means acceptable to the Maryland Department of the Environment.

Select appropriate response:

- ○ Project will be consistent with policy Prohibiting Projects That Increase Flood Risk Unless Mitigation Requirements Are Met.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2f – Prohibition of Construction or Substantial Improvements in 100-Year Floodplain. The construction or substantial improvement of any residential, commercial, or industrial structures in the 100-year frequency floodplain and below the water surface elevation of the 100-year frequency flood may not be permitted. Minor maintenance and repair may be permitted. The modifications of existing structures for flood-proofing purposes may be permitted. Flood-proofing modifications shall be designed and constructed in accordance with specifications approved by the Maryland Department of the Environment.

Select appropriate response:

- ○ Project will be consistent with policy Prohibiting Construction or Substantial Improvements in 100-Year Floodplain.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

n/a

Flood Hazards & Community Resilience Policy 2g – Channelization Is Discouraged. Channelization shall be the least favored flood control technique.

Select appropriate response:

- ○ Project will be consistent with policy Discouraging Channelization.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Flood Hazards & Community Resilience Policy 2h – Preference of Multi-Purpose Use Projects, Project Accountability, & 50% Reduction in Damages. Multiple purpose use shall be preferred over single purpose use, the proposed project shall achieve the purposes intended, and, at a minimum, project shall provide for a 50 percent reduction of the average annual flood damages.

Select appropriate response:

- ○ Project will be consistent with policy that ensures a Preference to Multi-Purpose Use Projects, Project Accountability & 50% Reduction in Damages.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

n/a

Flood Hazards & Community Resilience Policy 3 – Development-Related Runoff Restrictions for the Gwynne Falls and Jones Falls Watersheds. Development may not increase the downstream peak discharge for the 100-year frequency storm event in the following watersheds and all their tributaries: Gwynns Falls in Baltimore City and Baltimore County; and Jones Falls in Baltimore City and Baltimore County. MDE (C2) COMAR 26.17.02.07.

Select appropriate response:

- ○ Project will be consistent with policy that Restricts Development-Related Runoff in the Gwynne Falls & Jones Falls Watersheds.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

n/a

Coastal Zone Management Program - Development Policies Checklist

Name of Project:

Proposed ATCT and Associated Improvements at BWI Marshall Airport

5.3 COASTAL USES

5.3.9 Development

Development Policy 1– Sediment & Erosion Control. Any development shall be designed to minimize erosion and keep sediment onsite. MDE (C4) COMAR 26.17.01.08.

Select appropriate response:

- (●) Project will be consistent with policy requiring Sediment & Erosion Control.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

An Erosion and Sediment Control Plan would be required and developed in accordance with MDE guidelines and implemented during construction activities to minimize erosion and sedimentation and its impacts on surface waters.

Development Policy 2 – Erosion and Sediment Control Plan. An erosion and sediment control plan is required for any grading activity that disturbs 5,000 square feet of land area and 100 cubic yards of earth or more, except for agricultural land management practices and agricultural best management practices. MDE (C9) COMAR 26.17.01.05.

Select appropriate response:

- (●) Project will be consistent with policy requiring an Erosion & Sediment Control Plan.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

An Erosion and Sediment Control Plan would be required and developed in accordance with MDE guidelines and implemented during construction activities to minimize erosion and sedimentation and its impacts on surface waters.

Coastal Zone Management Program - Development Policies Checklist

Development Policy 3 – Stormwater Management. Development or redevelopment of land for residential, commercial, industrial, or institutional use shall include stormwater management compliant with the Environmental Site Design sizing criteria, recharge volume, water quality volume, and channel protection storage volume criteria. MDE (C9) COMAR 26.17.02.01, -.06

Select appropriate response:

- (●) Project will be consistent with policy requiring Stormwater Management.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action would not increase impervious surfaces. However, stormwater treatment would be required to meet MDE stormwater management requirements for providing water quality control.

Development Policy 4 – First Avoid then Minimize Wetland Impacts, Minimize Water Quality, Habitat & Forest Damage & Preserve Cultural Resources. Development must avoid and then minimize the alteration or impairment of tidal and non-tidal wetlands; minimize damage to water quality and natural habitats; minimize the cutting or clearing of trees and other woody plants; and preserve sites and structures of historical, archeological, and architectural significance and their appurtenances and environmental settings. MDE/DNR/CAC (D6) Md. Code Ann., Envir. §§ 4-402, 5-907(a), 16-102(b); Md. Code Ann., Nat. Res. §§ 5-1606(c), 8-1801(a); Md. Code Ann., Land Use § 8-102; COMAR 26.24.01.01(A).

Select appropriate response:

- (●) Project will be consistent with policy that requires to First Avoid, then Minimize, Adverse Impacts to Tidal & Non-Tidal Wetlands, Water Quality, Natural Habitats, & Forests & Preserve Cultural Sites & Resources.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

See attached Figure 4 (Vegetation and Water Resource Impacts - Proposed Action Alternative) for resources to be impacted. 7.7 acres of forest will be cleared and 110 individual trees will be hand felled and left in place to meet Part 77 requirements. In areas where trees would be individually hand felled, the following actions will be taken to protect sensitive areas: 1. Access paths will be explicitly designed in order to minimize wetland and buffer impacts to the maximum extent practicable, 2. Tree obstructions will be cut by hand with chainsaws and the trees left where they land to decompose, as the use of heavy machinery would significantly increase impacts to vegetation and soils; and 3. Tree stumps will be left in place in order to avoid soil disturbances caused by grubbing. The removal of larger tracts of trees west of Taxilane W would help to reduce wildlife attractants on the Airport. Forest Conservation Plans will be required and developed for non-Part 77 projects. Wetland impacts are anticipated to be less than 5,000 square feet, conversion impacts to the 25-foot wetland buffer do not require a permit, and no stream impacts are proposed. Coordination with MDE, after completion of a pre-application meeting for proposed impacts to wetlands, indicates that the project qualifies for a MDE Letter of Authorization and no mitigation is required. MHT confirms that there are no impacts to historical or archaeology resources (MHT concurrence attached).

Development Policy 5 – Proposed Development Projects Must Be Sited Where Adequate Water Supply, Sewerage and Solid Waste Services & Infrastructure Are Available. Any proposed development may only be located where the water supply system, sewerage system, or solid waste acceptance facility is adequate to serve the proposed construction, taking into account all existing and approved developments in the service area and any water supply system, sewerage system, or solid waste acceptance facility described in the application and will not overload any present facility for conveying, pumping, storing, or treating water, sewage, or solid waste. MDE (C9) Md. Code Ann., Envir. § 9-512.

Select appropriate response:

- (●) Project will be consistent with policy requiring that Proposed Development Projects Be Sited Where Adequate Water Supply, Sewerage and Solid Waste Services Are Available.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All projects in the Proposed Action are located on Airport property. BWI is located in an area with adequate water supply, sewerage and solid waste services.

Development Policy 6 - Proposed Construction Must Have Water and Wastewater Allocation or Provide Onsite Capacity. A proposed construction project must have an allocation of water and wastewater from the county whose facilities would be affected or, in the alternative, prove access to an acceptable well and on-site sewage disposal system. The water supply system, sewerage system, and solid waste acceptance facility on which the building or development would rely must be capable of handling the needs of the proposed project in addition to those of existing and approved developments. MDE (D6) Md. Code Ann., Envir. § 9-512.

Select appropriate response:

- (●) Project will be consistent with policy requiring Proposed Construction to Have Water & Wastewater Allocation or Provide Onsite Capacity.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All projects in the Proposed Action are located on Airport property. Proposed construction would have water and wastewater allocation.

Development Policy 7 – Structures Served by On-Site Water and Sewage Waste Disposal Systems Must Demonstrate Capacity Prior to Construction or Alteration. Any residence, commercial establishment, or other structure that is served or will be served by an on-site sewage disposal system or private water system must demonstrate that the system or systems are capable of treating and disposing the existing sewage flows and meeting the water demand and any reasonably foreseeable increase in sewage flows or water demand prior to construction or alteration of the residence, commercial establishment, or other structure. MDE (D6) COMAR 26.04.02.03F.

Select appropriate response:

- (●) Project will be consistent with policy that requires Structures Served by On-Site Water & Sewerage Disposal Systems to Demonstrate Capacity Prior to Construction or Alteration.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All projects in the Proposed Action are located on Airport property. Proposed construction would we served by on-site water and sewage waste disposal systems with adequate capacity.

Development Policy 8 - Grading or Building in the Severn River Watershed Requires Approved Development Plan. Proponents of grading or building in the Severn River Watershed must create a development plan and have it approved by the soil conservation district. The plan shall include a strategy for controlling silt and erosion and must demonstrate that any septic or private sewer facility will not contribute to the pollution of the Severn River. MDE (D4) Md. Code Ann., Envir. § 4-308(a).

Select appropriate response:

- ( ) Project will be consistent with policy requiring an Approved Development Plan prior to Grading or Building in the Severn River Watershed.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action is not located in the Severn River Watershed.

Development Policy 9 - Siting Requirements for Industrial Facilities. Industrial facilities must be sited and planned to ensure compatibility with other legitimate beneficial water uses, constraints imposed due to standards of air, noise and water quality, and provision or availability of adequate water supply and wastewater treatment facilities. MDE (D4) Md. Code Ann., Envir. §§ 2-102, 4-402, 9-224(b), 9-512(b); COMAR 26.02.03.02; COMAR 26.11.02.02B.

Select appropriate response:

- (●) Project will be consistent with policy that defines Siting Requirements for Industrial Facilities.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All projects in the Proposed Action are located on Airport property within existing developed area.

Development Policy 10 - Citizen Engagement in Planning & Development. Local citizens shall be active partners in planning and implementation of development. MDP (D6) Md. Code Ann., St. Fin. & Proc. §§ 5-7A-01 to -02.

Select appropriate response:

- (●) Project will be consistent with policy requiring Citizen Engagement in Planning & Development.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

A draft environmental assessment (EA) will be issued for public comment prior to the Federal Aviation Administration's issuance of a finding for the Proposed Action. Comments will be addressed within the final EA. All projects in the Proposed Action are within Airport property and are needed to support aviation activity and meet the needs of the flying public.

Development Policy 11 - Protect Existing Community Character & Concentrate Growth. Development shall protect existing community character and be concentrated in existing population and business centers, growth areas adjacent to these centers, or strategically selected new centers. MDP (D6) Md. Code Ann., St. Fin. & Proc. §§ 5-7A-01 to -02.

Select appropriate response:

- (●) Project will be consistent with policy that Protects Existing Community Character & Concentrates Growth.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All projects in the Proposed Action are located on Airport property within existing developed area.

Development Policy 12 - Site Development Near Available or Planned Transit. Development shall be located near available or planned transit options. MDP (D6) Md. Code Ann., St. Fin. & Proc. §§ 5-7A-01 to -02.

Select appropriate response:

- (●) Project will be consistent with policy that requires Site Development to Be near Available or Planned Transit.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All projects in the Proposed Action are located on Airport property with existing access to transit options.

Development Policy 13 - Design for Walkable, Mixed Use Communities. Whenever possible, communities shall be designed to be compact, contain a mixture of land uses, and be walkable. MDP (D6) Md. Code Ann., St. Fin. & Proc. §§ 5-7A-01 to -02.

Select appropriate response:

- ( ) Project will be consistent with policy that requires Communities to Be Compact, Include Mix Land Uses, & Be Walkable.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All proposed development as part of the Proposed Action is on Airport property to support aviation activity.

Coastal Zone Management Program - Development Policies Checklist

Development Policy 14 – Communities Must Identify Adequate Water Supply, Stormwater & Wastewater Services & Infrastructure to Meet Existing & Future Development. To meet the needs of existing and future development, communities (geographically defined areas with shared interests, values, resources, and goals) must identify adequate drinking water and water resources and suitable receiving waters and land areas for stormwater management and wastewater treatment and disposal. MDE (D6) Md. Code Ann., Land Use § 3-106.

Select appropriate response:

- (●) Project will be consistent with policy that requires Communities to Identify Adequate Water Supply, Stormwater & Wastewater Services & Infrastructure to Meet Existing & Future Development.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

All proposed development as part of the Proposed Action is on Airport property however, adequate resources are available.

Coastal Zone Management Program - Forest Policy Checklist

Name of Project:

Proposed ATCT and Associated Improvements at BWI Marshall Airport

5.2 COASTAL RESOURCES

5.2.4 Forests

Forest Policy 1 – Projects Impacting More Than 40,000 Square Feet Must Generally Identify & Protect Habitat & Mitigate for Impacts. The Forest Conservation Act and its implementing regulations, as approved by NOAA, are enforceable policies. Generally, before developing an area greater than 40,000 square feet, forested and environmentally sensitive areas must be identified and preserved whenever possible. If these areas cannot be preserved, reforestation or other mitigation is required to replace the values associated with them. This policy does not apply in the Critical Area. DNR (C5) Md. Code Ann., Nat. Res. §§ 5-1601 to -1613; COMAR 08.19.01-.06.

Select appropriate response:

- (●) Project will be consistent with forest policy that requires Projects Impacting More Than 40,000 Square Feet to Identify & Protect Habitat & Mitigate for Impacts.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Forest Conservation Plans will be required and developed for non-Part 77 projects (tree removal to meet Part 77 requirements do not require mitigation under the FCA). Forest Conservation mitigation worksheets for each non-Part 77 project included in the Proposed Action are attached and will be included in the forthcoming Draft EA.

Forest Policy 2 – Maintain Resource Sustainability & Prevent or Limit Clear-Cutting to Protect Watersheds. Forestry activities shall provide for adequate restocking, after cutting, of trees of desirable species and condition; provide for reserving, for growth and subsequent cutting, a sufficient growing stock of thrifty trees of desirable species to keep the land reasonably productive; and prevent clear-cutting, or limit the size of a tract to be clear-cut in areas where clear-cutting will seriously interfere with protection of a watershed. DNR (C5) Md. Code Ann., Nat. Res. § 5-606.

Select appropriate response:

- (●) Project will be consistent with forest policy that Maintains Resource Sustainability & Prevents or Limits Clear-Cutting to Protect Watersheds.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action includes clear cutting 7.7 acres of trees and hand felling of 110 individual trees in an area associated with the Kitten Branch stream and surrounding floodplain to meet safety requirements by eliminating obstructions to flight and providing clear light-of-site to air traffic controllers. MAA will look to meet forest mitigation requirements onsite within the Stony Run Forest Conservation Easement area. If the required mitigation cannot be met onsite, mitigation credits will be purchased from an approved forest mitigation bank within the project watershed.

Forest Policy 3 –Commercial Timber Cuts of Five Acres or More with Pines Comprising 25% of Live Trees Shall Ensure Pine Resource Sustainability. When any timber is cut for commercial purposes from five acres or more of land on which loblolly pine, shortleaf pine, or pond pine, singly or together occur and constitute 25 percent or more of the live trees on each acre, the person conducting the cutting or the landowner shall leave uncut and uninjured at least eight well distributed, cone-bearing, healthy, windfirm, loblolly, shortleaf, or pond pine trees on each acre cut for the purpose of reseeding. DNR (C5) Md. Code Ann., Nat. Res. §§ 5-501, -504.

Select appropriate response:

- ○ Project will be consistent with forest policy requiring Pine Resource Sustainability for Commercial Timber Cuts of Five Acres or More with Pines Comprising 25 Percent of Live Trees.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Forest Policy 4 – Minimize Forest Removal for Highway Construction Projects & Mitigate with Equivalent Reforestation if over 1 Acre Is Lost. Any highway construction activity, including related off-site environmental mitigation, may only cut or clear the minimum amount of trees and other woody plants necessary to be consistent with sound design principles. If over an acre of forest is lost as a result of the project, an equivalent area of publicly owned property shall be reforested. DNR/MDOT (C5) Md. Code Ann., Nat. Res. § 5-103.

Select appropriate response:

- ○ Project will be consistent with forest policy that requires Minimizing Forest Removal for Highway Construction Projects & Mitigating with Reforestation if Over 1 Acre is Lost.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Tree clearing to meet safety needs is proposed on Airport property (not highway construction).

Forest Policy 5 – Protection of Roadside Trees Unless Removal or Trimming Is Justified. Roadside trees should not be cut down, trimmed, mutilated, or injured unless the activity will eliminate a hazard to property, public safety, or health; improve or prevent tree deterioration; or improve the general aesthetic appearance of the right-of-way. DNR (C5) COMAR 08.07.02.05.

Select appropriate response:

- ○ Project will be consistent with forest policy that Protects Roadside Trees Unless Removal or Trimming Is Justified.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Forest Policy 6 – Sediment & Erosion Control in Non-Tidal Wetlands. A person conducting a forestry activity in non-tidal wetlands shall develop and implement a sediment and erosion control plan. MDE (C3) COMAR 26.23.05.02.

Select appropriate response:

- ◉ Project will be consistent with forest policy that requires Sediment & Erosion Control in Non-Tidal Wetlands.
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

An Erosion and Sediment Control Plan would be required and developed in accordance with MDE guidelines and implemented during construction activities to minimize erosion and sedimentation and its impacts on surface waters.

Coastal Zone Management Program - Historical & Archaeological Policies Checklist

Name of Project:

Proposed ATCT and Associated Improvements at BWI Marshall Airport

5.2 COASTAL RESOURCES

5.2.5 Historical and Archaeological Sites

Historical and Archaeological Policy 1 – Protection of Submerged Historic Resources. Unless permission is granted by the Maryland Historical Trust, activities that excavate, remove, destroy, injure, deface, or disturb submerged archaeological historic property are generally prohibited. MDP (C8) Md. Code Ann., State Fin. & Proc. §§ 5A-341, -333.

Select appropriate response:

- ○ Project will be consistent with historical & archaeological policy Protecting Submerged Historic Resources.
- ◉ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Historical and Archaeological Policy 2 – Protection of Caves & Archaeological Sites. Unless permission is granted by the Maryland Historical Trust, activities that excavate, remove, destroy, injure, deface, or disturb cave features or archeological sites under State control are generally prohibited. MDP (C8) Md. Code Ann., State Fin. & Proc. §§ 5A-342 to -343.

Select appropriate response:

- ◉ Project will be consistent with historical & archaeological policy Protecting Caves & Archaeological Sites
- ○ Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

There are no archaeological sites identified within the Direct Area of Potential Effect (APE) for the Proposed Action. No archaeological resources would be adversely impacted by the Proposed Action Alternative. See attachment with MHT concurrence.

Coastal Zone Management Program - Historical & Archaeological Policies Checklist

Historical and Archaeological Policy 3 – Protection of Burial Sites & Cemeteries. Neither human remains nor funerary objects may be removed from a burial site or cemetery, unless permission is granted by the local State's Attorney. Funerary objects may not be willfully destroyed, damaged, or defaced. MDP (C8) Md. Code Ann., Crim. Law §§ 10-401 to -404.

Select appropriate response:

- (●) Project will be consistent with historical & archaeological policy Protecting Burial Sites & Cemeteries.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

There are no archaeological sites identified within the Direct APE. No archaeological resources would be adversely impacted by the Proposed Action. See attachment with MHT concurrence.

Coastal Zone Management Program - Transportation Policies Checklist

Name of Project:

Proposed ATCT and Associated Improvements at BWI Marshall Airport

5.3 COASTAL USES

5.3.7 Transportation

Transportation Policy 1 – Sustainability Analysis of Transportation Projects. The social, economic, and environmental effects of proposed transportation facilities projects must be identified and alternative courses of action must be considered. MDOT (D8) COMAR 11.01.06.02B.

Select appropriate response:

- (●) Project will be consistent with policy requiring a Sustainability Analysis of Transportation Projects.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action includes improvements to the Airport to meet aviation activity and the flying publics needs. The MAA is completing is completing an Environmental Assessment (EA) to meet National Environmental Policy Act (NEPA) requirements per Federal Aviation Administration (FAA) guidelines for implementing NEPA. The Draft EA will be made available for public review and disclose potential impacts (temporary and permanent). The FAA will render a finding on any potential environmental impacts associated with the Proposed Action, it is expected that the Proposed Action will not include any significant impacts.

Transportation Policy 2 – Public Engagement in Transportation Project Planning. The public must be involved throughout the process of planning transportation projects. MDOT (D8) Md. Code Ann., Transp. § 7-304(a); COMAR 11.01.06.02B.

Select appropriate response:

- (●) Project will be consistent with policy requiring Public Engagement in Transportation Project Planning.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

MAA provides the public with their capital budget on an annual basis, through their Consolidated Transportation Program (CTP). The public will also be included in the planning process for the Proposed Action through publication of a Draft EA for public comment before the FAA renders a decision on the potential environmental impacts of the Proposed Action.

Coastal Zone Management Program - Transportation Policies Checklist

Transportation Policy 3 – Projects Must Support Multi-Modal Transportation. Transportation development and improvement projects must support the integrated nature of the transportation system, including removing impediments to the free movement of individuals from one mode of transportation to another. MDOT (D8) Md. Code Ann., Transp. § 2-602.

Select appropriate response:

- (●) Project will be consistent with policy requiring Transportation Projects to Support Multi-Modal Transportation.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action is on Airport property which supports multi-modal transportation connections (AMTRAK/MARC/MTA/bus).

Transportation Policy 4 – An Integrated Private-Public Regional Transportation System. Private transit facilities must be operated in such a manner as to supplement facilities owned or controlled by the State to provide a unified and coordinated regional transit system without unnecessary duplication or competing service. MDOT (D8) Md. Code Ann., Transp. § 7-102.1(b).

Select appropriate response:

- ( ) Project will be consistent with policy requiring that private transit facilities to Support An Integrated Private-Public Regional Transportation System.
- (●) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Not applicable. The Proposed Action does not impact any private transit facilities or their operations.

Coastal Zone Management Program - Transportation Policies Checklist

Transportation Policy 5 – Transportation Projects Must Consider the Needs of Bicyclists & Pedestrians. Access to and use of transportation facilities by pedestrians and bicycle riders must be enhanced by any transportation development or improvement project, and best engineering practices regarding the needs of bicycle riders and pedestrians shall be employed in all phases of transportation planning. MDOT (D8) Md. Code Ann., Transp. § 2-602.

Select appropriate response:

- (●) Project will be consistent with policy requiring Transportation Projects to Consider the Needs of Bicyclists & Pedestrians.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

The Proposed Action is on Airport property. Concourse C-D Connector projects will provide enhanced passenger level of service and will provide accessibility options throughout the concourse for all passengers.

Coastal Zone Management Program - Non-Tidal Wetlands Policy Checklist

Name of Project:

Proposed ATCT and Associated Improvements at BWI Marshall Airport

5.2 COASTAL RESOURCES

5.2.3 Non-Tidal Wetlands

Non-Tidal Wetlands Policy 1 – Removal or Alteration is Generally Prohibited Unless There Is No Practicable Alternative, in Which Case, Impacts are First Minimized & Then Mitigated to Replace Ecological Values Lost. Removal, excavation, grading, dredging, dumping, or discharging of, or filling a non-tidal wetland with materials of any kind, including the driving of piles and placing of obstructions; changing existing drainage characteristics, sedimentation patterns, flow patterns, or flood retention characteristics; disturbing the water level or water table; or removing or destroying plant life that would alter the character of a non-tidal wetland is prohibited unless: The proposed project has no practicable alternative; adverse impacts are first avoided and then minimized based on consideration of existing topography, vegetation, fish and wildlife resources, and hydrological conditions; comprehensive watershed management plans are considered; and the proposed project does not cause or contribute to an individual or cumulative effect that degrades aquatic ecosystem diversity, productivity, and stability, plankton, fish, shellfish, and wildlife, recreational and economic values, and public welfare, surface water quality, or ground water quality. Mitigation measures are required to replace the ecological values associated with non-tidal wetlands that are impaired by activities described above. MDE (C3) COMAR 26.23.01.01; COMAR 26.23.02.04, .06; COMAR 26.23.04.02.

Select appropriate response:

- (●) Project will be consistent with Non-Tidal Wetlands policy.
- ( ) Not Applicable.

Describe situation and/or actions to make project or activity consistent with the above policy:

Non-tidal wetland impacts are anticipated to be less than 5,000 square feet and no stream impacts are proposed. Impacts are minimized by proposed hand felling of individual tree obstructions within wetland areas .On 2/15/2024 and 2/16/2024, MDE Nontidal Wetlands Division, Jeff Thompson and Cheryl Kerr respectively, verbally confirmed that the proposed project qualifies for a Letter of Authorization (and would not require mitigation) and that a written report from the pre-application meeting held on 12/14/2023 will include this information.

Proposed Airport Traffic Control Tower and Associated Improvements Environmental Assessment

LEGEND

- Airport Property Boundary
- Direct Study Area
- Indirect Study Area

Water Resources

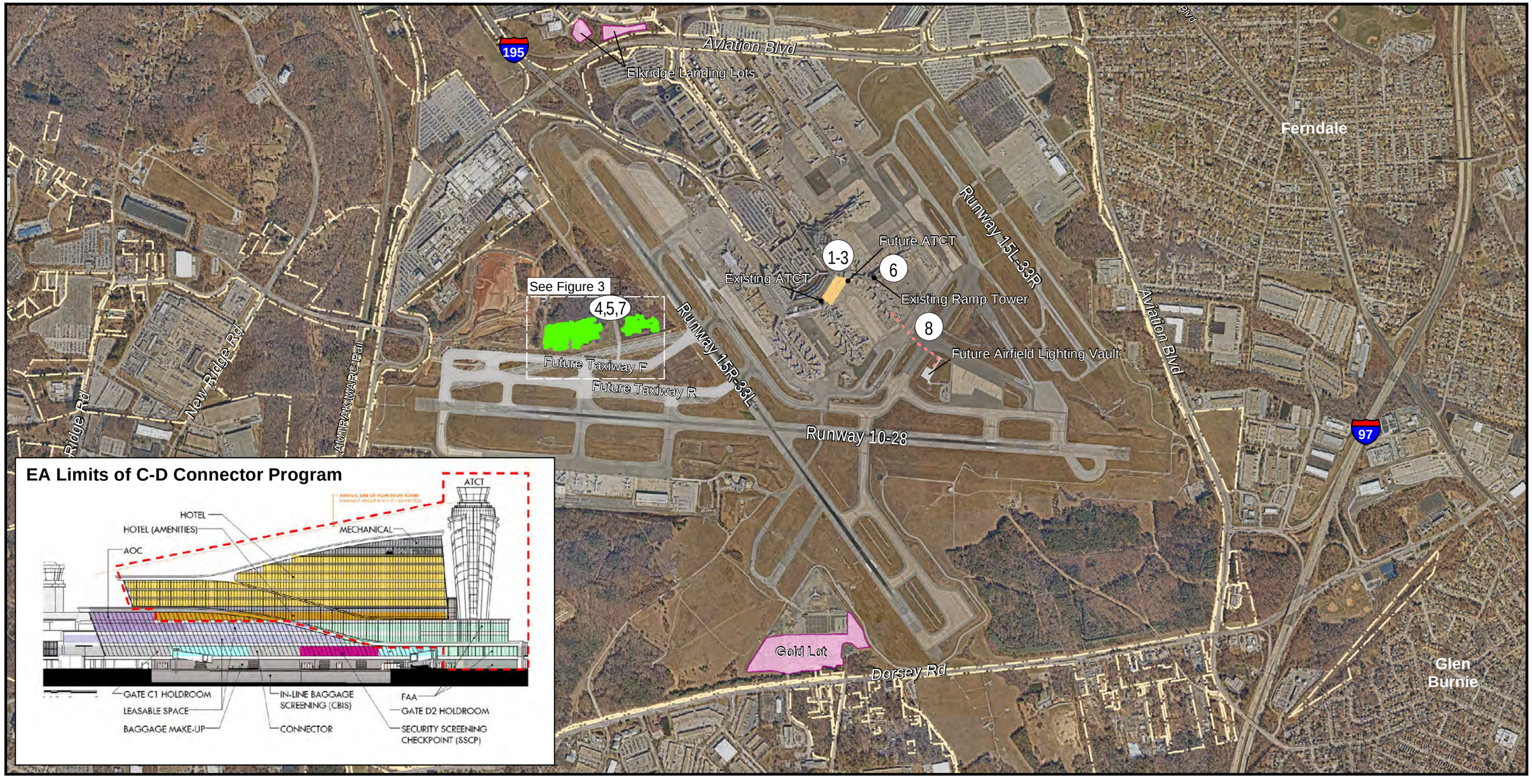
- Wetlands with 25' Buffers
- Wetlands of Special State Concern with 100' Buffers (MAA-delineated)
- 100-Year Floodplain
- Stream
- Culverted Stream
- Stormwater Management Pond
- USACE Jurisdictional Pond

Water Resources
Figure 1

N

0 500 1,000 2,000 Feet

Source: MDOT MAA, Nearmap, FEMA, MDNR, Anne Arundel County



LEGEND

- EA Limits of C-D Connector Program
- C-D Connector Program
- Future Taxiway Alignment
- Future Taxiway Pavement Demolition
- Proposed Utility Connection
- MDOT MAA Property
- Potential Construction Staging Areas
- Vegetative Obstruction Removal* (Projects #4,5 and 7)

*See ***Figure 3: Proposed Action - Obstruction Removal*** for a detailed view of the Part 77 and ATCT LOS obstructions.

Proposed Action Projects

1. New Airport Traffic Control Tower (ATCT)
2. FAA Staffing Offices
3. Hotel
4. Part 77 Obstruction Removal
5. Existing ATCT LOS Obstruction Removal

Connected Action Projects

6. Supplemental ATCT Upgrades
7. Proposed ATCT LOS Obstruction Removal
8. Connection to Airfield Lighting Vault

Proposed Action
Figure 2

N

0 450 900 1,800 Feet

Sources: MDOT MAA, Nearmap, C-D Connector Project Definition Document (2018)

Proposed Airport Traffic Control Tower and Associated Improvements Environmental Assessment

LEGEND

- Future Taxiway F and R Alignment
- Future Taxiway Pavement Demolition
- MDOT MAA Property

Vegetative Obstruction Removal

- Existing ATCT LOS Obstructions
- Future ATCT LOS Obstructions
- Part 77 Obstructions

Proposed Action - Obstruction Removal
Figure 3

N

0 50 100 200 Feet

Sources: MDOT MAA, Nearmap, C-D Connector Project Definition Document (2018)

Proposed Airport Traffic Control Tower and Associated Improvements Environmental Assessment

LEGEND

- Direct Study Area
- Hand Fell Vegetative Obstructions
- Clear and Grub Vegetative Obstructions
- Specimen Tree

Water Resources

- Wetlands with 25' Buffers
- Stream
- 100-Year Floodplain
- 100-Year Floodplain with 2' Added to Base Flood Elevation

Vegetation and Water Resource Impacts - Proposed Action Alternative

Figure 4

N

0 50 100 200 Feet

Source: MDOT MAA, Nearmap, FEMA, Anne Arundel County

Appendix B

Air Quality and Climate

TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

APPENDIX B:
Air Quality and Climate

1. Introduction

This appendix summarizes regulatory setting for air quality and climate, existing air quality conditions in the area surrounding BWI Marshall Airport, and the construction emissions analysis completed for the Proposed Action and No Action Alternatives.

2. Regulatory Setting

Federal, state, and local governments all share responsibility for air quality management. The federal Clean Air Act (CAA) is the primary statute that establishes national ambient air quality standards (NAAQS). It also establishes regulatory authorities to design and enforce air quality regulations. The EPA promulgates the NAAQS to safeguard public health and environmental welfare against the detrimental effects of ambient air pollution.

2.1 Air Quality Standards

The NAAQS set threshold levels for ambient (i.e., outdoor) air quality for six common air pollutants, referred to as "criteria" air pollutants: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2) sulfur dioxide (SO_2), coarse and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). Each state has the option to impose stronger air quality standards than those promulgated by the EPA, however Maryland has opted to retain the NAAQS. The NAAQS are provided in **Table 1**.

Table 1

National Ambient Air Quality Standards

Pollutant	Primary/ Secondary	Averaging Period	Standards
Carbon Monoxide (CO)	Primary	1-hour	35 ppm
		8-hour	9 ppm
Ozone (O_3)	Primary and Secondary	8-hour[a]	0.070 ppm
Nitrogen Dioxide (NO_2)	Primary	1-hour[b]	0.10 ppm
	Primary and Secondary	Annual	0.053 ppm
Sulfur dioxide (SO_2)	Primary	1-hour[c]	0.075 ppm
	Secondary	3-hour[d]	0.5 ppm
Coarse Particulate matter (PM_{10})	Primary and Secondary	24-hour	150 µg/m^3
Fine Particulate matter ($PM_{2.5}$)	Primary and Secondary	24-hour[d]	35 µg/m^3
	Primary	Annual[e]	12 µg/m^3
	Secondary	Annual[e]	15 µg/m^3
Lead (Pb)	Primary and Secondary	3-month[f]	0.15 µg/m^3

Notes: ppm = parts per million; and µg/m^3 = micrograms per cubic meter.

(a) Standard based on the annual fourth-highest daily maximum 8-hour concentration, averaged over three years.

(b) Standard based on the 98th percentile of 1-hour daily maximum concentrations, averaged over three years.

(c) Standard based on the 99th percentile of 1-hour daily maximum concentrations, averaged over three years.

(d) Standard based on the daily 98th percentile, averaged over three years.

(e) Standard based on annual mean, averaged over three years.

(f) Corresponds to a rolling three-month average over three years of monitoring data.

* *Primary standards* provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. *Secondary standards* provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Source: USEPA NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table, and USEPA Green Book, https://www.epa.gov/green-book, accessed 9/14/23.

2.2 Air Quality Management Agencies

The management of air quality conditions in the state of Maryland is the responsibility of federal, regional, state, and local governmental air quality regulatory agencies. **Table 2** summarizes the federal, regional, state, and local agencies and their roles and responsibilities with regard to air quality management in Anne Arundel County.

Table 2
Agencies Involved with Air Quality Management in Anne Arundel County

Agency	Roles and Responsibilities
U.S. Environmental Protection Agency (EPA)	Sets national clean air policies under the federal CAA; promulgates the NAAQS; reviews and approves SIPs. Also, regulates aircraft emissions. Maryland is under the jurisdiction of EPA's Region 3
Federal Aviation Administration (FAA)	Ensures that airport related developments comply with NEPA as well as the General Conformity Rule of the CAA.
Federal Highway Administration (FHWA)	Responsible for the approval of roadway projects under NEPA and the Transportation Conformity Rule of the CAA. This includes working with MDOT and BMC in establishing the TIP and RTP for the Baltimore area.
Maryland Department of the Environment (MDE)	Implements and enforces air quality programs state-wide including those pertaining to ambient air monitoring, stationary source permitting, smoke management, regional haze, and PSD. Also, involved in the development of the SIPs in non-attainment areas in Maryland.
Maryland Department of Transportation (MDOT)	Works with the FHWA and BMC to coordinate the Baltimore regional components of the TIP and RTP into the STIP.
Ozone Transport Commission (OTC)	Created under the CAA, this regional agency advises the EPA on transport issues and for developing and implementing regional solutions to the ground-level ozone problem in the Northeast and Mid-Atlantic areas. Provides air pollution assessment, technical support and a forum through which states can work together on strategies to reduce air pollution.
Baltimore Metropolitan Council (BMC)	This local agency assists the MDE in the SIP preparation process specific to development of local control strategies for on-road and non-road mobile sources. Also, involved in the development of the Baltimore area TIP/RTP.

Notes: CAA = Clean Air Act, NAAQS = National Ambient Air Quality Standards, NEPA = National Environmental Policy Act, PSD = Prevention of Significant Deterioration, RTP = Regional Transportation Plan, SIP = State Implementation Plan, STIP = Statewide Transportation Improvement Plan, and TIP = Transportation Improvement Plan.

Source: KB Environmental Sciences, Inc. (2017), updated by HNTB, December 2023.

2.3 Attainment/Non-attainment Status

The EPA designates areas of the United States as either meeting or not meeting the NAAQS. An area that is meeting the NAAQS is designated an "attainment" area, while an area that is not meeting the NAAQS is designated as a "non-attainment" area. Areas that were once designated as "non-attainment," but are currently meeting the NAAQS are classified as a "maintenance" area. "Non-attainment" areas are pollutant specific (i.e., an area could have multiple "non-attainment" designations, one for each criteria pollutant not meeting the NAAQS).

BWI Marshall Airport is located in Anne Arundel County, which is currently designated "non-attainment" for the EPA criteria pollutants O_3 (2008[1] and 2015 standards) and SO_2 (2010 standard). This signifies that exceedances of the NAAQS have occurred within recent years.

Table 3 summarizes the NAAQS "attainment" and "non-attainment" designations for the area encompassing BWI Marshall Airport.

Table 3
Current Attainment / Non-attainment Designations

Pollutant	NAAQS	Designation
Carbon Monoxide (CO)	1971 Standard	Attainment
Ozone (O_3)	1979 (1-Hour) Standard	Revoked on June 15, 2005
	1997 (8-Hour) Standard	Revoked on April 6, 2015
	2008 (8-Hour) Standard	Non-attainment (Moderate)
	2015 (8-Hour) Standard	Non-attainment (Moderate)
Nitrogen Dioxide (NO_2)	1971 Standard	Attainment
Sulfur Dioxide (SO_2)	1971 Standard	Attainment
	2010 Standard	Non-attainment
Particulate Matter (PM_{10})	1987 Standard	Attainment
Particulate Matter ($PM_{2.5}$)	1997 Standard	Revoked on October 24, 2016[1]
	2006 Standard	Attainment
	2012 Standard	Attainment
Lead (Pb)	1978 Standard	Attainment
	2008 Standard	Attainment

Note: [1]Anne Arundel County was within a $PM_{2.5}$ maintenance area for the 1997 standard, however the 1997 standard was revoked on October 24, 2016.

Source: EPA, Green Book at https://www.epa.gov/green-book, October 2023.

2.4 State Implementation Plans

The CAA requires individual states to develop, update and maintain SIPs that will demonstrate compliance with the NAAQS. Common features of a SIP include attainment timeframes or milestones, area-wide emissions inventories and budgets and control/mitigation strategies that are to be employed to achieve attainment. SIPs may be revised by the state with EPA approval. The federally enforceable SIP for the State of Maryland is compiled under 40 CFR Part 52 Subpart V, § 52.1070. Section 110(a) of the CAA requires that within three years of the promulgation of a NAAQS, a state must adopt and submit such a plan to the EPA.

[1] The EPA made a final determination that Baltimore, MD (including Anne Arundel County) attained the 2008 ozone standard by its applicable attainment date of July 20, 2018. As designated by the determinations published in the Federal Register on August 23, 2019, "These determinations of attainment do not constitute a redesignation to attainment as provided for under CAA section 107(d)(3). Redesignations require states to meet additional statutory criteria, including the EPA approval of a state plan demonstrating maintenance of the air quality standard for 10 years after redesignation, as required under CAA section 175A. As for all NAAQS, the EPA is committed to working with states that choose to submit redesignation requests for the 2008 ozone NAAQS."

Maryland's Air Quality Planning Program (AQPP) is responsible for writing SIPs and regulations to reduce emissions of "criteria" air pollutants in order to achieve the NAAQS. It is also the responsibility of the AQPP to implement federal, regional, local, and state greenhouse gas (GHG) emissions reduction programs, which include the implementation of Maryland's GHG Reduction Act of 2009 and 2016, as well as the involvement in the Regional Greenhouse Gas Initiative (RGGI).

In March 2023, MDE submitted an 8-hour O_3 SIP to EPA detailing the implementation, maintenance and enforcement of the 0.70 ppm 2015 8-hour O_3 NAAQS.[2,3] The plan includes commitments by the state to meet EPA requirements for moderate nonattainment areas and includes a contingency plan and analysis of Reasonably Available Control Measures (RACM). The plan details the progress made by the state and the ongoing efforts to reach the federal health standard for ground-level ozone by August 2024.

In January 2020, MDE submitted the 1-hour SO_2 SIP to EPA. Following EPA designation as a nonattainment area for the 2010 SO2 NAAQS in 2016, Section 192(a) of the CAA, 42 U.S.C. § 7514a(a), required SO2 nonattainment areas to attain the 2010 NAAQS no later than five years from the effective date of EPA's designations, which is September 12, 2021. The January 2020 SIP provides demonstration of attainment of the 2010 primary 1-hour NAAQS for SO_2 in Anne Arundel and Baltimore Counties and includes provisions for further progress and implementation of RACM.

2.5 General Conformity Requirements

The General Conformity Rule of the federal CAA prohibits federal agencies (including the FAA) from permitting or funding projects that do not conform to an applicable SIP. The General Conformity Rule applies only to areas that are designated "non-attainment" or "maintenance."

As a means of demonstrating conformity with the SIP, project-related emissions of the applicable "non-attainment/maintenance" pollutants are compared to *de minimis* level thresholds. If the emissions exceed the thresholds, a formal Conformity Determination is required to demonstrate that the action conforms to the applicable SIP. Conversely, if project-related emissions are below the *de minimis* levels the project is automatically assumed to conform to the SIP. BWI Marshall Airport currently resides within the "non-attainment" areas for O_3 (2015 standard) and SO_2, and therefore are subject to the applicable *de minimis* levels listed in **Table 4.** As shown, these thresholds apply to SO_2 as well as NO_x and VOCs – the two primary precursors to ozone formation.

In addition to the General Conformity Rule requirements, the NEPA also requires environmental review of federally-funded projects that have the potential to affect the environment. Therefore, for disclosure purposes under NEPA a construction emissions inventory of the Proposed Action projects is presented in *Chapter 4* of this EA.

Table 4

General Conformity *de minimis* Levels

Pollutant	Tons per year
O_3	100 for NO_x and 50 for VOCs
SO_2	100

Source: EPA, *De Minimis* Emission Levels, De Minimis Tables | US EPA, accessd October 2023.

[2] VOC and NO_x are considered ozone precursor pollutants.
[3] Baltimore Moderate Nonattainment Area 0.070 ppm 8-Hour Ozone State Implementation Plan, March 2023.

2.6 Climate Regulations

This section includes information on existing climate regulations at BWI Marshall Airport (and the surrounding areas). Because activities at BWI Marshall Airport contribute to climate change, the Airport is subject to federal, state or local greenhouse gas (GHG) guidance or regulations.

GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Increasing concentrations of GHGs in the atmosphere affect climate change and GHG emissions from anthropogenic sources include the combustion of fossil fuels, including aircraft fuel. GHG emissions are reported in metric tonnes (MT) of carbon dioxide equivalent (CO_2e).[4]

Federal Guidance

Research has shown that the increase in atmospheric GHG emissions is significantly affecting the Earth's climate. These conclusions are based upon a scientific record that includes substantial contributions from the United States Global Change Research Program (USGCRP)—a program mandated by Congress in the Global Change Research Act to "assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change.[5]

Although there are currently no federal standards for ambient concentrations of GHGs, by the summer of 2016, the EPA acknowledged that scientific assessments by that time "highlight the urgency of addressing the rising concentration of carbon dioxide (CO_2) in the atmosphere" and formally announced that GHG emissions from certain classes of aircraft engines contribute to climate change.[6,7] EPA data indicates that of the five major sectors nationwide—residential and commercial, industrial, agriculture, transportation, and electricity—the transportation industry accounts for the largest portion of U.S GHG emission (28.5 percent) in 2021, followed by emissions from electric power generation (25 percent), and emissions from industry (23.5 percent). Of the 28.5 percent attributed to transportation industry, 8.6 percent is attributed to aircraft (or 2.5 percent of all GHG emissions).[8]

Executive Order 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* was signed on January 20, 2021, rescinded the 2019 CEQ *Draft NEPA Guidance on Consideration of GHG Emissions*. On January 9, 2023, CEQ issued interim *NEPA Guidance on Consideration of GHG Emissions and Climate Change,* with an extended comment period to April 10, 2023. The interim guidance explains how agencies should immediately apply best practices to climate change analyses, including but not limited to: recommendations for quantifying a proposed action's reasonably foreseeable direct and indirect GHG emissions or reductions, guidance on translating climate impacts into social cost, and guidance in considering reasonable alternatives and mitigation measures for short and long term climate effects.

[4] FAA, 1050.1F Desk Reference, Version 2, Chapter 3. Climate, February 2020.
[5] Global Change Research Act of 1990, Pub. L. 101–606, Sec. 103 (November 16, 1990). For additional information on the United States Global Change Research Program, http://www.globalchange.gov. (January 2017)
[6] EPA, Final Rule for Carbon Pollution Emission Guidelines for Existing Stationary Sources Electric Utility Generating Units, 80 Fed. Reg. 64661, 64677 (October 23, 2015).
[7] EPA finalized findings that GHG emissions from certain classes of engines used in aircraft contribute to the air pollution that causes climate change endangering public health and welfare under section 231(a) of the Clean Air Act.
[8] GHG allocation by economic sector. U.S. Environmental Protection Agency (2016). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021, https://www.epa.gov/system/files/documents/2023-04/US-GHG-Inventory-2023-Main-Text.pdf (April 23, 2023).

State Guidance

On April 4th, 2016, Maryland's Greenhouse Gas Emissions Reduction Act (GGRA) of 2016 was signed into law. The bill (i.e., SB 323/HB 610) renews the 2009 Maryland law that set goals to reduce GHG emissions statewide by 25 percent by 2020 (from 2006 levels). The 2016 extended the GHG reduction goal to reduce GHG emissions by 40 percent by 2030. In a September 2022 progress report, MDE announced a 30% reduction in statewide GHG emissions in 2020. The Maryland Climate Solutions Now Act of 2022 updated the requirements of the GGRA, including a net-zero carbon emissions goal by 2045, and requiring MDE to submit an updated plan to the Governor by the end of 2023 to reduce statewide emissions by 60% by 2031.

The GGRA requires MDE to publish an inventory of statewide GHG emissions on a three year cycle. The latest inventory was completed in 2020 and includes 29.8 million MT CO_2e emissions from the transportation sector, accounting for 35% of the total GHG inventory, with approximately 2.4 million MT CO_2e from aircraft emissions.[9]

The 2015 Maryland Commission on Climate Change (MCCC) Act requires the MCCC and participating agencies to maintain action plans with 5-year benchmarks to achieve Maryland's GHG reduction goals. As a member of the MCCC, MDOT works with MDE and other state agencies to develop strategies for the transportation sector to reduce GHG emissions. The 2022 MDOT Progress Report on the Maryland GGRA details various MDOT strategies to reduce GHG emissions, including transportation technologies, VMT reduction, congestion mitigation, and infrastructure design.[10]

Local/MAA

MAA is in the process of developing a Sustainability Plan which will establish performance metrics across four pillars of sustainability – environment, social, human and economic - to achieve GHG emission reduction goals at BWI Marshall Airport and MTN Airport. The Sustainability Plan will help MAA align their investments for a more sustainable future, with a focus on protecting the environment, conserving resources, maintaining economic growth, and benefitting local communities.

3. Airport Air Emissions

Airport-related air emissions associated with BWI Marshall Airport can be classified into six typical source categories. **Table 5** summarizes these airport-related emissions sources, their general characteristics, and pollutants emitted.

Because the Proposed Action will not affect aircraft operations or other airside activities, an existing operational emissions inventory was not prepared. Only construction emissions would be impacted by the projects reviewed in this EA, which are analyzed and presented in Section 4.

[9] MDE, 2020 Greenhouse Gas Inventory, https://mde.maryland.gov/programs/air/ClimateChange/Pages/GreenhouseGasInventory.aspx, accessed 6/23/23.
[10] Maryland Greenhouse Gas Reduction Act, 2022 MDOT Status Report, MDOT_MCCC_State_Agency_Report_MSAR_14367.pdf (maryland.gov), accessed 10/23/23.

Table 5

Typical Airport-Related Sources of Air Pollutant Emissions

Source	Pollutant	Characteristic
Aircraft	CO, VOC, NOx, PM, SO_2, GHGs[1]	Exhaust products of fuel combustion that vary greatly depending on aircraft engine type, power setting, and period of operation. For airport air quality assessments, these emissions are confined to the typical landing and take-off cycle (i.e., landing, take-off, climb-out, and taxi/delay periods).
Ground Access Vehicles	CO, VOC, NOx, PM, SO_2, GHGs	Exhaust products of fuel combustion from passenger, cargo, and employee traffic moving about the airport roadways and parking facilities. Emissions vary depending on vehicle type, fuel type, distance traveled, operating speed, ambient conditions (i.e., temperature), and roadway operating conditions (i.e., "stop-and-go" versus free-flow). Off-site airport-related motor vehicles traveling on public highways and roadways or using off-airport parking facilities are not included.
Ground Support Equipment (GSE) / Auxiliary Power Units (APUs)	CO, VOC, NOx, PM, SO_2, GHGs[1]	Exhaust products of fuel combustion from service trucks, tow tugs, belt loaders, and other portable equipment. Emissions vary by engine and fuel types. Also, includes exhaust emissions from aircraft on-board engines used for supplemental electricity and air conditioning.
Stationary Sources (Non-combustion sources)	VOC, PM	Formed from the evaporation and vapor displacement of fuel from storage tanks and fuel transfer facilities. Emissions vary with fuel usage, type of storage tank, refueling method, fuel type, vapor recovery systems, humidity, and ambient temperature. This category includes application of solvents and coatings. PM emissions can occur during loading and unloading of the piles and through wind erosion of the pile material.
Stationary Sources (Combustion sources)	CO, VOC, NOx, PM, SO_2, GHGs	Exhaust products of fossil fuel combustion from boilers dedicated to indoor heating requirements; emergency power generators; and food preparation.
Construction Activities	CO, VOC, NOx, PM, SO_2, GHGs	Construction activities represent temporary sources of emissions primarily associated with the exhaust from construction equipment; dust generated during construction, demolition, and land clearing activities; and evaporative VOC from asphalt paving operations.

Note: GHGs are represented by CO_2, CH_4, and N_2O.

[1] Contributions of CH4 emissions from commercial aircraft are reported as zero. Years of scientific measurement campaigns conducted at the exhaust exit plane of commercial aircraft gas turbine engines have repeatedly indicated that CH4 emissions are consumed over the full emission flight envelope [Reference: *Aircraft Emissions of Methane and Nitrous Oxide during the Alternative Aviation Fuel Experiment*, Santoni et al., Environ. Sci. Technol., July 2011, Volume 45, pp. 7075-7082]. As a result, the EPA published that: "…methane is no longer considered to be an emission from aircraft gas turbine engines burning Jet A at higher power settings and is, in fact, consumed in net at these higher powers." [Reference: EPA, *Recommended Best Practice for Quantifying Speciated Organic Gas Emissions from Aircraft Equipped with Turbofan, Turbojet, and Turboprop Engines*, May 27, 2009 [EPA-420-R-09-901], http://www.epa.gov/otaq/aviation.htm]. In accordance with the following statements in the 2006 IPCC Guidelines (IPCC 2006), the FAA does not calculate CH_4 emissions for either the domestic or international bunker commercial aircraft jet fuel emissions inventories. "Methane (CH_4) may be emitted by gas turbines during idle and by older technology engines, but recent data suggest that little or no CH_4 is emitted by modern engines." "Current scientific understanding does not allow other gases (e.g., N_2O and CH_4) to be included in calculation of cruise emissions." (IPCC 1999)

Source: FAA, Aviation Emissions and Air Quality Handbook, Version 3, Update 1, Table 3-2. Sources of Air Emissions and Pollutants of Concern at Airports, page 16, accessed December 2023.

3.1 Existing Ambient Air Quality Monitoring

MDE maintains and operates 24 air quality monitoring stations throughout Maryland as part of its permanent, state-wide air monitoring program. These monitoring stations are used to measure concentrations of air pollutants in the ambient (i.e., outdoor) air to determine compliance with the NAAQS. **Table 6** shows the most recent three years (2020 – 2022) of ambient air quality monitoring data for the monitors closest to BWI Marshall Airport. For ease of reference, the applicable NAAQS for each monitored pollutant is included. Although BWI Marshall Airport is within "non-attainment" areas for O_3 and SO_2, based on these ambient air quality data, the NAAQS for all criteria pollutants are being met.

Table 6
Air Monitoring Data in the BWI Marshall Airport Area (2020-2022)

Site Name, Address, and ID (Distance)	Pollutant	Averaging Period	NAAQS	Year		
				2020	2021	2022
Anne Arundel County Public Works Building 7409 Baltimore Annapolis Blvd. Glen Burnie, MD 24-003-1003, (1 mile E)	O_3	8-hour[1]	0.07 ppm	0.07	0.07	0.07
	PM_{10}	24-hour[2]	150 µg/m^3	28	31	26
Essex 600 Dorsey Avenue Baltimore County, MD 024-005-3001 (13 miles NE)	SO_2	3-hour[3]	0.5 ppm	0.01	0.01	0.003
		1-hour[4]	75 ppb	9	7	5
	CO	8-hour[5]	9 ppm	2	1	1
		1-hour[5]	35 ppm	2	2	2
	$PM_{2.5}$	Annual[6]	12 µg/m^3	7	8	7
		24-hour[7]	35 µg/m^3	20	20	14
	NO_2	Annual	53 ppb	8	9	9
		1-hour[8]	100 ppb	39	37	38
Oldtown Fire Station, 1100 Hillen Street Baltimore City, MD 24-510-0040, (8 miles NE)	NO_2	Annual	53 ppb	12	12	n/a
		1-hour[8]	100 ppb	48	49	n/a

Notes: ppm = parts per million, µg/m^3 = micrograms per cubic meter, and NAAQS = National Ambient Air Quality Standards. n/a = not applicable (monitoring station did not record pollutant level in given year). There are no active lead (Pb) monitoring stations in the vicinity of BWI Marshall.

(1) Standard based on the annual fourth-highest daily maximum 8-hour concentration, averaged over three years.
(2) Not to be exceeded more than once per year on average over three years.
(3) The SO_2 3-hour standard is a "secondary" standard not to be exceeded more than once per year.
(4) Standard based on the 99th percentile of 1-hour daily maximum concentrations, averaged over three years.
(5) Not to be exceeded more than once per year.
(6) Standard based on annual mean, averaged over three years.
(7) Standard based on the daily 98th percentile, averaged over three years.
(8) Standard based on the 98th percentile of 1-hour daily maximum concentrations, averaged over three years.

Sources: EPA AirData – Monitor Value Reports, http://www.epa.gov/airdata/, 2020, 2021 and 2022 Annual Reports, accessed 8/10/23.

3.2 Existing and New Permits

Air emissions from BWI Marshall Airport are regulated under their current Title V Air Permit, which is administered by the EPA. This permit is valid through January 31, 2024. Any additional air emission sources that are operated as a result of the proposed projects at BWI Marshall Airport would operate under this permit.

4. Construction Emissions Analysis

This section presents the methodology, background, assumptions and approach for preparing criteria pollutant and pollutant precursor construction emissions inventories. For purposes of the air quality analysis, the study area is considered the entire geographic area that could be impacted by the Proposed Action. Therefore, study area for air quality is the Metro Baltimore Region, as defined by MDE, which includes Anne Arundel and parts of Baltimore Counties.[11]

Construction-related emissions are typically associated with the exhaust from heavy equipment (e.g., backhoes, graders, etc.), delivery trucks (e.g., dump trucks, construction materials delivery), and construction worker vehicles traveling to and from the construction site. There are also emissions (i.e., dust) associated with site preparation, land clearing, and equipment traversing unpaved areas. Construction emissions are temporary in nature and generally confined to the construction site and roads used to enter and exit the construction site. Emissions of CO, NO_x, VOC, SO_x, $PM_{2.5}$, PM_{10}, as well as Greenhouse Gas Emissions (GHG) (i.e., CO_2, CH_4, N_20, and CO_{2e}) were evaluated for the Proposed Action's five-year construction period, 2025-2029.

4.1 Methodology

Emissions inventories were prepared to evaluate pollutant or pollutant precursor emissions associated with construction of the Proposed Action for years 2025 and 2027-2029 and the No Action for 2025.[12]

The Airport Construction Emissions Inventory Tool (ACEIT), developed by the Transportation Research Board (TRB) Airport Cooperative Research Program (ACRP) under Project 02-33, was used to identify the types of construction activities and equipment/vehicle activity data for the air quality analysis. For this analysis, ACEIT was also used to derive the hours of operation for off-road construction equipment and vehicle miles traveled (VMT) for on-road trucks and employee vehicles. Construction activity levels were derived in ACEIT based on MAA conceptual designs, including the known areas (square feet) associated with the site clearing and building areas, as well as preliminary project costs. The construction activity levels developed in the ACEIT model were then used to calculate emissions using emission factors obtained from OFFROAD2017 (non-road equipment) and EPA's Motor Vehicle Emissions Simulator (MOVES, Version 3). The emissions inventories were compared to NAAQS general conformity thresholds.[13]

The Proposed Action Alternative would not increase flights, passenger loads, operational procedures, or vehicular traffic. Without the proposed improvements, operations would continue to grow as there are no constraints to continued growth, i.e., the airfield, general aviation, terminal, landside, and support facilities can accommodate additional operations without improvements. There would be no difference in operational emissions between the No Action and Proposed Action Alternatives and therefore, an operational emissions analysis was not prepared.

The greenhouse gases (GHGs) inventoried were carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). As is customary for GHG emissions inventories, the results are reported in units of metric tons (MT) of carbon dioxide equivalents (CO_2e), by source, on an annual basis. The GHG emission results were converted to CO_2e values using the Global Warming Potential (GWP) values of 1 for CO_2, 28 for

[11] Maryland Department of the Environment, Air Quality Forecast, Air Quality Forecast (maryland.gov), accessed 10/11/23.
[12] The removal of LOS obstructions between the existing and new ATCT and future Taxiway F, as well as the Part 77 obstructions would occur in 2025. Construction of the Proposed Action projects (new ATCT, FAA office space, new hotel, and utility relocations) would occur from 2027 through 2029. There are no construction emissions associated with the supplemental ATCT upgrades as they are all internal to the existing ramp tower.
[13] 40 CFR § 93 – Determining Conformity of Federal Actions to State or Federal Implementation Plans, Section 153, Applicability.

CH_4, and 265 for nitrous oxide (N_2O), based on a 100-year period.[14] GWP values are relative measures of how much heat a GHG traps in the atmosphere when compared to carbon dioxide (e.g., CH_4 is 28 times as potent a GHG than CO_2). For this purpose, estimates of CH_4 and N_2O emissions were multiplied by their respective GWP values (28 for CH_4 and 265 for N_2O) to determine the CO_2e.

Social Cost of GHG

On January 9, 2023, CEQ issued interim *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change.* The guidance updates CEQ's 2016 guidance and explains how agencies should use best practices in their climate change analyses, including quantifying a project's reasonably foreseeable direct and indirect gross and net GHG emissions and monetizing the social cost of those emissions. In compliance with this guidance, the social cost of GHG (SC-GHG) emissions was calculated.

Directly following issuance of EO 13990 in 2021, the Interagency Working Group (IWG) on the SC-GHG developed a technical support document on the *Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*. Estimating the SC-GHG allows the public to understand the social cost of increasing emissions or benefits from reducing emissions which aid in the policy making process. "The SC-GHG is the monetary value of the net harm to society associated with adding a small amount of that GHG to the atmosphere in a given year. In principle, it includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. The SC-GHG, therefore, should reflect the societal value of reducing emissions of the gas in question by one ton. The marginal estimate of social costs will differ by the type of greenhouse gas (such as carbon dioxide, methane, and nitrous oxide) and by the year in which the emissions change occurs. The SC-GHGs are calculated along a baseline path and provide a measure of the marginal benefit of GHG abatement. Thus, they are the theoretically appropriate values to use when conducting benefit-cost analyses of policies that affect GHG emissions."[15]

The SC-GHG was calculated for the CO_2 equivalents of CO_2, CH_4, and N_2O emissions for the Proposed Action and No Action Alternative using the IWG recommended average discount rates of 2.5 percent, 3 percent, 5 percent and the 95th percentile estimate with the 3 percent discount rate. The discount rate considers how much weight is placed on impacts that occur in the future, with a higher discount rate assuming that the future effects are considered less significant that the present effects, and a lower discount rate assumes that future and present effects are more equally significant.

4.2 Project Schedule, Duration and Areas

Table 7 summarizes the project elements, anticipated construction duration, project area and estimated total cost. Project areas and cost are based on the Terminal C/D Connector Concept Schematic Design, March 2023.

[14] IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, pg. 87.

[15] IWG SC-GHG, *Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990, February 2021, p.9.*

Table 7
Projects, Duration, and Area

Project Element	Description	Construction Duration	Area	Cost
Tree Clearing	Clearing of 13 acres of forest area[1]	1/2025-3/2025	13 acres (566,280 SF)	$260,000
Supplemental Tower Upgrades[2]	Internal upgrades to the existing ramp tower	2026	n/a	n/a
ATCT	12-story tower and base building	1/2027-12/2028	36,016 SF	$61,000,000
Hotel	10-story, 257 room hotel	2/2027-7/2029	220,176 SF[3]	$120,700,000
C-D Connector	4-story C-D Connector base building beneath hotel, including MAA/FAA office space	2/2027-7/2029	306,909 SF[4]	$371,300,000

Notes:
[1] The tree clearing study area is 13 acres, however total tree clearing will be less than 13 acres due to proposed select tree removal or tree felling in the area east of Taxilane W. Therefore, 13 acres clearing is a conservative estimate of removal for emissions calculations. Tree clearing cost is based on a rough assumption of $20,000/acre clearing of 13 total acres.
[2] Supplemental tower upgrades will be completed in 2026, however there are no construction emissions associated with the project as it is all internal to the existing ramp tower building.
[3] Hotel area includes 168,060 SF assumed for the building space program plus an additional 52,116 SF for building allowance (50% of total program allowance) (Table 3.4-1 of Terminal C/D Connector Concept Schematic Design, March 2023).
[4] C-D Connector area includes 147,793 SF terminal space and 107,000 SF MAA office space assumed for the building space program plus an additional 52,116 SF for building allowance (50% of total program allowance) (Table 3.4-1 of Terminal C/D Connector Concept Schematic Design, March 2023).

Source: Terminal C/D Connector Concept Schematic Design, March 2023, and HNTB schedule assumptions.

4.3 ACEIT

ACEIT facilitates the modeling of emissions through user defined input of construction scenarios, project types, and overall project size inputs (i.e., cost and dimensions). Associated with the user input project types, ACEIT provides default input data for construction activities, equipment types, fuel types, size details and emission factors.

Attachment 1, ACEIT Input provides the ACEIT input summary sheets, with separate scenarios developed for each project element (tree clearing, ATCT, hotel and C-D Connector).

Scenarios

ACEIT requires project activity to be grouped by Scenario. A Scenario includes the project year, number of months, season (summer/winter), and average weather temperature inputs (average daily temperature, maximum and minimum daily temperature change). The project year and season and weather inputs are used to determine emission factors. Because ACEIT emission factors are not ultimately used to calculate construction emissions, specific project year is not relevant to the set up and weather data was not collected and default “summer” and temperature inputs were used to set up the scenarios.

Four scenarios were set up to represent the proposed improvements. Projects were assumed to occur in a single calendar year for purposes of deriving activity levels in ACEIT:

- Scenario 1: Tree Removal (3 months)
- Scenario 2: ATCT (12 months)
- Scenario 3: Hotel (12 months)
- Scenario 4: C-D Connector (12 months)

Project Type

Project types, construction activity types, fuel type and equipment were then selected for each scenario. To be conservative, all default construction activity types and diesel equipment were selected for project types, with the exception of removing site restoration and underground services for the "Site Work" project type used to represent tree clearing. The following summaries the project types selected for each scenario. Unless noted otherwise, all default construction activity types were used for each project type.

- Scenario 1: LOS and Part 77 Obstruction Tree Removal, including the following ACEIT project type, and associated construction activities were used in the model:
  - Site Work – 10,000 SF[16] (construction mobilization & layout, and site clearing – remove trees & shrubs)

- Scenario 2: ATCT, including the following ACEIT project type, and associated construction activities were used in the model:
  - Building – 100,000 SF – 10 stories[17] (concrete foundations, construction mobilization & layout, exterior wall framing, interior build-out/ finishes, roofing, security & safety systems, structural steel erection & decks)

- Scenario 3: Hotel, including the following ACEIT project type, and associated construction activities were used in the model:
  - Building – 100,000 SF – 10 stories[18] (concrete foundations, construction mobilization & layout, exterior wall framing, interior build-out/ finishes, roofing, security & safety systems, structural steel erection & decks)

- Scenario 4: C-D Connector, including the following ACEIT project type, and associated construction activities were used in the model:
  - Building – 30,000 SF. – 3 stories[19] (concrete foundations, construction mobilization & layout, exterior wall framing, interior build-out/ finishes, roofing, security & safety systems, structural steel frame)

Overall Size

The ACEIT model requires a minimal set of overall project size and characteristic data to model each project type. For the project types selected, input of estimated cost is required. Project size details was assumed in the project type selected (i.e., 10,000 SF site work or 100,000 SF building). The construction activity levels derived were then scaled up or down to represent the exact project area. For example, the hotel is assumed to be 220,000 SF. Therefore, the activity levels generated for the 100,000 SF building project type were multiplied by 2.2 to obtain estimated activity levels.

[16] Construction activity levels for "Site Work – 10,000 SF" were multiplied by 56.6 to obtain activity levels for 13 acres (566,280 SF) of tree clearing.
[17] Construction activity levels for "Building – 100,000 SF -10 stories" were multiplied by 0.36 to obtain activity levels for ATCT – 36,016 SF – 12 stories.
[18] Construction activity levels for "Building – 100,000 SF – 10 stories" were multiplied by 2.2 to obtain activity levels for hotel – 220,176 SF – 10 stories.
[19] Construction activity levels for "Building – 30,000 SF – 3 stories" were multiplied by 10.2 to obtain activity levels for C-D Connector – 220,176 SF – 4 stories.

Activity Data

ACEIT calculates activity levels for non-road equipment and on-road vehicles based on the defined scenarios and project size details. ACEIT makes the following assumptions for on-road activity:

- # employees based on the higher of two methods: (1) number of equipment and (2) multiplying the project cost in million by 11.
- Average employee travels 30 miles round-trip from home to construction site each-day.
- Average on-road material delivery truck travels 40 miles round-trip.

The non-road equipment and on-road vehicle activity data generated in ACEIT, and scaled for the exact project size is provided in ***Attachment 2, Construction Emissions Calculations***.

4.4 Construction Emissions

Proposed Action Alternative Emissions

Table 8 summarizes the Proposed Action Alternative emissions from 2025 through 2029 resulting from construction activities, as compared to the NAAQS *de minimis* thresholds of significance. As shown, the construction-related emissions are well below the applicable NAAQS thresholds for all pollutants/precursors and construction years. Construction emission calculations are provided in *Attachment 2*.

Table 8
Proposed Action Alternative Construction Emissions

Year	Pollutants (tons/year)					
	CO	**NO_x**	**VOC**	**SO_2**	**$PM_{2.5}$**	**PM_{10}**
2025	5	4	1	<0.1	0.2	0.2
2027	75	7	5	<0.1	0.3	0.1
2028	81	8	5	<0.1	0.3	0.2
2029	41	4	3	<0.1	0.2	0.1
Total	**201**	**24**	**13**	**0.1**	**1**	**0.6**
NAAQS *de minimis* threshold	-	*100*	*50*	*100*	--	-

Notes:
Although lead (Pb) is a criteria pollutant, it was not evaluated because the project would have no impacts on lead emissions.
Totals may not sum due to rounding.

Source: HNTB analysis 2023.

Table 9 depicts the construction GHG emissions on an annual basis in metric tons for all construction years.

Table 9
Proposed Action Alternative
Construction GHG Emissions

Year	CO_2e (MT/year)
2025	1,236
2027	8,557
2028	9,231
2029	4,722
Total	**23,746**

Note: MT = metric ton; CO_2e = carbon dioxide equivalent

Source: HNTB analysis 2023.

No Action Alternative Emissions

Table 10 summarizes the No Action Alternative emissions in 2025 from obstruction tree removal, as compared to the NAAQS *de minimis* thresholds of significance. As shown, the construction-related emissions are well below the applicable NAAQS thresholds for all pollutants/precursors. Construction emission calculations are provided in *Attachment 2*.

Table 10
No Action Alternative Construction Emissions

Year	Pollutants (tons/year)					
	CO	NO_x	VOC	SO_2	$PM_{2.5}$	PM_{10}
2025	5	4	1	<0.1	0.2	0.2
NAAQS *de minimis* threshold	-	*100*	*50*	*100*	--	-

Note:
Although lead (Pb) is a criteria pollutant, it was not evaluated because the project would have no impacts on lead emissions.

Source: HNTB analysis 2023.

Table 11 depicts the construction GHG emissions in metric tons for 2025.

Table 11
No Action Alternative
Construction GHG Emissions

Year	CO_2e (MT/year)
2025	1,236

Source: HNTB analysis 2023.

4.5 Social Cost of GHG Emissions

Table 12 summarizes the SC-GHG for the Proposed Action Alternative. SC-GHG is the monetary value of the net harm to society associated with adding GHG to the atmosphere in a given year. In summary, the SC-GHG peak in construction year 2028, ranging from $166,332 to $1,661,843. All SC-GHG are a result of construction activities as no operational GHG emissions are considered for the Proposed Action Alternative.

Table 12
SC-GHG for the Proposed Action Alternative

Year	MT CO2e	5% Average	3% Average	2.5% Average	3% 95th Percentile
2025	1,236	$21,056	$69,301	$102,687	$209,005
2027	8,557	$154,166	$505,023	$736,084	$1,506,190
2028	9,231	$166,332	$554,110	$803,386	$1,661,843
2029	4,722	$89,800	$288,142	$415,658	$864,216

Source: Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under EO 13990, Interagency Working Group, February 2021.

Table 13 summarizes the SC-GHG for the No Action Alternative. SC-GHG is the monetary value of the net harm to society associated with adding GHG to the atmosphere in a given year. In summary, the SC-GHG in 2025 range from $21,056 to $209,005 as a result of the construction activities associated with vegetation obstruction removal.

Table 13
SC-GHG for the No Action Alternative

Year	MT CO2e	5% Average	3% Average	2.5% Average	3% 95th Percentile
2025	1,236	$21,056	$69,301	$102,687	$209,005

Source: Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under EO 13990, Interagency Working Group, February 2021.

4.6 Avoidance, Minimization, and Mitigation Measures

There are no mitigation measures required for the project because the project-related emissions would not exceed the CAA General Conformity *de minimis* levels, and therefore there are no significant impacts.

As there are no FAA-established significance thresholds for GHG emissions, no mitigation measures are proposed. Estimated SC-GHG do not take into account actions that may be taken on the federal, state or local level to reduce GHG emissions, such as use of alternative fuel vehicles, recycling and reuse of materials, or use of sustainable building materials. Therefore, these estimates are provided for disclosure and context, and estimated costs may not actually result from the Proposed Action and No Action Alternatives.

Attachment 1:

ACEIT Input

Airport Constrcution Emission Inventory Tool (ACEIT)
Version 1.0

==========
Setup
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Study Name
BWI ATCT EA - ATCT

Study Description
tower and base building

State/County
Maryland
Anne Arundel County

Scenarios

Scenario ID	Year	Number of	Season	Average Da	Max Daily	Min Daily Temp Change (degF)
1	2027	12	Summer	50 < T <= 8	10 <= Char	10 <= Change in T < 20
2						

==========
Project
--

Scenario ID
1

Selected Project

1	Building - 1	SetSelected	

Selected Construction Activities

1	Building - 1	Concrete F	SetSelected
1	Building - 1	Constructi	SetSelected
1	Building - 1	Exterior W	SetSelected
1	Building - 1	Interior Bu	SetSelected
1	Building - 1	Roofing	SetSelected
1	Building - 1	Security &	SetSelected
1	Building - 1	Structural	SetSelected

Selected Fuel Types
1 Diesel

Selected Equipment

1	Building - 1	Concrete F	Backhoe	SetSelected
1	Building - 1	Concrete F	Concrete P	SetSelected
1	Building - 1	Concrete F	Concrete R	SetSelected
1	Building - 1	Concrete F	Excavator	SetSelected
1	Building - 1	Concrete F	Fork Truck	SetSelected
1	Building - 1	Concrete F	Tool Truck	SetSelected
1	Building - 1	Concrete F	Tractor Tra	SetSelected
1	Building - 1	Constructi	Survey Cre	SetSelected
1	Building - 1	Constructi	Tractor Tra	SetSelected
1	Building - 1	Exterior W	Fork Truck	SetSelected
1	Building - 1	Exterior W	Generator	SetSelected
1	Building - 1	Exterior W	Grout Mixe	SetSelected
1	Building - 1	Exterior W	Grout Whe	SetSelected
1	Building - 1	Exterior W	Man Lift	SetSelected
1	Building - 1	Exterior W	Tool Truck	SetSelected
1	Building - 1	Exterior W	Tractor Tra	SetSelected
1	Building - 1	Exterior W	Truck Towe	SetSelected
1	Building - 1	Interior Bu	Fork Truck	SetSelected
1	Building - 1	Interior Bu	Man Lift	SetSelected
1	Building - 1	Interior Bu	Tool Truck	SetSelected
1	Building - 1	Interior Bu	Tractor Tra	SetSelected
1	Building - 1	Roofing	High Lift	SetSelected
1	Building - 1	Roofing	Man Lift	SetSelected
1	Building - 1	Roofing	Material D	SetSelected
1	Building - 1	Roofing	Tractor Tra	SetSelected
1	Building - 1	Roofing	Truck Towe	SetSelected
1	Building - 1	Security &	High Lift	SetSelected
1	Building - 1	Security &	Tool Truck	SetSelected
1	Building - 1	Structural	90 Ton Cra	SetSelected
1	Building - 1	Structural	Concrete P	SetSelected
1	Building - 1	Structural	Concrete T	SetSelected
1	Building - 1	Structural	Fork Truck	SetSelected
1	Building - 1	Structural	Tool Truck	SetSelected
1	Building - 1	Structural	Tractor Tra	SetSelected
1	Building - 1	Structural	Trowel Ma	SetSelected
1	Building - 1	Structural	Truck Towe	SetSelected

Final Selections

1	Building - 1	Concrete F	Backhoe	Diesel	
1	Building - 1	Concrete F	Concrete P	Diesel	
1	Building - 1	Concrete F	Concrete R	Diesel	
1	Building - 1	Concrete F	Excavator	Diesel	
1	Building - 1	Concrete F	Fork Truck	Diesel	
1	Building - 1	Concrete F	Tool Truck	Diesel	
1	Building - 1	Concrete F	Tractor Tra	Diesel	
1	Building - 1	Constructio	Survey Cre	Diesel	
1	Building - 1	Constructio	Tractor Tra	Diesel	
1	Building - 1	Exterior W	Fork Truck	Diesel	
1	Building - 1	Exterior W	Generator	Diesel	
1	Building - 1	Exterior W	Grout Mixe	Diesel	
1	Building - 1	Exterior W	Grout Whe	Diesel	
1	Building - 1	Exterior W	Man Lift	Diesel	
1	Building - 1	Exterior W	Tool Truck	Diesel	
1	Building - 1	Exterior W	Tractor Tra	Diesel	
1	Building - 1	Exterior W	Truck Towe	Diesel	
1	Building - 1	Interior Bu	Fork Truck	Diesel	
1	Building - 1	Interior Bu	Man Lift	Diesel	
1	Building - 1	Interior Bu	Tool Truck	Diesel	
1	Building - 1	Interior Bu	Tractor Tra	Diesel	
1	Building - 1	Roofing	High Lift	Diesel	
1	Building - 1	Roofing	Man Lift	Diesel	
1	Building - 1	Roofing	Material D	Diesel	
1	Building - 1	Roofing	Tractor Tra	Diesel	
1	Building - 1	Roofing	Truck Towe	Diesel	
1	Building - 1	Security &	High Lift	Diesel	
1	Building - 1	Security &	Tool Truck	Diesel	
1	Building - 1	Structural !	90 Ton Cra	Diesel	
1	Building - 1	Structural !	Concrete P	Diesel	
1	Building - 1	Structural !	Concrete T	Diesel	
1	Building - 1	Structural !	Fork Truck	Diesel	
1	Building - 1	Structural !	Tool Truck	Diesel	
1	Building - 1	Structural !	Tractor Tra	Diesel	
1	Building - 1	Structural !	Trowel Ma	Diesel	
1	Building - 1	Structural !	Truck Towe	Diesel	

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Overall Size

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Scenario ID	Project	Project Size	User Input	Unit
1	Building - 1	What is the	169	$ Million(s)

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Size Detail

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ScenarioID	Project	Constructio	Default Act	Unit	User Activity Size

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Activity: Non-Road

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Scenario ID	Project	Constructio	Equipment	Fuel Type	Activity Siz	Activity Ra	Default Act	Activity Un	User Activity Data
1	Building - 1	Concrete F	Backhoe	Diesel	100000.00	0.0048	Hou	480	hours
1	Building - 1	Concrete F	Concrete P	Diesel	100000.00	0.0018	Hou	180	hours
1	Building - 1	Concrete F	Concrete R	Diesel	100000.00	0.0036	Hou	360	hours
1	Building - 1	Concrete F	Excavator	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Concrete F	Fork Truck	Diesel	100000.00	0.0048	Hou	480	hours
1	Building - 1	Concrete F	Tool Truck	Diesel	100000.00	0.0012	Hou	120	hours
1	Building - 1	Concrete F	Tractor Tra	Diesel	100000.00	0.0024	Hou	240	hours
1	Building - 1	Constructio	Survey Cre	Diesel	100000.00	0.0001	Hou	10	hours
1	Building - 1	Constructio	Tractor Tra	Diesel	100000.00	0.00004	Ho	4	hours
1	Building - 1	Exterior W	Fork Truck	Diesel	100000.00	0.0084	Hou	840	hours
1	Building - 1	Exterior W	Generator	Diesel	100000.00	0.0008	Hou	80	hours
1	Building - 1	Exterior W	Grout Mixe	Diesel	100000.00	0.0042	Hou	420	hours
1	Building - 1	Exterior W	Grout Whe	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Exterior W	Man Lift	Diesel	100000.00	0.0168	Hou	1680	hours
1	Building - 1	Exterior W	Tool Truck	Diesel	100000.00	0.0042	Hou	420	hours
1	Building - 1	Exterior W	Tractor Tra	Diesel	100000.00	0.0084	Hou	840	hours
1	Building - 1	Exterior W	Truck Towe	Diesel	100000.00	0.0008	Hou	80	hours
1	Building - 1	Interior Bu	Fork Truck	Diesel	100000.00	0.016	Hour	1600	hours
1	Building - 1	Interior Bu	Man Lift	Diesel	100000.00	0.032	Hour	3200	hours
1	Building - 1	Interior Bu	Tool Truck	Diesel	100000.00	0.016	Hour	1600	hours
1	Building - 1	Interior Bu	Tractor Tra	Diesel	100000.00	0.016	Hour	1600	hours
1	Building - 1	Roofing	High Lift	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Roofing	Man Lift	Diesel	100000.00	0.0004	Hou	40	hours
1	Building - 1	Roofing	Material D	Diesel	100000.00	0.0006	Hou	60	hours
1	Building - 1	Roofing	Tractor Tra	Diesel	100000.00	0.0004	Hou	40	hours
1	Building - 1	Roofing	Truck Towe	Diesel	100000.00	0.0012	Hou	120	hours
1	Building - 1	Security &	High Lift	Diesel	100000.00	0.008	Hour	800	hours
1	Building - 1	Security &	Tool Truck	Diesel	100000.00	0.008	Hour	800	hours
1	Building - 1	Structural !	90 Ton Cra	Diesel	100000.00	0.0024	Hou	240	hours
1	Building - 1	Structural !	Concrete P	Diesel	100000.00	0.0006	Hou	60	hours
1	Building - 1	Structural !	Concrete T	Diesel	100000.00	0.0006	Hou	60	hours
1	Building - 1	Structural !	Fork Truck	Diesel	100000.00	0.0064	Hou	640	hours
1	Building - 1	Structural !	Tool Truck	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Structural !	Tractor Tra	Diesel	100000.00	0.0036	Hou	360	hours
1	Building - 1	Structural !	Trowel Ma	Diesel	100000.00	0.0004	Hou	40	hours
1	Building - 1	Structural !	Truck Towe	Diesel	100000.00	0.0072	Hou	720	hours

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Activity: On-Road

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Scenario ID	Project	Equipment	On-road Ac	Fuel	Roadway T	Round Trip	Number of	Number of	Project Ler	Project Wi	Project Are	Building He	Open Spac	Number of	Activity Siz	Activity Ra	Default VM	User VMT
1	Building - 1	Cement M	Material D	Diesel	Urban Unr	40	--	--	--	--	100000	--	--	--	--	--	23125	
1	Building - 1	Dump Truc	Material D	Diesel	Urban Unr	40	--	--	--	--	100000	--	--	--	--	--	12333	
1	Building - 1	Passenger	Employee (	Gasoline	Urban Unr	30	1859	258	--	--	--	--	--	--	--	--	14388660	
1	Building - 1	Tractor Tra	Material D	Diesel	Urban Unr	40	--	--	--	--	100000	--	--	--	--	0.0024	2400	

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END

Airport Constrcution Emission Inventory Tool (ACEIT)
Version 1.0

==========
Setup
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Study Name
BWI ATCT EA - C-D Connector

Study Description
includes MAA offices and building allowances

State/County
Maryland
Anne Arundel County

Scenarios

Scenario ID	Year	Number of	Season	Average Da	Max Daily	Min Daily Temp Change (degF)
1	2027	12	Summer	50 < T <= 8	10 <= Chan	10 <= Change in T < 20
2						

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Project
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Scenario ID
1

Selected Project

1	Airfield Lig	SetSelected

Selected Construction Activities

1	Building - 3	Concrete F
1	Building - 3	Constructic
1	Building - 3	Exterior W
1	Building - 3	Interior Bu
1	Building - 3	Roofing
1	Building - 3	Security &
1	Building - 3	Structural S

Selected Fuel Types

1	Diesel

Selected Equipment

1	Building - 3	Concrete F	Backhoe	SetSelected
1	Building - 3	Concrete F	Concrete R	SetSelected
1	Building - 3	Concrete F	Fork Truck	SetSelected
1	Building - 3	Concrete F	Tool Truck	SetSelected
1	Building - 3	Concrete F	Tractor Tra	SetSelected
1	Building - 3	Constructic	Survey Cre	SetSelected
1	Building - 3	Constructic	Tractor Tra	SetSelected
1	Building - 3	Exterior W	Fork Truck	SetSelected
1	Building - 3	Exterior W	Generator	SetSelected
1	Building - 3	Exterior W	Man Lift	SetSelected
1	Building - 3	Exterior W	Tool Truck	SetSelected
1	Building - 3	Exterior W	Tractor Tra	SetSelected
1	Building - 3	Interior Bu	Fork Truck	SetSelected
1	Building - 3	Interior Bu	Man Lift	SetSelected
1	Building - 3	Interior Bu	Tool Truck	SetSelected
1	Building - 3	Interior Bu	Tractor Tra	SetSelected
1	Building - 3	Roofing	High Lift	SetSelected
1	Building - 3	Roofing	Man Lift (F	SetSelected
1	Building - 3	Roofing	Material D	SetSelected
1	Building - 3	Roofing	Tractor Tra	SetSelected
1	Building - 3	Security &	High Lift	SetSelected
1	Building - 3	Security &	Tool Truck	SetSelected
1	Building - 3	Structural S	90 Ton Cra	SetSelected
1	Building - 3	Structural S	Concrete P	SetSelected
1	Building - 3	Structural S	Concrete T	SetSelected
1	Building - 3	Structural S	Fork Truck	SetSelected
1	Building - 3	Structural S	Tool Truck	SetSelected
1	Building - 3	Structural S	Tractor Tra	SetSelected
1	Building - 3	Structural S	Trowel Ma	SetSelected

Final Selections

1	Building - 3	Concrete F	Backhoe	Diesel
1	Building - 3	Concrete F	Concrete R	Diesel
1	Building - 3	Concrete F	Fork Truck	Diesel
1	Building - 3	Concrete F	Tool Truck	Diesel
1	Building - 3	Concrete F	Tractor Tra	Diesel
1	Building - 3	Constructic	Survey Cre	Diesel
1	Building - 3	Constructic	Tractor Tra	Diesel
1	Building - 3	Exterior W	Fork Truck	Diesel
1	Building - 3	Exterior W	Generator	Diesel
1	Building - 3	Exterior W	Man Lift	Diesel
1	Building - 3	Exterior W	Tool Truck	Diesel
1	Building - 3	Exterior W	Tractor Tra	Diesel
1	Building - 3	Interior Bu	Fork Truck	Diesel
1	Building - 3	Interior Bu	Man Lift	Diesel
1	Building - 3	Interior Bu	Tool Truck	Diesel
1	Building - 3	Interior Bu	Tractor Tra	Diesel
1	Building - 3	Roofing	High Lift	Diesel
1	Building - 3	Roofing	Man Lift (F	Diesel
1	Building - 3	Roofing	Material D	Diesel
1	Building - 3	Roofing	Tractor Tra	Diesel
1	Building - 3	Security &	High Lift	Diesel
1	Building - 3	Security &	Tool Truck	Diesel
1	Building - 3	Structural !	90 Ton Cra	Diesel
1	Building - 3	Structural !	Concrete P	Diesel
1	Building - 3	Structural !	Concrete T	Diesel
1	Building - 3	Structural !	Fork Truck	Diesel
1	Building - 3	Structural !	Tool Truck	Diesel
1	Building - 3	Structural !	Tractor Tra	Diesel
1	Building - 3	Structural !	Trowel Ma	Diesel

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Overall Size

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Scenario ID	Project	Project Size	User Input	Unit
1	Building - 3	What is the	36.4	$ Million(s)

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Size Detail

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ScenarioID	Project	Constructic	Default Act	Unit	User Activity Size

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Activity: Non-Road

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Scenario ID	Project	Constructic	Equipment	Fuel Type	Activity Siz	Activity Ra	Default Act	Activity Un	User Activity Data
1	Building - 3	Concrete F	Backhoe	Diesel	30000.00	0.01067	Hc	320.1	hours
1	Building - 3	Concrete F	Concrete R	Diesel	30000.00	0.002	Hour	60	hours
1	Building - 3	Concrete F	Fork Truck	Diesel	30000.00	0.01067	Hc	320.1	hours
1	Building - 3	Concrete F	Tool Truck	Diesel	30000.00	0.00267	Hc	80.1	hours
1	Building - 3	Concrete F	Tractor Tra	Diesel	30000.00	0.00053	Hc	15.9	hours
1	Building - 3	Constructic	Survey Cre	Diesel	30000.00	0.00033	Hc	9.9	hours
1	Building - 3	Constructic	Tractor Tra	Diesel	30000.00	0.00013	Hc	3.9	hours
1	Building - 3	Exterior W	Fork Truck	Diesel	30000.00	0.02	Hours	600	hours
1	Building - 3	Exterior W	Generator	Diesel	30000.00	0.01	Hours	300	hours
1	Building - 3	Exterior W	Man Lift	Diesel	30000.00	0.02	Hours	600	hours
1	Building - 3	Exterior W	Tool Truck	Diesel	30000.00	0.005	Hour	150	hours
1	Building - 3	Exterior W	Tractor Tra	Diesel	30000.00	0.005	Hour	150	hours
1	Building - 3	Interior Bu	Fork Truck	Diesel	30000.00	0.08	Hours	2400	hours
1	Building - 3	Interior Bu	Man Lift	Diesel	30000.00	0.08	Hours	2400	hours
1	Building - 3	Interior Bu	Tool Truck	Diesel	30000.00	0.01	Hours	300	hours
1	Building - 3	Interior Bu	Tractor Tra	Diesel	30000.00	0.02	Hours	600	hours
1	Building - 3	Roofing	High Lift	Diesel	30000.00	0.004	Hour	120	hours
1	Building - 3	Roofing	Man Lift (F	Diesel	30000.00	0.0008	Hou	24	hours
1	Building - 3	Roofing	Material D	Diesel	30000.00	0.002	Hour	60	hours
1	Building - 3	Roofing	Tractor Tra	Diesel	30000.00	0.002	Hour	60	hours
1	Building - 3	Security &	High Lift	Diesel	30000.00	0.02667	Hc	800.1	hours
1	Building - 3	Security &	Tool Truck	Diesel	30000.00	0.00667	Hc	200.1	hours
1	Building - 3	Structural !	90 Ton Cra	Diesel	30000.00	0.01067	Hc	320.1	hours
1	Building - 3	Structural !	Concrete P	Diesel	30000.00	0.0004	Hou	12	hours
1	Building - 3	Structural !	Concrete T	Diesel	30000.00	0.0008	Hou	24	hours
1	Building - 3	Structural !	Fork Truck	Diesel	30000.00	0.00267	Hc	80.1	hours
1	Building - 3	Structural !	Tool Truck	Diesel	30000.00	0.0004	Hou	12	hours
1	Building - 3	Structural !	Tractor Tra	Diesel	30000.00	0.00133	Hc	39.9	hours
1	Building - 3	Structural !	Trowel Ma	Diesel	30000.00	0.0004	Hou	12	hours

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Activity: On-Road

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Scenario ID	Project	Equipment	On-road Ac	Fuel	Roadway T	Round Trip	Number of	Number of	Project Le	Project Wi	Project Are	Building He	Open Spac	Number of	Activity Siz	Activity Ra	Default VM	User VMT
1	Building - 3	Cement Mi	Material D	Diesel	Urban Unr	40	--	--	--	--	30000	--	--	--	--	--	6938	
1	Building - 3	Dump Truc	Material D	Diesel	Urban Unr	40	--	--	--	--	30000	--	--	--	--	--	3700	
1	Building - 3	Passenger	Employee (	Gasoline	Urban Unr	30	400.4	258	--	--	--	--	--	--	--	--	3099096	
1	Building - 3	Tractor Tra	Material D	Diesel	Urban Unr	40	--	--	--	--	30000	--	--	--	--	0.00053	159	

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END

Airport Constrcution Emission Inventory Tool (ACEIT)
Version 1.0

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Setup
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Study Name
BWI ATCT EA - Hotel

Study Description
Hotel - 10 stories

State/County
Maryland
Anne Arundel County

Scenarios

Scenario ID	Year	Number of	Season	Average Da	Max Daily ˙	Min Daily Temp Change (degF)
1	2027	12	Summer	50 < T <= 8	10 <= Char	10 <= Change in T < 20
2						

==========
Project
--

Scenario ID
1

Selected Project

1	Building - 1	SetSelected	

Selected Construction Activities

1	Building - 1	Concrete F	SetSelected
1	Building - 1	Constructi	SetSelected
1	Building - 1	Exterior W	SetSelected
1	Building - 1	Interior Bu	SetSelected
1	Building - 1	Roofing	SetSelected
1	Building - 1	Security &	SetSelected
1	Building - 1	Structural	SetSelected

Selected Fuel Types
1 Diesel

Selected Equipment

1	Building - 1	Concrete F	Backhoe	SetSelected
1	Building - 1	Concrete F	Concrete P	SetSelected
1	Building - 1	Concrete F	Concrete R	SetSelected
1	Building - 1	Concrete F	Excavator	SetSelected
1	Building - 1	Concrete F	Fork Truck	SetSelected
1	Building - 1	Concrete F	Tool Truck	SetSelected
1	Building - 1	Concrete F	Tractor Tra	SetSelected
1	Building - 1	Constructi	Survey Cre	SetSelected
1	Building - 1	Constructi	Tractor Tra	SetSelected
1	Building - 1	Exterior W	Fork Truck	SetSelected
1	Building - 1	Exterior W	Generator	SetSelected
1	Building - 1	Exterior W	Grout Mixe	SetSelected
1	Building - 1	Exterior W	Grout Whe	SetSelected
1	Building - 1	Exterior W	Man Lift	SetSelected
1	Building - 1	Exterior W	Tool Truck	SetSelected
1	Building - 1	Exterior W	Tractor Tra	SetSelected
1	Building - 1	Exterior W	Truck Towe	SetSelected
1	Building - 1	Interior Bu	Fork Truck	SetSelected
1	Building - 1	Interior Bu	Man Lift	SetSelected
1	Building - 1	Interior Bu	Tool Truck	SetSelected
1	Building - 1	Interior Bu	Tractor Tra	SetSelected
1	Building - 1	Roofing	High Lift	SetSelected
1	Building - 1	Roofing	Man Lift	SetSelected
1	Building - 1	Roofing	Material D	SetSelected
1	Building - 1	Roofing	Tractor Tra	SetSelected
1	Building - 1	Roofing	Truck Towe	SetSelected
1	Building - 1	Security &	High Lift	SetSelected
1	Building - 1	Security &	Tool Truck	SetSelected
1	Building - 1	Structural	90 Ton Cra	SetSelected
1	Building - 1	Structural	Concrete P	SetSelected
1	Building - 1	Structural	Concrete T	SetSelected
1	Building - 1	Structural	Fork Truck	SetSelected
1	Building - 1	Structural	Tool Truck	SetSelected
1	Building - 1	Structural	Tractor Tra	SetSelected
1	Building - 1	Structural	Trowel Ma	SetSelected
1	Building - 1	Structural	Truck Towe	SetSelected

Final Selections

1	Building - 1	Concrete F	Backhoe	Diesel	
1	Building - 1	Concrete F	Concrete P	Diesel	
1	Building - 1	Concrete F	Concrete R	Diesel	
1	Building - 1	Concrete F	Excavator	Diesel	
1	Building - 1	Concrete F	Fork Truck	Diesel	
1	Building - 1	Concrete F	Tool Truck	Diesel	
1	Building - 1	Concrete F	Tractor Tra	Diesel	
1	Building - 1	Constructio	Survey Cre	Diesel	
1	Building - 1	Constructio	Tractor Tra	Diesel	
1	Building - 1	Exterior W	Fork Truck	Diesel	
1	Building - 1	Exterior W	Generator	Diesel	
1	Building - 1	Exterior W	Grout Mixe	Diesel	
1	Building - 1	Exterior W	Grout Whe	Diesel	
1	Building - 1	Exterior W	Man Lift	Diesel	
1	Building - 1	Exterior W	Tool Truck	Diesel	
1	Building - 1	Exterior W	Tractor Tra	Diesel	
1	Building - 1	Exterior W	Truck Towe	Diesel	
1	Building - 1	Interior Bu	Fork Truck	Diesel	
1	Building - 1	Interior Bu	Man Lift	Diesel	
1	Building - 1	Interior Bu	Tool Truck	Diesel	
1	Building - 1	Interior Bu	Tractor Tra	Diesel	
1	Building - 1	Roofing	High Lift	Diesel	
1	Building - 1	Roofing	Man Lift	Diesel	
1	Building - 1	Roofing	Material D	Diesel	
1	Building - 1	Roofing	Tractor Tra	Diesel	
1	Building - 1	Roofing	Truck Towe	Diesel	
1	Building - 1	Security &	High Lift	Diesel	
1	Building - 1	Security &	Tool Truck	Diesel	
1	Building - 1	Structural !	90 Ton Cra	Diesel	
1	Building - 1	Structural !	Concrete P	Diesel	
1	Building - 1	Structural !	Concrete T	Diesel	
1	Building - 1	Structural !	Fork Truck	Diesel	
1	Building - 1	Structural !	Tool Truck	Diesel	
1	Building - 1	Structural !	Tractor Tra	Diesel	
1	Building - 1	Structural !	Trowel Ma	Diesel	
1	Building - 1	Structural !	Truck Towe	Diesel	

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Overall Size

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Scenario ID	Project	Project Size	User Input	Unit
1	Building - 1	What is the	54.9	$ Million(s)

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Size Detail

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ScenarioID	Project	Constructio	Default Act	Unit	User Activity Size

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Activity: Non-Road

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Scenario ID	Project	Constructio	Equipment	Fuel Type	Activity Siz	Activity Ra	Default Act	Activity Un	User Activity Data
1	Building - 1	Concrete F	Backhoe	Diesel	100000.00	0.0048	Hou	480	hours
1	Building - 1	Concrete F	Concrete P	Diesel	100000.00	0.0018	Hou	180	hours
1	Building - 1	Concrete F	Concrete R	Diesel	100000.00	0.0036	Hou	360	hours
1	Building - 1	Concrete F	Excavator	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Concrete F	Fork Truck	Diesel	100000.00	0.0048	Hou	480	hours
1	Building - 1	Concrete F	Tool Truck	Diesel	100000.00	0.0012	Hou	120	hours
1	Building - 1	Concrete F	Tractor Tra	Diesel	100000.00	0.0024	Hou	240	hours
1	Building - 1	Constructio	Survey Cre	Diesel	100000.00	0.0001	Hou	10	hours
1	Building - 1	Constructio	Tractor Tra	Diesel	100000.00	0.00004	Ho	4	hours
1	Building - 1	Exterior W	Fork Truck	Diesel	100000.00	0.0084	Hou	840	hours
1	Building - 1	Exterior W	Generator	Diesel	100000.00	0.0008	Hou	80	hours
1	Building - 1	Exterior W	Grout Mixe	Diesel	100000.00	0.0042	Hou	420	hours
1	Building - 1	Exterior W	Grout Whe	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Exterior W	Man Lift	Diesel	100000.00	0.0168	Hou	1680	hours
1	Building - 1	Exterior W	Tool Truck	Diesel	100000.00	0.0042	Hou	420	hours
1	Building - 1	Exterior W	Tractor Tra	Diesel	100000.00	0.0084	Hou	840	hours
1	Building - 1	Exterior W	Truck Towe	Diesel	100000.00	0.0008	Hou	80	hours
1	Building - 1	Interior Bu	Fork Truck	Diesel	100000.00	0.016	Hour	1600	hours
1	Building - 1	Interior Bu	Man Lift	Diesel	100000.00	0.032	Hour	3200	hours
1	Building - 1	Interior Bu	Tool Truck	Diesel	100000.00	0.016	Hour	1600	hours
1	Building - 1	Interior Bu	Tractor Tra	Diesel	100000.00	0.016	Hour	1600	hours
1	Building - 1	Roofing	High Lift	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Roofing	Man Lift	Diesel	100000.00	0.0004	Hou	40	hours
1	Building - 1	Roofing	Material D	Diesel	100000.00	0.0006	Hou	60	hours
1	Building - 1	Roofing	Tractor Tra	Diesel	100000.00	0.0004	Hou	40	hours
1	Building - 1	Roofing	Truck Towe	Diesel	100000.00	0.0012	Hou	120	hours
1	Building - 1	Security &	High Lift	Diesel	100000.00	0.008	Hour	800	hours
1	Building - 1	Security &	Tool Truck	Diesel	100000.00	0.008	Hour	800	hours
1	Building - 1	Structural !	90 Ton Cra	Diesel	100000.00	0.0024	Hou	240	hours
1	Building - 1	Structural !	Concrete P	Diesel	100000.00	0.0006	Hou	60	hours
1	Building - 1	Structural !	Concrete T	Diesel	100000.00	0.0006	Hou	60	hours
1	Building - 1	Structural !	Fork Truck	Diesel	100000.00	0.0064	Hou	640	hours
1	Building - 1	Structural !	Tool Truck	Diesel	100000.00	0.0016	Hou	160	hours
1	Building - 1	Structural !	Tractor Tra	Diesel	100000.00	0.0036	Hou	360	hours
1	Building - 1	Structural !	Trowel Ma	Diesel	100000.00	0.0004	Hou	40	hours
1	Building - 1	Structural !	Truck Towe	Diesel	100000.00	0.0072	Hou	720	hours

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Activity: On-Road

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Scenario ID	Project	Equipment	On-road Ac	Fuel	Roadway T	Round Trip	Number of	Number of	Project Ler	Project Wi	Project Are	Building He	Open Spac	Number of	Activity Siz	Activity Ra	Default VM	User VMT
1	Building - 1	Cement M	Material D	Diesel	Urban Unr	40	--	--	--	--	100000	--	--	--	--	--		23125
1	Building - 1	Dump Truc	Material D	Diesel	Urban Unr	40	--	--	--	--	100000	--	--	--	--	--		12333
1	Building - 1	Passenger	Employee (	Gasoline	Urban Unr	30	603.9	258	--	--	--	--	--	--	--	--		4674186
1	Building - 1	Tractor Tra	Material D	Diesel	Urban Unr	40	--	--	--	--	100000	--	--	--	--		0.0024	2400

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END

Airport Constrcution Emission Inventory Tool (ACEIT)
Version 1.0

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Setup
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Study Name
BWI ATCT EA - Enabling Project

Study Description
Existing and Future ATCT LOS obstruction removal and Part 77 obstruction removal

State/County
Maryland
Anne Arundel County

Scenarios

Scenario ID	Year	Number of	Season	Average Da	Max Daily	Min Daily Temp Change (degF)
1	2025	3	Winter	30 < T <= 5	10 <= Chan	10 <= Change in T < 20
2						

==========
Project
--

Scenario ID
1

Selected Project

1	Terminal A	SetSelected

Selected Construction Activities

1	Site Work - Constructio	SetSelected
1	Site Work - Site Clearir	SetSelected

Selected Fuel Types

1	Diesel

Selected Equipment

1	Site Work - Constructio	Survey Cre	SetSelected
1	Site Work - Site Clearir	Bulldozer	SetSelected
1	Site Work - Site Clearir	Chain Saws	SetSelected
1	Site Work - Site Clearir	Flat Bed or	SetSelected
1	Site Work - Site Clearir	Front Load	SetSelected
1	Site Work - Site Clearir	Grub the si	SetSelected
1	Site Work - Site Clearir	Log Chippe	SetSelected
1	Site Work - Site Clearir	Mulcher	SetSelected
1	Site Work - Site Clearir	Ten Wheel	SetSelected
1	Site Work - Site Clearir	Tractor	SetSelected

Final Selections

1	Site Work - Constructio	Survey Cre	Diesel
1	Site Work - Site Clearir	Bulldozer	Diesel
1	Site Work - Site Clearir	Chain Saws	Diesel
1	Site Work - Site Clearir	Flat Bed or	Diesel
1	Site Work - Site Clearir	Front Load	Diesel
1	Site Work - Site Clearir	Grub the si	Diesel
1	Site Work - Site Clearir	Log Chippe	Diesel
1	Site Work - Site Clearir	Mulcher	Diesel
1	Site Work - Site Clearir	Ten Wheel	Diesel
1	Site Work - Site Clearir	Tractor	Diesel

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Overall Size
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Scenario ID	Project	Project Size	User Input	Unit
1	Site Work -	What is the	0.005	$ Million(s)

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Size Detail
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ScenarioID	Project	Constructio	Default Act	Unit	User Activity Size

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Activity: Non-Road

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Scenario ID	Project	Construction	Equipment	Fuel Type	Activity Size	Activity Ra	Default Act	Activity Un	User Activity Data
1	Site Work -	Construction	Survey Cre	Diesel	10000.00 S	0.001	Hour	10	hours
1	Site Work -	Site Clearir	Bulldozer	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Chain Saws	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Flat Bed or	Diesel	10000.00 S	0.008	Hour	80	hours
1	Site Work -	Site Clearir	Front Load	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Grub the si	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Log Chippe	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Mulcher	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Ten Wheel	Diesel	10000.00 S	0.004	Hour	40	hours
1	Site Work -	Site Clearir	Tractor	Diesel	10000.00 S	0.008	Hour	80	hours

==========

Activity: On-Road

--

Scenario ID	Project	Equipment	On-road Ac	Fuel	Roadway T	Round Trip	Number of	Number of	Project Ler	Project Wi	Project Are	Building He	Open Spac	Number of	Activity Siz	Activity Ra	Default VM	User VMT
1	Site Work -	Dump Truc	Material Di	Diesel	Urban Unr	40	--	--	--	--	10000	--	--	--	--	--	1233	
1	Site Work -	Passenger	Employee (	Gasoline	Urban Unr	30	0.055	65	--	--	--	--	--	--	--	--	107	
1	Site Work -	Tractor Tra	Material Di	Diesel	Urban Unr	40	--	--	--	--	--	--	--	--	--	--	0	

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END

Attachment 2:

Construction Emissions Calculations

Tree Removal Non-Road Emissions Calculations

				x 56.6			OFFROAD2017 EF (g/HP-hr)												Emission Calc (tons)										
ACEIT Equipment	**OFFROAD2017**	**HP**	**LF**	**Activity Data (hrs)**	**Total Hours**	**Year**	**Low HP**	**High HP**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**
Survey Crew Trucks	Off-Highway Trucks	376	0.38	10	566	2025	300	600	0.211	0.177	1.086	1.174	0.005	0.038	0.035	528.587	0.021	0.004	0.02	0.02	0.10	0.10	0.00	0.00	0.00	47.12	0.00	0.00
Bulldozer	Rubber Tired Dozers	367	0.4	40	2264	2025	300	600	0.441	0.371	3.506	2.902	0.005	0.154	0.142	532.172	0.022	0.004	0.16	0.14	1.28	1.06	0.00	0.06	0.05	194.97	0.01	0.00
Chain Saws	Other General Industrial Equipment	35	0.34	40	2264	2025	25	50	0.585	0.491	3.713	4.675	0.005	0.136	0.125	588.026	0.024	0.005	0.02	0.01	0.11	0.14	0.00	0.00	0.00	17.46	0.00	0.00
Flat Bed or Dump Trucks	Off-Highway Trucks	376	0.38	80	4528	2025	300	600	0.211	0.177	1.086	1.174	0.005	0.038	0.035	528.587	0.021	0.004	0.15	0.13	0.77	0.84	0.00	0.03	0.02	376.96	0.01	0.00
Front Loader	Tractors/Loaders/Backhoes	84	0.37	40	2264	2025	75	100	0.233	0.196	2.01	3.482	0.005	0.077	0.071	529.863	0.021	0.004	0.02	0.02	0.16	0.27	0.00	0.01	0.01	41.10	0.00	0.00
Grub the site down 2'-0	Graders	148	0.41	40	2264	2025	100	175	0.404	0.34	2.859	3.419	0.005	0.159	0.146	531.194	0.022	0.004	0.06	0.05	0.43	0.52	0.00	0.02	0.02	80.44	0.00	0.00
Log Chipper	Off-Highway Trucks	376	0.38	40	2264	2025	300	600	0.211	0.177	1.086	1.174	0.005	0.038	0.035	528.587	0.021	0.004	0.08	0.06	0.39	0.42	0.00	0.01	0.01	188.48	0.01	0.00
Mulcher	Other General Industrial Equipment	35	0.34	40	2264	2025	25	50	0.585	0.491	3.713	4.675	0.005	0.136	0.125	588.026	0.024	0.005	0.02	0.01	0.11	0.14	0.00	0.00	0.00	17.46	0.00	0.00
Ten Wheelers	Off-Highway Trucks	376	0.38	40	2264	2025	300	600	0.211	0.177	1.086	1.174	0.005	0.038	0.035	528.587	0.021	0.004	0.08	0.06	0.39	0.42	0.00	0.01	0.01	188.48	0.01	0.00
Tractor	Tractors/Loaders/Backhoes	84	0.37	80	4528	2025	75	100	0.233	0.196	2.01	3.482	0.005	0.077	0.071	529.863	0.021	0.004	0.04	0.03	0.31	0.54	0.00	0.01	0.01	82.20	0.00	0.00
																			0.63	**0.53**	**4.05**	**4.45**	**0.01**	**0.16**	**0.15**	**1234.67**	**0.05**	**0.01**

Tree Removal On-Road Emissions Calculations

					x 56.6			MOVES3 Emission Factors, g/mile (calendar year)									Emission Calc (tons)								
Equipment	MOVES3 Vehicle	On-road Activity	Fuel Type	VMT	Total VMT (S	Year	Total HC	Exhaust CO	Exhaust NOx	Exhaust PM2.5	Brakewea r PM2.5	Tirewear PM2.5	CO2	CH4	N2O	Total HC	Exhaust CO	Exhaust NOx	Exhaust PM2.5	Brakewea r PM2.5	Tirewear PM2.5	CO2	CH4	N2O
Dump Truck Subbase Mat	Heavy-duty vehicle	Material Delivery	Diesel	1233	69787.8	2025	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.013	0.122	0.201	0.003	0.001	0.000	120.599	0.001	0.003
Passenger Car	Light-duty trucks, g	Employee Commute	Gasoline	107	6056.2	2025	0.207	3.501	0.145	0.005	0.003	0.001	386.3913	0.0079	0.0012	0.001	0.023	0.001	0.000	0.000	0.000	2.579	0.000	0.000
																0.014	0.145	0.202	0.003	0.001	0.000	123.179	0.001	0.003

Notes:

CH4 and N2O emission factors based on 2020 calendar year, EPA Inventory of US GHG Emissions and Sinks, 2022.

CO2 based on typical emissions/gallon fuel (Gasoline: 8,887 grams/gallon, Diesel: 10,190 grams/gallon), EPA Office of Transportation and Air Quality, EPA-420-F-23-014, June 2023.

Utilized average light-duty vehicle fuel efficiency in 2020 of 23 mpg

Utilized average Heavy duty trucks (semi-truck) fuel efficiency of 6.5 mpg

ATCT Non-Road Emission Calculations

				x 0.36			OFFROAD2017 EF (g/HP-hr)											Emission Calc (tons)									
ACEIT Equipment	**OFFROAD2017 Equipment**	**HP**	**LF**	**Activity Data (hrs)**	**Total Hours**	**Year**	**Low HP**	**High HP**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**
Backhoe	Tractors/Loaders/Backhoes	84	0.37	480	172.8	2027	75	100	0.211	0.177	1.807	3.487	0.005	0.054	0.05	529.618	0.021	0.004	0.001	0.001	0.011	0.021	0.000	0.000	0.000	3.135	0.000	0.000
Concrete Pump	Pumps	11	0.74	180	64.8	2027	0	25	0.683	0.565	4.288	2.986	0.008	0.173	0.16	568.297	0.023	0.005	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.330	0.000	0.000
Concrete Ready Mix Trucks	Off-Highway Trucks	376	0.38	360	129.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.004	0.004	0.020	0.024	0.000	0.001	0.001	10.798	0.000	0.000
Excavator	Excavators	36	0.38	160	57.6	2027	25	50	0.45	0.378	3.367	4.216	0.005	0.089	0.082	587.394	0.024	0.005	0.000	0.000	0.003	0.004	0.000	0.000	0.000	0.510	0.000	0.000
Fork Truck	Forklifts	82	0.2	480	172.8	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.001	0.001	0.007	0.011	0.000	0.000	0.000	1.646	0.000	0.000
Tool Truck	Off-Highway Trucks	376	0.38	120	43.2	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.001	0.001	0.007	0.008	0.000	0.000	0.000	3.599	0.000	0.000
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	240	86.4	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.003	0.002	0.013	0.016	0.000	0.000	0.000	7.199	0.000	0.000
Survey Crew Trucks	Off-Highway Trucks	376	0.38	10	3.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.300	0.000	0.000
Tractor Trailers Temp Fac.	Off-Highway Trucks	376	0.38	4	1.44	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120	0.000	0.000
Fork Truck	Forklifts	82	0.2	840	302.4	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.001	0.001	0.012	0.020	0.000	0.001	0.000	2.881	0.000	0.000
Generator	Generator Sets	14	0.74	80	28.8	2027	0	25	0.65	0.537	4.305	2.852	0.008	0.172	0.158	568.306	0.023	0.005	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.187	0.000	0.000
Grout Mixer	Other General Industrial Equipment	35	0.34	420	151.2	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.001	0.001	0.007	0.009	0.000	0.000	0.000	1.166	0.000	0.000
Grout Wheel Truck	Off-Highway Trucks	376	0.38	160	57.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.002	0.002	0.009	0.011	0.000	0.000	0.000	4.799	0.000	0.000
Man Lift	Other General Industrial Equipment	35	0.34	1680	604.8	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.004	0.003	0.028	0.036	0.000	0.001	0.001	4.664	0.000	0.000
Tool Truck	Off-Highway Trucks	376	0.38	420	151.2	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.005	0.004	0.023	0.028	0.000	0.001	0.001	12.598	0.001	0.000
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	840	302.4	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.010	0.008	0.046	0.056	0.000	0.002	0.001	25.195	0.001	0.000
Truck Tower (Mantiwoc type)	Off-Highway Trucks	376	0.38	80	28.8	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.001	0.001	0.004	0.005	0.000	0.000	0.000	2.400	0.000	0.000
Fork Truck	Forklifts	82	0.2	1600	576	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.003	0.002	0.022	0.037	0.000	0.001	0.001	5.488	0.000	0.000
Man Lift	Other General Industrial Equipment	35	0.34	3200	1152	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.008	0.007	0.053	0.069	0.000	0.001	0.001	8.884	0.000	0.000
Tool Truck	Off-Highway Trucks	376	0.38	1600	576	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.019	0.016	0.088	0.107	0.000	0.003	0.003	47.991	0.002	0.000
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	1600	576	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.019	0.016	0.088	0.107	0.000	0.003	0.003	47.991	0.002	0.000
High Lift	Other General Industrial Equipment	35	0.34	160	57.6	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.000	0.000	0.003	0.003	0.000	0.000	0.000	0.444	0.000	0.000
Man Lift	Other General Industrial Equipment	35	0.34	40	14.4	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.111	0.000	0.000
Material Deliveries	Off-Highway Trucks	376	0.38	60	21.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.001	0.001	0.003	0.004	0.000	0.000	0.000	1.800	0.000	0.000
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	40	14.4	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.000	0.000	0.002	0.003	0.000	0.000	0.000	1.200	0.000	0.000
Truck Tower (Mantiwoc type)	Off-Highway Trucks	376	0.38	120	43.2	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.001	0.001	0.007	0.008	0.000	0.000	0.000	3.599	0.000	0.000
High Lift	Other General Industrial Equipment	35	0.34	800	288	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.002	0.002	0.013	0.017	0.000	0.000	0.000	2.221	0.000	0.000
Tool Truck	Off-Highway Trucks	376	0.38	800	288	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.010	0.008	0.044	0.053	0.000	0.002	0.001	23.996	0.001	0.000
90 Ton Crane	Cranes	367	0.29	240	86.4	2027	300	600	0.232	0.195	1.748	1.629	0.005	0.072	0.066	527.455	0.021	0.004	0.002	0.002	0.018	0.017	0.000	0.001	0.001	5.346	0.000	0.000
Concrete Pump	Pumps	11	0.74	60	21.6	2027	0	25	0.683	0.565	4.288	2.986	0.008	0.173	0.16	568.297	0.023	0.005	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.110	0.000	0.000
Concrete Truck	Off-Highway Trucks	376	0.38	60	21.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.001	0.001	0.003	0.004	0.000	0.000	0.000	1.800	0.000	0.000
Fork Truck	Forklifts	82	0.2	640	230.4	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.001	0.001	0.009	0.015	0.000	0.000	0.000	2.195	0.000	0.000
Tool Truck	Off-Highway Trucks	376	0.38	160	57.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.002	0.002	0.009	0.011	0.000	0.000	0.000	4.799	0.000	0.000
Tractor Trailer- Steel Deliveries	Off-Highway Trucks	376	0.38	360	129.6	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.004	0.004	0.020	0.024	0.000	0.001	0.001	10.798	0.000	0.000
Trowel Machine	Other General Industrial Equipment	35	0.34	40	14.4	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.111	0.000	0.000
Truck Tower (Mantiwoc type)	Off-Highway Trucks	376	0.38	720	259.2	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.009	0.007	0.039	0.048	0.000	0.001	0.001	21.596	0.001	0.000
																			0.119	**0.100**	**0.616**	**0.783**	**0.003**	**0.021**	**0.020**	**272.011**	**0.011**	**0.002**

ATCT On-Road Emission Calculations

					x 0.36		MOVES3 Emission Factors, g/mile (calendar year)									Emission Calc (tons)								
								Exhaust	Exhaust	Exhaust	Brakewear	Tirewear					Exhaust	Exhaust	Exhaust	Brakewear	Tirewear			
Equipment	**MOVES3 Vehicle**	**On-road Activity**	**Fuel Type**	**VMT**	**Total VMT (Scaled)**	**Year**	**Total HC**	**CO**	**NOx**	**PM2.5**	**PM2.5**	**PM2.5**	**CO2**	**CH4**	**N2O**	**Total HC**	**CO**	**NOx**	**PM2.5**	**PM2.5**	**PM2.5**	**CO2**	**CH4**	**N2O**
Cement Mixer	Heavy-duty vehicles, diesel	Material Delivery	Diesel	23125	8325	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.002	0.015	0.024	0.000	0.000	0.000	14.386	0.000	0.000
Dump Truck Subbase Material	Heavy-duty vehicles, diesel	Material Delivery	Diesel	12333	4439.88	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.001	0.008	0.013	0.000	0.000	0.000	7.672	0.000	0.000
Passenger Car	Light-duty trucks, gasoline	Employee Commute	Gasoline	14388660	5179917.6	2027	0.207	3.501	0.145	0.005	0.003	0.001	386.3913	0.0079	0.0012	1.182	19.990	0.828	0.029	0.017	0.006	2206.248	0.045	0.007
Tractor Trailer	Heavy-duty vehicles, diesel	Material Delivery	Diesel	2400	864	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.000	0.002	0.002	0.000	0.000	0.000	1.493	0.000	0.000
																1.184	**20.014**	**0.867**	**0.029**	**0.017**	**0.006**	**2229.800**	**0.045**	**0.007**

Notes:
CH4 and N2O emission factors based on 2020 calendar year, EPA Inventory of US GHG Emissions and Sinks, 2022.
CO2 based on typical emissions/gallon fuel (Gasoline: 8,887 grams/gallon, Diesel: 10,190 grams/gallon), EPA Office of Transportation and Air Quality, EPA-420-F-23-014, June 2023.
Utilized average light-duty vehicle fuel efficiency in 2020 of 23 mpg
Utilized average Heavy duty trucks (semi-truck) fuel efficiency of 6.5 mpg

Hotel Non-Road Emissions Calculations

				x 2.2			OFFROAD2017 EF (g/HP-hr)												Emission Calc (tons)									
ACEIT Equipment	**OFFROAD2017 Equipment**	**HP**	**LF**	**Activity Data (hrs)**	**Total Hours**	**Year**	**Low HP**	**High HP**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**
Backhoe	Tractors/Loaders/Backhoes	84	0.37	480	1056	2027	75	100	0.211	0.177	1.807	3.487	0.005	0.054	0.05	529.618	0.021	0.004	0.008	0.006	0.065	0.126	0.000	0.002	0.002	19.161	0.001	0.000
Concrete Pump	Pumps	11	0.74	180	396	2027	0	25	0.683	0.565	4.288	2.986	0.008	0.173	0.16	568.297	0.023	0.005	0.002	0.002	0.015	0.011	0.000	0.001	0.001	2.019	0.000	0.000
Concrete Ready Mix Trucks	Off-Highway Trucks	376	0.38	360	792	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.026	0.022	0.120	0.147	0.001	0.004	0.004	65.988	0.003	0.000
Excavator	Excavators	36	0.38	160	352	2027	25	50	0.45	0.378	3.367	4.216	0.005	0.089	0.082	587.394	0.024	0.005	0.002	0.002	0.018	0.022	0.000	0.000	0.000	3.118	0.000	0.000
Fork Truck	Forklifts	82	0.2	480	1056	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.005	0.004	0.041	0.068	0.000	0.002	0.002	10.062	0.000	0.000
Tool Truck	Off-Highway Trucks	376	0.38	120	264	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.009	0.007	0.040	0.049	0.000	0.001	0.001	21.996	0.001	0.000
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	240	528	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.017	0.015	0.080	0.098	0.000	0.003	0.003	43.992	0.002	0.000
Survey Crew Trucks	Off-Highway Trucks	376	0.38	10	22	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.001	0.001	0.003	0.004	0.000	0.000	0.000	1.833	0.000	0.000
Tractor Trailers Temp Fac.	Off-Highway Trucks	376	0.38	4	8.8	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.733	0.000	0.000
Fork Truck	Forklifts	82	0.2	840	1848	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.009	0.008	0.072	0.119	0.000	0.003	0.003	17.608	0.001	0.000
Generator	Generator Sets	14	0.74	80	176	2027	0	25	0.65	0.537	4.305	2.852	0.008	0.172	0.158	568.306	0.023	0.005	0.001	0.001	0.009	0.006	0.000	0.000	0.000	1.142	0.000	0.000
Grout Mixer	Other General Industrial Equipment	35	0.34	420	924	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.006	0.005	0.043	0.056	0.000	0.001	0.001	7.126	0.000	0.000
Grout Wheel Truck	Off-Highway Trucks	376	0.38	160	352	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.012	0.010	0.053	0.065	0.000	0.002	0.002	29.328	0.001	0.000
Man Lift	Other General Industrial Equipment	35	0.34	1680	3696	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.025	0.021	0.171	0.223	0.000	0.005	0.004	28.504	0.001	0.000
Tool Truck	Off-Highway Trucks	376	0.38	420	924	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.031	0.026	0.140	0.172	0.001	0.005	0.005	76.986	0.003	0.001
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	840	1848	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.061	0.051	0.281	0.343	0.001	0.010	0.009	153.972	0.006	0.001
Truck Tower (Mantiwoc type)	Off-Highway Trucks	376	0.38	80	176	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.006	0.005	0.027	0.033	0.000	0.001	0.001	14.664	0.001	0.000
Fork Truck	Forklifts	82	0.2	1600	3520	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.017	0.015	0.137	0.227	0.000	0.006	0.005	33.540	0.001	0.000
Man Lift	Other General Industrial Equipment	35	0.34	3200	7040	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.048	0.040	0.326	0.425	0.000	0.009	0.008	54.293	0.002	0.000
Tool Truck	Off-Highway Trucks	376	0.38	1600	3520	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.116	0.098	0.535	0.654	0.003	0.019	0.017	293.280	0.012	0.002
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	1600	3520	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.116	0.098	0.535	0.654	0.003	0.019	0.017	293.280	0.012	0.002
High Lift	Other General Industrial Equipment	35	0.34	160	352	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.002	0.002	0.016	0.021	0.000	0.000	0.000	2.715	0.000	0.000
Man Lift	Other General Industrial Equipment	35	0.34	40	88	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.001	0.001	0.004	0.005	0.000	0.000	0.000	0.679	0.000	0.000
Material Deliveries	Off-Highway Trucks	376	0.38	60	132	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.004	0.004	0.020	0.025	0.000	0.001	0.001	10.998	0.000	0.000
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	40	88	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.003	0.002	0.013	0.016	0.000	0.000	0.000	7.332	0.000	0.000
Truck Tower (Mantiwoc type)	Off-Highway Trucks	376	0.38	120	264	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.009	0.007	0.040	0.049	0.000	0.001	0.001	21.996	0.001	0.000
High Lift	Other General Industrial Equipment	35	0.34	800	1760	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.012	0.010	0.081	0.106	0.000	0.002	0.002	13.573	0.001	0.000
Tool Truck	Off-Highway Trucks	376	0.38	800	1760	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.058	0.049	0.267	0.327	0.001	0.009	0.009	146.640	0.006	0.001
90 Ton Crane	Cranes	367	0.29	240	528	2027	300	600	0.232	0.195	1.748	1.629	0.005	0.072	0.066	527.455	0.021	0.004	0.014	0.012	0.108	0.101	0.000	0.004	0.004	32.673	0.001	0.000
Concrete Pump	Pumps	11	0.74	60	132	2027	0	25	0.683	0.565	4.288	2.986	0.008	0.173	0.16	568.297	0.023	0.005	0.001	0.001	0.005	0.004	0.000	0.000	0.000	0.673	0.000	0.000
Concrete Truck	Off-Highway Trucks	376	0.38	60	132	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.004	0.004	0.020	0.025	0.000	0.001	0.001	10.998	0.000	0.000
Fork Truck	Forklifts	82	0.2	640	1408	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.007	0.006	0.055	0.091	0.000	0.002	0.002	13.416	0.001	0.000
Tool Truck	Off-Highway Trucks	376	0.38	160	352	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.012	0.010	0.053	0.065	0.000	0.002	0.002	29.328	0.001	0.000
Tractor Trailer- Steel Deliveries	Off-Highway Trucks	376	0.38	360	792	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.026	0.022	0.120	0.147	0.001	0.004	0.004	65.988	0.003	0.000
Trowel Machine	Other General Industrial Equipment	35	0.34	40	88	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.001	0.001	0.004	0.005	0.000	0.000	0.000	0.679	0.000	0.000
Truck Tower (Mantiwoc type)	Off-Highway Trucks	376	0.38	720	1584	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.052	0.044	0.241	0.294	0.001	0.008	0.008	131.976	0.005	0.001
																			0.727	**0.609**	**3.763**	**4.783**	**0.016**	**0.131**	**0.119**	**1662.288**	**0.066**	**0.013**

Hotel On-Road Emissions Calculations

					x 2.2			MOVES3 Emission Factors, g/mile (calendar year)									Emission Calc (tons)								
Equipment	MOVES3 Vehicle	On-road Activity	Fuel Type	VMT	Total VMT	Year	Total HC	Exhaust CO	Exhaust NOx	Exhaust PM2.5	Brakewear PM2.5	Tirewear PM2.5	CO2	CH4	N2O	Total HC	Exhaust CO	Exhaust NOx	Exhaust PM2.5	Brakewear PM2.5	Tirewear PM2.5	CO2	CH4	N2O
Cement Mixer	Heavy-duty vehicles, diesel	Material Delivery	Diesel	23125	50875	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.009	0.089	0.147	0.002	0.001	0.000	87.916	0.001	0.002
Dump Truck Subbase Mate	Heavy-duty vehicles, diesel	Material Delivery	Diesel	12333	27132.6	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.005	0.047	0.078	0.001	0.000	0.000	46.887	0.000	0.001
Passenger Car	Light-duty trucks, gasoline	Employee Commute	Gasoline	4674186	10283209	2027	0.207	3.501	0.145	0.005	0.003	0.001	386.3913	0.0079	0.0012	2.346	39.685	1.644	0.057	0.034	0.011	4379.859	0.090	0.014
Tractor Trailer	Heavy-duty vehicles, diesel	Material Delivery	Diesel	2400	5280	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.001	0.009	0.015	0.000	0.000	0.000	9.124	0.000	0.000
																2.362	39.830	1.884	0.060	0.035	0.012	4523.787	0.090	0.018

Notes:
CH4 and N2O emission factors based on 2020 calendar year, EPA Inventory of US GHG Emissions and Sinks, 2022.
CO2 based on typical emissions/gallon fuel (Gasoline: 8,887 grams/gallon, Diesel: 10,190 grams/gallon), EPA Office of Transportation and Air Quality, EPA-420-F-23-014, June 2023.
Utilized average light-duty vehicle fuel efficiency in 2020 of 23 mpg
Utilized average Heavy duty trucks (semi-truck) fuel efficiency of 6.5 mpg

C-D Connector Non-Road Emissions Calculations

				x 10.2			OFFROAD2017 EF (g/HP-hr)												Emission Calc (tons)										
ACEIT Equipment	**OFFROAD2017 Equipment**	**HP**	**LF**	**Activity Data (Total Hour**		**Year**	**Low HP**	**High HP**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	**TOG**	**ROG**	**NOx**	**CO**	**SO2**	**PM10**	**PM2.5**	**CO2**	**CH4**	**N2O**	
Backhoe	Tractors/Loaders/Backhoes	84	0.37	320.1	3265.02	2027	75	100	0.211	0.177	1.807	3.487	0.005	0.054	0.05	529.618	0.021	0.004	0.02	0.02	0.20	0.39	0.00	0.01	0.01	59.24	0.00	0.00	
Concrete Ready Mix Trucks	Off-Highway Trucks	376	0.38	60	612	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.02	0.02	0.09	0.11	0.00	0.00	0.00	50.99	0.00	0.00	
Fork Truck	Forklifts	82	0.2	320.1	3265.02	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.02	0.01	0.13	0.21	0.00	0.01	0.01	31.11	0.00	0.00	
Tool Truck	Off-Highway Trucks	376	0.38	80.1	817.02	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.03	0.02	0.12	0.15	0.00	0.00	0.00	68.07	0.00	0.00	
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	15.9	162.18	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.01	0.00	0.02	0.03	0.00	0.00	0.00	13.51	0.00	0.00	
Survey Crew Trucks	Off-Highway Trucks	376	0.38	9.9	100.98	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.00	0.00	0.02	0.02	0.00	0.00	0.00	8.41	0.00	0.00	
Tractor Trailers Temp Fac.	Off-Highway Trucks	376	0.38	3.9	39.78	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.00	0.00	0.01	0.01	0.00	0.00	0.00	3.31	0.00	0.00	
Fork Truck	Forklifts	82	0.2	600	6120	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.03	0.03	0.24	0.39	0.00	0.01	0.01	58.31	0.00	0.00	
Generator	Generator Sets	14	0.74	300	3060	2027	0	25	0.65	0.537	4.305	2.852	0.008	0.172	0.158	568.306	0.023	0.005	0.02	0.02	0.15	0.10	0.00	0.01	0.01	19.86	0.00	0.00	
Man Lift	Other General Industrial Equipment	35	0.34	600	6120	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.04	0.04	0.28	0.37	0.00	0.01	0.01	47.20	0.00	0.00	
Tool Truck	Off-Highway Trucks	376	0.38	150	1530	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.05	0.04	0.23	0.28	0.00	0.01	0.01	127.48	0.01	0.00	
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	150	1530	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.05	0.04	0.23	0.28	0.00	0.01	0.01	127.48	0.01	0.00	
Fork Truck	Forklifts	82	0.2	2400	24480	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.12	0.10	0.95	1.58	0.00	0.04	0.04	233.25	0.01	0.00	
Man Lift	Other General Industrial Equipment	35	0.34	2400	24480	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.17	0.14	1.13	1.48	0.00	0.03	0.03	188.79	0.01	0.00	
Tool Truck	Off-Highway Trucks	376	0.38	300	3060	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.10	0.08	0.47	0.57	0.00	0.02	0.01	254.95	0.01	0.00	
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	600	6120	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.20	0.17	0.93	1.14	0.00	0.03	0.03	509.91	0.02	0.00	
High Lift	Other General Industrial Equipment	35	0.34	120	1224	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.01	0.01	0.06	0.07	0.00	0.00	0.00	9.44	0.00	0.00	
Man Lift (Fascia Construction)	Other General Industrial Equipment	35	0.34	24	244.8	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.00	0.00	0.01	0.01	0.00	0.00	0.00	1.89	0.00	0.00	
Material Deliveries	Off-Highway Trucks	376	0.38	60	612	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.02	0.02	0.09	0.11	0.00	0.00	0.00	50.99	0.00	0.00	
Tractor Trailer- Material Delivery	Off-Highway Trucks	376	0.38	60	612	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.02	0.02	0.09	0.11	0.00	0.00	0.00	50.99	0.00	0.00	
High Lift	Other General Industrial Equipment	35	0.34	800.1	8161.02	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.06	0.05	0.38	0.49	0.00	0.01	0.01	62.94	0.00	0.00	
Tool Truck	Off-Highway Trucks	376	0.38	200.1	2041.02	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.07	0.06	0.31	0.38	0.00	0.01	0.01	170.05	0.01	0.00	
90 Ton Crane	Cranes	367	0.29	320.1	3265.02	2027	300	600	0.232	0.195	1.748	1.629	0.005	0.072	0.066	527.455	0.021	0.004	0.09	0.07	0.67	0.62	0.00	0.03	0.03	202.04	0.01	0.00	
Concrete Pump	Pumps	11	0.74	12	122.4	2027	0	25	0.683	0.565	4.288	2.986	0.008	0.173	0.16	568.297	0.023	0.005	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	
Concrete Truck	Off-Highway Trucks	376	0.38	24	244.8	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.01	0.01	0.04	0.05	0.00	0.00	0.00	20.40	0.00	0.00	
Fork Truck	Forklifts	82	0.2	80.1	817.02	2027	75	100	0.272	0.228	2.152	3.568	0.005	0.092	0.085	527.07	0.021	0.004	0.00	0.00	0.03	0.05	0.00	0.00	0.00	7.78	0.00	0.00	
Tool Truck	Off-Highway Trucks	376	0.38	12	122.4	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.00	0.00	0.02	0.02	0.00	0.00	0.00	10.20	0.00	0.00	
Tractor Trailer- Steel Deliveries	Off-Highway Trucks	376	0.38	39.9	406.98	2027	300	600	0.21	0.176	0.965	1.179	0.005	0.034	0.031	529.01	0.021	0.004	0.01	0.01	0.06	0.08	0.00	0.00	0.00	33.91	0.00	0.00	
Trowel Machine	Other General Industrial Equipment	35	0.34	12	122.4	2027	25	50	0.519	0.436	3.525	4.597	0.005	0.099	0.091	587.927	0.024	0.005	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.94	0.00	0.00	
																			1.18	**0.99**	**6.98**	**9.13**	**0.02**	**0.25**	**0.23**	**2424.09**	**0.10**	**0.02**	

C-D Connector On-Road Emissions Calculations

				x 10.2			MOVES3 Emission Factors, g/mile (calendar year)									Emission Calc (tons)								
Equipment	MOVES3 Vehicle	On-road Activity	Fuel Type	VMT	Total VMT (Scaled)	Year	Total HC	Exhaust CO	Exhaust NOx	Exhaust PM2.5	Brakewear PM2.5	Tirewear PM2.5	CO2	CH4	N2O	Total HC	Exhaust CO	Exhaust NOx	Exhaust PM2.5	Brakewear PM2.5	Tirewear PM2.5	CO2	CH4	N2O
Cement Mixer		Material Deliver	Diesel	6938	70767.6	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.013	0.124	0.204	0.003	0.001	0.000	122.292	0.001	0.003
Dump Truck Subbase Material		Material Deliver	Diesel	3700	37740	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.007	0.066	0.109	0.002	0.000	0.000	65.218	0.000	0.002
Passenger Car		Employee Comm	Gasoline	3099096	31610779.2	2027	0.207	3.501	0.145	0.005	0.003	0.001	386.3913	0.0079	0.0012	7.213	121.992	5.053	0.174	0.105	0.035	13463.770	0.275	0.042
Tractor Trailer		Material Deliver	Diesel	159	1621.8	2027	0.165	1.586	2.616	0.038	0.009	0.003	1567.692	0.0095	0.0431	0.000	0.003	0.005	0.000	0.000	0.000	2.803	0.000	0.000
																7.233	**122.185**	**5.370**	**0.179**	**0.106**	**0.035**	**13654.083**	**0.276**	**0.047**

Notes:

CH4 and N2O emission factors based on 2020 calendar year, EPA Inventory of US GHG Emissions and Sinks, 2022.

CO2 based on typical emissions/gallon fuel (Gasoline: 8,887 grams/gallon, Diesel: 10,190 grams/gallon), EPA Office of Transportation and Air Quality, EPA-420-F-23-014, June 2023.

Utilized average light-duty vehicle fuel efficiency in 2020 of 23 mpg

Utilized average Heavy duty trucks (semi-truck) fuel efficiency of 6.5 mpg

Total Construction Emissions

Dates	Project	CO	NO_x	VOC	SO_2	$PM_{2.5}$	PM_{10}	CO2	CH4	N2O	CO2e	CO2e (MT)
2025	Tree Clearing	4.6	4.3	0.5	0.01	0.2	0.2	1,358	0.05	0.01	1,363	1,236
2026	Supplemental Tower			n/a						n/a		
1/2027-12/2028	*ATCT*	*20.8*	*1.5*	*1.3*	*0.00*	*0.1*	*0.0*	*2,502*	*0.06*	*0.01*	*2,506*	*2273.47*
2/2027-7/2029	*Hotel*	*44.6*	*5.6*	*3.0*	*0.02*	*0.2*	*0.1*	*6,186*	*0.16*	*0.03*	*6,199*	*5623.64*
2/2027-7/2029	*C-D Connector*	*131.3*	*12.3*	*8.2*	*0.02*	*0.5*	*0.2*	*16,078*	*0.37*	*0.07*	*16,107*	*14612.10*
2027	ATCT/Hotel/C-D Connector	74.9	7.3	4.7	0.02	0.3	0.1	9414.5	0.2	0.0	9431.9	8,557
2028	ATCT/Hotel/C-D Connector	80.8	7.9	5.1	0.02	0.3	0.2	10156.6	0.2	0.0	10175.5	9,231
2029	*Hotel/C-D Connector*	41.1	4.2	2.6	0.01	0.2	0.1	5195.0	0.1	0.0	5204.8	4,722
	TOTAL	**201.3**	**23.7**	**13.0**	**0.05**	**1.0**	**0.6**	**26,124**	**0.64**	**0.12**	**26,175**	**23,746**

Forest Conservation Worksheet

ATCT and C-D Connector Program (including hotel and FAA offices)

Net Tract Area

A.	Total Tract Area	A =	2.50
B.	Deductions	B =	0.00
C.	Net Tract Area	C =	2.50

Land Use Category

Input the number "1" under the appropriate land use zoning, and limit to only one entry

ARA	MDR	IDA	HDR	MPD	CIA
0	0	1	0	0	0

D.	Afforestation Threshold (	Net Tract Area x	15%	)	D =	0.38
E.	Conservation Threshold (	Net Tract Area x	20%	)	E =	0.50

Existing Forest Cover

F.	Existing Forest Cover within the Net Tract Area	F =	0.00
G.	Area of Forest Above Conservation Threshold	G =	0.00

Break Even Point

H.	Break Even Point	H =	0.00
I.	Forest Clearing Permitted Without Mitigation	I =	0.00

Proposed Forest Clearing

J.	Total Area of Forest to be Cleared	J =	0.00
K.	Total Area of Forest to be Retained	K =	0.00

Planting Requirements

L.	Reforestation for Clearing Above the Conservation Threshold	L =	0.00
M.	Reforestation for Clearing Below the Conservation Threshold	M =	0.00
N.	Credit for Retention above the Conservation Threshold	N =	0.00
P.	Total Reforestation Required	P =	0.00
Q.	Total Afforestation Required	Q =	0.38
R.	Total Planting Requirement	R =	0.38

Sq. Ft.	16,335.00
Acres	0.38
PIL	$1,633.50

Forest Conservation Worksheet

Proposed Action Alternative - Existing & Proposed ATCT LOS Obstr

Net Tract Area

A.	Total Tract Area	A =	9.09
B.	Deductions	B =	1.09
C.	Net Tract Area	C =	8.00

Land Use Category

Input the number "1" under the appropriate land use zoning, and limit to only one entry

ARA	MDR	IDA	HDR	MPD	CIA
0	0	1	0	0	0

D.	Afforestation Threshold (	Net Tract Area x	15%	)	D =	1.20
E.	Conservation Threshold (	Net Tract Area x	20%	)	E =	1.60

Existing Forest Cover

F.	Existing Forest Cover within the Net Tract Area	F =	8.00
G.	Area of Forest Above Conservation Threshold	G =	6.40

Break Even Point

H.	Break Even Point	H =	2.88
I.	Forest Clearing Permitted Without Mitigation	I =	5.12

Proposed Forest Clearing

J.	Total Area of Forest to be Cleared	J =	7.74
K.	Total Area of Forest to be Retained	K =	0.26

Planting Requirements

L.	Reforestation for Clearing Above the Conservation Threshold	L =	1.60
M.	Reforestation for Clearing Below the Conservation Threshold	M =	2.68
N.	Credit for Retention above the Conservation Threshold	N =	0.00
P.	Total Reforestation Required	P =	4.28
Q.	Total Afforestation Required	Q =	0.00
R.	Total Planting Requirement	R =	4.28

Sq. Ft.	186,436.80
Acres	4.28
PIL	$18,643.68

Forest Conservation Worksheet

No Action Alternative - Existing ATCT LOS Obstructions

Net Tract Area

A.	Total Tract Area	A =	9.09
B.	Deductions	B =	3.40
C.	Net Tract Area	C =	5.69

Land Use Category

Input the number "1" under the appropriate land use zoning, and limit to only one entry

ARA	MDR	IDA	HDR	MPD	CIA
0	0	1	0	0	0

D.	Afforestation Threshold (	Net Tract Area x	15%	)	D =	0.85
E.	Conservation Threshold (	Net Tract Area x	20%	)	E =	1.14

Existing Forest Cover

F.	Existing Forest Cover within the Net Tract Area	F =	5.69
G.	Area of Forest Above Conservation Threshold	G =	4.55

Break Even Point

H.	Break Even Point	H =	2.05
I.	Forest Clearing Permitted Without Mitigation	I =	3.64

Proposed Forest Clearing

J.	Total Area of Forest to be Cleared	J =	5.44
K.	Total Area of Forest to be Retained	K =	0.25

Planting Requirements

L.	Reforestation for Clearing Above the Conservation Threshold	L =	1.14
M.	Reforestation for Clearing Below the Conservation Threshold	M =	1.78
N.	Credit for Retention above the Conservation Threshold	N =	0.00
P.	Total Reforestation Required	P =	2.91
Q.	Total Afforestation Required	Q =	0.00
R.	Total Planting Requirement	R =	2.91

Sq. Ft.	126,933.84
Acres	2.91
PIL	$12,693.38

PROJECT REVIEW FORM

Request for Comments from the Maryland Historical Trust/ MDSHPO on State and Federal Undertakings

MHT USE ONLY
Date Received: 9/11/23 F FAA EJC 22303755 Log Number:

Project Name	BWI Marshall - Airport Traffic Control Tower Replacement and Associated Improv			County	Anne Arundel

Primary Contact:

Contact Name	Kevin Clarke	Company/Agency	Maryland Aviation Administration
Mailing Address	P.O. Box 8766		
City	BWI Airport	State Maryland	Zip 21240-0766
Email	kclarke@bwiairport.com	Phone Number +1 (410) 859-7787	Ext.

Project Location:

Address	7050 Friendship Road	City/Vicinity	BWI Airport
Coordinates (if known): Latitude	39.180375	Longitude -76.667302	Waterway Sawmill Creek

Project Description:

List federal and state sources of funding, permits, or other assistance (e.g. Bond Bill Loan of 2013, Chapter #; HUD/ CDBG; MDE/COE permit; etc.).	Agency Type	Agency/Program/Permit Name	Project/Permit/Tracking Number (if applicable)
	State	Maryland Department of Transportation	
	Federal	Federal Aviation Administration	

This project includes (check all applicable): ☒ New Construction ☐ Demolition ☐ Remodeling/Rehabilitation
☐ State or Federal Rehabilitation Tax Credits ☒ Excavation/Ground Disturbance ☐ Shoreline/Waterways/Wetlands
Other\Additional Description: construction of new ATCT and associated improvements, including obstruction removal

Known Historic Properties:

This project involves properties (check all applicable): ☐ Listed in the National Register ☐ Subject to an easement held by MHT
☐ Included in the Maryland Inventory of Historic Properties ☐ Designated historic by a local government
☐ Previously subject to archeological investigations
Property\District\Report Name

Attachments:

All attachments are required. Incomplete submittals may result in delays or be returned without comment.
☒ Aerial photograph or USGS Quad Map section with location and boundaries of project clearly marked.
☒ Project Description, Scope of Work, Site Plan, and\or Construction Drawings.
☒ Photographs (print or digital) showing the project site including images of all buildings and structures.
☒ Description of past and present land uses in project area (wooded, mined, developed, agricultural uses, etc).

MHT Determination:

☐ There are **NO HISTORIC PROPERTIES** in the area of potential effect
☐ The project will have **NO EFFECT** on historic properties
☒ The project will have **NO ADVERSE EFFECT** on historic properties
☐ The project will have **NO ADVERSE EFFECT WITH CONDITIONS**
☐ The project will have **ADVERSE EFFECTS** on historic properties
☐ **MHT REQUESTS ADDITIONAL INFORMATION**

MHT Reviewer: Beth Cole Date: 10/13/2023

Submit printed copy of form and all attachments by mail to: Beth Cole, MHT, 100 Community Place, Crownsville, MD 21032

Archeo: IA BC 9/18/2023

Attachment 2:

MDE Coastal Consistency Determination

to be provided in Final EA