PIEDMONT TRIAD AIRPORT AUTHORITY

October 2, 2015

U.S. Army Corps of Engineers
Wilmington District
Raleigh Regulatory Field Office
3331 Heritage Trade Dr., Suite 105
Wake Forest, NC 27587

Attention: Mr. David Bailey

NC Department of Environmental Quality
Division of Water Resources
401 & Buffer Permitting Unit
512 N. Salisbury St., 9th Floor
Raleigh, NC 27604

Ms. Karen Higgins

Subject: **Application for Section 404 Individual Permit, Section 401 Water Quality Certification, and Jordan Buffer Allowance for Cross-Field Taxiway at Piedmont Triad International Airport**

The Piedmont Triad Airport Authority (PTAA) hereby applies for Individual Permit and Water Quality Certification under Sections 404 and 401 of the Clean Water Act and 15A NCAC 2H .0500 and Jordan Buffer Allowance under 15A NCAC 2B .0267 for unavoidable impacts to jurisdictional Waters of the United States for construction of the Cross-Field Taxiway over Interstate Highway I-73 at the Piedmont Triad International Airport (PTIA). The first phase of aerospace development in the Northwest sector of PTIA is conceptualized in this application, but not anticipated for construction until after construction of the Cross-Field Taxiway has commenced. This project is currently included in an Environmental Assessment (EA/FONSI, copy of final document provided separately) by the Federal Aviation Administration (FAA), consistent with the National Environmental Policy Act (NEPA). The EA addresses 972 acres to be developed at PTIA, 553 acres of which are located north of Interstate Highway I-73 [under construction by the North Carolina Department of Transportation (NCDOT) as Transportation Improvement Project I-5110]. The proposed Phase I Northwest Site Development is located within this 553 acres, as it is the only location of adequate size and dimensions for the anticipated aerospace industry requirements. The Cross-Field Taxiway is necessary to maintain airport access to this area once I-73 construction is complete. Jurisdictional resources within the project area have been verified by the United States Army Corps of Engineers (USACE, Action ID SAW-2012-01547), with applicability to the Mitigation Rules (15A NCAC 2H .0506(h)) and the Jordan Lake Riparian Buffer Rules determined by the North Carolina Department of Environmental Quality (NCDEQ) Division of Water Resources (DWR) Winston-Salem Regional Office, as confirmed by NCDEQ Counsel in letter to William O. Cooke, Jr. dated July 27, 2015.

The 127.8-acre Phase I Site Development and 25.7-acre taxiway, within the 553-acre Northwest site, may impact approximately 5.96 acres of jurisdictional man-made golf course ponds with 139,169 square feet (s.f.) Zone 1 and 105,674 s.f. Zone 2 (5.62 acres) pond buffer, but avoids impacts to wetlands or streams. The Cross-Field Taxiway may impact approximately 255 linear

feet (l.f.) of perennial stream channel, 136 l.f. of intermittent stream channel, with approximately 21,470 (s.f.) of Zone 1 and 14,274 s.f. Zone 2 (0.82 acre total) of Jordan Lake riparian buffer adjacent to the total 391 l.f. unavoidable stream impacts.

The **Project Purpose and Need** and **Avoidance of Impacts** are detailed in the EA and the enclosed Alternatives Analysis (specific to the Cross-Field Taxiway, also appended to the EA as Appendix E). As an on-going advancement of the project described in the EA, PTAA has conceptualized the first phase of potential aerospace development within the 553 acres North of I-73. This preliminary design work was scheduled after the NEPA/EA process in anticipation of the need by potential future tenant(s) to rapidly develop such a facility. This development phase is designed to accommodate future aerospace tenant needs based on previously requested elements and dimensions, and aviation industry and FAA standards.

The EA summarizes consideration of **Alternative Locations** for the proposed expansion of the Airport, including areas southeast, south, southwest of PTIA, and a combination of non-contiguous sites. None of these locations meets the Project purpose, or avoids the need for a taxiway.

Minimization of Impacts

PTAA will minimize potential unavoidable adverse effects of the Proposed Phase I Northwest Site Development and Cross-Field Taxiway project consistent with FAA requirements and Section 404(b)(1) guidelines as follows:

- Construction of the taxiway stream crossing will minimize smothering of organisms by utilizing "pump-around"; minimize construction time; control turbidity through adherence to the Erosion and Sedimentation Control Plan; avoid unnecessary discharge; prevent creation of standing water; and prevent drainage of wet areas.
- During construction, physiochemical conditions will be maintained and potency and availability of pollutants will be reduced; material to be discharged will be limited; treatment substances may be added if necessary; chemical flocculants may be utilized to enhance the deposition of suspended particulates in appropriate disposal areas, if required.
- The effects of dredged or fill material may be controlled by selecting discharge methods and disposal sites where the potential for erosion, slumping or leaching of materials into the surrounding aquatic ecosystem will be reduced. These methods include using containment levees, sediment basins, and cover crops to reduce erosion.
- Discharge effects will also be controlled by containing discharged material properly to prevent point and nonpoint sources of pollution; and timing the discharge to minimize impact, for instance during periods of unusual high water flows.
- The effects of a discharge will be minimized by the manner in which it is dispersed, such as, where environmentally desirable, orienting dredged/fill material to minimize undesirable obstruction to the surface water or natural flow, and utilizing natural contours to minimize the size of the fill; using silt screens or other appropriate methods to confine suspended particulates/turbidity to a small area where settling or removal can occur; selecting sites or managing discharges to confine and minimize the release of suspended particulates to give decreased turbidity levels and to maintain light penetration for

organisms; and setting limitations on the amount of material to be discharged per unit of time or volume of receiving water.

- Discharge technology will be adapted to the needs of the site. The applicant will consider using appropriate equipment or machinery, including protective devices, and the use of such equipment in activities related to the discharge of dredged or fill material; employing appropriate maintenance and operation on equipment or machinery, including adequate training, staffing, and working procedures; using machinery and techniques that are especially designed to reduce damage to streams; designing access roads and channel spanning structures using culverts, open channels, and diversions that will pass both low and high water flows, accommodate fluctuating water levels, and maintain circulation and faunal movement; employing appropriate machinery and methods of transport of the material for discharge.
- Minimization of adverse effects on populations of plants and animals will be achieved by minimizing changes in water flow patterns which would interfere with the movement of animals; managing discharges to avoid creating habitat conducive to the development of undesirable airport wildlife hazards; avoiding sites having unique habitat or other value, including habitat of threatened or endangered species; using planning and construction practices to institute habitat development and restoration to produce a new or modified environmental state of higher ecological value by displacement of some or all of the existing environmental characteristics; timing discharge to avoid spawning or migration seasons and other biologically critical time periods; and avoiding the destruction of remnant natural sites within areas already affected by development.

Compensatory Mitigation

Compensation for unavoidable, minimized impacts to jurisdictional stream channel is provided by dedication of appropriate components of the successfully completed 1,123 l.f. restored stream channel and adjacent riparian buffer at the Causey Farm mitigation site currently not applied to any specific impacts at PTIA. This mitigation credit was originally purchased to compensate for impacts anticipated for construction of the Runway 5R Safety Area and related improvements (USACE Action ID SAW-2006-41354; DWR File 06-1632). This project, however, has been put on indefinite hold and rather than extend the Section 404 and 401 permits, PTAA has elected to abandon them. The mitigation specified in these permits has been constructed and deemed successful by USACE and DWR. Applicable linear footage of the completed stream restoration (only) of this mitigation are proposed to compensate for the current Phase I Northwest Site Development and Cross-Field Taxiway project impacts as follows:

- 646 Stream Mitigation Units (SMU) mitigation requirement is anticipated based on 136 l.f. intermittent channel at 1:1 impact ratio plus 255 l.f. perennial channel at 2:1 impact ratio
- There are 702 SMU available at the Causey Farm mitigation site based on the 1.6:1 ratio for off-site restoration applied to the 1,123 l.f. perennial channel specified in USACE Action ID SAW-2006-41354 and DWR File 06-1632 (the Causey Farm restoration site was originally described in USACE Action ID SAW-2000-21655 and DWR File 00-0846)

Success of the Causey Farm mitigation site is documented in correspondence from USACE and DWR, enclosed.

Cumulative Impacts

Specific water quality related cumulative impact potential of the project is addressed by the applicability of the WSWMP Rules, the Jordan Buffer Rule allowance, and State stormwater regulatory permission. While future taxiways and airport facilities to be constructed within the PTIA development may qualify for the Jordan Buffer airport allowance, the development will also be subject to the various levels of State and PTAA water quality regulation applicable to the water supply watershed location, and stormwater management. The future development anticipated will be subject to 85% removal of total suspended solids (TSS) from stormwater runoff as appropriate future protection of receiving water quality. The individual National Pollutant Discharge Elimination System (NPDES) permit issued to PTAA will also be expanded to address future development to ensure additional monitoring and protection of surface waters.

Fish and Wildlife

As of March 25, 2015 the United States Fish and Wildlife (USFWS) lists one federally protected species for Guilford County. Small whorled pogonia (*Isotria medeoloides*) was listed as Endangered on September 9, 1982. Small whorled pogonia occurs in young as well as maturing (second to third successional growth) mixed-deciduous or mixed-deciduous/coniferous forests. It does not appear to exhibit strong affinities for a particular aspect, soil type, or underlying geologic substrate. In North Carolina, the perennial orchid is typically found in open, dry deciduous woods and is often associated with white pine and rhododendron. The species may also be found on dry, rocky, wooded slopes; moist slopes; ravines lacking stream channels; or slope bases near braided channels of vernal streams. The orchid, often limited by shade, requires small light gaps or canopy breaks, and typically grows under canopies that are relatively open or near features like logging roads or streams that create long-persisting breaks in the forest canopy.

Suitable habitat for small whorled pogonia may be present in the project area. However, no individuals were observed in plant-by-plant survey of potential site habitat in August 2012. A review of North Carolina Natural Heritage Program (NCNHP) records on February 21, 2013, indicated no known occurrences within 1.0 mile of the study area. The construction of this project is anticipated to have no effect on the small whorled pogonia. The USFWS had previously listed this species as a historic record, indicating that it was last observed in Guilford County more than 50 years ago. However, a single small whorled pogonia plant was recently discovered near the Town of Gibsonville approximately 20 miles east of the Airport.

Habitat for the bald eagle (*Haliaeetus leucocephalus*) primarily consists of mature forest in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water. A desktop-GIS assessment of the project study area, as well as the area within a 1.13-mile radius (1.0 mile plus 660 ft.) of the project limits, was performed on April 3, 2012 using 2010 color aerial photography. Lake Higgins (a water body large enough and sufficiently open to be considered a potential feeding source) was identified within this search radius. A survey of the project study area and the area within 660 ft. of the project limits was conducted on April 10, 2012. No bald eagle nests were observed within this search polygon. A review of the NCNHP database on February 21, 2012 revealed no known occurrences of this species within 1.0 mile of the project study area. Due to the lack of observed nests or known occurrences and minimal impact anticipated for this project, it was determined that this project will not affect this species.

Concurrence from the United States Department of the Interior was provided by the USFWS in a letter dated July 11, 2013, stating that "...it appears that the proposed action is not likely to adversely affect any federally-listed endangered or threatened species, their formally designated critical habitat, or species currently proposed for listing under the [Endangered Species] Act at these sites. We believe that the requirements of Section 7(a)(2) of the Act have been satisfied for your project".

As of March 25, 2015 the USFWS lists no Candidate species for Guilford County. The National Marine Fisheries Service (NMFS) has not identified any Airport streams as Essential Fish Habitat.

Historic, Cultural, Scenic, and Recreational Values

Based on the July 19, 2013 response to EA scoping, the North Carolina Department of Cultural Resources (NCDCR) State Historic Preservation Office (SHPO) is "...aware of no historic resources that would be affected by the project."

Stormwater

The proposed Phase I Northwest Site Development is being designed consistent with applicable state (NCDEQ) and PTAA stormwater management controls, including appropriate BMPs and riparian buffer protection.

Pursuant to NCGS 143-214.7 (c4), the proposed Taxiway will provide for overland stormwater flow that promotes infiltration and treatment of stormwater into grassed buffers, shoulders, and grassed swales and is permitted pursuant to State post-construction stormwater requirements.

Prior to the commencement of construction, Erosion and Sedimentation Control Plans for the projects will be submitted to NCDEQ, and PTAA will obtain the applicable Erosion and Sedimentation Control Permits and accompanying NPDES Construction Permits. Potential temporary impacts to surface water quality as a result of the Build Alternative construction activities will be effectively mitigated through adherence to the approved Erosion and Sedimentation Control Plans and to the permit requirements, as well as through compliance with FAA AC 150/5370-10B.

Other Federal, State, or Local Requirements

Through the NEPA process, FAA has explored practicable project alternatives and impact minimization prior to addressing compensatory mitigation (sequencing). FAA has also explored the cumulative impacts of the proposed project. These potential cumulative impacts are detailed in the EA. PTAA has more specifically analyzed all practicable Taxiway alternatives.

A lack of practical alternatives has been demonstrated pursuant to 15A NCAC 02H .0506(f). After consideration of size and configuration of the proposed activity, and all alternative designs, the basic project purpose cannot be practically accomplished in a manner which would avoid or result in less adverse impact to surface waters or wetlands.

Minimization of impacts has been demonstrated pursuant to 15A NCAC 02H .0506(g) because the surface waters are able to continue to support the existing uses after project completion, and the impacts are required due to the spatial and dimensional requirements of the project; the location of existing structural and natural features that dictate the placement and configuration of

the proposed project; and the purpose of the project and how the purpose relates to placement and configuration.

The project: (1) has no practical alternative; (2) will minimize adverse impacts to surface waters based on consideration of existing topography, vegetation, fish and wildlife resources, and hydrological conditions; (3) will not result in the degradation of groundwater or surface waters; (4) will not result in cumulative impacts, based upon past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards; (5) provides for protection of downstream water quality standards through on-site stormwater treatment; and (6) provides for replacement of existing uses through mitigation. Additional regulatory requirements are addressed in the EA.

We appreciate your consideration of this request. Please feel free to contact me (rossera@gsoair.org, 336.665.5620) or Richard Darling (rdarling@mbakerintl.com, 919.481.5740) with questions or comments. One (1) complete and collated original application and supporting documentation are being provided to USACE with four (4) complete and collated copies to NCDEQ along with the application fee.

Sincerely,

PIEDMONT TRIAD AIRPORT AUTHORITY

J. Alex Rosser, P.E.
Deputy Executive Director

RD/AR:rd

Enclosures Alternatives Analysis Cross-Field Taxiway Alignment (6 pages)
Completed Eng. Form 4345 (3 pages, PTAA signed)
Preliminary Plans (12 sheets, full-size and 11"×17")
Causey Farm Mitigation Success Documentation (3 pages, USACE & DWR)
PTAA Check for $570 as NCDEQ Application Fee

cc: Sue Homewood, DWR-WSRO
Richard Darling, Michael Baker Engineering, Inc.

APPENDIX E

ALTERNATIVES ANALYSIS

CROSS FIELD TAXIWAY ALIGNMENT

This appendix sets forth the FAA's analysis of alternative alignments for the Cross Field Taxiway and whether there are any alternatives to the proposed alignment of the taxiway that would have fewer impacts to jurisdictional resources.

ALTERNATIVES ANALYSIS
CROSSFIELD TAXIWAY ALIGNMENT

Estimated Stream and Buffer Impacts of the Proposed Taxiway Alignment

The proposed alignment of the Cross Field Taxiway is shown on Exhibit 1 of this Appendix, with the proposed Taxiway Bridge depicted in green. Due to a required crossing of an unnamed tributary to Brush Creek, as shown on Exhibit 1, the proposed Taxiway may impact approximately 222 linear feet (l.f.) of perennial stream channel, and 115 l.f. of intermittent stream channel, and may also impact approximately 20,855 square feet ($ft.^2$) of vegetative buffer within 30 feet of the stream banks on each side of the stream (N.C. Jordan Lake Buffer, Zone 1), and 11,275 $ft.^2$ of vegetated buffer within the next 20 feet from the stream banks (Zone 2), or a total of 0.75 acre stream buffer impact. This jurisdictional channel runs parallel to, and Northwest of, existing Bryan Boulevard and flows in a Southwest direction to a larger wetland/stream complex.

Purpose and Need of the Taxiway Project

As described in this EA, the Taxiway is needed to provide airfield access to the approximately 569-acre development site on the north side of the future I-73. Development of airfield access to the 569-acre site is needed to:

- provide suitable sites with airfield access for new aviation-related development
- provide development opportunities for use of idle land
- meet schedule needs of potential aviation tenants

As emphasized in this EA, it is critical to the Purpose and Need for PTAA to prepare sites, with airfield access, in advance of having a tenant for the sites, since potential tenants require sites to be available within a short time frame to meet their scheduling needs.

Avoidance of Impacts

The connection of the 569-acre site to existing airfield facilities can only be achieved by building a taxiway across the I-73 segment that is being constructed at the Airport by NCDOT (Transportation Improvement Project I-5110). The taxiway must cross over the highway on a Taxiway Bridge. The profile for the NCDOT project is constrained in two locations:

1. On the east side of the I-5110 project, the project ties into Bryan Boulevard at the Airport/Old Oak Ridge Road Interchange. This sets the starting elevation of the I-5110 profile on its east side.
2. The I-5110 alignment is required to span over highway NC 68 on the west side of the highway project. The vertical clearance of the I-5110 roadway over NC 68 sets the elevation of I-5110 on the west side.

The profile from the existing Airport/Old Oak Ridge Road Interchange to the future Taxiway Bridge has been set to its lowest possible elevation based on the maximum allowable grade of the roadway profile between the Airport Interchange and NC 68.

The Taxiway and Bridge have been carefully positioned to meet the constraints imposed by the highway profile and, at the same time, to provide for the safe and efficient operation of the Taxiway:

- The Taxiway must cross over the highway, along the Taxiway Bridge, at a height of at least 17 ft. above the highway pavement to meet FHWA standards. To clear this height, the Taxiway must rise from its starting elevation of 856.81 ft. Mean Sea Level (MSL) at future Taxiway G (see "Proposed Cross Field Taxiway" on Exhibit 1) to a minimum elevation of 896.58 ft. MSL at the Taxiway Bridge, or a total climb of 39.77 ft. The maximum grade for a taxiway at an air carrier airport is 1.5% per FAA Advisory Circular (AC) 150/5300-13A. After a required transition to the uphill grade, the proposed Taxiway must be long enough to climb the necessary 39.77 ft. at the 1.5% grade. In its proposed alignment, the proposed Taxiway runs a sufficient distance for the climb, but the margin is minimal for shifting the location of the Taxiway and still achieving the necessary clearance above the road.
- The Taxiway must be straight for safe and efficient operation. The FAA recommends minimizing changes in direction along a taxiway to reduce the risk of aircraft running off the paved surface during reduced visibility. In addition, curving the Taxiway would not reduce stream impacts unless the curve was to the north. This alignment would route the Taxiway behind the elevated site for the Airport Surveillance Radar (ASR) (as shown in blue on Exhibit 1), which would block the Line-of-Site from the Air Traffic Control Tower (ATCT) to the Taxiway. Due to this obstruction, the ATCT would be unable to assist pilots in moving along the Taxiway, and their own view down the taxiway would also be obstructed by the ASR and taxiway curve. These impediments would create an aircraft hazard because pilots would not be able to see aircraft approaching from the opposite direction until they had already entered the taxiway and were facing the opposing traffic. If, in the future, the ASR were relocated, the Line-of-Site issue would likely remain, since the ASR would not be relocated unless the site were needed for tenant facilities, which could also block both the ATCT's and the pilot's Line-of-Sight.

The Proposed Taxiway alignment meets the foregoing height and safety criteria, and, as shown below, also avoids unnecessary impacts to jurisdictional waters.

A range of alternative alignments has been considered to determine if there are any practicable alternatives to the proposed taxiway alignment that would have fewer impacts to jurisdictional waters. None of these options achieves the Purpose and Need for the taxiway or reduces the stream or stream buffer impacts:

Shift to the Southwest

This concept is illustrated in yellow on Exhibit 1. The limits for shifting the Taxiway to the Southwest, and still providing for adequate clearance above the highway, are very constrained because the highway climbs at a steeper angle than the 1.5% taxiway limit. Even within this narrow range, the combined impact to perennial and intermittent streams from a Southwest shift

is somewhat greater than in the case of the proposed alignment. (See impact figures on Exhibit 1.) Therefore shifting the Taxiway to the Southwest, within the feasible limits, increases rather than reduces impacts and is not an acceptable alternative.

Shift to the Northeast

As illustrated on Exhibit 1, the side slope of the proposed Taxiway on its Northeast side already abuts the ASR site, and the Taxiway cannot be shifted at all in this direction without cutting into the embankment for the ASR. Even if the ASR were relocated, a shift of the taxiway to the Northeast of as little as 30feet would shorten the taxiway to the point that it would not climb enough at the 1.5% grade for the necessary clearance above the highway. A shift of to the northeast of only 30 feet would result, at most, in a 23 foot reduction in the stream impacts, which would not be significant even if it the ASR were moved to accommodate the change.

Curved Taxiway

This alternative was examined despite its adverse effect (discussed above) on the safety and efficiency of the taxiway. As pointed out above, the only way a curved Taxiway would avoid a stream crossing is by following an alignment to the North, which would place it behind the ASR site from the point of view of the ATCT. This alignment would result in the Line-of-Sight issues discussed above and create a hazard for traffic along the Taxiway. Furthermore, even measured along the curve, this alignment would not have sufficient length for the necessary climb above the highway. This limitation excludes this alignment from further consideration.

Spanning Over Stream

Consideration has also been given to building a bridge structure, or bottomless culvert, to carry the taxiway over the stream and avoid any discharge of fill material in the stream channel. The dimensions of the structure would have to be sufficient to span from one bank of the stream to the other and to match the full width of the taxiway from the outside of the Object Free Area on one side of the taxiway to the outside of the Object Free Area on the other side (which, in the case of a bottomless culvert, would require the culvert to be 280 feet long since the taxiway crosses the stream at a slight angle). The structure would have to be high enough over the stream to accommodate the structure itself and would have to be designed with sufficient strength to meet FAA standards for Category V aircraft. Based on the cost of a comparable structure that was recently constructed at the Airport, PTAA estimates that the cost of spanning the stream would be in the range of $2.85 million, or about 18% of PTAA's $16 million estimate for building the taxiway without the structure. Due to this increased cost, spanning the stream would not be a practical alternative.

As shown on Exhibit 1, the Cross Field Taxiway will be extended in a Northwest direction to the development areas on the north side of I-73. As pointed out in Chapter 1 of this EA, it is not possible to determine how these areas will be developed, and how the taxiway will have to be designed to support such development, until prospective tenants have been identified and their needs are known. The extension of the taxiway, or the development of tenant sites, will likely impact artificial ponds and their adjacent buffers on the north side of the Interstate, but the extent of the impacts cannot be determined at

this time. Care will be taken in the design of tenant sites and the taxiway system to avoid unnecessary impacts to jurisdictional resources within the larger development area.

For the reasons discussed above, there is no alternative alignment for the Taxiway that is both feasible and that would reduce stream or buffer impacts resulting from the proposed alignment. The proposed alignment, in turn, sets the location of the Taxiway Bridge at the location shown in green on Exhibit 1.

Minimization and Compensatory Mitigation

This analysis considers only the issue of whether any impacts to jurisdictional waters can be avoided through alternative alignments of the Taxiway. In its design of the Cross Field Taxiway, PTAA will be required to minimize the unavoidable impacts from the taxiway, through measures such as making the side slopes of the taxiway as narrow as possible, within FAA design limitations, to reduce the width of the project footprint at the stream crossing. PTAA will also be required to meet compensatory mitigation requirements for the unavoidable impacts to jurisdictional resources that will result from the taxiway project.