CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

MSCAA Project No.: 16-1408-01
HNTB Project No.: 85091

RW 9/27 Runway Status Lights - Design

December 11, 2025

Prepared for:
Memphis-Shelby County Airport Authority (MSCAA)
Memphis International Airport
Memphis, Tennessee

Prepared by:
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Purpose

Careful planning, scheduling, and coordination of construction activities can minimize disruption of normal aircraft operations and avoid situations that compromise the airport's operational safety. The CSPP is the culmination of that planning effort during the design of the project. Memphis/Shelby County Airport Authority (MSCAA) staff, the FAA, and critical stakeholders have provided input on this CSPP. It has been developed from guidance set forth in the FAA Advisory Circular 150/5370-2G *Operations Safety on Airports During Construction*. It is imperative that the provisions set forth in this plan be reviewed by the Contractor prior to mobilizing to the site and the document be followed without alteration.

Prior to mobilization, the Contractor must submit a Safety Plan Compliance Document (SPCD) describing how the Contractor will comply with the requirements set forth in this CSPP. An example SPCD is provided as an appendix to this document.

If the Contractor sees a need to alter the CSPP in any way, a request must be submitted to MSCAA, in writing, prior to the start of construction. Please note that changes to the CSPP may require coordination with all impacted parties and, potentially, a resubmittal to the FAA. This can be a 90–120 day process. If the change is accepted, it will be treated the same as any other change to the contract documents.

If the Contractor's activities do not comply with the provisions of this CSPP, the Contractor will be issued a written request to immediately cease the non-compliant action until a meeting can be held to discuss the issues and all necessary corrective actions, to be performed by the Contractor, are in place. Delays for non-compliance with the CSPP will not result in an extension of the allotted contract time for any phase of work or the total contract. All liquidated damage provisions set forth in the contract will still apply.

Scope of Work

The project's primary goal is to install a runway status light (RWSL) system on Memphis International Airport's Runway 9-27. The system consists of flush-mounted lights installed at strategic locations in a runway and its connecting taxiways, which illuminate red to warn aircraft or vehicles of conditions that could lead to a runway incursion.

In 2009, the MEM Runway 9-27 Reconstruction Project installed in-pavement light base cans, conduit, and ductbank infrastructure to be utilized by the RWSL System at a future time. When the project was designed, FAA standards for the RWSL System were still evolving as part of implementation of the FAA's original RWSL Program. As a result, some elements of the existing infrastructure are not compliant with the current RWSL standards. The current Project will complete the installation of the RWSL components and provide an operational system, as part of an agreement between the FAA and MSCAA.

The scope of work of the Project will be installed by both a Construction Contractor, under contract with MSCAA, and by the FAA. Major scope of work elements of the Runway 9-27 RWSL Project, divided by party installing the elements, include:

a. MSCAA Construction Contractor:

    1. Placement of Field Lighting System (FLS) shelter on foundation and installation of three (3) Constant Current Regulators (CCR).

    2. Communication ductbank and handholes between shelter and existing communication ductbank system, as well as adjacent to Taxiway C.

    3. 24-strand fiber optic cable between shelter and ATCT.

4. Power ductbank and handholes.

5. THL fixtures, ILCs, and transformers in existing base cans, 2 arrays, 64 fixtures.

6. REL fixtures, ILCs, and transformers in existing and new base cans, on runways and taxiways, 14 arrays, 82 fixtures.

7. FLS power cables (utilizing new and existing duct bank) for three (3) RWSL circuits.

b. FAA:

1. RWSL Equipment Room Cabinet (ERC) in ATCT basement level equipment room.

2. RWSL Tower Cab Control Assembly (TCCA) in ATCT console access level.

3. RWSL Cab Control Panel (CCP) and Kill Switch in ATCT cab console level.

4. RWSL Global Positioning System (GPS) receiver and surge arrestor on exterior of ATCT.

5. System testing and activation.

Coordination

Airport operational safety during construction will be discussed at the pre-design, pre-bid, and pre-construction conferences. Construction progress meetings and meetings with the FAA Air Traffic Organization (ATO) will be coordinated as required throughout the contract.

The Contractor must provide contact information for key construction personnel prior to the start of the project. MSCAA will add engineering staff and key airport personnel to this list and it will be distributed to all relevant parties. Updated and current contact lists must be submitted if personnel change.

1. Prebid Conference

A pre-bid conference will be held for prospective bidders to ask questions and visit the site.

2. Preconstruction Conference

A pre-construction conference will be held prior to issuance of Notice to Proceed. Attendees will include MSCAA Engineering Staff, MSCAA Operations Staff, local air traffic control management (if necessary), MSCAA Maintenance Staff, Engineer of Record, Engineer Field Staff (RPR), Contractor Project Superintendent, and Contractor Foreman, as well as the project foreman for each subcontractor employed by the prime Contractor. The agenda for this preconstruction conference will include a review of this CSPP.

3. Construction Progress Meetings

Construction progress meetings will be held throughout the duration of the project. Attendees will include MSCAA Engineering Staff, MSCAA Operations Staff, Prime Contractor, Project Superintendent and/or Foreman, and Engineer of Record and/or Engineer Field Staff (RPR). Local air traffic control management as well as airport tenants will be invited as needed, based on the project work impacting their operations on a week-to-week basis. Construction phasing and safety will be a standing agenda item at the weekly construction progress meetings.

4. Daily Coordination

At all times when construction activities are being performed on this project, the prime Contractor must have a foreman on-site who is authorized to make decisions regarding the operations and safety of all personnel employed by the Contractor and Subcontractors. The designated foreman will meet with Airport Operations Staff as work items being performed require.

5. ATCT Coordination

Coordination with ATCT will be as needed during the project. Only properly badged personnel with Class 3 driving privileges, Engineer Field Staff (RPR), or MSCAA will contact the ATCT during the project. The MEM Ground frequency is 121.9 MHz and MEM UNICOM frequency is 122.95 MHz.

6. CSPP Modifications

Proposed changes and substantial delays will require additional coordination with the airport and the FAA for the purpose of evaluating possible revisions to the CSPP. FAA shall approve of all proposed CSPP changes prior to execution.

Phasing

1. Locations, Durations, and Sequence of the Work

All work for each phase shall be completed in accordance with the project phasing plans, the project technical specifications, this CSPP, and the Contractor submitted SPCD.

The project has a duration of 90 calendar days and consists of 11 work areas. A calendar day is defined as any day on the calendar. It includes Saturdays, Sundays, Holidays, and non-workdays. Refer to the project plans for graphical depictions of the phases along with notes on phase-specific sequencing and operational requirements. In general, the phases are as follows:

a. Phase 1

   Phase 1 work has a duration of 12 calendar days and has no subphases. Phase 1 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 1 includes temporary closures of Runway 9-27, Taxiway V3, and Taxiway N between Taxiway A and Taxiway V. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

b. Phase 2

   Phase 2 work has a duration of 7 calendar days and has no subphases. Phase 2 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 2 includes temporary closures of Runway 9-27, Taxiway V3, and Taxiway C between Taxiway A and Taxiway V. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

c. Phase 3

Phase 3 work has a duration of 7 calendar days and has no subphases. Phase 3 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 3 includes temporary closures of Runway 9-27, Taxiway V3, and Taxiway S between Taxiway A and Taxiway V. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

d. Phase 4

Phase 4 work has a duration of 14 calendar days and has no subphases. Phase 4 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 4 includes temporary closures of Runway 9-27, Taxiway V3, and Taxiway B between Taxiway A and Taxiway V. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

e. Phase 5

Phase 5 work has a duration of 7 calendar days and has no subphases. Phase 5 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 5 includes temporary closures of Runway 9-27, Taxiway A1, Taxiway V1, Taxiway V3, and Taxiway V2 between Taxiway V and Runway 9-27. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

f. Phase 6

Phase 6 work has a duration of 7 calendar days and has no subphases. Phase 6 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 6 includes temporary closures of Runway 9-27, Taxiway V3, and Taxiway A2. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

g. Phase 7

Phase 7 work has a duration of 7 calendar days and has no subphases. Phase 7 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 7 includes temporary closures of Runway 9-27, Taxiway V3, and Taxiway Y between Taxiway A and Taxiway V. Work items to be completed in this phase include the installation of status light fixtures, transformers, and circuit cable. Also included is the coring and sawing for new cans and circuit cable.

h. Phase 8

Phase 8 work has a duration of 7 calendar days and has no subphases. Phase 8 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 8 includes temporary closures of Taxiway B between Taxiway S and Runway 9-27, and Taxiway A between Taxiway S and Taxiway Y. The closures will only be required while the contractor is boring under the pavement or while working inside the Taxiway Object Free Area (TOFA). Work items to be completed in this phase include the installation of homerun and control cable. Also included is the installation of ductbank and conduit. New ducts that cross existing pavement must be directionally bored. No open cut of the pavement will be permitted.

i. Phase 9

Phase 9 work has a duration of 3 calendar days and has no subphases. Phase 9 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 2:30 PM. Phase 9 includes temporary closures of Runway 18C-36C, Taxiways C1, C2, C3, C4, C6, C7, Taxiway B between Taxiways S and Runway 18C-36C, and Taxiway S between Taxiway B and Taxiway A. The closures will only be required while the contractor is boring under the pavement or while working inside the TOFA. Work items to be completed in this phase include the installation of homerun and control cable. Also included is the installation of ductbank and conduit. New ducts that cross existing pavement must be directionally bored. No open cut of the pavement will be permitted.

j. Phase 10

Phase 10 work has a duration of 7 calendar days and has no subphases. Phase 10 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 10 includes temporary closures of Taxiway C between Taxiway C6 and Taxiway A. The closures will only be required while the contractor is boring under the pavement or while working inside the TOFA. Work items to be completed in this phase include the installation of homerun and control cable. Also included is the installation of ductbank and conduit. New ducts that cross existing pavement must be directionally bored. No open cut of the pavement will be permitted.

k. Phase 11

Phase 11 work has a duration of 12 calendar days and has no subphases. Phase 12 must be completed during a series of daily closures. A daily closure will be from 7:00 AM until 5:00 PM. Phase 12 does not include temporary closures of airfield pavement. Work items to be completed in this phase include the installation of homerun and control cable. Also included is the installation of ductbank and conduit. New ducts that cross existing pavement must be directionally bored. No open cut of the pavement will be permitted.

Affected Areas of Operations

1. Operational Affect Table

OPERATIONAL REQUIREMENT	NORMAL	PHASE 1	PHASE 2	PHASE 3	PHASE 4
Runway 18L-36R	9,000' length; ADG D-V	No Change	No Change	No Change	No Change
Runway 18C-36C	11,120' length; ADG D-V	No Change	No Change	No Change	No Change
Runway 18R-36L	9,320' length; ADG D-V	No Change	No Change	No Change	No Change
Runway 9-27	8,946' length; ADG D-V	Closed	Closed	Closed	Closed
Taxiway A	ADG V	No Change	No Change	No Change	No Change
Taxiway A1	ADG V	No Change	No Change	No Change	No Change
Taxiway A2	ADG V	No Change	No Change	No Change	No Change
Taxiway B	ADG V	No Change	No Change	No Change	Closed (TW V to TW A)
Taxiway C (FEDEX to TW C5)	ADG VI	No Change	Closed (TW V to TW A)	No Change	No Change
Taxiway C (TW C5 to TW D)	ADG IV	No Change	No Change	No Change	No Change
Taxiway C (TW D to TW E)	ADG V	No Change	No Change	No Change	No Change
Taxiway C1	ADG V	No Change	No Change	No Change	No Change
Taxiway C2	ADG V	No Change	No Change	No Change	No Change
Taxiway C3	ADG V	No Change	No Change	No Change	No Change
Taxiway C4	ADG V	No Change	No Change	No Change	No Change
Taxiway C5	ADG V	No Change	No Change	No Change	No Change
Taxiway C6	ADG VI	No Change	No Change	No Change	No Change
Taxiway C7	ADG VI	No Change	No Change	No Change	No Change
Taxiway D (TW C to RW 18L)	ADG V	No Change	No Change	No Change	No Change
Taxiway S (RW 18L to TW Y)	ADG VI	No Change	No Change	No Change	No Change
Taxiway E	ADG V	No Change	No Change	No Change	No Change
Taxiway H (TW N to TW J)	ADG VI	No Change	No Change	No Change	No Change
Taxiway H (TW J to RW 36R)	ADG V	No Change	No Change	No Change	No Change
Taxiway H (RW 36R to TW Y)	ADG VI	No Change	No Change	No Change	No Change
Taxiway J (TW L to TW U)	ADG III	No Change	No Change	No Change	No Change
Taxiway J (TW U to TW R)	ADG V	No Change	No Change	No Change	No Change
Taxiway K	ADG V	No Change	No Change	No Change	No Change
Taxiway L (TW J to TW C)	ADG III	No Change	No Change	No Change	No Change
Taxiway L (TW C to TW S)	ADG V	No Change	No Change	No Change	No Change
Taxiway M	ADG V	No Change	No Change	No Change	No Change
Taxiway M1	ADG V	No Change	No Change	No Change	No Change
Taxiway M2	ADG V	No Change	No Change	No Change	No Change
Taxiway M3	ADG V	No Change	No Change	No Change	No Change
Taxiway M4	ADG V	No Change	No Change	No Change	No Change
Taxiway M5	ADG V	No Change	No Change	No Change	No Change
Taxiway M6	ADG V	No Change	No Change	No Change	No Change
Taxiway M7	ADG V	No Change	No Change	No Change	No Change
Taxiway M8	ADG V	No Change	No Change	No Change	No Change
Taxiway M9	ADG V	No Change	No Change	No Change	No Change
Taxiway N (TW V to TW M)	ADG V	Closed (TW V to TW A)	No Change	No Change	No Change
Taxiway N (TW M to TW M5)	ADG IV	No Change	No Change	No Change	No Change
Taxiway N (TW M5 to TW M1)	ADG V	No Change	No Change	No Change	No Change
Taxiway P (TW M to RW 18L)	ADG V	No Change	No Change	No Change	No Change
Taxiway P (RW 18L to ANG)	ADG VI	No Change	No Change	No Change	No Change
Taxiway P1	ADG V	No Change	No Change	No Change	No Change
Taxiway P2	ADG V	No Change	No Change	No Change	No Change
Taxiway R (TW N to TW J)	ADG VI	No Change	No Change	No Change	No Change
Taxiway R (TW J to RW 36R)	ADG V	No Change	No Change	No Change	No Change
Taxiway R (RW 36R to TW Y)	ADG VI	No Change	No Change	No Change	No Change
Taxiway R1	ADG VI	No Change	No Change	No Change	No Change
Taxiway R2	ADG VI	No Change	No Change	No Change	No Change
Taxiway S	ADG V	No Change	No Change	Closed (TW V to TW A)	No Change
Taxiway S1	ADG V	No Change	No Change	No Change	No Change
Taxiway S2	ADG V	No Change	No Change	No Change	No Change
Taxiway S3	ADG V	No Change	No Change	No Change	No Change
Taxiway S4	ADG V	No Change	No Change	No Change	No Change
Taxiway S5	ADG V	No Change	No Change	No Change	No Change
Taxiway T	ADG V	No Change	No Change	No Change	No Change
Taxiway U	ADG V	No Change	No Change	No Change	No Change
Taxiway V (TW B to TW V2)	ADG IV	No Change	No Change	No Change	No Change
Taxiway V (TW C to TW B)	ADG V	No Change	No Change	No Change	No Change
Taxiway V (TW N to TW C)	ADG VI	No Change	No Change	No Change	No Change
Taxiway V1	ADG V	No Change	No Change	No Change	No Change
Taxiway V2	ADG V	No Change	No Change	No Change	No Change
Taxiway V3	ADG VI	Closed	Closed	Closed	Closed
Taxiway Y (TW V to RW 27)	ADG IV	No Change	No Change	No Change	No Change
Taxiway Y (RW 27 to TW K)	ADG VI	No Change	No Change	No Change	No Change
Taxiway Y1	ADG VI	No Change	No Change	No Change	No Change
Taxiway Y2	ADG VI	No Change	No Change	No Change	No Change
Taxiway Y3	ADG VI	No Change	No Change	No Change	No Change

OPERATIONAL REQUIREMENT	NORMAL	PHASE 5	PHASE 6	PHASE 7	PHASE 8
Runway 18L-36R	9,000' length; ADG D-V	No Change	No Change	No Change	No Change
Runway 18C-36C	11,120' length; ADG D-V	No Change	No Change	No Change	No Change
Runway 18R-36L	9,320' length; ADG D-V	No Change	No Change	No Change	No Change
Runway 9-27	8,946' length; ADG D-V	Closed	Closed	Closed	No Change
Taxiway A	ADG V	No Change	No Change	No Change	Closed (TW S to TW Y)
Taxiway A1	ADG V	Closed	No Change	No Change	No Change
Taxiway A2	ADG V	No Change	Closed	Closed	No Change
Taxiway B	ADG V	No Change	No Change	No Change	Closed (TW S to RW 9-27)
Taxiway C (FEDEX to TW C5)	ADG VI	No Change	Closed (TW V to TW A)	No Change	No Change
Taxiway C (TW C5 to TW D)	ADG IV	No Change	No Change	No Change	No Change
Taxiway C (TW D to TW E)	ADG V	No Change	No Change	No Change	No Change
Taxiway C1	ADG V	No Change	No Change	No Change	No Change
Taxiway C2	ADG V	No Change	No Change	No Change	No Change
Taxiway C3	ADG V	No Change	No Change	No Change	No Change
Taxiway C4	ADG V	No Change	No Change	No Change	No Change
Taxiway C5	ADG V	No Change	No Change	No Change	No Change
Taxiway C6	ADG VI	No Change	No Change	No Change	No Change
Taxiway C7	ADG VI	No Change	No Change	No Change	No Change
Taxiway D (TW C to RW 18L)	ADG V	No Change	No Change	No Change	No Change
Taxiway D (RW 18L to TW Y)	ADG VI	No Change	No Change	No Change	No Change
Taxiway E	ADG V	No Change	No Change	No Change	No Change
Taxiway H (TW N to TW J)	ADG VI	No Change	No Change	No Change	No Change
Taxiway H (TW J to RW 36R)	ADG V	No Change	No Change	No Change	No Change
Taxiway H (RW 36R to TW Y)	ADG VI	No Change	No Change	No Change	No Change
Taxiway J (TW L to TW U)	ADG III	No Change	No Change	No Change	No Change
Taxiway J (TW U to TW R)	ADG V	No Change	No Change	No Change	No Change
Taxiway K	ADG V	No Change	No Change	No Change	No Change
Taxiway L (TW J to TW C)	ADG III	No Change	No Change	No Change	No Change
Taxiway L (TW C to TW S)	ADG V	No Change	No Change	No Change	No Change
Taxiway M	ADG V	No Change	No Change	No Change	No Change
Taxiway M1	ADG V	No Change	No Change	No Change	No Change
Taxiway M2	ADG V	No Change	No Change	No Change	No Change
Taxiway M3	ADG V	No Change	No Change	No Change	No Change
Taxiway M4	ADG V	No Change	No Change	No Change	No Change
Taxiway M5	ADG V	No Change	No Change	No Change	No Change
Taxiway M6	ADG V	No Change	No Change	No Change	No Change
Taxiway M7	ADG V	No Change	No Change	No Change	No Change
Taxiway M8	ADG V	No Change	No Change	No Change	No Change
Taxiway M9	ADG V	No Change	No Change	No Change	No Change
Taxiway N (TW V to TW M)	ADG V	No Change	No Change	No Change	No Change
Taxiway N (TW M to TW M6)	ADG IV	No Change	No Change	No Change	No Change
Taxiway N (TW M6 to TW M1)	ADG V	No Change	No Change	No Change	No Change
Taxiway P (TW M to RW 18L)	ADG V	No Change	No Change	No Change	No Change
Taxiway P (RW 18L to A/4G)	ADG VI	No Change	No Change	No Change	No Change
Taxiway P1	ADG V	No Change	No Change	No Change	No Change
Taxiway P2	ADG V	No Change	No Change	No Change	No Change
Taxiway R (TW N to TW J)	ADG VI	No Change	No Change	No Change	No Change
Taxiway R (TW J to RW 36R)	ADG V	No Change	No Change	No Change	No Change
Taxiway R (RW 36R to TW Y)	ADG VI	No Change	No Change	No Change	No Change
Taxiway R1	ADG VI	No Change	No Change	No Change	No Change
Taxiway R2	ADG VI	No Change	No Change	No Change	No Change
Taxiway S	ADG V	No Change	No Change	No Change	No Change
Taxiway S1	ADG V	No Change	No Change	No Change	No Change
Taxiway S2	ADG V	No Change	No Change	No Change	No Change
Taxiway S3	ADG V	No Change	No Change	No Change	No Change
Taxiway S4	ADG V	No Change	No Change	No Change	No Change
Taxiway S5	ADG V	No Change	No Change	No Change	No Change
Taxiway T	ADG V	No Change	No Change	No Change	No Change
Taxiway U	ADG V	No Change	No Change	No Change	No Change
Taxiway V (TW B to TW V2)	ADG IV	No Change	No Change	No Change	No Change
Taxiway V (TW C to TW R)	ADG V	No Change	No Change	No Change	No Change
Taxiway V (TW N to TW D)	ADG VI	No Change	No Change	No Change	No Change
Taxiway V1	ADG V	Closed	No Change	No Change	No Change
Taxiway V2	ADG V	Closed (TW V to RW 27)	No Change	No Change	No Change
Taxiway V3	ADG VI	Closed	Closed	Closed	No Change
Taxiway Y (TW V to RW 27)	ADG IV	No Change	No Change	Closed (TW V to TW A)	No Change
Taxiway Y (RW 27 to TW R)	ADG VI	No Change	No Change	Closed (TW V to TW A)	No Change
Taxiway Y1	ADG VI	No Change	No Change	No Change	No Change
Taxiway Y2	ADG VI	No Change	No Change	No Change	No Change
Taxiway Y3	ADG VI	No Change	No Change	No Change	No Change

OPERATIONAL REQUIREMENT	NORMAL	PHASE 9	PHASE 10	PHASE 11
Runway 18L-36R	9,000' length; ADG D-V	No Change	No Change	No Change
Runway 18C-36C	11,120' length; ADG D-V	Closed	No Change	No Change
Runway 18R-36L	9,321' length; ADG D-V	No Change	No Change	No Change
Runway 9-27	8,946' length; ADG D-V	No Change	No Change	No Change
Taxiway A	ADG V	No Change	No Change	No Change
Taxiway A1	ADG V	No Change	No Change	No Change
Taxiway A2	ADG V	No Change	No Change	No Change
Taxiway B	ADG V	Closed (TW G to RW 18C-36C)	No Change	No Change
Taxiway C (FEDEX to TW C5)	ADG VI	No Change	Closed (TW A to TW C6)	No Change
Taxiway C (TW C5 to TW D)	ADG IV	No Change	No Change	No Change
Taxiway C (TW D to TW E)	ADG V	No Change	No Change	No Change
Taxiway C1	ADG V	Closed	No Change	No Change
Taxiway C2	ADG V	Closed	No Change	No Change
Taxiway C3	ADG V	Closed	No Change	No Change
Taxiway C4	ADG V	Closed	No Change	No Change
Taxiway C5	ADG V	No Change	No Change	No Change
Taxiway C6	ADG VI	Closed	No Change	No Change
Taxiway C7	ADG VI	Closed	No Change	No Change
Taxiway D (TW C to RW 18L)	ADG V	No Change	No Change	No Change
Taxiway D (RW 18L to TW Y)	ADG VI	No Change	No Change	No Change
Taxiway E	ADG V	No Change	No Change	No Change
Taxiway H (TW N to TW J)	ADG VI	No Change	No Change	No Change
Taxiway H (TW J to RW 36R)	ADG V	No Change	No Change	No Change
Taxiway H (RW 36R to TW Y)	ADG VI	No Change	No Change	No Change
Taxiway J (TW L to TW U)	ADG III	No Change	No Change	No Change
Taxiway J (TW U to TW R)	ADG V	No Change	No Change	No Change
Taxiway K	ADG V	No Change	No Change	No Change
Taxiway L (TW J to TW D)	ADG III	No Change	No Change	No Change
Taxiway L (TW C to TW S)	ADG V	No Change	No Change	No Change
Taxiway M	ADG V	No Change	No Change	No Change
Taxiway M1	ADG V	No Change	No Change	No Change
Taxiway M2	ADG V	No Change	No Change	No Change
Taxiway M3	ADG V	No Change	No Change	No Change
Taxiway M4	ADG V	No Change	No Change	No Change
Taxiway M5	ADG V	No Change	No Change	No Change
Taxiway M6	ADG V	No Change	No Change	No Change
Taxiway M7	ADG V	No Change	No Change	No Change
Taxiway M8	ADG V	No Change	No Change	No Change
Taxiway M9	ADG V	No Change	No Change	No Change
Taxiway N (TW V to TW M)	ADG V	No Change	No Change	No Change
Taxiway N (TW M to TW M6)	ADG IV	No Change	No Change	No Change
Taxiway N (TW M6 to TW M7)	ADG V	No Change	No Change	No Change
Taxiway P (TW M to RW 18L)	ADG V	No Change	No Change	No Change
Taxiway P (RW 18L to AWG)	ADG VI	No Change	No Change	No Change
Taxiway P1	ADG V	No Change	No Change	No Change
Taxiway P2	ADG V	No Change	No Change	No Change
Taxiway R (TW N to TW J)	ADG VI	No Change	No Change	No Change
Taxiway R (TW J to RW 36R)	ADG V	No Change	No Change	No Change
Taxiway R (RW 36R to TW Y)	ADG VI	No Change	No Change	No Change
Taxiway R1	ADG VI	No Change	No Change	No Change
Taxiway R2	ADG VI	No Change	No Change	No Change
Taxiway S	ADG V	No Change	Closed (TW B to TW A)	No Change
Taxiway S1	ADG V	No Change	No Change	No Change
Taxiway S2	ADG V	No Change	No Change	No Change
Taxiway S3	ADG V	No Change	No Change	No Change
Taxiway S4	ADG V	No Change	No Change	No Change
Taxiway S5	ADG V	No Change	No Change	No Change
Taxiway T	ADG V	No Change	No Change	No Change
Taxiway U	ADG V	No Change	No Change	No Change
Taxiway V (TW B to TW V2)	ADG IV	No Change	No Change	No Change
Taxiway V (TW C to TW B)	ADG V	No Change	No Change	No Change
Taxiway V (TW N to TW D)	ADG VI	No Change	No Change	No Change
Taxiway V1	ADG V	No Change	No Change	No Change
Taxiway V2	ADG V	No Change	No Change	No Change
Taxiway V3	ADG VI	No Change	No Change	No Change
Taxiway Y (TW V to RW 27)	ADG IV	No Change	No Change	No Change
Taxiway Y (RW 27 to TW R)	ADG VI	No Change	No Change	No Change
Taxiway Y1	ADG VI	No Change	No Change	No Change
Taxiway Y2	ADG VI	No Change	No Change	No Change
Taxiway Y3	ADG VI	No Change	No Change	No Change

Navigational Aid (NAVAID) Facilities

Aircraft Navigational Aids provide visual and electronic information that is used by pilots who operate and land aircraft at the airport. Construction activities can have negative impacts on the functionality and serviceability of NAVAIDS.

There are no anticipated impacts to NAVAIDS associated with this project.

The contractor must coordinate their work effort and limit their operations so that NAVAIDS are not impacted. Planned NAVAID impacts must be addressed in the Contractor's construction schedule. The Contractor is required to provide a 45-day notice to the MSCAA Operations Manager and the MSCAA Project Engineer.

Contractor Access

1. Stockpiled Materials/Staging Location

Stockpiled materials and equipment storage are not permitted within active Safety Areas (RSA/TSA), Object Free Zones (OFZ), and Object Free Areas (OFA) of an operational runway or taxiway. Staging and stockpile location(s) are shown in the plans and may be located within the AOA.

There is one staging area for this project:

Located south of the Airfield Lighting Vault No. 2, just north of the access gate (WN-5) off Winchester Road.

Stockpiles are limited to maintain a clear line of sight from the Air Traffic Control Tower to all active taxiways and runways. Stockpile locations shall not be located over any MSCAA or FAA electrical/communications infrastructure.

a. Height

   Stockpile height limits for material will be 35 feet.

b. Wildlife Attractant

   The Contractor must manage stockpiles so that they do not attract wildlife (Refer to Wildlife Management Section below).

c. Foreign Object Debris (FOD)

   The Contractor must manage stockpiles so that they do not create FOD (Refer to Foreign Object Debris (FOD) Management section below).

2. Vehicle and Personnel Operations

a. Access to Airport Operations Area (AOA)

   The airport operations area is defined by the perimeter fence surrounding the airfield. Access onto the AOA is through any number of gates along the fence or doors through buildings. Contractor access onto the AOA is limited to the existing construction access gate WN-5 on Winchester Road as shown in the plans.

No person shall enter upon the Air Operations Area (AOA) or any other restricted area except Contractors that have been authorized and have completed security badge training and have been assigned to duty therein, or personnel escorted by an appropriately badged escort.

b. Mechanisms to Prevent Improper Movement

Contractor operations within the AOA are limited to the areas shown on the project phasing plans. A visual boundary will be installed by the Contractor around the work area. The boundary will consist of lighted low-profile barricades on pavement surfaces (when closed) at the perimeter of the work area and/or orange traffic cones, generally aligning with Object Free Area limits of adjacent operational pavement. Additionally, the boundary will consist of high-visibility orange safety fence on turfed surfaces, installed as shown on detail in project plans. The project phasing plans show the location of the work area boundary. Construction vehicles and personnel shall not cross barricades without an approved escort.

c. Parking Areas for Personal Vehicles and Equipment

Contractor employee personal vehicles shall be parked outside of the AOA. Employee parking shall be as shown on the plans. Contractor employee personal vehicles shall not be driven inside the AOA. Contractor vehicles and equipment are allowed inside of the project work area within the AOA. Equipment staging/parking areas are shown on the project phasing plans and must be approved in advance by the MSCAA.

d. Haul Routes

The phasing plan sheets depict haul routes from adjacent public roadways to the individual phase work areas through the airport perimeter fence. Contractor access and hauling operations are strictly limited to the haul route shown. Prior to the start of construction, the Contractor, Engineer and Owner will review haul routes and document existing condition. Following completion of construction, the Contractor, Engineer, and Owner will review haul routes and document condition. The Contractor is required to restore haul routes to original condition.

e. Contractor Vehicle Marking and Lighting

Each Contractor licensed vehicle must display a company logo on both sides of sufficient size to be recognizable to personnel in the control tower. Signs must be a minimum of 200 square inches and be approved by the airport. Specialized construction equipment does not require signs. Each Contractor licensed vehicle must have a yellow/amber rotating beacon affixed to the uppermost part of the vehicle. Lights must be visible from any direction, including the air. Construction equipment does not require rotating beacon lights during day operations, provided an aircraft warning flag is displayed at the highest point of the equipment. Contractor vehicle marking and lighting is the sole responsibility of the Contractor. The airport will not provide markings, flags, or lights.

3. Radio Communications

a. Two-Way Radios

Contractors may utilize two-way radios on the project provided that they do not interfere with existing Airport and FAA communication equipment and frequencies.

b. Air Traffic Control (ATC) Radio Communication

For this project, when the Contractor requires access to the movement area, staff with Class 3 driving privileges or the Engineer Field Staff (RPR) will communicate with ATCT.

4. Airport Security

a. The Memphis-Shelby County Airport Authority (MSCAA) conducts its security operations in a serious manner and incorporates its mandated security directives to the letter. The management of the Airport fully expects all Tenants and Contractors to help enforce security regulations. The MSCAA strictly enforces the requirements on issuance and use of Airport identification/access media. Companies and individuals found to be in non-compliance with rules and regulations outlined in this manual may face revocation of access privileges and/or prosecution. The Contractor shall comply with all security requirements as outlined in the contract documents.

b. The Contractor shall provide security at entry points, staging/storage locations, employee parking areas, and the work areas.

5. TSA Requirements

The Transportation Security Administration (TSA) through several Transportation Security Regulations (TSR) has the regulatory power to assess fines for breaches of airport security. The TSA will test the Contractors security means and methods for compliance with applicable security codes and regulations throughout the course of the project. Accordingly, if the Contractor is found culpable for security breaches, fines assessed to the Airport will be collected from the Contractor.

6. Security Badging Requirements

The Contractor will be required to obtain security badging in accordance with the requirements in the Specification.

7. Contractor Access

The Contractor shall be responsible for controlled access to the work site. The Contractor shall provide and manage security/badged personnel at proposed access locations.

Wildlife Management

1. Trash

Food scraps must be collected from construction personnel activity continuously.

2. Standing Water

Any activity taking place that creates a standing body of water must be remedied within 24 hours.

3. Tall Grass and Seeds

If needed within the project area, the contractor shall be responsible for mowing the grass within their work areas. Mowing schedules have been established to maintain, when possible, a height of 6 to 10 inches to help prevent large flocks of starlings, crows, and other species from becoming a hazard. It will be the responsibility of the Contractor to establish and maintain a schedule that allows a maximum grass height of 10 inches within the construction work area.

4. Poorly Maintained Fencing and Gates

Periodic perimeter fence inspections are required by the Contractor to ensure the fence is secured. Fence inspections performed by the contractor shall be within the vicinity of the project area, staging area, and site access points. Any issues shall be reported to MSCAA Operations or the MSCAA Project Engineer. These inspections also include identifying any animal digs that are located under the fence and ensuring that perimeter gates and drainage grates are tightly secured to prevent animal access. In addition, Contractors will take appropriate actions to reduce any other observed wildlife activity.

5. Disruption of Existing Wildlife Habitat

While this will frequently be unavoidable due to the nature of the project, Contractor personnel should immediately notify airport operations of a wildlife sighting.

Foreign Object Debris (FOD) Management

1. Description of FOD

Foreign object debris at airports includes any object found in an inappropriate location that can damage aircraft, equipment, or airport personnel. On construction sites, FOD typically is comprised of loose gravel, blowing sand, dust, wire bristles from sweeper heads, food wrappers, and material packaging. The presence of FOD on an airport's air operations area (AOA) poses a significant threat to the safety of air travel. FOD has the potential to damage aircrafts during critical phases of flight, which can lead to catastrophic loss of life and airframe, and at the very least increased maintenance and operating costs.

2. Methods of FOD Control

a. Training

The Contractor shall provide training to all employees working within the AOA on effective FOD management. Training shall include description and consequences of FOD, FOD awareness, and housekeeping procedures.

b. Housekeeping

Preventing FOD from occurring is the most effective form of FOD management. The Contractor must monitor construction activities and proactively develop a plan to prevent FOD from occurring. Typical FOD prevention measures include the use of covered trash containers, covered loads, zero tolerance of littering, and tying down items which may be easily wind-blown.

c. Ground Vehicle Tire Inspections

Prior to entering active airfield pavement, the Contractor must perform a vehicle tire check for any loose rocks that may be in the tread. Tires covered in mud must be cleaned prior to entering active airfield pavement in order to prevent tracking of dirt.

d. Pavement Inspections

Prior to opening completed portions of pavement work to airport operations, the Contractor shall keep the entire pavement surface clean and to the satisfaction of the Owner. Work areas will be inspected and approved by the MSCAA prior to opening the area to aircraft operations. This includes conducting a FOD walk with the RPR and MSCAA operations staff prior to opening.

e. FOD Inspections

Refer to Inspection Requirements section for FOD inspection requirements. The Contractor shall keep the project site and vehicles clean, employing a “clean as you go” approach throughout the project.

Hazardous Material Management

1. Haz-Mat Procedures

Haz-Mat Procedures are to be developed by the Contractor and submitted to the Engineer for review and Owner’s records, including but not limited to:

a. Fuel Storage Locations

b. Spill Procedures

c. MSDS

All temporary fuel storage tanks brought to the site must be double walled and placed in secondary containment. In addition, the tanks must be permitted by the fire marshal prior to use.

Notification of Construction Activities

1. List of Responsible Representatives

Persons who have questions concerning policies, procedures, or requirements of the Airport Security Program, should contact Airport Administration. Persons who observe a security violation, suspicious act, or any serious act that may endanger persons or property should immediately contact Airport Public Safety.

a.	Emergency	911
b.	MSCAA Emergencies	(901) 922-8333
c.	MSCAA Operations Center	(901) 922-8117
d.	MSCAA Communication Center	(901) 922-8298
e.	NAVAID Emergency Contract	1-866-432-2622

2. NOTAMs

Contractor shall coordinate with the Engineer Field Staff (RPR) and Airport Operations personnel for the issuance of all NOTAMs related to the project construction. Airport Operations and FAA shall generate and issue NOTAMs based on Contractor construction schedules and facility impacts.

3. Emergency Notification Procedures

In the case of a life-threatening situation, dial 911 and Airport Public Safety immediately thereafter. Airport Public Safety will coordinate any emergency response.

4. Aircraft Emergencies

In the event of an aircraft emergency, the Engineer Field Staff (RPR) will coordinate with Aircraft Rescue and Fire Fighting (ARFF) and the FAA and all construction personnel shall stop work and wait for direction from Airport Public Safety. In the event evacuation is requested, personnel shall immediately vacate the work site, secure construction access gate(s), and return when cleared by Airport Public Safety.

5. Coordination with ARFF Personnel

The Contractor must coordinate, through the RPR, with ARFF personnel, mutual aid providers, and other emergency services if construction requires the following:

a. The deactivation and subsequent reactivation of water lines or fire hydrants.

b. The re-routing or blocking of emergency access routes.

c. The use of hazardous materials on the airfield.

Inspection Requirements

1. FOD Inspection

During construction, the Contractor shall continuously monitor for FOD and remove immediately.

2. Contractor Inspection

a. Prior to opening completed work areas and pavement to aircraft operations, the contractor shall coordinate with Airport Operations for inspection of the work area. Pavements must be free of all dirt, sand, gravel, wire bristles, or any other objects that could cause damage to aircraft engines. All soil areas must be free of dirt clods, ruts, or surface irregularities that could damage an aircraft should it leave the pavement.

b. Daily inspections shall be completed to assure all traffic control devices are in proper locations and working order.

3. Airport Operations Inspection

The MSCAA staff will conduct pavement inspections prior to opening any pavement to aircraft operations.

4. Final Inspections

Before re-opening closed sections of the airport to operations, the Contractor, Airport Operator, and Engineer Field Staff (RPR) shall inspect the area. Upon their concurrence that the area is safe to operate aircraft, the area will re-open.

Underground Utilities

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. It is the Contractor's responsibility to locate all existing utilities and underground airport facilities that may be affected by this project and to verify their exact location and elevation prior to commencing work.

Electrical cables, telecommunication lines, overhead electrical lines, FAA communication lines, jet fuel lines, sanitary sewer lines, storm water lines, gas lines, and water lines may be located in the limits or vicinity of work limits. Utilities interfering with construction shall be reset or relocated by the Contractor or utility company concerned, unless noted otherwise. The Contractor shall give proper notice to all utility companies and facility owners regarding removal/relocation or when working in the vicinity of utility lines and airport facilities.

The Contractor shall call Tennessee 811 and submit a completed MSCAA On Airport Utility Locate Request form to the Engineer Field Staff (RPR) 72 hours prior to digging on site. The Contractor will verify with all parties the location of all utilities before digging begins. Prior to digging near a utility, the contractor shall pothole the utility to physically verify its location and depth. The Contractor shall use extreme care in digging around the utility so as not to cause any damage to the utility. All subcontractors performing excavation activities shall follow the same procedures as outlined above.

Penalties

The following penalties will be administered by the Airport, FAA, and Transportation Security Administration (TSA) as allowed per the requirements of the Construction Safety and Phasing Plan.

1. Escort Violation and Piggybacking, Wearing of Security Badge, Challenging Penalties

The following penalties apply for all persons: who do not properly display their security badge on the upper body (waist level or above) on the outermost garment; who do not challenge another person in their area who is not properly displaying their security badge; who allow another person to piggyback on their card through an entry; or who allow unauthorized access to the SIDA through an entry. It is necessary for each employee entering the SIDA/AOA to enter their PIN along with having their badge read by the appropriate device.

a. 1st Offense Penalty—Airport badge for each employee involved will be suspended for a minimum of seven (7) days, at the discretion of the Airport Security Coordinator (ASC) depending on the severity of the security infraction. The employee must attend MSCAA security training.

b. 2nd Offense Penalty—Airport badge for each employee involved will be suspended for a minimum of thirty (30) days, at the discretion of the ASC depending on the severity of the infraction. The employee(s) and their supervisors(s) must attend security training.

c. 3rd Offense Penalty—Airport badge for each employee will be suspended for one (1) year. The employee(s) and their supervisors(s) must attend security training. Reinstatement is at the sole discretion of the MSCAA ASC.

2. Runway Incursions

A runway incursion is any unauthorized intrusion onto a runway, regardless of whether or not an aircraft presents a potential conflict. See runway incursion penalty table below:

Runway Incursion Category	Description	Penalty
Category A	A serious incident in which a collision was narrowly avoided.	$1500 and Rescission of Access to the AOA
Category B	An incident in which separation decreases and there is a significant potential for collision, which may result in a time critical	$500 and Rescission of Access to the AOA

	corrective/evasive response to avoid a collision.	
Category C	An incident characterized by ample time and/or distance to avoid a collision.	Rescission of Driving Privileges
Category D	An incident that meets the definition of runway incursion such as incorrect presence of a single vehicle/person/aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.	Written Warning

Violations of the CSPP outside of runway incursions will be assessed a written warning for the first violation and then $500 per violation thereafter.

3. Returning Airport Badge

All security badges issued by the MSCAA Identification Office are the property of the Memphis-Shelby County Airport Authority and must be returned upon expiration, separation of employment (for any reason), when job function no longer requires an airport-issued security badge, and/or upon demand from the MSCAA. Retainage will not be related until all badges have been returned at the end of the project. Any misuse or willful failure to return a security badge is punishable by criminal prosecution. Security badges are non-transferable and must be used only by the person to whom they are issued. The security badge must be returned to the Company manager/supervisor at the end of employment and, in turn, by the Company to the MSCAA Identification Office.

4. Driver—Restricted Areas

All restricted area (SIDA/AOA) drivers shall possess and carry a valid US driver's license while driving on MSCAA restricted area roadways. Each driver is required to receive behind the wheel driver's training on the SIDA/AOA by their Employer and must take and successfully pass the written examination administered by the MSCAA at the security training class.

5. Releasing Airport Security Information

No person issued a security badge may divulge any information concerning an act of unlawful interference with civil aviation if such information is likely to jeopardize the safety of domestic or international aviation, or regarding any airport or airport tenant's security system to unauthorized persons.

6. Lost, Stolen, or Misplaced Security Badges

Immediately report to the Airport Authority by all means available NO EXCEPTIONS. Report to the ID Office 901-922-8788; if outside normal business hours, report to the MSCAA Communication Center at 901-922-8298. You must speak with Airport Security Personnel to report the unaccounted-for Security Badge.

7. Authority and Legal Action

The airport public safety department and designated airport security coordinators can issue violations resulting from poor or improper driving or security procedures. It is also the responsibility of all badge holders to notify public safety immediately when a possible breach in security has occurred.

8. FOD

The airport has a zero-tolerance approach to FOD, and the Contractor may be subject to fines from the Airport, FAA, or other agencies for failure to properly manage FOD during construction activities.

Special Conditions

In the case of an aircraft in distress or an accident, all Contractor personnel must remove all equipment from the project site and return to the staging area. The project will be suspended until clearance is given from the Engineer Field Staff (RPR) and the Airport Operator. In the event of a V/PD, the project will be suspended until a safety meeting and de-briefing of the incident occurs. In the event of a declared severe weather event, including an event requiring low-visibility operations/surface movement guidance and control system (LVO/MGCS) procedures, airport operations personnel may request the Contractor to temporarily suspend operations and vacate the premise until the event is over.

Runway and Taxiway Visual Aids—Marking, Lighting, Signs, and Visual Aids

Areas where aircraft will be operating are clearly and visibly separated from construction areas. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times.

1. General

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots and not be misleading, confusing, or deceptive. All must be secured in-place to prevent movement by prop wash, jet blast, wing vortices, or other wind currents and constructed of materials that would minimize damage to an aircraft in the event of inadvertent contact.

2. Markings

Markings must be in compliance with the standards of AC 150/5340-1, Standards for Airport Markings. Runway and exit taxiways closed to aircraft operations are marked with a yellow X.

a. Temporary Closed Runways

   For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers.

b. Temporary Closed Taxiways

   Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway.

c. Temporary Closure X

   Construct the temporary closure X from any of the following materials: fabric, colored plastic, painted sheets of plywood, snow fence, or similar materials. They must be yellow and properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents.

d. Temporary Markings

The application rate of paint to mark a short-term temporary runway and taxiway marking may deviate from the standard, but the dimensions must meet the existing standards.

3. Lighting and Visual NAVAIDs

Lighting must be in conformance with AC 150/5340-30, Design and Installation Details for Airport Visual Aids, and AC 150/5345-50, Specifications for Portable Runway and Taxiway Lights. When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. Alternatively, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any aboveground temporary wiring in rigid conduit to prevent electrocution and fire ignition sources. Where possible, avoid allowing equipment and vehicles to drive over the conduit. If this cannot be avoided, the Contractor must protect the conduit from movement and damage with ramps that distribute the load away from the conduit. All temporary protection measures must be submitted to the Engineer Field Staff (RPR) prior to use.

4. Temporarily Closed Runways

If available, use a lighted X, both at night and during the day, placed at each end of the runway facing the approach. For runways that have been temporarily closed, but for an extended period, and for those with pilot-controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation.

5. Partially Closed Runways and Displaced Thresholds

There will be no partially closed runway during the course of this project.

6. Temporarily Closed Taxiways

If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example, other taxiways on the same circuit are to remain open), cover the light fixture in such a way to prevent light leakage.

7. Temporary Signs

Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot “information overload,” the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. To the extent possible, signs must be in conformance with AC 150/5345-44, Specifications for Runway and Taxiway Signs and AC 150/5340-18, Standard for Airport Sign Systems. At any time, if a sign does not serve its normal function, it must be covered or removed to prevent misdirecting pilots.

Marking and Signs for Access Routes

Pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or state highway specifications.

Hazard Marking, Lighting, and Signing

a. Low profile barricades with flashing red lights will be used at the perimeter of all pavement closures. Barricade spacing shall be as shown on the plans. Refer to the phasing plans for exact locations of low-profile barricades. Barricade placement and operation of flashing red lights shall be checked daily, at a minimum, for proper placement and operation and fixed immediately upon discovery of any deficiencies.

b. All construction vehicles shall have an amber rotating beacon and signage.

c. All construction equipment shall have an orange and white aircraft warning flag.

d. All tall construction equipment shall have a red obstruction light in addition to an orange and white aircraft warning flag.

e. The Contractor shall provide a representative on-call 24-hours a day for emergency maintenance of hazard marking, barricades, lighting and signage.

Work Zone Lighting

All work is anticipated to be constructed during daytime hours. If a need for night work arises, the Contractor must submit a work zone lighting plan to the RPR.

Protection of Runway and Taxiway Safety Areas

Runway Safety Areas (RSA), Taxiway Safety Areas (TSA), Obstacle Free Zones (OFZ), Object Free Areas (OFA), and approach surfaces must be protected during construction and are shown on the plan sheets. Protection of these areas includes limitations on the locations and height of equipment and stockpiled material. See the plan sheets of the CSPP for locations and dimensions of the protected areas.

1. Runway Safety Area (RSA) and Taxiway Safety Area (TSA)

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. Construction activities within the existing RSA and TSA are subject to the following conditions:

a. No construction may occur within the existing RSA or TSA while the corresponding runway or taxiway is open for aircraft operations.

b. Open trenches or excavations are not permitted within the RSA or TSA while the corresponding runway or taxiway is open. If possible, backfill trenches before the runway or taxiway is opened. If the runway or taxiway must be opened before the excavations are backfilled, cover the excavations appropriately. Covering for open trenches must allow safe operation of the heaviest aircraft operating on the runway or taxiway across the trench without damage to the aircraft. Construction Contractors must prominently mark open trenches and excavations at the site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

c. Soil erosion must be controlled to maintain RSA and TSA standards. The RSA and TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface

variations, and capable, under dry conditions of supporting the occasional passage of aircraft without causing structural damage to the aircraft.

2. Runway Object Free Area (ROFA)

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary.

3. Taxiway Object Free Area (TOFA)

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. Except as provided below, no construction may occur within the TOFA while the taxiway is open for aircraft operations.

a. Construction activity may be accomplished within the TOFA subject to the following restrictions:

    1. Appropriate NOTAMs are issued.

    2. Marking and lighting meeting the provisions of this CSPP are implemented.

    3. Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). In these situations, flaggers must be used to direct construction equipment and wing walkers will be necessary to guide aircraft. Wing walkers should be airline/aviation personnel rather than construction workers.

4. Obstacle Free Zone (OFZ)

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions.

5. Runway Approach/Departure Areas and Clearways

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces as shown on the plan sheets of the CSPP. Objects that do not penetrate these surfaces may still be obstructions to air navigation.

Other Limitations on Construction

a. Tall equipment used by the Contractor requires airport approval and a 7460-1 determination letter issued by the FAA for such equipment.

b. All Contractor's construction equipment shall require an orange and white flag.

c. The use of open flame welding or torches is prohibited unless fire safety precautions are provided and airport operations has approved their use. A hot work permit must be obtained and the airport's Hot Work Program followed.

d. The use of electrical blasting caps is prohibited on or within 1,000 feet of airport property.

e. Construction suspension may be required during specific airport operations. The Airport Operator will notify the Contractor and Engineer if this is required.

f. Emergency Aircraft Rescue and Firefighting (ARFF) access in and around the site must be maintained by the Contractor at all times. Any hazards, open trenches, or excavations near the ARFF access must be clearly marked and lighted with red lights during hours of restricted visibility or darkness.