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August 30, 2017

Robin Bowie, Acting Director ~~VIA-EMAIL~~
Office of Environmental Services
Maryland Aviation Administration
P.O. Box 8766
BWI Airport, MD 21240

RE: Re-evaluation of Midfield Cargo Facility Ramp Environmental Assessment

Dear Ms. Bowie:

The Federal Aviation Administration (FAA) is in receipt of the Maryland Aviation Administration's (MAA) written re-evaluation concerning the Midfield Cargo Facility Ramp Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA). In 1998, FAA issued an EA for the project with a corresponding Finding of No Significant Impact (FONSI) being issued on June 5, 1998. The full ramp expansion as described in the 1998 EA was not implemented within the FAA three-year timeline for major steps toward implementation after issuance of the FONSI. The proposed ramp expansion represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA; therefore, this project is subject to a re-evaluation pursuant to FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* and Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

MAA's written re-evaluation outlines alternatives and identifies effects that could result from the preferred alternative to complete partial buildout of the mid-field cargo facility. The analysis presented in the written re-evaluation demonstrates that there are no meaningful differences of impacts to resources than that which was described in the 1998 EA.

Based on FAA's review of MAA's submitted documentation, FAA concurs that there are no significant effects as a result of this action; nor does this action represent new circumstances that would require supplemental documentation pursuant to FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* and Order 1050.1F, *Environmental Impacts: Policies and Procedures*. The EA for the project continues to be subject to review. Therefore, MAA should advise FAA if the nature and/or scope of the project changes in a manner requiring FAA to conduct future reviews or re-evaluations.

If you should have any questions concerning this letter, please do not hesitate to contact me at (703) 661-1364 or via e-mail at mindy.lee@faa.gov.

Sincerely,

Mindy Lee
Interim Environmental Protection Specialist



RE-EVALUATION
OF AN ENVIRONMENTAL ASSESSMENT
FOR
**THE EXPANSION OF THE MIDFIELD CARGO
FACILITY RAMP AT BALTIMORE/WASHINGTON
INTERNATIONAL THURGOOD MARSHALL
AIRPORT**

LINTHICUM, MARYLAND

AUGUST 23, 2017

PREPARED FOR:
MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND AVIATION ADMINISTRATION
OFFICE OF ENVIRONMENTAL SERVICES



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RE-EVALUATION OF AN ENVIRONMENTAL ASSESSMENT FOR THE EXPANSION OF THE MIDFIELD CARGO FACILITY RAMP AT BWI MARSHALL AIRPORT

1. INTRODUCTION

1.1 SUMMARY

The Maryland Department of Transportation's Maryland Aviation Administration (MAA) proposes to expand the Midfield Cargo Facility Ramp from its current size by paving an approximately six-acre area adjacent to the existing ramp at Baltimore/ Washington International Thurgood Marshall Airport (BWI Marshall Airport). The additional ramp pavement will be constructed in Portland Cement Concrete (PCC) and incorporate a continuation of the original trench drain facilities to capture stormwater runoff.

The ramp expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport* ("1998 EA"), however, the full ramp expansion was not implemented within the Federal Aviation Administration's (FAA) three-year timeline for major steps toward implementation after issuance of the Finding of No Significant Impact (FONSI). The proposed ramp expansion represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA. The proposed expansion is needed to accommodate a new carrier at BWI Marshall Airport. Because the original limited construction of the ramp is now insufficient, the MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA).

This Re-Evaluation is conducted in accordance with FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions* and Order 1050.1F, *Environmental Impacts: Policies and Procedures*. In accordance with Order 1050.1F, a Re-Evaluation is a:

*"...document used to determine whether the contents of a previously prepared environmental document (i.e., a draft or final EA or EIS) remain valid or a new or supplemental environmental document is required... the level of analysis should be commensurate with the potential for environmental impacts of a nature or extent not evaluated in the EA or EIS."*¹

The FAA is the lead federal agency to ensure compliance with NEPA for airport development actions.

1.2 BACKGROUND

Air cargo operations at BWI Marshall Airport represent a significant portion of the Airport's support facilities and provide a vital role in the operations and maintenance of the Airport. There are three primary air cargo facility areas at BWI Marshall Airport: North Cargo Complex, Elm Road Cargo Complex, and the Midfield Cargo Complex. These cargo areas combined contain approximately 412,000 square feet of building space on 100 acres of cargo-related land uses at the Airport. Access to the North Cargo Complex is via Aviation Boulevard and access to the Elm Road Complex is via Aviation Boulevard to Elm Road. Access to the Midfield Cargo Complex is via Mathison Way off Aviation Boulevard. Aircraft parking positions on the ramps are assigned by MAA with the cargo apron parking positions essentially operating as "preferential use" rather than "exclusive use" parking positions.²

**Re-Evaluation of an EA for the Expansion of the
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The North Cargo Complex has six cargo buildings (A-F), the Elm Road Cargo Complex has three cargo buildings (107, 111, 112), and the Midfield Cargo Complex currently has one building (G). Each of the cargo areas also have airside cargo apron areas; the ramp areas at the North Cargo Complex/Elm Road Complex are identified as Cargo Apron I and Cargo Apron II, and encompass approximately 24 acres. The ramp area at the Midfield Cargo Complex includes approximately seven acres of aircraft ramp and taxiway/taxilane movement area. There is limited land area available around the North Cargo and Elm Road Cargo complexes as it is almost entirely developed. There is, however, additional space/capacity around the Midfield Cargo Complex. The Midfield Cargo Complex was constructed following analysis of air cargo operational needs and approval of the 1998 EA; however only a portion of the ultimate buildout originally studied to support air cargo operations was implemented.

Cargo operations at the Airport have been on the rise recently, with a 1.2% increase in annual volume between 2015 (128,633 tons) and 2016 (130,155 tons) and a projected annual growth in volume similar to the national average of 1.6% annually (domestic) through 2026.^{3,4} Expanding the Midfield Cargo Facility Ramp would accommodate a new operator that is replacing the existing operator at the Midfield Cargo Area. The new operator requires more space than is presently available for aircraft parking. Additionally, the expanded ramp area would help accommodate the Airport's existing and forecast growth in air cargo operations.

2. PROPOSED ACTION

2.1 PREVIOUS PROPOSED ACTION (1998 EA)

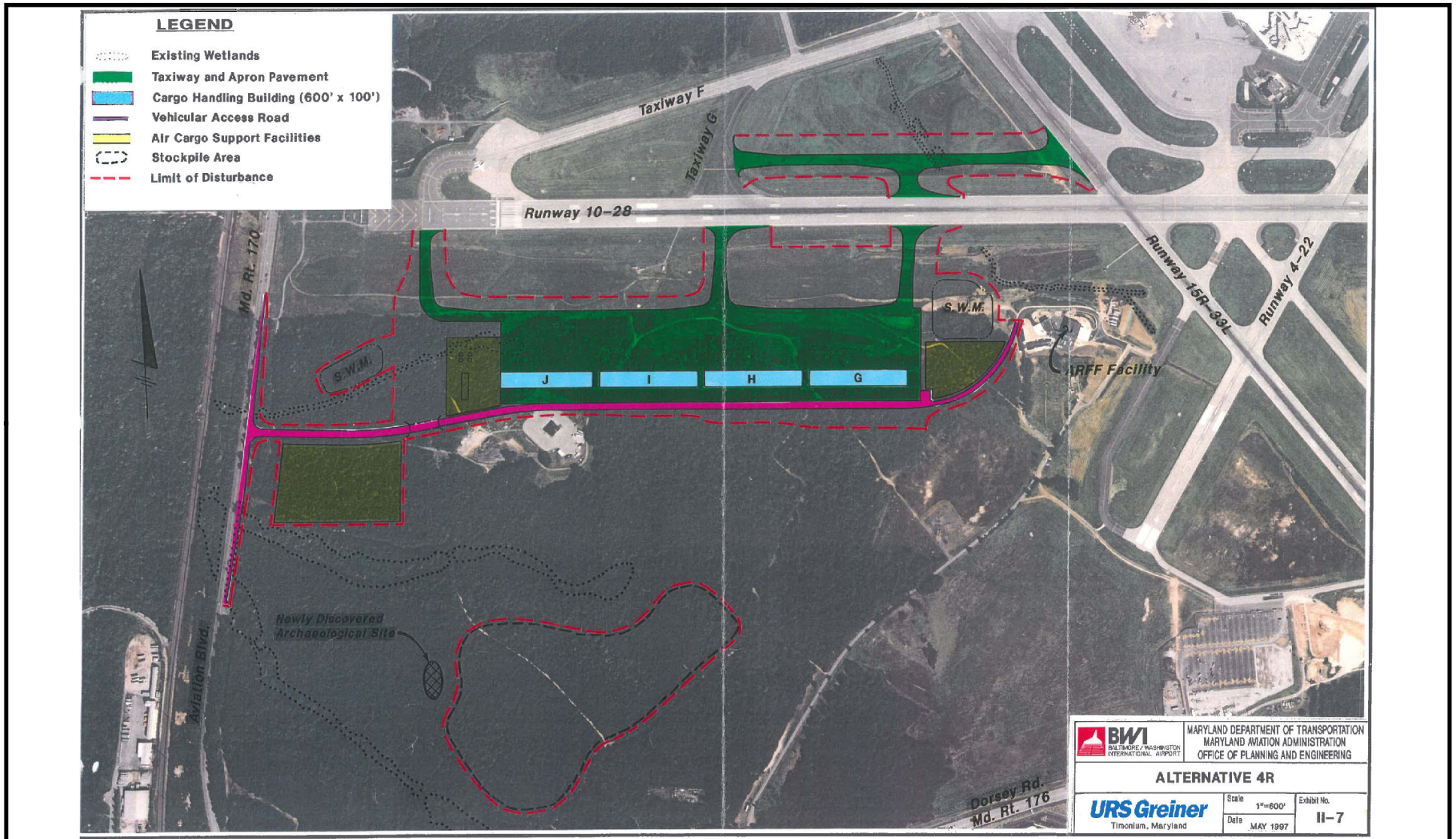
The Proposed Action for the 1998 EA was approval of a revision to the Airport Layout Plan (ALP) based on the "Alternative 4R" design concept. Alternative 4R (Proposed Action) proposed to construct new all-cargo facilities in a new midfield area of the Airport, southwest of Runway 10-28 and Runway 4-22, as illustrated in **Figure 1**. Other alternatives considered are discussed in *Section 3.2, Alternatives*.⁵

The 1998 EA Proposed Action included construction of the midfield cargo complex (Cargo Buildings G, H, I and J), as well as a new connecting and partial parallel taxiway to the north of Runway 10-28 for aircraft to access the existing runway system. Vehicular access to the new cargo complex would be provided by upgrading the unimproved access road connecting Aviation Boulevard at Gate 13 with the new ARFF facility to the east of the cargo complex. Approximately 43-acres south of the proposed access road of the midfield cargo complex near Aviation Boulevard would be available for development of cargo support facilities and other uses.⁶

It was anticipated that development of the proposed facilities would occur over a ten-year period, with the initial development phase to include the construction of the first two buildings (G and H) and access road, along with grading operations for the full development area. Ultimate development of the remaining buildings (I and J) and the support area south of the access road was anticipated to occur over the next eight years, with anticipated construction for Building I and J in 2003 and 2007, respectively, based on expected growth and demand.⁷

Following the 1998 EA/FONSI, the improvements were only partially implemented. Building G, along with approximately six acres of ramp area and four acres of air cargo support facility pavement (vehicle parking) were constructed, and the grading operations for the full development area were completed. The access road improvements were also implemented, along with the majority of the associated connecting and partial parallel taxiways. The full improvements were not implemented at the time because it was expected that, "...facilities will be developed as the need arises rather than on speculation of future use. In the MAA's planning process, timing of actual development is reviewed on an ongoing basis..."⁸

Re-Evaluation for Midfield Cargo Ramp Expansion



1998 EA Proposed Action (Alternative 4R)
Figure 1

Not to Scale

2.2 CURRENT PROPOSED ACTION (RE-EVALUATION)

The Proposed Action considered in this Re-Evaluation is to expand the Midfield Cargo Facility ramp area by paving an approximately six-acre area adjacent to the existing ramp at BWI Marshall Airport, as illustrated in **Figure 2**. The ramp area can currently be used by three aircraft at the same time. With the proposed expansion, the ramp would be able to accommodate up to seven (7) aircraft concurrently, depending on the aircraft size. Additionally, the expanded ramp would reduce expected congestion on the ramp during peak periods or increase operational efficiency by mitigating split operations utilizing one of the other cargo areas as the market for cargo operations continues to increase in response to the growing economy.

The current Proposed Action to expand the ramp represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA, as shown on **Figure 3**. This figure illustrates the current Proposed Action, along with the original 1998 EA Proposed Action, overlaid on a current MAA aerial.

The proposed additional apron pavement would be constructed in Portland Cement Concrete (PCC) and would extend the original trench drain facilities in order to capture stormwater runoff. The existing area drains through trench drains into the closed stormdrain system to Pond B7 (east of the site), which has excess capacity to treat an additional 8.11 acres of impervious surface due to the SWM site being designed for the ultimate buildout. Therefore, it is anticipated that the existing stormwater management facility would accommodate the proposed additional stormwater runoff. Grading operations for the full development area were conducted as part of the construction that occurred following the 1998 EA, therefore the Study Area is currently flat and mowed/maintained.

The current Proposed Action would extend the glycol collection system to incorporate the additional parking positions. The new apron would include trench drain, diversion vaults and associated mechanical and control systems to isolate and collect the runoff from deicing operations and store in additional tanks for disposal per MAA requirements. The proposed location of six associated glycol collection storage tanks is shown on Figure 2. There may be other temporary mobile tanks placed on existing impervious surfaces during deicing season (depending on demand) in the vicinity of the apron, however other specific location(s) are currently unknown. Additionally, new high mast apron lights would be installed and all pavement marking and signage would be provided to support the operations.

Notice to Proceed for construction activities associated with the Midfield Cargo Facility Ramp expansion was received in July 2017 and is expected to be complete in December 2017. The project is consistent with the approved BWI Marshall Airport Layout Plan (ALP). Figure 2 illustrates the Study Area, which identifies the area to be used for construction staging and laydown adjacent to the expansion area, as well as a construction vehicle haul route.

3. SUMMARY AND FINDINGS OF THE 1998 EA/FONSI

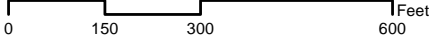
The MAA performed an Air Cargo Complex Evaluation in 1995 to evaluate how the increased passenger and cargo airline activity at BWI Marshall Airport could affect facility planning. The evaluation recommended that new cargo development for all-cargo operations should occur in the area south of existing Runway 10-28 and that the existing BWI Cargo Complex should be dedicated to cargo operations that needed to be near the passenger terminal. In 1996, forecasts were completed for three growth scenarios of air cargo operations and tonnages.

The No Growth Scenario assumed cargo tonnage would remain consistent at 1995 levels of 162,834 tons as reported in the 1998 EA. The high growth scenario projected a 6.9 percent increase in cargo tonnage between 1995 and 1999 and a 4.6 percent increase beyond 1999 with approximately 403,000 tons of



LEGEND

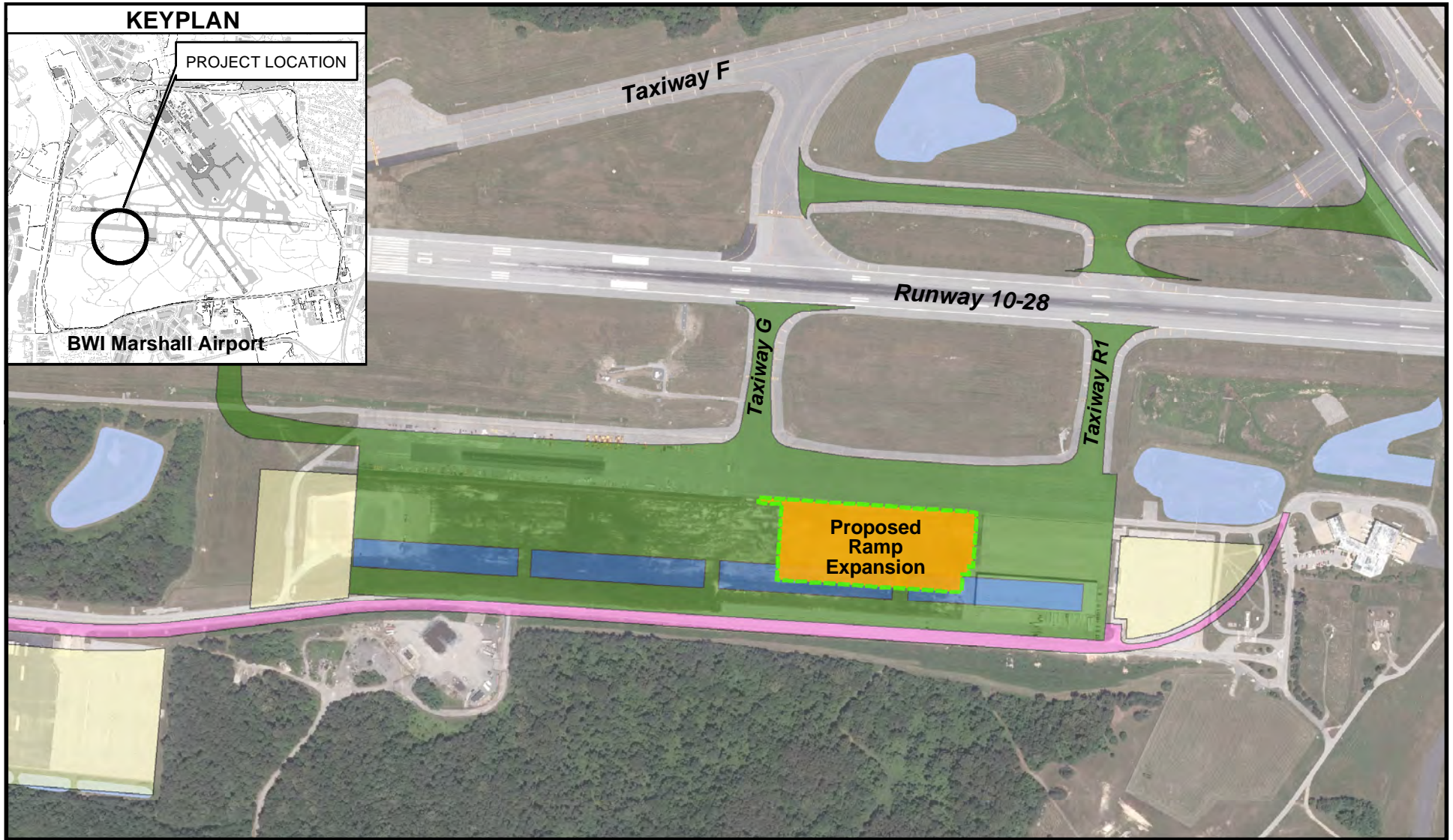
- Study Area
- Existing Stormwater Management Pond
- Proposed Pavement Improvements
- Proposed Staging Area



**Proposed Action
Figure 2**

Source: Aerial - MAA (2016), ADCI

Re-Evaluation for Midfield Cargo Ramp Expansion



LEGEND

- Proposed Pavement Improvements
- Existing Stormwater Management Pond

1998 EA Proposed Action (Alternative 4R)

- Air Cargo Support Facilities
- Cargo Building
- Taxiway and Apron Pavement
- Vehicular Access Road

Comparison of Current Proposed Action with 1998 EA Alternative 4R

Figure 3



0 300 600 1,200 Feet

Re-Evaluation of an EA for the Expansion of the Midfield Cargo Facility Ramp at BWI Marshall Airport

cargo entering the Airport by 2015. Under the expected growth scenario, moderate growth in all-cargo services was projected. Between 1995 and 1999, air cargo activity was projected to increase 6 percent; beyond 1999, a 3.5% increase was projected, resulting in approximately 327,000 tons of cargo projected to be processed through BWI Marshall in the year 2015.⁹ Actual cargo tonnage reported in 2015 at BWI Marshall Airport was 128,633 tons.^{10,11} The methodology for reporting cargo tonnage has changed since 1998, therefore a comparison from 1998 to 2015 does not yield analogous results.

A summary of the Purpose and Need, Alternatives and Affected Environment chapters of the 1998 EA as they relate to the current Proposed Action of this Re-Evaluation are discussed in this section.

3.1 PURPOSE AND NEED FOR THE PROJECT (1998 EA/FONSI)

The purpose and need discussed in the 1998 EA for the air cargo facility improvements remains valid for the current Proposed Action. Based on the approved 1996 “Expected Growth” forecast, the 1987 Master Plan Study, and the 1995 evaluation of the Air Cargo Complex, it was projected that the (then) existing cargo facilities would not be able to accommodate expected growth in cargo activity through 2015 and that the demand for air cargo facilities would exceed available facilities through the planning period (Year 2015).

The facilities required to accommodate the expected cargo activity growth included additional aircraft parking apron, landside facilities, and cargo buildings. The (then) existing Cargo Complex and Elm Road cargo area were constrained in terms of apron expansion and cargo building expansion, and any measures to expand these areas by relocating existing facilities would have been inappropriate and expensive.

Specifically, the 1998 EA stated the following need for additional cargo facilities:

“Using industry planning guidelines for cargo complex layouts, approximately 65 acres [were] needed to contain 220,000 square feet of cargo building space and adjacent parking apron capable of supporting wide-body aircraft. In addition, an area of approximately 25 acres [was] needed to provide cargo support facilities, such as truck and employee/customer parking, fueling facilities, ground support equipment (GSE) storage, truck wash etc.

Considering land requirements for vehicle access and circulation, it [was] estimated that an area comprising approximately 100 acres will be needed for locating additional air cargo facilities at BWI.”¹³

The 1998 EA emphasized that the facilities would be developed as the need arises rather than on speculation of future use. The EA states, “In the MAA’s planning process, timing of actual development is reviewed on an ongoing basis and another evaluation of the demand for future cargo development is likely to occur before construction commences.”¹⁴

Re-Evaluation Update to Purpose and Need

As stated in the 1998 EA, continuous evaluation of facilities has occurred and the need for the proposed additional ramp area to accommodate a new carrier at BWI Marshall Airport currently exists.¹⁵ The new operator that is replacing the existing operator at the Midfield Cargo Area requires more space than is presently available for concurrent aircraft parking. The new carrier is currently using the existing ramp, however, the new user’s operations are expected to increase toward the end of 2017, which would coincide with completion of the ramp construction. The ramp area can be currently used by three aircraft at the same time. With the proposed expansion, the ramp would be able to accommodate up to four additional aircraft, for a total of seven (7) aircraft concurrently, depending on the aircraft size. The

Re-Evaluation of an EA for the Expansion of the Midfield Cargo Facility Ramp at BWI Marshall Airport

proposed expansion of the Midfield Cargo Facility Ramp would also help accommodate the Airport's existing and forecast growth in air cargo operations.

As discussed in *Section 2.1, Previous Proposed Action*, only a portion of the improvements were implemented following the 1998 EA. One cargo building was constructed ("Building G"), and approximately six acres of ramp area were constructed. Air cargo operations have not reached levels forecast for 2015 in the 1998 EA's Expected Growth Scenario, however air cargo operations have increased in recent years, with a 1.2% increase in annual volume between 2015 (128,633 tons) and 2016 (130,155 tons). According to the *FAA Aerospace Forecast: FY 2017-2037*, air cargo tonnage is forecast to grow nationally at a rate of 1.6% (domestic) and 2.8% (domestic and international) through 2026.^{16, 17}

3.2 ALTERNATIVES

3.2.1 ALTERNATIVES CONSIDERED, BUT NOT DISCUSSED IN DETAIL

Several alternatives were considered but not discussed in detail in the 1998 EA. The alternatives that were eliminated from further consideration include the following:

Redevelopment of Existing Facilities – Redevelop the entire existing Cargo Complex northeast of Elm Road to meet projected demand. Dismissed due to complexity of construction phasing, cost, and loss of utility during construction.

Relocation of Existing and Future Facilities – Relocate both existing and additional new cargo functions and facilities to a new midfield area south of existing Runway 10-28. Dismissed due to reduced customer service, inefficiency and cost.

Relocation of Demand to Another Airport – No new facilities would be developed at BWI Marshall Airport and future cargo demand would be encouraged to develop or relocate elsewhere. Dismissed due to previous investments made and significant financial losses to the local economy.

3.2.2 ALTERNATIVES EVALUATED IN DETAIL

Five "build" alternatives and a "no-build" alternative were developed to a level of detail to be comparatively assessed, and were evaluated to meet the purpose and need for the 1998 EA Proposed Action. Each of the build alternatives provided for incremental development of new cargo facilities as demand increased through the planning period. The alternatives are illustrated on **Figure 4**, and are summarized in **Table 3.1**.

Table 3.1
Alternatives Evaluated in the 1998 EA

No Build Alternative	Provides no new cargo facilities at the Airport.
Build Alternative 1	Expansion of the existing Cargo Complex into the existing Maintenance Area and construction of two new cargo buildings in the midfield area of the Airport.
Build Alternative 2	Construction of new cargo facilities in the southeast quadrant of the Airport.
Build Alternative 3	Construction of new cargo facilities in the southwest quadrant of the Airport.
Build Alternative 4	Construction of new cargo facilities in the midfield area of the Airport with a south parallel taxiway.

**Re-Evaluation of an EA for the Expansion of the
Midfield Cargo Facility Ramp at BWI Marshall Airport**

Table 3.1

Alternatives Evaluated in the 1998 EA

Build Alternative 4R	Construction of new cargo facilities in the midfield area of the Airport with a north parallel taxiway.
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Source: MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, p. ES-3.

Each of the build alternatives was evaluated using the following criteria:

- Its ability to satisfy the purpose and need for additional cargo facilities;
- The operational efficiencies associated with its location on the Airport;
- The nature and extent of potential environmental impacts due to construction;
- Its compatibility with existing and planned Airport facilities;
- Its feasibility and cost of construction; and
- Its capability to provide for expansion to meet demand beyond the Year 2015.

Alternative 1 would have required relocation of existing cargo or maintenance facilities; Alternatives 2 and 3 (southeast or extreme southwest area of the Airport, respectively) would have provided the least operational efficiency, the least room for ultimate expansion, and would have been costly to implement.

Alternatives 4 and 4R, located in the midfield area of the Airport, provided the most benefits for aircraft operations, offered the most room for ultimate expansion of future cargo facilities; and did not require the relocation of existing cargo or maintenance facilities. Although more expensive than Alternative 4, Alternative 4R reduced impacts to the Kitten Branch stream system, reduced the volume of material to be stockpiled, and provided additional water quality management in the area. As Alternative 4R adequately met all of the evaluation criteria, and had reduced environmental impacts as compared to Alternative 4, it was recommended as the Proposed Action. Alternative 4R as recommended in the 1998 EA remains valid.

3.3 AFFECTED ENVIRONMENT

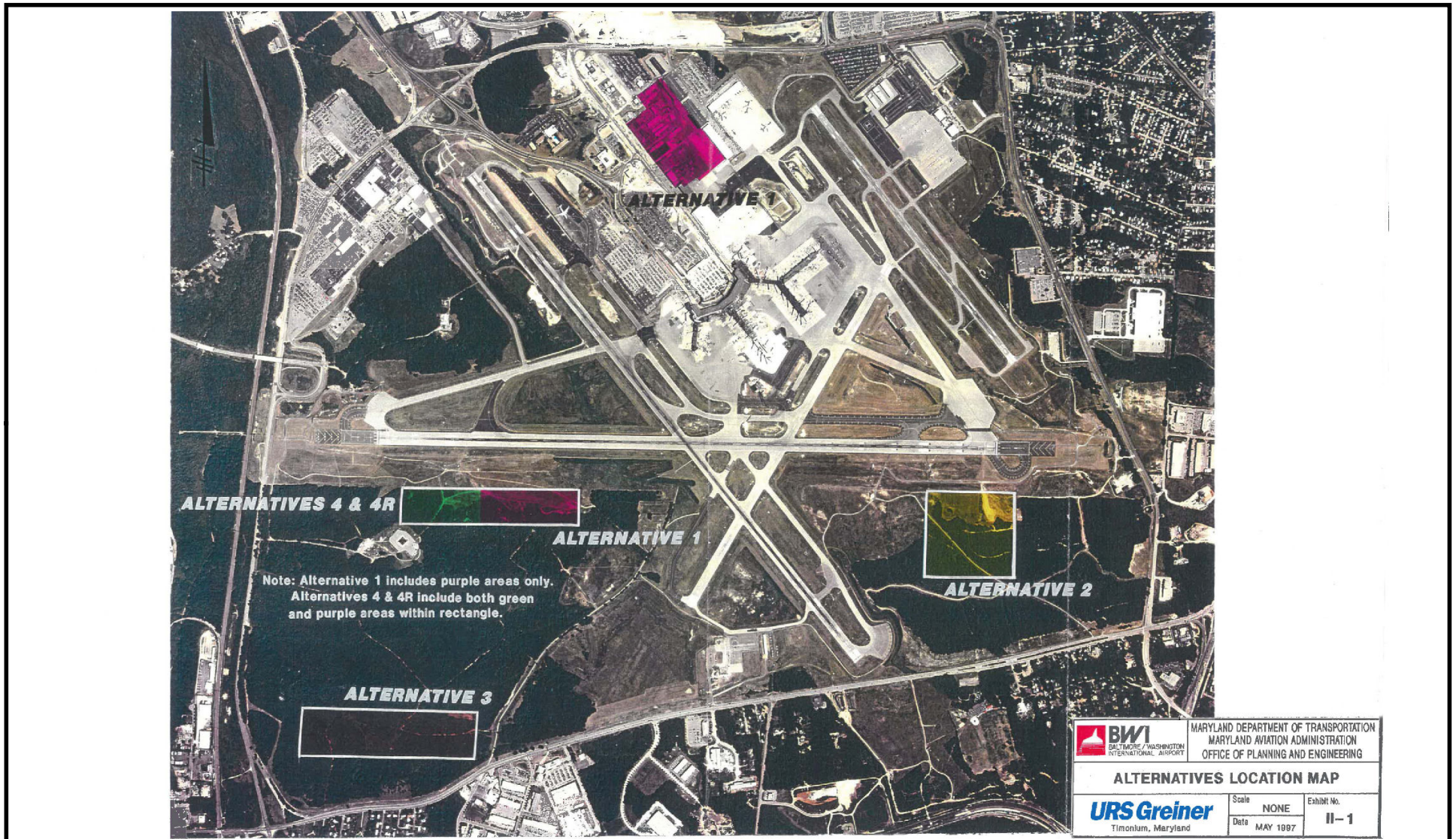
The affected environment remains similar as provided in the 1998 EA. Several changes to the airfield and terminal area have occurred since 1998, including the development of the Midfield Cargo Area and other projects specific in the 1998 EA Proposed Action, including the parallel taxiway north of Runway 10-28. No changes have occurred to the Airport's land uses or the surrounding land uses, however. Any changes to the existing conditions at the Airport or the Airport's surroundings are noted within the pertinent environmental category in *Section 5, Impact Analysis*. The Airport's physical layout and surroundings are depicted on Figure 2, along with the Study Area, which incorporates the area to be used for construction staging and laydown.

Sections 4 and 5 provide information related to changes to the regulatory requirements since 1998, as well as any change in environmental impacts.

4. SUMMARY OF CHANGES TO THE REGULATORY REQUIREMENTS

The FAA's policy and procedures for compliance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ) have been updated since the 1998 EA was approved. Also, several local and State regulations have been updated. Updates to relevant federal, state, and local policies and procedures since the development of the 1998 EA are summarized.

Re-Evaluation for Midfield Cargo Ramp Expansion



**Alternatives Evaluation in the 1998 EA
Figure 4**

Not to Scale

**Re-Evaluation of an EA for the Expansion of the
Midfield Cargo Facility Ramp at BWI Marshall Airport**

4.1 FAA ORDERS

The 1998 EA was conducted in accordance with FAA Order 1050.1D, Change 4, “Policies and Procedures for Considering Environmental Impacts” (June 14, 1999) and FAA Order 5050.4A, “Airport Environmental Handbook.” Both Orders have been cancelled and replaced with subsequent guidance. The following current Orders are applicable to the Re-Evaluation for expansion of the Midfield Cargo Facility Ramp at BWI Marshall Airport:

- **FAA Order 1050.1F**, *Environmental Impacts: Policies and Procedures*, became effective 7/16/15 and replaced Order 1050.1D, and subsequently Order 1050.1E. This Order serves as the FAA’s policies and procedures for compliance with NEPA and implementing regulations issued by the CEQ.
- **FAA Order 5050.4B**, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, became effective in April 2006 and replaced FAA Order 5050.4A. This Order is a supplement to Order 1050.1F and is intended to provide instruction on evaluating those environmental effects.

To ensure all the environmental impact categories that were evaluated in the 1998 EA are considered in this Re-Evaluation, **Table 4.1** provides a list of the resource categories analyzed in the 1998 EA, along with the updated environmental impact categories evaluated for this Re-Evaluation in accordance with Order 1050.1F, the 1050.1F Desk Reference, and Order 5050.4B. Since the publication of Order 1050.1D, several of the resource categories have either been renamed or combined, any changes to terminology of environmental resource categories analyzed or relevant significance thresholds are included in Table 4.1.

The Environmental Consequences from the 1998 EA, as the impact categories pertain to the expansion of the Midfield Cargo Facility Ramp, is provided in *Section 5, Impact Analysis Re-Evaluation*.

Table 4.1
FAA Order 1050/5050.4 Significance Threshold Updates

FAA Orders 1050.1D and 5050.4A (1998 EA)	FAA Orders 1050.1F and 5050.4B (Re-Evaluation)	Relevant Changes (if applicable)
Noise	Noise and Noise-Compatible Land Use	Combined Noise and Compatible Land Use as it relates to noise compatibility into a single impact category.
Compatible Land Use		
Social Impacts	Socioeconomics, environmental justice, and children’s environmental health and safety risks	Renamed and updated to include environmental justice and children’s environmental health and safety risks. Demographic information of the geographic area of potentially significant impacts is used for purposes of anticipating and responding to public concerns about EJ and children in accordance with applicable Executive Orders, directives, and guidance

**Re-Evaluation of an EA for the Expansion of the
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Table 4.1

FAA Order 1050/5050.4 Significance Threshold Updates

FAA Orders 1050.1D and 5050.4A (1998 EA)	FAA Orders 1050.1F and 5050.4B (Re-Evaluation)	Relevant Changes (if applicable)
		issued by the CEQ and EPA was added.
Induced Socioeconomic Impacts	N/A	Removed.
Air Quality	Air Quality	National Ambient Air Quality Standards (NAAQS) were updated in 2008. Section also added clarifying language to the significance threshold: "to include instances where the increase in frequency or severity of an existing violation would be significant."
Water Quality	Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)	Combined water quality, wetlands and floodplains; No federal change applicable to Proposed Action.
Wetlands		
Floodplains		
Wild and Scenic Rivers		
Department of Transportation Act, Section 4(f)	Department of Transportation Act, Section 4(f)	No federal change applicable to Proposed Action.
Historical, architectural, archeological, and cultural resources	Historical, architectural, archeological, and cultural resources	No federal change applicable to Proposed Action.
Biotic Communities (including both Flora and Fauna)	Biological resources (including fish, wildlife, and plants)	Combined; special status species added (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats.
Endangered and Threatened Species of Flora and Fauna		
Coastal Zone Management Program	Coastal Resources	Combined; No federal change applicable to Proposed Action.
Coastal Barriers		
Farmlands	Farmlands	No federal change applicable to Proposed Action.
Energy Supply and Natural Resources	Natural Resources and Energy Supply	No federal change applicable to Proposed Action.

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Table 4.1

FAA Order 1050/5050.4 Significance Threshold Updates

FAA Orders 1050.1D and 5050.4A (1998 EA)	FAA Orders 1050.1F and 5050.4B (Re-Evaluation)	Relevant Changes (if applicable)
Light Emissions	Visual Effects (including light emissions)	Added visual effects to resource category. Desk Reference states Visual effects are broken into two categories: 1) Light Emission Effects; and 2) Visual Resources and Visual Character.
Solid Waste Impacts	Hazardous Materials, Solid Waste, and Pollution Prevention	Added hazardous materials and pollution prevention.
Construction Impacts	--*	*In Order 1050.1F, this category is to be analyzed within each applicable environmental impact category.
N/A	Climate	New Category.
N/A	Cumulative Impacts	Cumulative impact analysis was required in the Order, but not as its own resource category.

Source: FAA Orders 1050.1D, 5050.4A (10/8/1985), FAA Order 1050.1F (8/6/2015), and Order 1050.1F Desk Reference (July 2015).

4.2 LOCAL / STATE REQUIREMENTS

Any changes to local or state requirements that are relevant to the potential impacts of the Midfield Cargo Facility Ramp expansion are identified and discussed in the relevant impact category in *Section 5.2, Potentially Affected Environmental Resource Categories*.

5. IMPACT ANALYSIS RE-EVALUATION

The potential environmental impacts of the Midfield Cargo Facility Ramp expansion were initially identified and evaluated in the 1998 EA as part of a larger Proposed Action to construct a larger Midfield Cargo Complex with associated airside/facility improvements. Updates to the impact analysis in this Re-Evaluation focus on impact categories that are relevant to the paving an approximately 800' x 320' area adjacent to the existing ramp facility, which represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA.

5.1 NON-ISSUE IMPACT CATEGORIES

Table 5.1 presents the environmental resource categories that will not be affected by the No Action and Proposed Action alternatives as well as the rationale for no further review of these categories. In

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accordance with guidance provided in FAA Orders 5050.4B and 1050.1F, no further analysis of these resources is provided within this Re-Evaluation.

Table 5.1

Environmental Resource Categories Not Affected

Resource Category	Reason Not Included
Department of Transportation Act, Section 4(f) and Section 6(f) of the Land and Water Conservation Fund Act	There are no Section 4(f) or 6(f) Resources in the Study Area.
Farmlands	There are no farmlands present in the Study Area.
Historical, architectural, archeological, and cultural resources	No impacts to historic, architectural, archeological, or cultural property. In 1996, MAA prepared a Historic Preservation Plan (HPP) with input and coordination from Maryland Historic Trust (MHT) that provided an overview of the history and prehistory of BWI Marshall Airport, including an inventory of all recorded archaeological and historical resources located on Airport property as well as a planning manual/action plan component. Part of the HPP planning manual/action plan details the coordination required for project review and development. Specifically, for projects that fall within areas designated in the HPP as previously evaluated/no additional study is required, MAA is able to move forward with the proposed project without any further coordination with MHT. The proposed site is located in a “previously evaluated/no additional study required” area of the Airport. MAA received concurrence from the MHT dated 4/20/17 confirming that there are no historic properties affected by the Proposed Action (Appendix A: Agency Coordination).
Water Resources (Floodplains, and Wild and Scenic Rivers)	There are no floodplains in the Study Area. There are also no river segments listed in the Wild and Scenic River System nor the Nationwide River Inventory located within the vicinity of BWI Marshall Airport.

5.2 POTENTIALLY AFFECTED ENVIRONMENTAL RESOURCE CATEGORIES

The potential environmental impacts of the Midfield Cargo Facility Ramp expansion were initially identified and evaluated in the 1998 EA as part of a larger Midfield Cargo Facility construction effort. Given that the full development was not implemented within the FAA's three-year timeline for major steps toward implementation after issuance of the FONSI, and given updates in FAA Orders and other environmental regulations, additional and/or updated analysis is required for assessment of potential impacts.

Updates to the impact analysis in this Re-Evaluation focus on impact categories that are relevant to the current Proposed Action only. The following environmental resources are assessed in this EA based on requirements in FAA Order 1050.1F:

- Air Quality
- Biological Resources (including fish, wildlife and plants)
- Climate
- Coastal Resources
- Land Use

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- Hazardous Materials, Solid Waste, and Pollution Prevention
- Natural Resources and Energy Supply
- Noise and Noise-Compatible Land Use
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Visual Effects (including light emissions)
- Water Resources (Wetlands, Surface Waters, Groundwater)
- Cumulative Impacts

The following environmental resource categories address FAA Orders 1050.1F and 5050.4B requirements and significance thresholds. Where possible, the impact of the current Proposed Action is separated for a comparable analysis between the EA and the Re-Evaluation. However, the analysis in the EA sometimes includes the impact(s) of implementing all components of Alternative 4R of the 1998 EA, as separating out the six-acre area paved expansion was not always possible.

5.2.1 AIR QUALITY

SUMMARY OF 1998 EA – ALTERNATIVE 4R

At the time of the air quality analysis for the 1998 EA, Anne Arundel County (within the Baltimore region) was designed as a “severe” non-attainment area for O₃. In accordance with the Clean Air Act, a revised State Implementation Plan (SIP) was developed by the MDE demonstrating attainment of the US EPA's established National Ambient Air Quality Standards (NAAQS) for O₃ by the year 2005. In order to assess air emissions associated with BWI Marshall Airport specifically, the MAA commissioned a BWI Marshall Air Quality Plan in 1994. The plan addressed aircraft, ground service vehicles, motor vehicles, fuel facility and other small sources of air emissions at the Airport. The results of the plan and the associated report served as a basis for evaluating existing and future air quality impacts and control measures associated with BWI Marshall Airport and its development.

The 1998 EA determined that total air emissions at BWI Marshall Airport with the proposed air cargo facility expansion were expected to be less than, or equal to, the levels contained in the BWI Marshall Air Quality Plan through the Year 2015 under all Build Alternatives. This conclusion was based on the comparison of forecasted operational levels developed in support of this EA and the Air Quality Plan. While operational levels were consistent for all Build Alternatives, the aircraft taxi-in and taxi-out times were the potential variables between the Build Alternatives that could affect air emissions. Because Alternative 4R was located in the midfield area of the Airport, it was determined that it would operate less taxi-related emissions compared to the alternatives located in the southeast and southwest quadrants of the Airport.

Because forecasted operations at BWI Marshall Airport with the proposed air cargo facility expansion were consistent with those used to develop the air emission inventories contained in the Air Quality Plan, the project was found to conform to the SIP.

RE-EVALUATION IMPACT ANALYSIS – CURRENT PROPOSED ACTION

Anne Arundel County is presently designated by the EPA as moderate non-attainment for ozone (O₃) and maintenance for particulate matter equal to or less than 2.5 micrometers (PM_{2.5}) in diameter. While the US EPA's established NAAQS for various air pollutants have changed since the air quality analysis that was conducted for the 1998 EA, the changes to the NAAQS are not discussed because the Proposed Action is Presumed to Conform (PTC) in accordance with Federal Register Notice (FRN), Vol.72 No. 145 under *Category #3 – Non-Runway Pavement Work*. The square footage of all the pavement work (800' x

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320' = 256,000 SF) is within the New Airfield Work (non-runway) limits set forth in *Table III-1: Presumed to Conform Limits for Selected Projects* in the FRN. The square footage of the non-runway pavement work is within the PM_{2.5} PTC (Maintenance) limits (26,050,568 SF) and the most stringent moderate nonattainment Ozone PTC (Moderate) limits for NO_x and VOC (2,193,881 SF and 11,916,560 SF, respectively) under New Airfield Work (non-runway).

Construction

Although construction-related emissions associated with the proposed project is considered PTC and would be temporary in duration, these emissions can be further reduced by employing the following measures: Reduction of exposed erodible surface area through appropriate materials and equipment staging procedures; Cover of exposed surface areas with pavement or vegetation in an expeditious manner; Reduction of equipment idling times; Ensure contractor knowledge of appropriate fugitive dust and equipment exhaust controls; Soil and stock-pile stabilization via cover or periodic watering; Use of low- or zero-emissions equipment; Use of covered haul trucks and conveyors during materials transportation; Reduction of electrical generator usage, wherever possible; Suspension of construction activities during high-wind conditions; Creation of dust, odor and nuisance reporting system; Daily watering of exposed surfaces and demolition activities; Reduction of vehicles speeds onsite; and Prohibition of open burning for waste disposal.

Conclusion: There would be no significant air quality impacts associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no air quality mitigation measures are required for this project. However the above mentioned construction emission mitigation measure will be implemented in an effort to further reduce emissions.

Table 5.2

Summary of Potential Changes to Air Quality

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	Presumed to Conform; No significant impact.	N	N/A

5.2.2 BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE AND PLANTS)

SUMMARY OF 1998 EA – ALTERNATIVE 4R

The 1998 EA describes the impacts to *Biotic Communities*, and *Endangered and Threatened Species of Flora and Fauna* resulting from Alternative 4R.

Biotic Communities – Alternative 4R would impact 105 acres of forest and 115 acres of mowed grassland. Approximately 48 acres of these impacts were due to impacts from the proposed stockpiling of 2.4 million cubic yards of excess material generated by the earthwork to construct this alternative.

After construction, the stockpile sites would be graded and seeded. Impacts were to be coordinated with MDNR for compliance with the 1991 Forest Conservation Act (FCA). The Master Reforestation Plan that was being prepared at the time outlined the required replanting and preservation techniques for each project at BWI Marshall. An individual Forest Conservation Plan (FCP) was also coordinated with MDNR, and was found to comply with the FCA. The MAA had sufficient reforestation credit at the time to compensate for the impacts associated with a new air cargo complex.

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Endangered and Threatened Species of Flora and Fauna – There were no known rare, threatened or endangered (RTE) species on the existing or planned development areas of Alternative 4R.

Conclusion: Due to the impact to forest and mowed grassland, development of an FCP was required to identify the impacts and necessary reforestation to comply with the FCA. There would be no significant impacts to endangered or threatened species associated with Alternative 4R, therefore, no mitigation measures were required for this project.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

The Study Area was graded and prepared for development following the 1998 EA/FONSI, and is currently mowed and maintained for airfield operations. According to the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool, there are no threatened, endangered, or candidate species present in the Study Area. There are also no Critical habitats, National Wildlife Refuges, or Fish Hatcheries present in the Study Area.

Certain birds are protected under the Migratory Bird Treaty Act (MBTA); any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the USFWS. The IPaC search for the Study Area resulted in 27 migratory birds that may be potentially affected by activities in this location. The MAA adheres to a Wildlife Hazard Management Plan (WHMP), developed in cooperation with the U.S. Department of Agriculture's Wildlife Services program that emphasizes identification and abatement of wildlife hazards within the airfield environment, outlines priorities for habitat management, and manages the airfield in a way that is non-conducive to hazardous wildlife, including migratory birds. Refer to *Appendix A: Agency Coordination*, for the Official Species List for the Study Area.

Conclusion: There would be no significant impacts to Biological Resources (including fish, wildlife and plants), or any biotic communities such as forested area associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

Table 5.3

Summary of Potential Changes to Biological Resources

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
<i>Biotic Communities</i> – No significant impact with mitigation. <i>Endangered and Threatened Species</i> – No significant impact.	No significant impact.	N	N/A

5.2.3 CLIMATE

SUMMARY OF 1998 EA

Evaluation of impacts to Climate was not required for the EA because it was not a resource category identified in FAA Order 1050.1D/5050.4A.

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RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

Research has shown there is a direct correlation between fuel combustion and greenhouse gas (GHG) emissions. According to the 1050.1F Desk Reference, “GHG emissions result from anthropogenic sources including the combustion of fossil fuels. GHGs are defined as including carbon CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). CO₂ is the most important anthropogenic GHG because it is a long-lived gas that remains in the atmosphere for up to 100 years. Climate change is a global phenomenon that can have local impacts...Research has shown there is a direct correlation between fuel combustion and GHG emissions.”¹⁸

No quantitative data on GHG emissions is available for the Study Area, however GHG emissions can be discussed qualitatively in relation to the air quality impacts. The Proposed Action would not result in exceedances of the applicable *de minimis* threshold for criteria pollutants, therefore it is assumed that there would be a minimal increase of emissions of greenhouse gases during the short-term construction period. Notably, there are no *de minimis* thresholds by which you could evaluate the magnitude of the increase in greenhouse gases.

Conclusion: There would be no significant impacts to the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

Table 5.4

Summary of Potential Changes to Climate

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
N/A	No significant impact.	N	N/A

5.2.4 COASTAL RESOURCES

SUMMARY OF 1998 EA – ALTERNATIVE 4R

The *Coastal Zone Management Program* and *Coastal Barriers* of the 1998 EA discuss these resources as they relate to Alternative 4R.

Coastal Zone Management Program – The Alternative 4R development was located within the Maryland Coastal Zone, as defined by the Maryland Coastal Zone Management Program. In a response dated January 6, 1998, the MDE provided concurrence that the proposed activities were consistent with the State's CZMP, as required by Section 307 of the Federal CZMA, as amended. The concurrence was conditioned on the applicant's receipt of a Nontidal Wetlands and Waterways permit and adherence to the conditions of the permit, which was received February 13, 1998.

Coastal Barriers – The Alternative 4R development was not located in the Coastal Barrier Resources System and will not impact coastal barriers.

Conclusion: There would be no significant impacts to the Coastal Zone Management Program or Coastal Barriers associated with Alternative 4R, therefore, no mitigation measures were required for this project.

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The Study Area is in Anne Arundel County, which continues to be considered part of Maryland's Coastal Zone, thus MAA is required to comply with the regulations set forth and administered by MDE and MDNR. The MAA submitted a request to the MDE Federal Consistency Coordinator on April 19, 2017 seeking confirmation that expanding the Midfield Cargo Facility ramp remains consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the Coastal Zone Management Act of 1972, as amended (CZMA). The MDE responded April 20, 2017 that, based on the information provided "...including our previous review of the 1998 EA, the proposed expansion of the Midfield Cargo Facility Ramp is consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the CZMA." Correspondence with the Federal Consistency Coordinator is included in *Appendix A: Agency Coordination*.

The ramp expansion is not located in the Coastal Barrier Resources System and will not impact coastal barriers.

Conclusion: Confirmation that expanding the Midfield Cargo Facility ramp remains consistent with the CZMP, as required by Section 307 of the CZMA, was requested and received. The ramp expansion would be consistent with the CZMA and thus no mitigation measures are required for this project. See *Appendix A, Agency Coordination*.

Table 5.5

Summary of Potential Changes to Coastal Resources

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
Coastal Zone Consistency Determination received; conditions of Nontidal Wetlands and Waterways permit applicable.	No significant impact; Coastal Zone Consistency Determination received.	N	N/A

5.2.5 HAZARDOUS MATERIALS, SOLID WASTE AND POLLUTION PREVENTION

SUMMARY OF 1998 EA – ALTERNATIVE 4R

There is no hazardous materials section in the 1998 EA and information about hazardous materials is not included in the EA. The primary sources of solid waste produced by Alternative 4R development were expected to be trees and excavated earth needed in order to construct the development. Alternative 4R would require the clearing of approximately 220 acres of land, including 55 acres of stockpile area and generation of approximately 2.4 million cubic yards of excess fill material. The fill material would not require off-site hauling, but would be stockpiled on-site.

The EA stated that all solid waste generated by the proposed action would be disposed of in the Annapolis sanitary landfill. However, it was determined that this landfill did not have a current refuse disposal permit from the Waste Management Administration. Therefore, as a mitigation measure, the FONSI stated that the Airport Sponsor must ensure that all solid waste would be disposed of in a facility that has a current refuse disposal permit issued by the Waste Management Administration.

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Conclusion: There would be no significant impacts to Hazardous Materials or Solid Waste associated with Alternative 4R, however, as mitigation, the MAA was to ensure that all solid waste would be disposed of in a facility that had a current refuse disposal permit issued by the Waste Management Administration.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

Hazardous Materials – There are no known hazardous material sites in the Study Area for the current Proposed Action. To the extent that hazardous materials would be used on site, they would continue to be handled, used, stored, transported, and disposed of pursuant to applicable State, federal, and local regulations. There are no National Priorities List (NPL) sites or facilities at BWI Marshall Airport, or the vicinity. The Study Area for the expansion was cleared and graded as part of the construction for the development that occurred following the 1998 EA. Prior to clearing and grading the site, it was forested and/or open field, and previously undisturbed.¹⁹ It was not previously used by the Airport for any other use. The Study Area has been a part of Airport property since it was purchased from the City of Baltimore in the early 1970s.

Solid Waste and Pollution Prevention – The operation of the expanded ramp area, once constructed, would not generate additional solid waste.

Construction

During construction, the contractor would use disposal methods in accordance with state and local regulations for any disposal of spoil materials, however minimal excavation is expected, as the area was previously graded. Any solid waste generated from the project would be properly disposed of at a permitted solid waste facility, or recycled, if possible.

Conclusion: There would be no significant environmental impacts related to hazardous materials or solid waste associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

Table 5.6

Summary of Potential Changes to Hazardous Materials, Solid Waste and Pollution Prevention

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact with mitigation.	No significant impact.	N	N/A

5.2.6 LAND USE

SUMMARY OF 1998 EA – ALTERNATIVE 4R

As the development of Alternative 4R would be entirely contained on Airport property, there would be no direct impacts to land uses adjacent to the Airport. The proposed project was consistent with Anne Arundel County's General Development Plan. Additionally, the EA stated that the proposed project would enhance the area's position as a regional industrial center in the Baltimore region and would be likely to stimulate additional economic activity around the Airport.

Conclusion: There would be no significant impacts to land use compatibility associated with Alternative 4R, therefore, no mitigation measures were required for this project.

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The expansion of the Midfield Cargo Facility Ramp would occur in an existing cargo area of the Airport, near Aviation Support Areas, and would be consistent with the designated land uses at BWI Marshall Airport. The Study Area is designated as “Aviation Support” on the approved ALP. The majority of the Airport is still zoned Residential, which does not reflect the current use. The Airport’s land uses are consistent with the County’s most up-to-date General Development Plan (2009). The Airport is bordered by industrial, residential, open space, and small areas of commercial zones. Industrial zones are concentrated in the area west of the airport. Residential zones are scattered around the airport and are concentrated northeast of the airport.

Conclusion: There would be no significant impacts to land use associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

Table 5.7

Summary of Potential Changes to Land Use Compatibility

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	No significant impact.	N	N/A

5.2.7 NATURAL RESOURCES AND ENERGY SUPPLY

SUMMARY OF 1998 EA –ALTERNATIVE 4R

The 1998 EA stated that increases in energy consumption directly and indirectly caused by the proposed expansion of air cargo facilities at the Airport would not result in significant impacts to energy supply or natural resources because (1) Baltimore Gas and Electric (BGE) had demonstrated sufficient capacity to provide for increased consumption of electric power associated with the proposed additional facilities; and (2) the proposed project would not involve the use of any unusual natural resources, or those in short supply. Additionally, there would be no interference with the Airport’s existing or planned utilities or circuits/facilities.

Conclusion: There would be no significant impacts to natural resources and energy supply associated with Alternative 4R, therefore, no mitigation measures were required for this project.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

The only additional energy use required by the Proposed Action is the additional lighting for the new high mast apron lights that would be installed to support the ramp expansion and use of the area. The additional energy consumption required would not amount to a significant percent of total Airport use, and would not create a substantial increase in demand for local resources and utilities or strain the capacity/supply of these resources/ utilities to the meet the additional demand.

Additionally, the Proposed Action would not involve the use of any unusual or scarce materials and would not cause a demand for the use of any unusual natural resource or the use of any resource that is in short supply. There are no known deposits of valuable natural resources located on or near the Study Area that would be affected by the Proposed Action and the Proposed Action would not cause a substantial increase in demand for local resources and utilities or strain the capacity/supply of these resources/utilities to the meet the additional demand.

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Conclusion: There would be no significant impacts to natural resources or energy supply associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

Table 5.8

Summary of Potential Changes to Natural Resources and Energy Supply

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	No significant impact.	N	N/A

5.2.8 NOISE AND NOISE-COMPATIBLE LAND USE

SUMMARY OF 1998 EA – ALTERNATIVE 4R

Noise analysis was conducted to compare between the Build and No Build Scenarios during selected years. Eight scenarios were developed: 1995 Base Year, 1999 No Build, 1999 Build-Expected Growth, 1999 Build-High Growth, 2015 No Build, 2015 Build-Expected Growth, 2015 Build-High Growth, and 2015 Build-High Growth with a cumulative impact scenario with proposed parallel 10-28 Runway. The Build scenarios assumed growth in air cargo operations only if the proposed facilities were built.

It was determined that the noise effects of the proposed cargo facility were not considered significant. Noise contours increased by between 0.2 and 0.5 dBA, assuming the “worst case” scenario in 2015. These levels were well below the significance threshold of a 1.5 dBA increase in noise sensitive areas within a DNL 65 area as established by the FAA. Ground noise from the proposed Midfield Cargo Facility (taxiing, engine start-up, use of auxiliary power units, etc.) was also evaluated and would not be expected to cause any significant noise impacts in the closest residential areas to the south of the Airport.

During construction, short term effects of noise would occur and would be controlled by construction contract specifications.

Conclusion: There would be no significant impacts to noise exposure associated with Build Alternative 4R, therefore, no mitigation measures were required for this project.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

It is likely that additional cargo aircraft would taxi to the Midfield Cargo Complex since there would be additional parking area, however the Proposed Action still only represents a portion of the full build-out of Alternative 4R. Additionally, the 1998 EA analysis determined that there was no significant impact with a 2015 forecast that was substantially higher than what has actually occurred. Specifically, the 1998 EA forecast 18 daily air cargo operations in the 2015 Expected Growth scenario and 23 daily operations in the 2015 High Growth scenario, as show in **Table 5.9**. In 2016 there were eight daily cargo operations. Therefore, the growth in cargo operations is still less than half the Expected Growth scenario total analyzed for the noise analysis conducted in the 1998 EA. An expected increase of approximately 1.6% annually would not result in significant noise impacts.²⁰ Additionally, the fleet mix from the 1998 EA used for the 2015 scenario included Stage II aircraft that are no longer allowed to operate. Thus, the noise associated with the mid-field cargo expansion will be quieter than what was projected in the 1998 EA for 2015.

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Table 5.9

Daily Departures, 1998 EA vs. Actual (2016)

Type of Operation	1995		1999 No-Build		1999-Build-Expected Growth		2015 No-Build		2015 Expected Growth		2015 Build – High Growth		2016 Actual	
	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Domestic	168	13	186	15	186	15	241	19	241	19	241	19	251	46
International	16	1	17	1	17	1	21	1	21	1	21	1	13	2
Charter	4	1	5	1	5	1	6	1	6	1	6	1	11	2
<i>Subtotal</i>	<i>188</i>	<i>15</i>	<i>208</i>	<i>17</i>	<i>208</i>	<i>17</i>	<i>268</i>	<i>21</i>	<i>268</i>	<i>21</i>	<i>268</i>	<i>21</i>	<i>275</i>	<i>50</i>
Cargo	4	9	3	9	4	11	3	9	5	13	8	15	7	1
Total	192	24	211	26	212	28	271	30	273	34	276	36	282	51

Source: BWI, Proposed Air Cargo Facility Expansion, EA, Table IV-5, and FAA Operations Network (OPSNET), 2016.

Finally, ground noise was also found to not be significant in the 1998 EA and there are no noise sensitive receptors in the vicinity of the Study Area. Ground noise would be less with the current Proposed Action due to less apron to accommodate parking than what was included in Alternative 4R. Thus, any changes to the noise environment as a result of the additional ramp area is not expected to be significant.

There would be no substantive change to the projected noise environment with the Proposed Action, therefore there would be no potential for impacts to compatible land use related to noise.

Construction

Overall, the construction phase of this project would be expected to create minor and temporary impacts at the project site and in the surrounding airfield and terminal area. These impacts would be short-term in nature, lasting for the duration of construction activities. Temporary noise impacts would be generally localized at the vicinity of the construction site and the localized increase in noise levels would not disrupt normal airport operations or activities.

Conclusion: There would be no significant impacts to noise and noise-compatible land use associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

Table 5.10

Summary of Potential Changes to Noise and Noise-Compatible Land Use

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	No significant impact.	N	N/A

5.2.9 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN’S ENVIRONMENTAL HEALTH AND SAFETY RISKS

SUMMARY OF 1998 EA – ALTERNATIVE 4R

Alternative 4R in the 1998 (as with all Build Alternatives) would be constructed on airport property, and would not divide or disrupt any of the established communities within the area. The 1998 EA determined that expansion of cargo facilities would have a positive impact on the economic growth in the Airport

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vicinity and the Baltimore metropolitan region. The EA noted that additional employment would be created, regardless of the Build Alternative selected.

The EA stated that the Build alternatives would increase traffic volumes on the adjacent roadways, particularly Aviation Boulevard, MD Route 100, Dorsey Road, and I-95, however it was determined that the area roadway network had sufficient capacity to accommodate the increased post-construction traffic volumes. The analysis applied an annual growth rate of 2 percent (consistent with previous traffic projections conducted for Airport activities) to the 1994 Average Daily Traffic (ADT) volumes at the MD Route 170 (Aviation Boulevard) and MD Route 176 (Dorsey Road) intersection and the Aviation Boulevard and I-95 intersection to determine a preliminary Year 2000 traffic volume projection. The proposed project was not likely to increase average annual traffic volumes at either intersection in the future by more than the 2 percent growth rate used for the Year 2000 projects; thus, the project was not anticipated to generate a need for additional roadway or intersection improvements in the short-term, with the exception of possible turning lanes at the facility entrance. Four buildings were included as part of Alternative 4R.

Conclusion: There would be no significant impacts to socioeconomics associated with Build Alternative 4R, therefore, no mitigation measures were required for this project.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

The Proposed Action would not cause any impacts to surrounding communities or shift any business or economic activity or population movement or shifts in a community. The ramp expansion would not impact the economic development or health and safety of the communities that exist near the Airport. There are no residential areas, schools, day cares, playgrounds, parks, or children's health clinics in the immediate vicinity of the Study Area. Therefore, no neighborhoods or populations would be impacted by the Proposed Action and no disproportionately high and significant impacts on minority and low-income populations with respect to human health and environment would occur.

The additional ramp area is not expected to materially increase vehicle traffic, and any additional vehicle traffic would be expected during off peak hours (i.e., not during AM and PM commuting hours). There is currently one cargo facility building, however four buildings were proposed as part of Alternative 4R, and the traffic analysis was conducted for the full buildout. The current Proposed Action does not propose any additional/new sorting facilities or buildings, therefore the space for sorting would remain the same as it is currently and the ability to load and unload cargo onto delivery trucks would remain the same with the Proposed Action, which would mean that truck delivery volume/demand on local roads (Aviation Boulevard and Mathison Way) would be similar to the volume/demand experienced presently.

No direct or indirect economic impact analysis was conducted for this Re-Evaluation, however it is expected that there would be an increase in the availability of construction jobs during the construction period.

Conclusion: There would be no significant impacts to Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks associated with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

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Table 5.11

Summary of Potential Changes to Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	No significant impact.	N	N/A

5.2.10 VISUAL EFFECTS (INCLUDING LIGHT EMISSIONS)

SUMMARY OF 1998 EA – ALTERNATIVE 4R

The 1998 EA discusses impacts to light emissions under the Energy Supply and Natural Resources section for the Build Alternatives. The Build Alternatives would result in an increase of light emissions from the Airport, however, none of the light sources were expected to significantly increase light emissions to residential uses. The EA noted that shielding and screening techniques would be considered in the construction of the additional air cargo buildings/apron as well as all associated support facilities to minimize any potential impacts on residential areas.

Evaluation of visual effects/impacts was not required for the EA because it was not a resource category identified in FAA Order 1050.1D/5050.4A.

Conclusion: There would be no significant impacts to light emissions associated with Alternative 4R, therefore, no mitigation measures were required for this project.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

Light Emission Effects – New high mast apron lights would be installed to support the cargo complex operations in the expanded ramp area. The Airport currently has light emissions from aircraft, ground operations, work area lighting and security lighting. Therefore, any additional light from the expanded ramp area would not significantly change the light emissions from current conditions. Lighting for the Midfield Cargo Facility Ramp would be designed to comply with FAA and airport lighting standards in order to ensure there would be no negative impacts to runway operations or aircraft safety.

Visual Resources and Visual Character – Pavement marking and signage in the expanded ramp area would be provided to support the operations, and would be consistent with the cargo area and the existing built environment and surroundings.

Conclusion: There would be no significant impacts from light emissions or visual resources/visual character with the expansion of the Midfield Cargo Facility Ramp, therefore, no mitigation measures are required for this project.

**Re-Evaluation of an EA for the Expansion of the
Midfield Cargo Facility Ramp at BWI Marshall Airport**

Table 5.12

Summary of Potential Changes to Visual Effects (Including Light Emissions)

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	No significant impact.	N	N/A

5.2.11 WATER RESOURCES (WETLANDS, SURFACE WATERS, GROUNDWATER)

SUMMARY OF 1998 EA – ALTERNATIVE 4R

The 1998 EA describes the impacts to *Water Quality and Wetlands* resulting from Alternative 4R.

Water Quality – The EA analyzed impacts of Alternative 4R by drainage area. The analysis noted that the development would result in drainage area diversions and land use changes. The Kitten Branch drainage area would increase by 10.2 acres and would include an additional 50 acres of impervious area from the proposed cargo complex. Stormwater runoff would be directed into a new infiltration basin to handle the increased flow. The new basin would be constructed in the infield area between the proposed north parallel taxiway and Taxiway F. Additionally, infiltration trenches would be installed with level spreading devices to help reduce peak flow.

The Signal Branch drainage area would decrease by 10.7 acres and would include an additional 49 acres of impervious area from the proposed cargo complex. Open channel flow and new infiltration trenches would be utilized where possible. Hawkins Branch would also be impacted by the proposed cargo support area, and stormwater management would potentially include open channel flow and stone check dams.

Alternative 4R also included the stockpiling of approximately 2.4 million cubic yards between the Clark Branch and Hawkins Branch wetland areas. Peak flows through this area would be managed by outlet structures on the sediment basin at the base of the stockpile which would serve as a temporary stormwater management facility.

The 1998 EA identified permit requirements and potential mitigation measures. In accordance with Section 404 of the Clean Water Act (CWA) and the Maryland Nontidal Wetlands Protection Act, a Joint Federal and State Permit Application for the Alteration of any Floodplain, Waterway, Tidal or Nontidal Wetland was submitted to the U.S. Army Corps of Engineers (USACE). In accordance with Section 401 of CWA, a Water Quality Certification (WQC) was obtained by MDE. The Airport's existing National Pollutant Discharge Elimination System (NPDES) permit was not expected to be revised based on the proposed Alternative 4R.

The analysis references the 1993 BWI Comprehensive Stormwater Management Plan for measures that can be implemented to control stormwater quantity and enhance overall water quality. As a mitigation measure, the WQC included the condition that the first ½ inch of runoff from new impervious surfaces would be controlled by water quality structures prior to discharge to receiving waters.

Wetlands - The EA analyzed impacts of Alternative 4R on wetlands and streams by drainage area. The analysis states that Alternative 4R would impact 0.2 acres of wetlands and 45 linear feet of stream within the Hawkins Branch and Clark Branch wetland system; 0.9 acres of wetlands and 617 linear feet of stream within the Signal Branch wetlands system; and 0.04 acres of wetlands and 667 linear feet of stream within the Kitten Branch wetland system. A Section 404 Wetlands Permit was obtained from

Re-Evaluation of an EA for the Expansion of the Midfield Cargo Facility Ramp at BWI Marshall Airport

USACE (97-63850, January 9, 1998) and a wetland mitigation feasibility study was conducted on MAA-owned property west of the Airport.

Groundwater – There is no analysis of impacts to groundwater in the 1998 EA. The EA describes the existing groundwater in Anne Arundel County and around BWI Marshall Airport. The EA notes that BWI is located over the Patapsco Aquifer, which is recharged by surface infiltration of precipitation.

Conclusion: Impacts to water quality within Kitten Branch, Signal Branch, Hawkins Branch and Clark Branch due to construction and operation of Alternative 4R would be minimized through design modification and mitigated through stormwater management systems (quantity and quality controls) approved prior to construction. Impacts to wetlands would be mitigated for on an MAA-owned property west of the Airport.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

Wetlands - The Proposed Action includes a much smaller project footprint than what was proposed under the 1998 EA Alternative 4R. The Proposed Action does not include any impacts to wetlands or streams. Therefore, no permits or mitigation would be required.

Surface Water – Since the completion of the 1998 EA, there have been changes to Maryland's stormwater management regulations. The Maryland *Stormwater Management Act of 2007* (amended in 2009) requires environmental site design (ESD) to the maximum extent practicable (MEP). The Act resulted in the development of updated guidance on implementing the new regulations. The *2000 Maryland Stormwater Design Manual* was revised in May 2009 to reflect the updated regulations. Additionally, MDE published the *Maryland Stormwater Management Guidelines for State & Federal Projects* (April 15, 2010) for further guidance.

Unlike the 1998 EA Alternative 4R which includes impacts to multiple drainage areas, the current Proposed Action is only located within the Kitten Branch drainage area. The project has a footprint of approximately 256,000 square feet (5.9 acres) of impervious surface. The project is located on an existing building pad which has already been graded as part of the construction that occurred following the 1998 EA to facilitate ultimate build out of the site. The project site drains east towards the existing Midfield Cargo Facility ramp area. Runoff enters the closed stormwater drainage system either through an inlet or the existing trench drains, where it continues east to outfall into Pond B7.

In accordance with MDE regulations, stormwater management for new development includes implementing ESD to the MEP to provide water quality and quantity treatment of the new impervious area. The Proposed Action would require treatment of approximately 5.9 acres of impervious surface, and an ESD volume of 52,700 cf (see **Appendix B: Stormwater Treatment Calculations**).

The proposed ramp expansion area would include a continuation of the trench drain facilities currently located on the ramp area to the east. The proposed trench drains would connect to the closed drainage system, which drains east into Pond B7. Per the MDE approved water quality summary table for Kitten Branch, Pond B7 has excess capacity to treat an additional 8.11 acres of impervious surface due to the SWM site being designed for the ultimate buildout. The combination of new trench drains and excess capacity available in Pond B7 could be utilized to meet stormwater quality and quantity treatment requirements for the proposed ramp expansion.

With the proposed inclusion of the glycol collection system, the new apron would include trench drain, diversion vaults and associated mechanical and control systems to isolate and collect the runoff from deicing operations and store in additional tanks for disposal per MAA requirements.

Groundwater – There would be no impacts to groundwater as a result of the Proposed Action. There are no sole source aquifers in the vicinity of the Airport and the extension of the Midfield Cargo ramp area

**Re-Evaluation of an EA for the Expansion of the
Midfield Cargo Facility Ramp at BWI Marshall Airport**

would not impact groundwater such that water quality standards set forth by Federal, state, or local agencies would be exceeded or would have the potential to contaminate an aquifer used for public water supply.

Construction

The proposed construction staging area is located adjacent to the proposed expansion, as shown on Figure 2. If uncontrolled, construction activities have the potential to cause erosion and sedimentation that can impact water quality. Short-term construction impacts would be minimized by strict adherence to erosion and sediment control procedures. BMPs would be used to avoid and minimize any potential impacts to the environment during construction and for the control of stormwater for quantity and quality.

Conclusion: There would be no significant impacts to water resources with the Proposed Action, provided that MDE SWM requirements are met through a combination of (1) new trench drain facilities; and (2) excess capacity available downstream in Pond B7.

Table 5.13

Summary of Potential Changes to Water Resources (Wetlands, Surface Waters, Groundwater)

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact with mitigation.	No significant impact with mitigation.	Y	Use of new and/or existing stormwater facilities to meet updated stormwater requirements, and use of water quality credits.

5.2.12 CUMULATIVE IMPACTS

SUMMARY OF 1998 EA – ALTERNATIVE 4R

The 1998 EA contains a description of the potential cumulative impacts associated with other airfield development projects in the vicinity of the potential cargo development resulting from Alternative 4R. The assessment included review of present, recent past, and reasonably foreseeable actions in the project vicinity. The analysis noted that the other airport projects to be considered cumulatively with the Proposed Action had and would be occurring in previously developed or disturbed areas of BWI Marshall property.

The cumulative impact analysis for each environmental resource concluded that Alternative 4R, when considered with other combined projects, would not contribute to a significant impact to environmental resources.

RE-EVALUATION IMPACT ANALYSIS – PROPOSED ACTION

Notice to Proceed for construction activities associated with the Midfield Cargo Facility Ramp expansion was received in July and construction is expected to be complete in December 2017.

Conclusion: The Proposed Action would only include minor temporary impacts during construction and would not result in any significant impacts to any of the environmental resource categories; therefore, the

**Re-Evaluation of an EA for the Expansion of the
Midfield Cargo Facility Ramp at BWI Marshall Airport**

Proposed Action, when combined with past, present or reasonably foreseeable future actions, would not result in any significant cumulative impacts.

Table 5.14

Summary of Potential Changes to Cumulative Impacts

Impacts		Change (Y/N)	If yes, proposed mitigation
1998 EA Alternative 4R	Re-Evaluation for Proposed Action		
No significant impact.	No significant impact.	N	N/A

6. AGENCY AND PUBLIC INVOLVEMENT

6.1 AGENCY SCOPING LETTERS

Scoping letters with information regarding the Proposed Action were sent to relevant agencies by MAA on April 20, 2017. The scoping information provided a brief background of the project and project information, including the proposed location of the project. The following agencies received scoping information:

- Anne Arundel County Planning and Zoning, Transportation Planning
- Maryland Department of the Environment (MDE), Air Quality Planning Program
- Maryland Department of the Environment, Federal Consistency Coordinator
- Maryland Department of Natural Resources (MDNR), Wildlife and Heritage Division
- Maryland Historical Trust (MHT), Division of Historical and Cultural Programs

6.2 AGENCY SCOPING RESPONSES

Responses to scoping letters were received from the MDE Coastal Consistency Coordinator and the MHT confirming consistency with existing regulations and plans. The other agency responses noted that there were no concerns regarding potential impacts due to the Proposed Action. Agency correspondence is included in *Appendix A: Agency Coordination*.

6.3 PUBLIC INVOLVEMENT

In accordance with FAA Order 1050.1F, re-evaluations should be reviewed internally and may be made public at the discretion of the FAA, however no public notification is required.

7. CONCLUSION

Based on the analysis presented in *Section 5, Impact Analysis*, there are no meaningful differences of impacts to any environmental criteria between the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport* and the proposed expansion of the Midfield Cargo Facility Ramp considered within this Re-Evaluation. All impacts and mitigation efforts identified in the 1998 EA that pertain to the Proposed Action have been updated to incorporate new federal, state and local guidance. The FONSI remains valid and a Supplemental EA is not required.

**Re-Evaluation of an EA for the Expansion of the
Midfield Cargo Facility Ramp at BWI Marshall Airport**

NOTES

¹ Federal Aviation Administration, Order 1050.1F, Section 9-2a(2)(b).

² MAA, BWI Master Plan Technical Report, 2011, p. 1-120 through 1-128.

³ MAA, Monthly Statistical Report Summary for the month of December 2016, <http://www.bwiairport.com/files/assets/stats/Dec2016.pdf#zoom=100> (accessed 4/28/17).

⁴ FAA, *FAA Aerospace Forecast: FY 2017-2037*.

⁵ Alternative 4R was a modification of the EA's "Alternative 4," and was developed following comments received on the Draft EA. Alternative 4R (Proposed Action) relocated the design to have the cargo support facility south of the access road, rather than north of the access road, as with Alternative 4. The layout was not as operationally efficient, but the relocation resulted in fewer stream impacts to Signal Branch and provided a substantial area for a stormwater management infiltration basin.

⁶ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, pp. II-12 through II-14.

⁷ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, pp. II-12 through II-14.

⁸ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, pp. I-15.

⁹ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, p. ES-2.

¹⁰ MAA, Monthly Statistical Report Summary for the month of December 2016, <http://www.bwiairport.com/files/assets/stats/Dec2016.pdf#zoom=100> (accessed 4/28/17).

¹¹ There have been changes in the reporting of cargo tonnage since the 1998 EA was published. For example, the cargo figures were restated several years ago when the MAA made the decision to stop reporting all truck cargo. Also, cargo carriers (e.g., UPS and others) were not required to report cargo tonnage until 2004, therefore the reporting before this period is not comparable to what is reported now.

¹³ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, p. I-15.

¹⁴ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, p. I-15.

¹⁵ Only a portion of the original buildout proposed in the 1998 EA is proposed.

¹⁶ FAA, *FAA Aerospace Forecast: FY 2017-2037*.

¹⁷ The 2011 Master Plan's projected annual growth rate through 2030 when published was 1.2% annually. Given that this factor has not been formally updated by the MAA at this time, a more recent (2017) national average from the FAA Aerospace Forecast (FY 2017-2037) is referenced.

¹⁸ FAA Order 1050.1F Desk Reference (July 2015), p. 3-1, http://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_nepa_policy_guidance/policy/faq_nepa_order_desk_ref/media/3-climate.pdf, accessed 9/8/16.

¹⁹ MAA, *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, May 1998, p. IV-48.

²⁰ FAA, *FAA Aerospace Forecast: FY 2017-2037*.

Appendix A

Agency Coordination

Agency Scoping Letters



Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director / CEO

April 20, 2017

Mr. Larry Tom
Planning and Zoning Officer
The Office of Planning and Zoning
Anne Arundel County
2664 Riva Road
Annapolis MD 21401

Dear Mr. Tom:

The Maryland Department of Transportation's Maryland Aviation Administration (MAA) proposes to expand the Midfield Cargo Facility Ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at Baltimore/Washington International Thurgood Marshall (BWI Marshall) Airport. The proposed ramp will accommodate up to 7 aircraft depending on the aircraft size. The proposed site location and relation to airport property is illustrated on **Figure 1**.

The ramp expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, however, the full ramp expansion was not implemented within the Federal Aviation Administration's (FAA) three-year timeline for major steps toward implementation after issuance of the Finding of No Significant Impact (FONSI). The proposed ramp expansion represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA. The proposed expansion is needed to accommodate operations that were forecast in the 1998 EA and that are now being realized. Because the original limited construction of the ramp is now insufficient, the MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA).

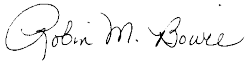
Environmental Analysis

All FAA Order 1050.1F impact categories will be addressed and any potential mitigation measures will be described to avoid creation of significant impact. Each of the environmental impact categories considered in the 1998 EA will be re-evaluated to determine if the data and analysis that led to the previous FONSI are still substantially valid considering the current airport environment and any changes to regulations and requirements. Grading operations for the full development area were conducted as part of the construction that occurred following the 1998 EA and the Study Area is currently mowed/maintained. It is anticipated that the existing stormwater management facility will handle the proposed runoff.

Mr. Larry Tom
Page Two

The MAA is soliciting comments from your agency regarding the preparation of the Re-Evaluation. To request further information about the proposed project, please contact me by phone at 410-859-7103 or via e-mail at rbowie@bwiairport.com. Please submit any written comments via mail or email by **May 22, 2017**.

Sincerely,

A handwritten signature in cursive script that reads "Robin M. Bowie".

Robin M. Bowie, Acting Director
Office of Environmental Services

Enclosures



Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director / CEO

April 20, 2017

Mr. Brian Hug
Acting Manager, Air Quality Planning Program
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore MD 21230

Dear Mr. Hug:

The Maryland Department of Transportation's Maryland Aviation Administration (MAA) proposes to expand the Midfield Cargo Facility Ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at Baltimore/Washington International Thurgood Marshall (BWI Marshall) Airport. The proposed ramp will accommodate up to 7 aircraft depending on the aircraft size. The proposed site location and relation to airport property is illustrated on **Figure 1**.

The ramp expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, however, the full ramp expansion was not implemented within the Federal Aviation Administration's (FAA) three-year timeline for major steps toward implementation after issuance of the Finding of No Significant Impact (FONSI). The proposed ramp expansion represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA. The proposed expansion is needed to accommodate operations that were forecast in the 1998 EA and that are now being realized. Because the original limited construction of the ramp is now insufficient, the MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA).

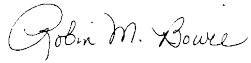
Environmental Analysis

All FAA Order 1050.1F impact categories will be addressed and any potential mitigation measures will be described to avoid creation of significant impact. Each of the environmental impact categories considered in the 1998 EA will be re-evaluated to determine if the data and analysis that led to the previous FONSI are still substantially valid considering the current airport environment and any changes to regulations and requirements. Grading operations for the full development area were conducted as part of the construction that occurred following the 1998 EA and the Study Area is currently mowed/maintained. It is anticipated that the existing stormwater management facility will handle the proposed runoff.

Mr. Brian Hug
Page Two

The MAA is soliciting comments from your agency regarding the preparation of the Re-Evaluation. To request further information about the proposed project, please contact me by phone at 410-859-7103 or via e-mail at rbowie@bwiairport.com. Please submit any written comments via mail or email by **May 22, 2017**.

Sincerely,

A handwritten signature in cursive script that reads "Robin M. Bowie".

Robin M. Bowie, Acting Director
Office of Environmental Services

Enclosures



Larry Hogan
Governor

Boyd K. Rutherford
Lt. Governor

Pete K. Rahn
Secretary

Ricky D. Smith, Sr.
Executive Director / CEO

April 20, 2017

Ms. Lori Byrne
Environmental Review Specialist, Wildlife and Heritage Services
Maryland Department of Natural Resources
580 Taylor Avenue, E-1
Annapolis MD 21401

Dear Ms. Byrne:

The Maryland Department of Transportation's Maryland Aviation Administration (MAA) proposes to expand the Midfield Cargo Facility Ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at Baltimore/Washington International Thurgood Marshall (BWI Marshall) Airport. The proposed ramp will accommodate up to 7 aircraft depending on the aircraft size. The proposed site location and relation to airport property is illustrated on **Figure 1**.

The ramp expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*, however, the full ramp expansion was not implemented within the Federal Aviation Administration's (FAA) three-year timeline for major steps toward implementation after issuance of the Finding of No Significant Impact (FONSI). The proposed ramp expansion represents only a portion of the ultimate buildout originally studied to support air cargo operations in the 1998 EA. The proposed expansion is needed to accommodate operations that were forecast in the 1998 EA and that are now being realized. Because the original limited construction of the ramp is now insufficient, the MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA).

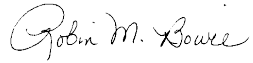
Environmental Analysis

All FAA Order 1050.1F impact categories will be addressed and any potential mitigation measures will be described to avoid creation of significant impact. Each of the environmental impact categories considered in the 1998 EA will be re-evaluated to determine if the data and analysis that led to the previous FONSI are still substantially valid considering the current airport environment and any changes to regulations and requirements. Grading operations for the full development area were conducted as part of the construction that occurred following the 1998 EA and the Study Area is currently mowed/maintained. It is anticipated that the existing stormwater management facility will handle the proposed runoff.

Ms. Lori Byrne
Page Two

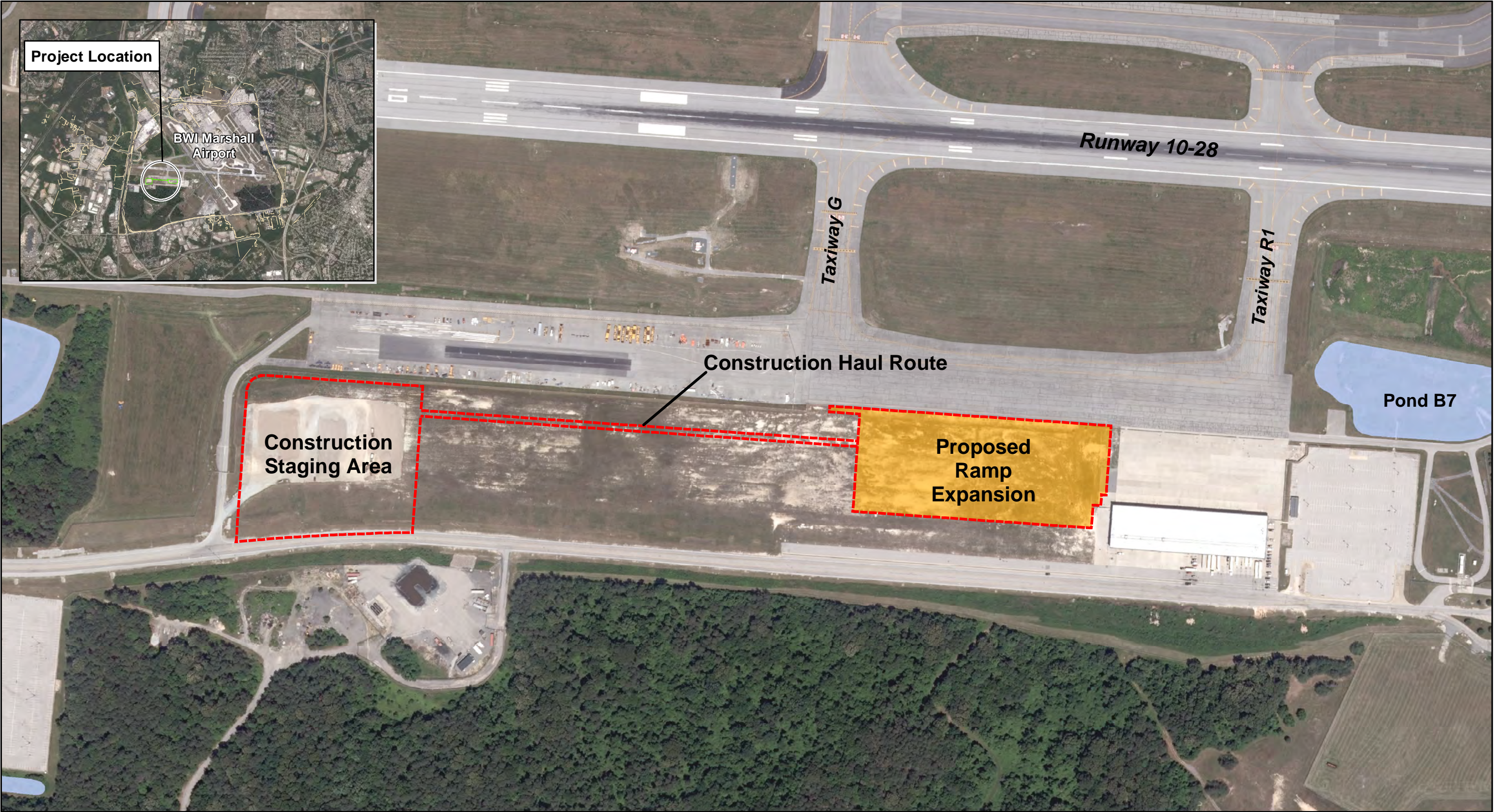
The MAA is soliciting comments from your agency regarding the preparation of the Re-Evaluation. To request further information about the proposed project, please contact me by phone at 410-859-7103 or via e-mail at rbowie@bwiairport.com. Please submit any written comments via mail or email by **May 22, 2017**.

Sincerely,

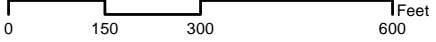
A handwritten signature in cursive script that reads "Robin M. Bowie".

Robin M. Bowie, Acting Director
Office of Environmental Services

Enclosures



- LEGEND
- Study Area
 - Existing Stormwater Management Pond
 - Proposed Pavement Improvements



Proposed Action
Figure 1

Subject:

Coastal Consistency Request - Re-Eval for Expansion of Midfield Cargo Facility Ramp at BWI

On Wed, Apr 19, 2017 at 2:15 PM, Robin Bowie <rbowie@bwiairport.com> wrote:

Hi, Elder,

Hope you are well!

The MAA is planning to expand the Midfield Cargo Facility ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at BWI Marshall Airport. The expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*. However, the full ramp expansion was not implemented within the FAA's three-year timeline for major steps toward implementation after issuance of the FONSI, therefore MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA). The proposed site location, study area (including haul route and staging area) and relation to airport property is illustrated on **Figure 1**.

MAA is seeking confirmation that expanding the Midfield Cargo Facility ramp remains consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the CZMA. This project will not affect any wetlands, waterways, surface waters, or forests. Grading operations for the full development area were conducted as part of the construction that occurred following the 1998 EA and the study area is mowed/maintained. The additional ramp pavement will be constructed in Portland Cement Concrete (PCC) and incorporate a continuation of the original trench drain facilities to capture stormwater runoff. It is anticipated that the existing stormwater management facility (Pond B7, as shown on Figure 1) will handle the proposed runoff as it was built to accommodate the entire project development at the time. Water quality and quantity will be addressed during design to meet the MDE's Stormwater Management requirements for environmental site design to the maximum extent practicable.

Let me know if you need any additional information. Thank you in advance!

Ms. Robin M. Bowie

Acting Director, Office of Environmental Services

Maryland Department of Transportation Maryland Aviation Administration

[410-859-7103](tel:410-859-7103) (office)

[410-859-7082](tel:410-859-7082) (fax)

rbowie@bwiairport.com

Mailing Address

P.O. Box 8766

BWI Airport, MD 21240

Overnight Shipping Address

991 Corporate Boulevard

Linthicum, MD 21090

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Subject: Request for MHT Concurrence - Re-Eval for Expansion of Midfield Cargo Facility Ramp at BWI

On Wed, Apr 19, 2017 at 2:12 PM, Robin Bowie <rbowie@bwiairport.com> wrote:

Hi, Beth,

Hope you are well and things are going well for you!

The MAA is planning to expand the Midfield Cargo Facility ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at BWI Marshall Airport. The expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*. However, the full ramp expansion was not implemented within the FAA's three-year timeline for major steps toward implementation after issuance of the FONSI, therefore MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA). The proposed site location, study area (including haul route and staging area) and relation to airport property is illustrated on **Figure 1**.

The MAA is seeking concurrence from the Maryland Historical Trust (MHT) that the areas of these proposed projects fall within areas designated in the HPP as previously evaluated and thus no additional study is required. This request is based on the Historic Preservation Plan (HPP) that MAA prepared in 1996 in coordination with MHT. Additionally, this area is screened from the Benson Hammond House; therefore there would be no visual impacts as a result of the proposed projects. The proposed project is not changing existing aircraft operations or procedures, therefore there would be no changes to the noise environment in the vicinity of any historic properties.

Let me know if you need any additional information! Thank you in advance!

Ms. Robin M. Bowie

Acting Director, Office of Environmental Services

Maryland Department of Transportation Maryland Aviation Administration

410-859-7103 (office)

410-859-7082 (fax)

rbowie@bwiairport.com

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Agency Scoping Responses

Subject: RE: Coastal Consistency Request - Re-Eval for Expansion of Midfield Cargo Facility Ramp at BWI

From: Elder Ghigiarelli -MDE- [<mailto:elder.ghigiarelli@maryland.gov>]

Sent: Thursday, April 20, 2017 1:55 PM

To: Robin Bowie <rbowie@bwiairport.com>

Subject: Re: Coastal Consistency Request - Re-Eval for Expansion of Midfield Cargo Facility Ramp at BWI

Robin,

I am responding to your request for a Federal Consistency determination, pursuant to Section 307 of the Federal Coastal Zone Management Act of 1972, as amended (CZMA), for the proposed expansion of the Midfield Cargo Facility Ramp by paving an approximately 800' X 320' area adjacent to the existing ramp at BWI Marshall Airport. As noted in your email, this expansion was assessed in the 1998 Environmental Assessment for the Proposed Expansion of Air Cargo Facilities at BWI. However, since the project was not completed within the 3-year time frame after the issuance of the FONSI, the project must be reevaluated to satisfy NEPA requirements.

The information provided indicates that the proposed expansion will not result in any impacts to sensitive resources including wetlands, waterways, or forests. The project site is currently mowed and maintained. Based on this information, including our previous review of the 1998 EA, the proposed expansion of the Midfield Cargo Facility Ramp is consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the CZMA. Please note that this determination does not obviate the responsibility to obtain any other State approvals that are necessary for the project.

If you have any questions, please contact me.

Elder

Elder Ghigiarelli, Jr.
Deputy Program Administrator
Maryland Federal Consistency Coordinator
Wetlands and Waterways Program
Maryland Department of the Environment
Phone: (410) 537-3763
Fax: (410) 537-3751

On Wed, Apr 19, 2017 at 2:15 PM, Robin Bowie <rbowie@bwiairport.com> wrote:

Hi, Elder,

Hope you are well!

The MAA is planning to expand the Midfield Cargo Facility ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at BWI Marshall Airport. The expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*. However, the full ramp expansion was not implemented within the FAA's three-year timeline for major steps toward implementation after issuance of the FONSI, therefore MAA is completing a Re-Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA). The proposed site location, study area (including haul route and staging area) and relation to airport property is illustrated on **Figure 1**.

MAA is seeking confirmation that expanding the Midfield Cargo Facility ramp remains consistent with the Maryland Coastal Zone Management Program, as required by Section 307 of the CZMA. This project will not affect any wetlands, waterways, surface waters, or forests. Grading operations for the full development area were conducted as part of the construction that occurred following the 1998 EA and the study area is mowed/maintained. The additional ramp pavement will be constructed in Portland Cement Concrete (PCC) and incorporate a continuation of the original trench drain facilities to capture stormwater runoff. It is anticipated that the existing stormwater management facility (Pond B7, as shown on Figure 1) will handle the proposed runoff as it was built to accommodate the entire project development at the time. Water quality and quantity will be addressed during design to meet the MDE's Stormwater Management requirements for environmental site design to the maximum extent practicable.

Let me know if you need any additional information. Thank you in advance!

Ms. Robin M. Bowie

Acting Director, Office of Environmental Services

Maryland Department of Transportation Maryland Aviation Administration

[410-859-7103](tel:410-859-7103) (office)

[410-859-7082](tel:410-859-7082) (fax)

rbowie@bwiairport.com

Mailing Address

P.O. Box 8766

BWI Airport, MD 21240

Overnight Shipping Address

991 Corporate Boulevard

Linthicum, MD 21090

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Subject: RE: Request for MHT Concurrence - Re-Eval for Expansion of Midfield Cargo Facility Ramp at BWI

From: Beth Cole - MHT [<mailto:beth.cole@maryland.gov>]

Sent: Thursday, April 20, 2017 10:07 AM

To: Robin Bowie <rbowie@bwiairport.com>

Subject: Re: Request for MHT Concurrence - Re-Eval for Expansion of Midfield Cargo Facility Ramp at BWI

Robin,

The Maryland Historical Trust concurs with MAA's assessment and no further investigations are warranted. The proposed undertaking will have no effect on historic and archeological resources. Thank you for providing us this opportunity to comment. Have a good day,

Beth Cole



***Please note my new phone number. All MHT staff phone numbers will change in January 2017!**

Beth Cole
Administrator, Project Review and Compliance
Maryland Historical Trust
Maryland Department of Planning
100 Community Place
Crownsville, MD 21032
beth.cole@maryland.gov / **410-697-9541**

[Please take our customer service survey.](#)
MHT.Maryland.gov

On Wed, Apr 19, 2017 at 2:12 PM, Robin Bowie <rbowie@bwiairport.com> wrote:

Hi, Beth,

Hope you are well and things are going well for you!

The MAA is planning to expand the Midfield Cargo Facility ramp by paving an approximately 800' x 320' area adjacent to the existing ramp at BWI Marshall Airport. The expansion was assessed as part of the 1998 *Final Environmental Assessment (EA) for the Proposed Expansion of Air Cargo Facilities at BWI Marshall Airport*. However, the full ramp expansion was not implemented within the FAA's three-year timeline for major steps toward implementation after issuance of the FONSI, therefore MAA is completing a Re-

Evaluation of the EA to satisfy FAA's procedures for compliance with the National Environmental Policy Act of 1969 (NEPA). The proposed site location, study area (including haul route and staging area) and relation to airport property is illustrated on **Figure 1**.

The MAA is seeking concurrence from the Maryland Historical Trust (MHT) that the areas of these proposed projects fall within areas designated in the HPP as previously evaluated and thus no additional study is required. This request is based on the Historic Preservation Plan (HPP) that MAA prepared in 1996 in coordination with MHT. Additionally, this area is screened from the Benson Hammond House; therefore there would be no visual impacts as a result of the proposed projects. The proposed project is not changing existing aircraft operations or procedures, therefore there would be no changes to the noise environment in the vicinity of any historic properties.

Let me know if you need any additional information! Thank you in advance!

Ms. Robin M. Bowie

Acting Director, Office of Environmental Services

Maryland Department of Transportation Maryland Aviation Administration

410-859-7103 (office)

410-859-7082 (fax)

rbowie@bwiairport.com

Mailing Address

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BWI Airport, MD 21240

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Linthicum, MD 21090



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Mark Belton, Secretary
Johnnie Throwe, Deputy Secretary

RECEIVED

May 9, 2017

MAY 25 2017

OFFICE OF
ENVIRONMENTAL SERVICES

Ms. Robin M. Bowie
Maryland Aviation Administration
P.O. Box 8766
BWI Airport, Maryland 21240-0766

RE: Environmental Review for Proposed Expansion of Midfield Cargo Facility Ramp at Baltimore/Washington International Thurgood Marshall Airport, Anne Arundel County, Maryland.

Dear Ms. Bowie:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. As a result, we have no specific concerns regarding potential impacts or recommendations for protection measures at this time. Please let us know however if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2017.0682.aa

US Fish and Wildlife Service IPaC
and Official Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

<http://www.fws.gov/chesapeakebay/>
<http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html>

In Reply Refer To:

April 24, 2017

Consultation Code: 05E2CB00-2017-SLI-1154

Event Code: 05E2CB00-2017-E-02205

Project Name: Re-Evaluation for Midfield Cargo Facility Ramp Expansion at BWI Marshall Airport

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2017-SLI-1154

Event Code: 05E2CB00-2017-E-02205

Project Name: Re-Evaluation for Midfield Cargo Facility Ramp Expansion at BWI Marshall Airport

Project Type: TRANSPORTATION

Project Description: The Maryland Aviation Administration is conducting a Re-Evaluation of a 1998 EA to expand the Midfield Cargo Facility ramp area by paving an approximately 800' x 320' area adjacent to the existing ramp at BWI Marshall Airport.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/39.17131537782752N76.68374167531462W>



Counties: Anne Arundel, MD

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Critical habitats

There are no critical habitats within your project area.

USFWS National Wildlife Refuges And Fish Hatcheries

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuges or fish hatcheries within your project area.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

There are no wetlands within your project area.

Appendix B

Stormwater Calculations

BWI**ESD Computations for****Midfield Cargo Ramp Area**

Total LOD = 256,000 s.f. = 5.88 ac.

Existing impervious area in LOD= 0 s.f. 0.00 ac.

%Existing impervious area in LOD= 33% **USE NEW DEVELOPMENT SINCE <40%**

Pavement Removal = 0 s.f. = 0.00 ac.

New Pavement = 256,000 s.f. = 5.88 ac.

Net (ESD Required)= 256,000 s.f. = 5.88 ac.

Redevelopment Area Requiring ESD = 0 s.f. = **0.00 ac.**
(50% of existing impervious area in LOD)

New Development for ESD = 256,000 s.f. = 5.88 ac.
(Net increase/decrease in impervious area)

IART = 5.88 ac.

B. Compute ESDv2 for New Development

New Development = 256,000 s.f. = 5.88 ac.

Determine ESD Implementation Goals**1.1 Determine Pre-Developed Conditions****Soil Conditions**

HSG	RCN	Area (s.f.)	Area (ac.)	Percent	Assume 100% A soils
A	38	256,000	5.88	0.00%	
B	55	0	0.00	0.00%	
C	70	0	0.00	10.00%	
D	77	0	0.00	90.00%	
Total		256,000	5.88		

Determine composite RCN for "woods in good condition"

$$\text{RCN} = \frac{(38)(5.88) + (55)(0) + (70)(0) + (77)(0)}{5.88} = 38 \quad \leftarrow \text{Target RCN}$$

1.2 Determine Target Pe using Table 5.3**Determined Proposed Imperviousness (%I)**

Total Impervious = 256,000 s.f. = 5.88 ac.

Impervious in A soils = 256,000 = 100.00% of total impervious in A soils

Impervious in B soils = 0 = 0.00% of total impervious in B soils

Impervious in C soils = 0 = 0.00% of total impervious in C soils

Impervious in D soils = 0 = $\frac{0.00\%}{100\%}$ of total impervious in D soils

Total LOD = 256,000 s.f. = 5.88 ac.

%I = 100.00%

Determine Pe from Table 5.3

Using %I = 100% and A soils, target Pe = 2.6 inches

Using %I = 0% and B soils, target Pe = 0 inches

Using %I = 0% and C soils, target Pe = 0 inches

Using %I = 0% and D soils, target Pe = 0 inches

$$Pe = \frac{(2.6)(5.88) + (0)(0) + (0)(0) + (0)(0)}{5.88}$$

Target Pe = 2.60 inches

1.3 Compute ESDv2

$$Qe2 = Pe \times Rv$$

$$Rv = 0.05 + .009 \times \%I$$

$$Rv = 0.05 + .009 \times 100.00\%$$

$$Rv = 0.95000$$

$$Qe2 = 2.6 \times 0.95$$

$$Qe2 = 2.47$$

$$ESDv2 = \frac{(Pe)(Rv)(A)}{12} = \frac{(2.6)(0.95)(256000)}{12}$$

ESDv2	=	52,693	c.f.
ESDv2	=	1.21	ac-ft

C. Compute ESDv Total

$$ESDv \text{ Total} = ESDv1 + ESDv2$$

$$ESDV \text{ Total} = 1667.3 \text{ c.f.} + 7151.5 \text{ c.f.} = \mathbf{52,693 \text{ c.f.}}$$

$$ESDV \text{ Total} = \mathbf{1.21 \text{ ac-ft}}$$

BWI

ESD Computations for

Midfield Cargo Ramp Area

Table 5.3 Rainfall Targets/Runoff Curve Number Reductions used for ESD

Hydrologic Soil Group A										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	40									
5%	43									
10%	46									
15%	48	38								
20%	51	40								
25%	54	41	38	38						
30%	57	42	41	39	38					
35%	60	44	42	40	39					
40%	61	44	42	40	39					
45%	66	48	46	41	40					
50%	69	51	48	42	41	38				
55%	72	54	50	42	41	39				
60%	74	57	52	44	42	40	38			
65%	77	61	55	47	44	42	40			
70%	80	66	61	55	50	45	40			
75%	84	71	67	62	56	48	40	38		
80%	86	73	70	65	60	52	44	40		
85%	89	77	74	70	65	58	49	42	38	
90%	92	81	78	74	70	65	58	48	42	38
95%	95	85	82	78	75	70	65	57	50	39
100%	98	89	86	83	80	76	72	66	59	40

Hydrologic Soil Group B										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	61									
5%	63									
10%	65									
15%	67	55								
20%	68	60	55	55						
25%	70	64	61	58						
30%	72	65	62	59	55					
35%	74	66	63	60	56					
40%	75	66	63	60	56					
45%	78	68	66	62	58					
50%	80	70	67	64	60					
55%	81	71	68	65	61	55				
60%	83	73	70	67	63	58				
65%	85	75	72	69	65	60	55			
70%	87	77	74	71	67	62	57			
75%	89	79	76	73	69	65	59			
80%	91	81	78	75	71	66	61			
85%	92	82	79	76	72	67	62	55		
90%	94	84	81	78	74	70	65	59	55	
95%	96	87	84	81	77	73	69	63	57	
100%	98	89	86	83	80	76	72	66	59	55

 Cp_v Addressed (RCN = Woods in Good Condition)

 RCN Applied to Cp_v Calculations

Table 5.3 Runoff Curve Number Reductions used for Environmental Site Design (continued)

Hydrologic Soil Group C										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	74									
5%	75									
10%	76									
15%	78									
20%	79	70								
25%	80	72	70	70						
30%	81	73	72	71						
35%	82	74	73	72	70					
40%	84	77	75	73	71					
45%	85	78	76	74	71					
50%	86	78	76	74	71					
55%	86	78	76	74	71	70				
60%	88	80	78	76	73	71				
65%	90	82	80	77	75	72				
70%	91	82	80	78	75	72				
75%	92	83	81	79	75	72				
80%	93	84	82	79	76	72				
85%	94	85	82	79	76	72				
90%	95	86	83	80	77	73	70			
95%	97	88	85	82	79	75	71			
100%	98	89	86	83	80	76	72	70		

Hydrologic Soil Group D										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	80									
5%	81									
10%	82									
15%	83									
20%	84	77								
25%	85	78								
30%	85	78	77	77						
35%	86	79	78	78						
40%	87	82	81	79	77					
45%	88	82	81	79	78					
50%	89	83	82	80	78					
55%	90	84	82	80	78					
60%	91	85	83	81	78					
65%	92	85	83	81	78					
70%	93	86	84	81	78					
75%	94	86	84	81	78					
80%	94	86	84	82	79					
85%	95	86	84	82	79					
90%	96	87	84	82	79	77				
95%	97	88	85	82	80	78				
100%	98	89	86	83	80	78	77			

 Cp_v Addressed (RCN = Woods in Good Condition)

 RCN Applied to Cp_v Calculations